



FACULTY OF LAW

GHENT UNIVERSITY

**MITIGATING THE EFFECTS OF CLIMATE CHANGE IN
SUB-SAHARAN AFRICA VIA AN EFFECTIVE
INTERNATIONAL LEGAL STANDARD: A CASE STUDY
OF NIGERIA**

(DOCTORAL DISSERTATION)

BY

OLUBISI FRIDAY OLUDURO

PROMOTER: PROF. DR. LUC LAVRYSEN

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DEDICATION

This research work is dedicated to the glory of GOD the Almighty, Who at the beginning created the world and made it beautiful and perfect. And to the memory of my father- Justin Akinyemi OLUDURO, whose stirring virtues made what I am today.

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Abbreviations

ADC	Advanced Developing Countries
AfDB	African Development Bank
AOSIS	Alliance of Small Island States
AWG-LCA	Ad-Hoc Working Group- Long-Term Cooperative Action
BASIC	Brazil, South Africa, India and China
BRIC	Brazil, Russia, India and China
CBDR	Common But Differentiated Responsibilities
COP	Conference of the Parties to the Kyoto Protocol
CO ₂	Carbon dioxide
CTCN	Climate Technology Centre and Network
ENGO	Environmental Non-Governmental Organisation
ETS	Emissions Trading Scheme
EU	European Union
FSF	Fast-Start-Finance
G-77	Group of 77 Nations
GCF	Green Climate Fund
GDP	Gross Domestic Products
GHG	Greenhouse Gas
IPCC	Inter-Governmental Panel on Climate Change
LDCs	Least Developed Countries
ICAO	International Civil Aviation Organisation
IGO	Inter-Governmental Organisation
KP	Kyoto Protocol
MOP	Meeting of the Parties to the Kyoto Protocol
MTOe	Million Tonnes of Oil Equivalent

NAMAs	Nationally Appropriate Mitigation Actions
NGO	Non-Governmental Organisation
OPEC	Organisation of Petroleum Exporting Countries
PEF	Payment for Ecosystem services
REDD+	Reducing Emissions from Deforestation and Degradation
REIO	Regional Economic International Organisation
SIDS	Small Island Developing States
TEC	Technological Executive Committee
UNFCCC	United Nations Framework Convention on Climate Change

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CHAPTER ONE

1.0 INTRODUCTION

1.1 The conceptual and theoretical background of the research

This research examines the mitigation of the effects of climate change in sub-Saharan Africa with emphasis on Nigeria as a case study. Climate change is principally regulated by the United Nations Framework Convention on Climate Change (UNFCCC),¹ and the Kyoto Protocol (KP).² Climate change is a long term alteration in global weather patterns, especially increases in temperature and storm activity.³ It is a periodic modification of earth's climate brought about as a result of changes in the atmosphere, as well as, integrations between the atmosphere and landscape and the various other geologic, chemical, biological and geographic factors within the earth's system.⁴ The UNFCCC defines climate change as a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. The Intergovernmental Panel on Climate Change (IPCC) similarly defines it as a change in the state of the climate that can be identified by changes in the mean climate and/or the variability of its properties and that persists for an extended period, typically decades or longer.⁵ The effects of climate change on the sub-Saharan African⁶ (SSA) region are the impact this has had on the entire region by way of the vulnerability of not only the weather, but also the people. Many African regions are coming to be recognized as having climates that are among the most variable in the world on intra-seasonal to decadal timescales⁷. That climate change is the world's greatest concern is to state the least, the very obvious. Today, the effects of climate change are being felt around the world. But they are being felt most by those who are least able to cope with its grave

¹ UNFCCC Secretariat, United Nations Framework Convention on Climate change of 9th May, 1992, 31 I.L.M. 849, entered into force 21 March, 1994.

² Kyoto Protocol to the UNFCCC, 10th December, 1997, 37 I.L.M. 32 (1998), signed at Kyoto, Japan, 1997, entered into Force 14th February, 2005.

³ Meaning of climate change: http://wiki.answers.com/Q/What_is_the_meaning_of_Climate_Change

⁴ See <http://dictionary.reference.com/browse/climate-change>

⁵ Article 1 UNFCCC. Also, PARRY Martin et al (Eds.), Climate Change 2007: Impacts, Adaptation and Vulnerability, Cambridge, Cambridge University Press, 2007, p.6. Available at http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4_wg2_full_report.pdf. Also,

https://unfccc.int/essential_background/convention/background/items/2536.php. Sites visited 10-06-2014. See further, DANKELMAN Irene, Introduction: Exploring Gender, Environment and Climate Change: Understanding the Linkages, in DANKELMAN Irene (Ed.), Gender and Climate Change: An Introduction, London, Earthscan Publishing, 2010, pp.6,7.

⁶ Sub-Saharan Africa is the area south of the Sahara, from the Sahel (the transitional zone between the north and the SSA), down to the southern part of the continent. It constitutes the larger part of the African continent. The larger part of these borders around the Equator.

⁷ Balgis Osman Elasha et al (eds.), Background Paper on Impacts, Vulnerability and Adaptation to Climate Change in Africa for the African Workshop on Adaptation Implementation of Decision 1/CP.10 of the UNFCCC Convention, Accra, Ghana, 21-23 September, 2006.

effects and consequences. Indeed, the terrible irony for many developing countries is that, though, they have contributed the least to the process of climate change, they are the ones most at risk from its consequences. For some island states and peoples, this is a matter of survival⁸. The terrible consequence of the sorrowful state of Kiribati and several other low-lying islands on the oceans is that many might be wiped-off, or be scattered and never remain a single nation again. This will go to affect generations of such people, whose history, origin, culture and other cherished values might be lost forever. For some decades running, it has constituted the single issue that has attracted the largest gatherings of world's governments, non-governmental organizations and several individuals from all walks of life⁹. All these, in an attempt to confer together with a view to finding a way out of this threatening monster called climate change.

Africa faces several challenges, many of which arise out of the scourge of climate change. These have been affecting the people of the continent, and will increasingly affect their poor, as climate change will, no doubt, drive the majority of the population into greater level of destitution, poverty and depreciation, as assets are lost and resources are diverted to deal with emergencies, instead of being used for development¹⁰. The case of the sub-Saharan Africa has been of note, as it has been observed as one of the most severely affected regions of the world, alongside low-lying islands of the world, especially the Pacific island states. The Intergovernmental Panel on Climate Change (IPCC), states that Africa is the most vulnerable continent to projected climate changes¹¹. Sub-Saharan Africa is currently the most food- insecure region in the world¹². Climate change could aggravate the situation further,

⁸The Pacific island nation of Kiribati is already negotiating to buy over 6,000 acres of land (around 9 square Miles), in Fiji to relocate its citizens. In the words of Anote Tong, Kiribati's President, "[T]his is the last resort, there is no way out of this one", to save the more than 100,000 islanders. He continued that "[W]e would hope not to put everyone on one on one piece of land, but if it became absolutely necessary, yes, we could do it. It wouldn't be for me personally, but would apply to younger generation. For them, moving won't be a matter of choice. It's a matter of survival". See Entire Nation of Kiribati to be Relocated Over Rising Sea Level Threat. Available at <http://www.telegraph.co.uk/news/worldnews/australiaandthepacific/Kiribati/9127576/Entire-nation-of-kiribati-to-be-relocated>. Site visited 21-10-2011. See also, The United Nations Secretary General Ban Ki Moon's address to the high level event on climate change in New York, on 24th September, 2007. Also available at <http://www.un.org/News/Press/docs/2007/sgsm11175.doc.Htm> Site visited 06-09-2011.

⁹ Stockholm Conference 1972 attracted 114 nations, Rio Summit 1992, was attended by 172 governments and 108 Heads of State, Copenhagen Conference opened with 192 nations and Cancun had about 200 countries in attendance. See <http://books.google.be/books?id=SwsAAAAAMBAJ&pg=PA16&dq=States+participation+in+the+Stockholm+Conference+1972?&so>. Also, <http://www.un.org/ecosocdev/geninfo/sustdev/es&5broc.htm> Sites visited 17-12-2011.

¹⁰ See Climate Change and the Threat to African Food security, Jotoafrika: Adapting to Climate Change in Africa, Issue 1, July 2009.

¹¹ See Managing Africa's Water in a Changing Climate, Jotoafrika: Adapting to Climate Change in Africa, Issue 2, November, 2009.

¹² Almost 33% of sub-Saharan Africans are malnourished, which is the highest prevalence in the world. In one-third of African countries, the average daily calorie intake remains below the recommended level of 2100 kcal⁹ (Ethiopia, Kenya, Rwanda and Tanzania in East Africa; Angola, Madagascar, Mozambique and Zambia in Southern Africa; Sierra Leone in West Africa. See JEAN-MARC Boussard; BENOIT Daviron; FRANCOISE Gerard, TANAREDE Voiturieze, Food Security and Agricultural Development in Sub-Saharan Africa: Building a Case for More Support, Background Document, Final Report: CIRAD for FAO, 2005.

unless adequate measures are put in place¹³, else we risk another scenario of the present situation in the Horn of Africa. Some areas may become too hot for certain crops or animals; it may rain too little or too much to allow farming¹⁴; the breakout of climate sensitive diseases, such as Rift Valley fever, could seriously affect livestock production, which most parts of these areas are noted for. Rainfall variability in many regions of Africa directly affects agricultural productivity- rainfall is the most relevant climatic variable of food production in Africa. Floods are recurrent in some countries in Africa; even communities located in dry areas have been affected by floods. The years 2000 and 2001 witnessed a huge flooding event in Mozambique, particularly along the Limpopo, Sofala, Zambezia, Licungo, Cuacua, Buzi and other areas¹⁵. In 2000, floods resulted in half a million people made homeless and 700 lost their lives. The floods had devastating effects on livelihoods, destroying agricultural crops, disrupting electricity supplies and demolishing basic infrastructure such as roads, homes, and bridges¹⁶. As rainfall becomes more variable, feeding Africa's rising population will become an even greater challenge. Africa has the highest population growth rate in the developing world, and food production is not keeping pace¹⁷.

With regards to changes in precipitation, an average of a 25 per cent decrease in rainfall has occurred over the African Sahel during the past 30 years. This change has been characterized by a decrease in the number of rainfall events. A decrease in precipitation has occurred over the twentieth century, particularly after the 1960s, in the subtropics and the tropics from Africa to Indonesia¹⁸. Some studies have illustrated the large regional differences that exist in rainfall variability, for example, East Africa has displayed a stable rainfall regime, while a considerable multi-decadal variability and recent drying has been experienced over the Sahel with up to a 20 percent expected decrease of rainfall¹⁹

Africa is one of the most vulnerable continents to climate change and climate variability, a situation aggravated by the interaction of "multiple stress," occurring at various levels and low adaptive capacity (high confidence)²⁰. The climate of the continent is controlled by complex maritime and terrestrial interactions that produce a variety of climates across a range of regions. Example, from the humid tropics to the hyper-arid Sahara. For precipitation, the situation is so complicated. Rainfall exhibits

¹³ Jotoafrika, op cit. Issue 1, July 2009.

¹⁴ The northern parts of Nigeria suffered serious devastation from flooding in the aftermath of torrential rainfalls after a long period of cessation, in 2010. This resulted in loss of lives, property and farmlands. The area faces the threat of drought.

¹⁵ See Maputo Floods 2001: Lessons Learned, Summary Report Produced by the Office of the United Nations Resident Coordinator, Maputo, July 2001. Available at <http://www.alnap.org/pool/files/erd-2945-full.pdf>. Site visited 08-08-2011.

¹⁶ See Background Paper on Impacts, Vulnerability and Adaptation to Climate Change in Africa, supra.

¹⁷ Op. cit., Issue 2, November 2009.

¹⁸ IPCC 2001. See Background Paper on Impacts, Vulnerability and Adaptation to Climate Change in Africa, supra.

¹⁹ See Background Paper on Impacts, Vulnerability and Adaptation to Climate Change in Africa, ibid, p.20. Also, HULME M., et al, African Climate Change: 1900-2100, Climate Research 17, 145-168.

²⁰ See PARRY Martin et al (eds.), Climate Change 2007 Impacts, Adaptation, and Vulnerability, Cambridge, Cambridge University Press, 2007, p.435.

notable spatial and temporal variability. Interannual rainfall variability is large over most of Africa, and for some regions, multi-decadal variability is also substantial.

Vulnerability to climate change is the degree to which geophysical, biological, and socioeconomic systems are susceptible to, and unable to cope with, adverse impacts of climate change. The term “vulnerability” may therefore refer to the vulnerable system itself, hence it is used here to denote potentially significant impacts of climate change on the sub-region, which may be regarded as key vulnerabilities²¹. The identification of such key vulnerabilities is intended to provide guidance for assessing levels and rates of climate change that the 1992 UNFCCC in its Article 2 calls “dangerous.” These may be otherwise dangerous anthropogenic interference with the climate system. The identification of key vulnerabilities is intended to provide guidance for establishing levels and rates of climate change that could be considered dangerous. Climate impacts create damage which may include the exposure of systems and populations to climate change, the sensitivity of those systems and populations to such climatic influences, and the capacity of those systems and populations to adapt to climate change. The degree of vulnerability is affected by human development, which can produce emissions, potentially increasing climate impacts and vulnerability, but which also can lead to a resource base that more easily allows adaptive capacity building, potentially reducing vulnerability to any given level of climate change. Assessing key vulnerabilities involves analysis of a complex, coupled human and natural system (CHANS).²² The vulnerability of a system has been described as a function of three interrelated factors: exposure to stress(es), sensitivity and adaptive capacity.²³ Exposure is defined as the extent to which a system experiences particular stress. Sensitivity refers to the degree to which a system is adversely or beneficially affected by stimuli. Adaptive capacity is the ability of a system to respond to change by ameliorating damages, taking advantage of opportunities or otherwise coping with or adjusting to change (IPCC, 2001)²⁴. Analysis of vulnerability focuses on the relative likelihood of different socio-economic groups of geographic regions to experiencing each outcome. To address each of the causes of vulnerability or environmental decline might require policy interventions at different levels. Political-economic and geographical analysis of vulnerability’s causes can be specific enough to allow policies to be tailored for a specific population, place and problem. Since causality can

²¹ ERNESTO Zedillo (ed.), *Global Warming: Looking Beyond Kyoto*, Washington D.C., Brookings Institution Press, 2008, p.57. Also, Chapter 19 of the Working Group II of the IPCC, in the Fourth Assessment Report: SCHNEIDER Stephen H. and others, “Key Vulnerabilities and the Risk from Climate Change,” in *Climate Change 2007: Impacts, Adaptation, and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report*, PARRY Martin (Eds.), Cambridge University Press.

²² Ibid., p.60. Also, Liu and others, “Complexity of Coupled Human and Natural Systems,” *Science* 317, no. 5844, 2007.

²³ IPCC 2001; Also TURNER B.L. et al., *A Framework for Vulnerability Analysis in Sustainability Science*, PNAS, Vol.100 No.14, 2003, pp.8074-8079; Polsky et al., 2003. See also, MARTELLO Marybeth Long, *Vulnerability Analysis and Environmental Governance*, in DAUVERGNE Peter (ed.), *Handbook of Global Environmental Politics*, Cheltenham, Edward Elgar Publishing, 2005, p.420.

²⁴Ibid., p.420

be traced to international, national, household and individual levels, policies can be targeted at the appropriate level if the causes are understood and appreciated²⁵.

More specifically, the research investigates the application of the KP mechanisms in the sub-region as climate change mitigation policy tools, as the countries in the sub-region have higher vulnerability level compared to most other parts of the world. The sub-region has been suffering from the consequences of climate change, but lacks the resources and the wherewithal to cope with, or counter these. The increasing severity and scale of impacts resulting from climate change is likely to exceed the coping capacity of many communities and countries²⁶ in the sub-region. Such could lead to severe socio-economic and environmental impacts and will require additional adaptational and mitigational efforts. The sub-region requires peculiar, particular and urgent attention because, already the effects are becoming worrisome, and before it gets out of hand, something decisive should come the way of the people of the area. This is more so, the fact that a good number of the countries in the sub-region in recent past, experienced catastrophic internal crises, which left the majority of the area in tatters. This left the sub-region a skeleton of its real self, and would be greatly impoverished to contain the cost of mitigating the cost of climate change effects on its own. It is noteworthy that, the sub-region is a major source of supplier of energy (crude oil and gas) to the world energy market- the Gulf of Guinea. Any significant environmental catastrophe in this sub-region is sure to set –off a major crisis or imbalance in the world energy market, and this could send the price of oil skyrocketing, which might spark off inflation in parts of the world.

1.1.1 Meaning of climate change

In 1896, a Swedish scientist Svante Arrhenius published a new idea to the effect that as humanity burned fossil fuels such as coal, which added carbon dioxide, CO₂, gas to the Earth's atmosphere, we would raise the planet's average temperature – the greenhouse effect²⁷. Much later, in the 1930s, the people realized that the United States and the North Atlantic region had warmed significantly during the previous half-century. Scientists supposed, this was just a phase of some mild natural cycle, with unknown causes, but a lone voice- the amateur G.S. Callender insisted that greenhouse warming was on the way. His claim caused a few scientists to look into the question with improved techniques and calculations, and backed with more government funding, came up with findings that, contrary to earlier crude estimates, CO₂ could indeed build up in the atmosphere and should bring warming. Observations immediately began to trace a steady rise in the concentration of carbon dioxide. A study by the Massachusetts Institute of Technology documented concerns about possible climate change and

²⁵ See JESSE C. Ribot, et al.,(Eds), *Climate Variability, Climate Change and Social Vulnerability in the Semi-Arid Tropics*, Cambridge, Cambridge University Press, 1996, p.16.

²⁶ Op cit., n.16.

²⁷ See *The Discovery of Global Warming*, <http://www.aip.org/history/climate/summary.htm>. Also, GRUBB Michael et al , *The Kyoto Protocol: A Guide and Assessment*, The Royal Institute of International Affairs, London, Earthscan Publications, 2001, p.3.

by 1970, the Secretary General of the United Nations was sufficiently concerned to mention the possibility of a “catastrophic warming effect” in his report on the environment. By this time, curiosity about climate turned into anxious concern, that warming is a result of heat emissions from the consumption of non-renewable energy. Alongside the greenhouse effect, some scientists pointed out that human activity was putting dust and smog particles into the atmosphere, where they could block sunlight and cool the world²⁸. Study panels, first in the United States and then elsewhere, began to warn that one or another kind of future climate change might pose a severe threat. We are already at the threshold of the threat. The world’s governments created a panel- the Intergovernmental Panel on Climate Change (IPCC), to give them the most reliable possible advice, as negotiated among thousands of climate experts and officials. It was created under the auspices of the United Nations Environment Programme (UNEP), and the World Meteorological Organization (WMO). Although, initially led by mostly the industrialized countries, all governments were invited to join and the IPCC has expanded over the subsequent years to almost global participation²⁹. The IPCC was held in 1988 to assess the scientific, technical and socio-economic information relevant for the understanding of human induced climate change, its potential impacts and options for mitigation and adaptation.

Climate change in IPCC usage refers to any change in climate overtime, whether due to natural variability or as a result of human activity. This usage differs from that in the Framework Convention on Climate Change (UNFCCC), where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability over comparable time periods³⁰.

1.1.2 Causes and consequences of climate change

Opinions on the causes of climate change are divergent. A greater percentage of opinions believe it was mainly due to human activities-anthropogenic, while the others felt it was obviously natural. It is the warming of the planet caused by human activities, including burning fossil fuels and cutting down forests. Carbon emissions arising out of industrialization and urbanization are known to cause the planet to heat up, and the burning of fossil fuels creates carbon emissions as a by-product. The greatest concentration of CO₂ resulting in global warming are the result of burning of fossil fuels, gas flaring and desertification, meaning that human activities are mostly responsible for climate change, measures to mitigate the effects and impacts of climate change will involve among others, legislative and technological approaches³¹. Studies conclude that, since 1751, approximately 337 billion tons of

²⁸The Discovery of Global Warming, *ibid*.

²⁹ GRUBB Michael, *ibid*.

³⁰ PARRY Martin et al, *Climate Change: Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge, Cambridge University Press, 2007, p. 27.

³¹ ANYADIKE R. N. C., *Climate Change and Sustainable Development in Nigeria: Conceptual and Empirical Issues*, Enugu Forum Policy Paper 10, 2009, p.13.

carbon have been released to the atmosphere from the consumption of fossil fuels and cement production. Half of these emissions have occurred since the mid 1970s. The 2007 global fossil-fuel carbon emission estimates 8365 million metric tons of carbon, represents an all-time high and a 1.7% increase from 2006. Combustion of gas fuel (e.g. natural gas) accounted for 18.5% (1551 million metric tons of carbon) of the total emissions from fossil fuels in 2007 and reflects a gradually increasing global utilization of natural gas. Gas flaring, which accounted for roughly 2% of global emissions during the 1970s, now accounts for less than 1% of global fossil-fuel releases³². The wanton damage to the atmosphere is being caused by both industrialized states and developing states alike. The former cause air pollution through industrial and domestic heating plants, waste incinerators, nuclear plants, marine pollution through incessant dumping and discharges into the ocean of industrial and toxic wastes, either directly or through rivers flowing into the ocean of land-based industrial pollution, etc., soil pollution by dumping dangerous wastes in third world countries,³³ water pollution or water shortage by contaminating groundwater through industrial wastes, sewage, or depleting water resources, etc.³⁴ Developing countries on their own contribute to pollution resulting in climate change by way of rapid population growth, increasing industrialization, massive urbanization which necessitates deforestation and chronic poverty, use of obsolete industrial plants.³⁵

Climate change is arguably the most persistent threat to global stability in the coming century³⁶. It is very likely that the major risk of global climate change comes from anthropogenic increases in greenhouse gases.³⁷ The anthropogenic views can further be subdivided in two: that, anthropogenic emissions of greenhouse gases will lead to significant global warming³⁸; and that, human activities already noticeably changed global climate³⁹. The greenhouse effect is the result of certain gases (principally water vapour, carbon dioxide, and to a lesser extent, methane and ozone), which envelope the earth, regulate the in-flow and out-flow of the sun's energy and make the earth habitable. The

³² BODEN T. A., MARLAND G. and ANDRES R. J., Global, Regional and National Fossil-Fuel CO₂ Emissions. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tennessee, U.S.A. doi 10.3334/CDIAC_V2010. Also available at http://cdiac.ornl.gov/trends/emis/tre_aus.html. Site visited on 18-03-2012.

³³ Koko toxic waste dumping incident in Nigeria by an Italian outfit- Raffaelli, in 1998, which resulted in the death of some persons in the community.

³⁴ Ibid.

³⁵ Dumping of outmoded and obsolete vehicles, equipment- industrial and agricultural, and machineries in the developing countries, especially Africa, by the developed countries, is a common practice. These emit a great deal of smoke when used and increase to a large extent, the volume of carbon discharged into the atmosphere.

³⁶ ADGER Neil W., et al., Adaptation to Climate Change in the Developing World. Progress in Development Studies, Vol. 3, No. 3, 2003, pp.179-195.

³⁷ Intergovernmental Panel on Climate Change, Summary for Policy Makers in Climate Change 2007: The Physical Science Basis: Contribution of Working Group I to the Fourth Assessment Report (Cambridge, 2007). See BIRNIE Patricia et al, International Law and the Environment, (3rd edition), New York, Oxford University Press, 2009, p.336.

³⁸ See 2001 IPCC Report, which concluded that, in the absence of effective climate policies, we must expect a warming of between 1.4 and 5.8°C between the years 1990 and 2100.

³⁹ See ZEDILLO Ernesto (ed.), Global Warming: Looking Beyond Kyoto, Washington D.C., Brookings Institution Press, 2008, p.35.

greenhouse gas most commonly produced by our activities is carbon dioxide CO₂.⁴⁰ It is responsible for 63% of man-made global warming. One of the main sources of CO₂ in the atmosphere is the combustion of fossil fuels- coal, oil and gas. Since the Industrial Revolution, the concentration of CO₂ in the atmosphere has increased by around 37%, and it continues to rise. Carbon emissions arising out of industrialization are known to cause the planet to heat up, and the burning of fossil fuels creates carbon emissions as a by-product. The former cause air pollution through industrial and domestic heating plants, waste incinerators, nuclear plants, marine pollution through incessant dumping and discharges into the ocean of land-based industrial pollution, etc., soil pollution by dumping dangerous wastes in third world countries,⁴¹ water pollution or water shortage by contaminating groundwater through industrial wastes, sewage, or depleting water resources, etc. Other greenhouse gases are emitted in smaller quantities than CO₂. However, they all trap heat far more effectively than CO₂ does, in some cases by a factor of thousands of times, making them also powerful contributors to global warming.⁴² Methane, CH₄, the next common greenhouse gas after CO₂, is responsible for 19% of global warming from human activities. The rising emission of methane is due to the expansion of livestock farming arising from the growing consumption of meat and dairy products. The bacteria that help cattle and sheep digest their food produces methane gas, which the animals belch back into the atmosphere. Other sources of methane emission include when coal is mined, when wells are drilled for oil or natural gas, and leakage from pipes that distribute natural gas.⁴³ There are also chlorofluorocarbons (CFCs), and other industrial gases which deplete the earth's protective ozone layer accounting for around 12% of global warming. They are being phased out, but in some cases are being substituted by fluorinated gases which can be even more powerful greenhouse gases. Further is nitrous oxide N₂O, which is responsible for 6% of man-made global warming. Emission sources include nitrogen fertilisers, the combustion of fossil fuels and some industrial processes, including nylon production.⁴⁴

However, it is argued that some greenhouse gases, such as water vapour constitute the most abundant greenhouse gas present in the atmosphere. That without them, the earth's average temperature would be unbearably cold -18⁰c instead of the 15⁰c it is today.⁴⁵ Water vapour is at least 100 times as

⁴⁰ Global emissions of carbon dioxide increased dramatically during the 20th century as energy consumption increased roughly 16-fold. See SOROOS Marvin S.; GARRETT Hardin and Tragedies of Global Commons, in DAUVERGNE Peter (ed.), Handbook of Global Environmental Politics, Cheltenham, Edward Elgar Publishing, 2005, p.45. See also, GILLIS Justin, Picking Lesser of Two Climate Evils, New York Times Online, 7 July, 2014. Available at <http://www.nytimes.com/2014/07/08/climate-methane-global-warming.html?src=recg>. Site visited 13-07-2014.

⁴¹ Koko toxic waste dumping incident in Nigeria by an Italian outfit- Raffaelli, in 1998, which resulted in the deaths of some persons in the Community.

⁴² See European Commission, What's Causing Climate Change? European Commission Climate Action. Available at http://ec.europa.eu/clima/policies/brief/causes/index_en.htm. Site visited 18-01-2012

⁴³ GILLIS Justin, op cit.

⁴⁴ Ibid.

⁴⁵ Ibid. See also, AHRENS C. Donald, Essentials of Meteorology: An Invitation to the Atmosphere (6th Ed), Belmont, Cengage, 2011, pp.63, 67.

effective as CO₂, so small variations in water vapour are more important than large changes in CO₂⁴⁶. A new study analysed water vapour caused one-third of global warming in the stratosphere, about ten miles up, where it acts as a potent greenhouse gas and traps heat at the earth's surface. Satellite measurements were used to show that water vapour levels in the stratosphere have dropped about 10% since 2000, and perhaps by about 25 percent over the last decade, the amount of warming expected to be caused by CO₂ and other greenhouse gases⁴⁷. Using the NASA satellite data, researchers have estimated more precisely than ever, the heat-trapping effect of water in the air, validating the role of the gas as a critical component of climate change. Researchers confirmed that the heat-amplifying effect of water vapour is potent enough to double the climate warming caused by increased levels of CO₂ in the atmosphere. Increasing water vapour leads to warmer temperatures, which causes more water vapour to be absorbed into the air. Warming and water absorption increase in a spiraling cycle. Water vapour feedback can also amplify the warming effect of other greenhouse gases, such that the warming brought about by increased CO₂ allows more water vapour to enter the atmosphere⁴⁸. All 100 percent of the observed temperature increase over the past 50 years has been due to the increase in the atmosphere of GHG concentrations. The largest contributing source of GHG is the burning of fossil fuels leading to the emission of carbon dioxide⁴⁹. Greenhouse gases in the atmosphere act like a mirror and reflect back to the earth a part of the heat radiation, which would otherwise be lost to space. The higher the concentration of GHGs like CO₂ in the atmosphere, the more heat energy is being reflected back to the earth⁵⁰.

According to Stefan Rahmstorf⁵¹, by anthropogenic climate change could be meant either of two things viz: firstly, anthropogenic emission of greenhouse gases leading to significant global warming. This is a reflection in the well-known range of future scenarios of the 2001 IPCC report, which concluded that in the absence of effective climate policies, we must expect a warming of between 1.4^os and 5.8^oc between the years 1990 and 2100⁵². It could also mean, that human activities have already noticeably changed global climate. This, contrary to the future stance of the first, is a reflection of the past, in the

⁴⁶ See BRYSON Reid, Water Vapour as a Major Global Warming Agent. Also at <http://petesplacepeter.blog.com/2007/03/water-vapor-as-major-global-warming-27.html>. Site visited 29-08-2011.

⁴⁷ SOLOMON Susan et al., Contributions of Stratospheric Water Vapor to Decadal Changes in the Rate of Global Warming, Science Magazine, 2010, Vol. 327, No. 5970, pp. 1219-1223. Also, ADAM David, Water Vapour Caused One-Third of Global Warming in 1990s, Study Reveals, The Guardian, Friday 29 January, 2010. Also at <http://www.sciencemag.org/content/327/5970/1219.full>. Site visited 13-10-2011. See also <http://www.guardian.co.uk/environment/2010/jan/29/water-vapour-climate-change>. Site visited 13-10-2011.

⁴⁸ See Water Vapour Confirmed as a Major Player in Climate Change. Also at http://www.agriculturedefensecoalition.org/sites/default/files/geo_current_116/116j_2008_NASA_Confirmed_Water_Vapour_as_Major_Player_in_Climate_Change_Heat_Trapping_Effect_Nov_18_2008_SDNews.pdf. Site visited 18-10-2011

⁴⁹ Time For Change: Causes of Global warming <http://timeforchange.org/cause-and-effect-for-global-warming.htm>. Site visited 14-10-2011.

⁵⁰ Ibid.

⁵¹ RAHMSTORF Stefan, Anthropogenic Climate Change: revisiting the Facts, in ZEDILLO Ernesto (ed.), Global Warming: Looking Beyond Kyoto, Washington D.C., Brookings Institution Press, 2008, pp. 34-35.

⁵² IPCC, Climate Change 2001: Synthesis.

famous IPCC⁵³ statement of 1996 that: “the balance of evidence suggests that there is a discernible human influence on global climate”⁵⁴, which is an incontrovertible statement of fact. This is reinforced considerably in the light of new evidence in the 2001 report: that “there is new and stronger evidence that most of the warming observed over the last fifty years is attributed to human activities.”⁵⁵ When human populations were smaller and less industrialized, the atmosphere had the capacity to disperse these pollutants in a relatively harmless way, with the exception of some of the more highly urbanized areas where air quality has threatened the health of the residents for centuries.⁵⁶

The rising concentration of CO₂ in the atmosphere since the 1950s has been proven and undisputed.⁵⁷ The CO₂ data from the Global Carbon Dioxide Monitoring Network, dating hundreds of thousands of years made available by the Cooperative Air Sampling Network, provide a relatively reliable and accurate record of CO₂ concentration and further shows that the rise is unusual⁵⁸. The CO₂ concentration in the atmosphere has never been close to as high as it is at present. Anthropogenic emissions have now increased the CO₂ concentration to 380 parts per million, (ppm), as of 2005, while the preindustrial level back throughout the Holocene (the past 10,000 years), was close to 280 ppm. Similar values apply for previous interglacial periods.⁵⁹ The observed increase in CO₂ concentration over the past decades is equal to 57% of our cumulative emissions; while other parts of the climate system- the ocean and the land biosphere have absorbed the remaining 43% of emissions from the atmosphere. The CO₂ uptake of the ocean makes the sea water more acidic and threatens marine life, which in itself is sufficient reason to reduce our carbon dioxide emissions significantly, even in the absence of climate change.⁶⁰

On the other hand, natural causes of climate change include volcanic eruptions, variations in solar output, ocean current and the earth’s orbital changes.

⁵³ The IPCC found for the first time in the history of international discussions on climate change, not only that “the balance of evidence suggests that there is a discernible human influence on global climate” See IPCC 1996a. Also, OBERTHUR Sebastian and OTT Herman E., *The Kyoto Protocol: International Policy for the 21st Century*, Berlin, Springer, 1999.

⁵⁴ IPCC, *Climate Change 1995: the Science of Climate Change Contribution of Working Group I to the Second Assessment Report* (Cambridge University Press), 1995.

⁵⁵ IPCC, *Climate Change 2001: Synthesis Report*.

⁵⁶ See DAUVERGNE Peter, *op.cit*, 44.

⁵⁷ KEELING Charles D., “The Concentration and Isotopic Abundances of Carbon Dioxide in the Atmosphere”, *Tellus* 12 (1960): 200-03.

⁵⁸ See Cooperative Air Sampling Network, June 2007. <http://www.esrl.noaa.gov/gmd/ccgg/flask.html> Site visited 19-11-2011. Also, EPICA (European Project for Ice Coring in Antarctica) Community Members, “Eight Global Cycles from an Antarctic Ice Core”, *Nature* 429, no. 6992 (2004):623-28.

⁵⁹ RAHMSTORF Stefan, *ibid*, 36.

⁶⁰ See European Commission Climate Action. Also at http://ec.europa.eu/clima/policies/brief/causes/index_en.htm Site visited 08-09-2011

Volcanic eruptions are known to throw out large volumes of sulphur dioxide SO₂, water vapour, dust and ash into the atmosphere.⁶¹ Stratospheric data suggests that large explosive volcanic eruptions also eject large quantities of sulfur dioxide gas which remains in the atmosphere for as long as three years.⁶² On June 15, 1991 the second largest eruption of the twentieth century took place in the Philippines, with the eruption of Mount Pinatubo, discharging millions⁶³ of tons of sulphur dioxide into the atmosphere, resulting in a decrease in the temperature worldwide over the next few years. Sulphur dioxide in the atmosphere mixes with water and oxygen in the atmosphere to become sulphuric acid, which in turn triggers ozone depletion. The cloud over the earth reduced global temperatures such that in 1992 and 1993, the average temperature in the Northern Hemisphere was reduced 0.5 to 0.6 °C and the entire planet cooled 0.4 to 0.5 °C. The maximum reduction in global temperature occurred in August 1992 with a reduction of 0.73 °C. The eruption is believed to have influenced such events as floods along the Mississippi river and drought in the Sahel region of Africa⁶⁴.

Variations in solar output from the sun as the Earth's energy source. Although the sun's energy output appears constant from an everyday view, small changes in the sun's energy output cause the climate to change⁶⁵. Scientific studies demonstrate that solar variations have a role in past climate changes.

Oceans cover about 71% of the Earth and ocean currents move vast amounts of heat across the planet, from the tropics towards the poles, roughly about the same as the atmosphere does. Ocean currents have been known to change direction or slow down. Much of the heat that escapes from the oceans is in the form of water vapour, the most abundant greenhouse gas on Earth⁶⁶. Water vapour itself also contributes to the formation of clouds, which shade the surface and have a net cooling effect. The Earth makes one full orbit around the sun each year. It spins around an axis that is tilted from perpendicular to the plane in which it orbits the sun⁶⁷. The angle of which varies between 22° and 24.5° on a cycle of 41,000 years. Periods of a larger tilt result in greater seasonal climate variation in the middle and high latitudes, which makes winter to be colder and summers warmer.⁶⁸

The EU and its Member States have been spearheading the quest to checkmate climate change, and have spared no effort at bringing it under control.

⁶¹ MADONNA Patron, Causes of Climate Change. Climate Change Challenge. Also at [http://www.climatechangechallenge.org/Resource Centre/Climate-Change](http://www.climatechangechallenge.org/Resource%20Centre/Climate-Change) site visited 18-09-2011.

⁶² See Causes of Climate Change. Physical Geography. Net/FUNDAMENTALS e BOOK. Also at <http://www.physicalgeography.net/fundamentals/7y.html> Site visited 10-09-2011

⁶³ It was estimated to have ejected between 15 and 30 million tons of SO₂ gas.

⁶⁴ ROSENBERG Matt., Mount Pinatubo Eruption: The Volcanic Mount Pinatubo Eruption of 1991 that Cooled the Planet. About.com Geography, November 11, 2010.

⁶⁵ MADONNA Patron, op cit. Also, global Climate Changes: Causes. National Aeronautics and Space Administration. <http://climate.nasa.gov/causes/>. Site visited 21-09-2011

⁶⁶ Causes of Climate Change. Edu Green. <http://edugreen.teri.res.in/explore/climate/causes.htm>. Site visited 13-10-2011

⁶⁷ Physical Geography.net, op cit.

⁶⁸ KOSHLAND Marian, Global Warmer Facts and Our Future. Science Museum of the National Academy of Sciences. <http://www.koshland-science-museum.org/exhibitgcc/causes08.jsp>. Site visited 14-04-2012.

Regional efforts in this regards started with the choice of a conceptual framework made to allow for a logical access to, and linkages with the different laws, spanning over thirty years. This embraces main environmental objectives for nature, air, waste and water. It established further, horizontal laws setting rules for industrial production, administrative planning and management, and for products⁶⁹. At European level a comprehensive package of policy measures to reduce greenhouse gas emissions has been initiated through the European Climate Change Programme (ECCP), which itself was launched in June 2000, to identify and develop all the necessary elements of an EU strategy to implement the Kyoto Protocol⁷⁰. The European Commission has taken many climate-related initiatives since 1991, when it issued the first Community strategy to limit carbon dioxide emissions and improve energy efficiency⁷¹. These and many cumulative actions of the EU and its members states over the years have brought them to the champion status of the climate change among other regions in the world. The EU is the only regional body signatory to the Kyoto Protocol⁷² and has since been taking enviable strident steps worthy of emulation by other similar regions of the world, which constitutes a key objective of this research. The research will therefore, undertake a careful study of the modus operandi of the EU policies, legal, administrative and institutions on how it coordinates its affairs vis-à-vis that of the members states in environmental matters, such that it is still able to maintain the lead among other regions of the world, and has succeeded in carrying on all its members states.

1.1.3 Common concern

Environmental issues are common ones because they often cannot be managed effectively by national or regional efforts; moreover, environmental benefits and burdens are shared by all persons. The climate, the stratospheric ozone layer, the oceans and indeed the entire physical world form an interdependent ecological system, much of which can only be protected at the global level, making it a common concern for all humanity⁷³. The presumably new concept of common concern of mankind recognises that climate change and biological diversity are each expressly denominated as the common concern of mankind⁷⁴, since climate is an essential condition which sustains life on earth.

This concept is closely related to other international concepts such as common interest, global commons, common heritage of mankind, and closely linked to the concept of inter-generational rights, from which it originally evolved at the UN General Assembly in 1988⁷⁵. It was also referred to in several

⁶⁹ See SCHEUER Stefan, (ed.), EU Environmental Policy Handbook: A Critical Analysis of EU Environmental Legislation. European Environmental Bureau (EEB), Brussels, 2005.

⁷⁰ European Commission Climate Action, European Climate Change Programme. Also at http://ec.europa.eu/clima/policies/eccp/index_en.htm. Site visited 07-12-2011

⁷¹ Ibid.

⁷² The EU and its member states are jointly responsible for the quantified emission reduction commitment under the KP.

⁷³ SHELTON Dinah, Common Concern of Humanity, *Iustum Aequum Salutare*, V.2009/1, pp.33-40.

⁷⁴ BIRNIE Patricia, et al, *International Law and the Environment*, (3rd Ed). Oxford, Oxford University Press, 2009, p.128.

⁷⁵ The 1972 Stockholm Declaration on Human Environment expressly referred to the "common good of mankind" (principle 18); while the UN Charter on Economic Rights and Duties 1974, stressed that the protection and preservation of the

international documents, declarations, decisions and Resolutions such as: Report of 1989 Ottawa meeting, 1989 Noordwijk Declarations, UN General Assembly Resolution 44/207 of December 1989, IPCC First Assessment Report Overview, August 1990, Declaration of the UN General Assembly Special Session on

Development 1990⁷⁶. Some elements of these concepts and others are finding their reflections in the common concern of mankind. There are however, differences between these concepts. It is recommended in a Framework Convention on Climate Change (IPCC Overview- Annex 1) that, the Climate Change Convention would contain a preamble, which might seek to address among others, the following item; recognition that climate change is a common concern of mankind⁷⁷, affects humanity as a whole and should be approached within a global framework, without prejudice to the sovereignty of states over the airspace, superadjacent to their territory as recognized under international law.⁷⁸ The Rio treaties use the concept of “common concern” to designate those issues which involve global responsibilities⁷⁹. It may be suggested that issues of common concern are those that inevitably transcend the boundaries of a single state and require collective action in response; no single state can resolve the problems they pose⁸⁰ or receive all the benefits they provide⁸¹. It thus simply implies that the relevant concern of the whole community as a whole has been manifested at the regional level⁸².

environment for present and future generations were the responsibility of all states (article 30). The UN General Assembly Resolution 43/53, which “Recognises that climate change is a common concern of mankind, since climate is an essential condition which sustains life on earth”. A/RES/43/53, 6 December, 1988. It was also referred to in several international documents, declarations, decisions and Resolutions such as: Report of 1989 Ottawa meeting, 1989 Noordwijk Declarations, UN General Assembly Resolution 44/207 of December 1989, IPCC First Assessment Report Overview, August 1990, Declaration of the UN General Assembly Special Session on Development 1990. See also, TOLBA Mostafa K., 1990. The Implications of the “Common Concern of Mankind”

⁷⁶ TOLBA Mostafa K., op.cit.

⁷⁷ In Gabčíkovo/Nagymaros (Hungary/Slovakia) 1997 ICJ Rep. 7 (25 September), Justice Weeramantry in a separate opinion speculated that the world has entered an era of international law in which international law subserves not only the interests of individual states, but looks beyond them and their parochial concerns to the greater interests of humanity and planetary welfare. Patricia Birnie et al. opine that the status of ‘common concern’ is primarily significant in indicating the common legal interest of all states in protecting the global atmosphere, whether directly injured or not, and in enforcing rules concerning its protection. While it is not clear that a General Assembly resolution alone is sufficient to confer this status, the 1985 Ozone Convention and the 1992 UNFCCC unquestionably do so. See BIRNIE Patricia, et al., op cit., p.339.

⁷⁸ See The Implications of “Common Concern of Mankind” Concept on Global Environmental Issues.

⁷⁹ See UN General Assembly Resolution 43/53 on Global Climate Change; Noordwijk Declaration of the Conference on Atmospheric Pollution and Climate Change, 19 EPL (1989) 229; UNEP GC Resolution 15/36 (1989); Also, BIRNIE Patricia et al., International Law and the Environment, (3rd Ed.), Oxford, Oxford University Press, 2009, p.128.

⁸⁰ See The Trail Smelter Case between the USA and Canada, second decision handed down in 1941, where the Arbitral Court appointed by both countries held that ‘...generally speaking, every state has a duty at all times to protect other states against injurious acts by individuals within its jurisdiction...’. Also, CASSESE Antonio, 2004, International Law. Oxford, Oxford University Press, 2004, p. 377.

⁸¹ SHELTON Dinah L., Common Concern of Humanity, *Iustum Aequum Salutare*. V. 2009/1, 33-40.

⁸² “Declaration of Brasilia”, issued by Ministers of State in charge of environmental management and the representatives of the countries participating in the sixth Ministerial Meeting on the Environment in Latin America and the Caribbean, Brasilia, March 1989. UN Doc. A/44/683, 25 October, 1989; Caracas Declaration of the Ministers of Foreign Affairs of the Group of 77, June 1989, UN Doc. A/44/361, 30 June, 1989; Langkawi Declaration on the Environment, October 1989, UN Doc.

Common concern indicates a legal status both for climate change and biological resources,⁸³ which is distinctively different from the concepts of permanent sovereignty, common property, shared resources, or common heritage which generally determine the international legal status of natural resources. The concept serves as consolidating factor for East-West-North-South environmental dialogue notwithstanding existing geographical, economic and political differences. It raises the obligation to cooperate among all countries and levels of concerted actions. It has also created a general framework for possible legal developments to withstand global environmental challenges. The concept instigates further institutional developments⁸⁴. It has two important facets: spatial and temporal. Spatial aspect means that it implies cooperation of all states on matters being similarly important to all nations, to the whole international community. Temporal aspect arises from long term implications of major environmental challenges which affect the rights and obligations not only of present but also of future generations. It also has a social dimension, which presumes involvement of all structures and sectors of the society into the process of combating global environmental threats, that is, legislative, judicial and governmental bodies together with private business, non-governmental organizations, citizen groups among others⁸⁵.

Common concern is an externality⁸⁶ in its own peculiar perspective. It is global in both its origins, and its effects, constituting a vital aspect of the global commons, that is, those parts of the planet that fall outside national jurisdictions such as the oceans, outer space and Antarctica⁸⁷. Greenhouse gases emitted in Australia and New Haven and London all have the same effect on the atmosphere. The impacts occurred throughout the world, though of course, they differ in different parts of the world. Climate change also occurs over a very long term, and this means that we can be in a crisis without actually seeing the direct effects immediately, even as their predictability and timely mitigation becomes complicated and low-reliable matter. Climate change is also very uncertain. We don't know how much emissions will arise from different types and levels of economic activity or how much a

A/44/673. Also, Tolba, Mostafa K., The Implications of the "Common Concern of Mankind" Concept on Global Environmental Issues. Note to the Group of Legal Experts Meeting, Malta, December 13-15, 1990.

⁸³ See Convention on Climate Change, Preamble; Convention on Biological Diversity, Preamble.

⁸⁴ TOLBA Mostafa K., The Implications of the "Common Concern of Mankind" Concept on Global Environmental Issues. Note to the Group of Legal Experts Meeting, Malta, December 13- 15, 1990.

⁸⁵ Ibid.

⁸⁶ Externality occurs where resources considered as commons are not efficiently used, because they are not privately owned, hence they are polluted resulting in the imposition of costs on the society. This is a result of inappropriate narrow conception of public regulation. Externality in other words is the absence of institutional framework for identifying and assigning liability for residual costs of industrial and recreational activities. It is either positive or negative. Positive where it benefits the society, but in such a way that the producer cannot fully profit from the gains made, and negative where it costs the producer nothing, but is costly to the society in general. See PERCIVAL Robert V. and ALEVIZATOS Dorothy C. (eds.), *Law and the Environment: A Multidisciplinary Reader*, Philadelphia, Temple University Press, 1997, pp.33, 171, 172. Also, Externality, *The Environment: A Global Challenge*. Available at <http://library.thinkquest.org/26026/Economics/externality.html>. Site visited 23-03-2012.

⁸⁷ BRASSEUR G., *The Endangered Ozone Layer: New Theories on Ozone Depletion*. Environment, Vol.29, No.1, 1987. Also, *Our Common Future*, 1989, World Commission on Environment and Development. Oxford, Oxford University Press, p.177.

given concentration of gas raises temperature. It is not known exactly what effects different rises in temperature have on weather patterns. And it is not known exactly what effect weather patterns of different kinds are going to have on production and consumption. Our immediate challenge is to transform our common concern into a new consensus on the way forward⁸⁸. The effects of climate change are potentially very large and irreversible⁸⁹.

Common concern entails a reaffirmation of the existing sovereignty of states over their own resources, while giving the international community of states both a legitimate interest in resources of global significance and a common responsibility to assist in their sustainable development⁹⁰. It emphasizes the determination to “conserve and use” biodiversity for the “benefit of present and future generations”, without concession to their “interest”⁹¹. It remains however, to be emphasised that the right and duty of the international community to act in matters of common concern must be balanced with respect for national sovereignty. States retain sovereignty subject to the requirements of international law developed to ensure the common interest. National legal systems and international law have long recognized common ownership of or equitable interests in shared resources⁹².

1.1.4 Common but differentiated responsibilities (CBDR)

A discourse of this kind without a touch on this concept is without doubt an incomplete exercise. This is a UNCED concept which acknowledges the breakdown of traditional egalitarian fictions and the emergence of a new legal polycentricity⁹³. The UNFCCC requires as an ethics of the international legal regime, that Parties should protect the climate system on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities⁹⁴. Though, it lacks the status of a legal obligation, being not a “principle” as it appears in Article 3, yet it has provided the legal and philosophical basis for the existing legal obligations including the instruments designed to achieve the objectives of the KP⁹⁵, it had clearly begun to take on a life of its own, shaping future negotiations, taking on the form of an emerging norm⁹⁶. Article 3 of the UNFCCC provides that Parties should protect the climate system for the benefit of future and present generations of human kind on the basis of

⁸⁸ See The United Nations Secretary General, Ban Ki moon’s address to the high level event on climate change in New York, on 24th September, 2007. Also at <http://www.un.org/News/Press/docs/2007/sgsm11175.doc.htm> Site visited 29-10-2011

⁸⁹ Yale Symposium on the Stern Review. Climate Change. Also at http://www.ycsg.yale.edu/climate/forms/Full_Text.pdf . Site visited 13-10-2011.

⁹⁰ UNEP, Report of the Group of Legal Experts to Examine the Concept of the Common Concern of Mankind in Relation to Global Environmental Issues (1990); Also, BIRNIE Patricia, et al, op cit., p.130.

⁹¹ BIRNIE Patricia, et al., Ibid, p.659.

⁹² SHELTON Dinah, op. cit.

⁹³ BODANSKY Daniel, et al., op cit., p.40.

⁹⁴ UNFCCC, 31 ILM 849, Art.3 (1). Also Cinnamon Piñon Carlarne, op. cit., p.336

⁹⁵ McMANUS Kelly. “The principle of ‘Common but differentiated responsibility’ and the UNFCCC”, Climatico Special Features, November 2009. <http://climaticoanalysis.org> www.climaticoanalysis.org Site visited 15-12-2011 – Independent analysis of climate policy.

⁹⁶ BODANSKY Daniel, et al (eds.), The Oxford Handbook of International Environmental Law, Oxford, Oxford University Press, 2010, p.117.

equity and in accordance with their common but differentiated responsibility and respective capabilities⁹⁷.

The CBDR has two matrices. The first is the common responsibility, which arises from the concept of common heritage and common concern of mankind, and reflects the duty of States of equally sharing the burden of environmental protection for common resources.⁹⁸ The second is the differential responsibility, which addresses substantive equality, unequal material, social and economic situations across States, different historical contributions to global environmental problems, and financial, technological and structural capacity to tackle those global problems⁹⁹. It has been interpreted to mean that developed countries should take the lead on emissions reductions, international negotiations have in recent years recognized that developing countries also need to work towards reducing emissions and developing their infrastructure along a low-carbon pathway¹⁰⁰. As for the legal status of the principle, it is a generally recognized principle of International Environmental Law, as supported by growing evidence of State practice; however the belief that such practice is determined by a legal obligation (opinio juris) is lacking in at least some members of the international community¹⁰¹. CBDR is a key component of international climate change law and its meaning and implications remain contested and vague, though, making it clear that developed countries should take the lead in addressing the causes and effects of climate change¹⁰². This is pursuant to Principle 7 of the Rio Declarations which provides:

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit to sustainable

⁹⁷ McMANUS Kelly, The Principle of 'Common but Differentiated Responsibility' and the UNFCCC, Climatico Special Features, November 2009. <http://climaticoanalysis.org>. Site visited 20-10-2011.

⁹⁸ It is imperative to point out that no part of the global environment may be isolated or set apart for preservation and improvement for the benefit of the people. Hence no state can arrogate to itself the right to ruin its environment in order to gain some transient benefits. It becomes incumbent therefore on it to reflect not only on other people's, but also about the future of its own people. See TAYLOR Prue, An Ecological Approach to International Law: Responding to Challenges of Climate Change, London, Routledge, 1998, p.85.

⁹⁹ VITO De Lucia (Lead Author); REIBSTEIN Richard Reibstein (Topic Editor) "Common but differentiated responsibility. In Encyclopedia of Earth. Eds. Cutler J. Cleveland (Washington D.C.: Environmental Information Coalition, National Council for Science and the Environment). also at http://www.eoearth.org/article/common_but_diferentiated_responsibility?topic=49477. Site visited 25-10-2011.

¹⁰⁰ OSORNIO Measuring, Reporting and Verification of NAMAs and Their Support: Considering Capacity, Corruption and Commitments. SWEENEY Gareth, et al (Eds.), Global Corruption Report: Climate Change, Transparency International, London, Earthscan Publishing, 2011, p.120.

¹⁰¹ Ibid.

¹⁰² SCOTT J. and RAJAMANI L., EU Climate Change Unilateralism. International Aviation in the European Emissions Trading Scheme. Also at https://docs.google.com/viewer?a=y&q=cache_hqTITHt7MJ:www.indiaenvironmentportal.org.in/files/EU%252. Site visited 24-10-2011.

*development in view of the pressure their societies place on the global environment and of the technologies and financial resources they command*¹⁰³.

It presupposes that all nations are responsible for protecting the ozone layer, notwithstanding that a country is responsible or not for global warming. It requires states to cooperate in a spirit of global partnership to protect the environment, but because states have contributed differently to global environmental problems, they should have common, but differentiated responsibilities¹⁰⁴. The KP stipulates asymmetric priorities and commitments for industrialized and developing countries, which are defined by UNFCCC Annex I. It is the responsibility of developing countries to develop in a sustainable manner and take measures to adapt to the effects of climate change, whereas, developed countries must commit to mitigating their emissions in accordance with the targets and timelines established by Article 4.2 of the KP¹⁰⁵. According to Kellersmann and Stone, it is a new measure to distribute responsibility according to economic ability and status of development¹⁰⁶. It stresses the differential treatment of developing countries under most recent environmental agreements, on account of their special circumstances and needs- not only in economic terms but also possibly in terms of a wider multi-cultural “universalization” of international law¹⁰⁷. It is somewhat baffling that, some countries are feigning any sense of care, while some are backing out of responsibilities¹⁰⁸, in spite of the avalanche of climate-induced severe weather disorders being witnessed in many parts of the world¹⁰⁹. It is almost certain that no part of the globe is completely free of one ugly weather situation or the other.

¹⁰³ See Convention on Climate Change, Article 3(1) and 1987 Protocol on Substances that Deplete the Ozone Layer, Article 5. Also, BIRNIE Patricia, et al, *International Law and the Environment* (3rd Ed), Oxford, Oxford University Press, 2009, p.132.

¹⁰⁴ ANDERSON Stephen O. and SARMA K. Madhava; Edited by SINCLAIR Lani., *Protecting the Ozone Layer: the United Nations History*, UNEP. London, Earthscan Publications, 2002, p.351.

¹⁰⁵ McMANUS Kelly, 2009, *The Principle of Common but Differentiated Responsibility and the UNFCCC*, *Climatico Special Features*, November 2009. Also available at <http://climaticoanalysis.org> Site visited 23-10-2011

¹⁰⁶ KELLERSMANN B. and STONE C. D., 2004, *Common but Differentiated Responsibilities in International Law*, 98 AJIL (2004) 276, 279. Also, VERHEYEN Roda, 2005, *Climate Change Damage and International Law: Prevention Duties and State Responsibility*, Leiden, Martinus Nijhoff. p. 70.

¹⁰⁷ WEERAMAANTRY C., *Universalising International Law*, The Hague, Martinus Nijhoff, 2004. Also, BODANSKY Daniel, et al., p.40.

¹⁰⁸ The US, which is home to less than 5% of Earth’s population but producing 25% of CO₂ emissions remained intransigent, rejecting the KP and refusing to take emissions reduction; emerging economies including China, whose booming economy puts it on a path to becoming the world’s No.1 greenhouse-gas emitter as early as 2020, India and many others too are avoiding emissions reduction; while Canada which initially undertook legally binding emissions reduction under the KP, backed out of it late 2011. These are targeted at the failure of whatever has been achieved so far. These have been frustrating genuine efforts at finding a workable way-out of the present situation. Copenhagen 2009, Cancun 2010 are some of the cases in point. Also, The White House, *Climate Change Review, Initial Report*, at <http://www.whitehouse.gov/news/releases/2001/06/climatechange.pdf>. Site visited 24-10-2011

¹⁰⁹ The fatal storm and hurricane being experienced in parts of the United States and Japan, destroying properties worth several millions of dollars, the threatening sea rise on the Pacific already submerging some Island states, the chronic drought and flooding in parts of Africa, etc.

CBDR is a new measure to distribute responsibility according to economic ability and status of development. This principle as applied in the UNFCCC does not divide countries according to the potential impacts of climate change (“vulnerability to climate change) as the Association of Small Island States AOSIS, had requested during the Intergovernmental Negotiating Committee for the UNFCCC (1990-95) (INC), negotiations ; but the climate damage dimension is reflected in Article 3.2, which explicitly refers to the special needs of developing countries that are particularly vulnerable to the adverse effects of climate change, and is also taken up by Articles 4.8 and 4.9 as well as Article 4.4. Non-Annex I countries are on the whole more vulnerable to the impacts of climate change¹¹⁰. The differing capacities and needs of nations also underpin this notion of equity. Industrialized nations have the technical and economic capacities to address climate change, both through mitigation and adaptation, whereas, developing nations may not¹¹¹.

The principle however, lacks universal application to all environmental risks, having no place in regulatory treaties dealing with ultrahazardous activities, such as nuclear safety, pollution from ships, regulation of dumping at sea, trade in endangered species, conduct of activities in Antarctica, outer space, and on the seabed.¹¹² Both the UNFCCC and the KP embody and make operational this principle, which is precisely why certain states have refused to join Kyoto and why they continue to deny the existence or utility of the CBDR principle. This principle has refused to go away and has proven to be remarkably “sticky” and hard to undermine¹¹³.

1.2 Research objective and motivation

The objective of this research is broadly to examine the lacunae in the Nigerian law thereby causing a great setback in issues on mitigation of climate change. It is motivated by the desire to exemplify the legal system as one major factor to apply in effectively combating climate change nationally, regionally and internationally, in accordance with the general principles of international law. The aim is to address the question of how to develop a body of systematic national, regional and most importantly international legal rules in enforcing the application and effective functioning of mitigation measures that would alleviate the effects of climate change in the entire sub region of the sub-Saharan Africa.

The basic aim of this work is to highlight the practical and theoretical limitations encountered by the developing nations, especially nations of the sub-region in minimizing the effects of climate change and employing an enhanced effective trans-boundary system of laws in combating the effects of climate change, as employed in the EU, and bearing in mind that the ability of individual nation’s system of laws to contain the challenges of climate change, have been very limited and inadequate to yield any

¹¹⁰ VERHEYEN Roda (Ed.), *Climate Change and International Law: Prevention Duties and State Responsibility*, Leiden, Martinus Nijhoff Publishers, pp. 70, 71

¹¹¹ McMANUS Kelly, “The Principle of ‘Common But Differentiated Responsibility’ and the UNFCCC”, *Climatico Special Features*. November 2009. <http://climaticoanalysis.org> Site visited 19-11-2011

¹¹² BIRNIE Patricia, et al., p.136

¹¹³ BRASSEUR G. op cit., p.118

substantial result in the overall. This is not being unoblivious of the fact that, to attain their full potentials depends on how sufficiently their environments are safe and habitable, mitigation and adaptation measures are addressed. Rules that would avert, or at least lessen environmental tragedies, which are world-wide on daily increase, are especially difficult to create and enforce at the global level. Negotiating international treaties among as many as 190 sovereign states is inevitably a drawn out and contentious process,¹¹⁴ hence it is one of the aims of this research to propose and encourage efforts in this regards on regional basis, as successfully implemented in the European Union EU's example. This promises to yield far-reaching success and a sure way forward in the pursuit of tackling global warming and climate change, if similarly experimented in other regions of the world, with adaptations to suit such regions' peculiarities. Achieving landmark success might not be as tortuous as it might have been in the EU's case, as there is already a blueprint in the EU's example to follow after.

1.3 Justification

Climate change has attained a status of the single greatest concern of the world today, assuming a notoriety that relegates the dreaded HIV/AIDS to the background. The greatest probability of the causes remains anthropogenic¹¹⁵. That being so, a major contributory source of carbon to the atmosphere is gas flaring, which continues to be a common practice in Africa, contributing dangerously to greenhouse gas emissions, with negative impacts on the health and livelihoods of local communities. Due to the limited technical understanding of climate in Africa, and the restricted resource and expertise in handling climate issues, it becomes increasingly essential to raise Africa's capacity to handle climate variability, increase the resilience and reduce the vulnerability of the continent to climate variability and change.¹¹⁶ It particularly remained problematic in the Niger Delta where much of the oil production in the sub-Saharan happens onshore, with the estimates of the gas being flared ranging from 20% to 76%, compared with a worldwide average of 4.8%.¹¹⁷

Climate change mitigation policies and measures to limit and reduce greenhouse gas emissions and to increase CO₂ removals in the Nigerian and the sub-Saharan Africa need to be enhanced speedily in line with the common policy and concerns about climate change in the world and the EU. A climate change Mitigation Policy Plan should be put in place in the region with the focus on areas such as: Climate policy creating basis for sustainable development; Climate policy integrating into strategic documents of specific branches of the regional economy and public awareness; and Climate policy aimed at

¹¹⁴ SOROOS Marvin S., Garrett Hardin and Tragedies of Global Commons, in DAUVERGNE Peter (Ed.), Handbook of Global Environmental Politics, Cheltenham, Edward Elgar Publishing Limited, 2005, p.48.

¹¹⁵ The IPCC proclaims that there is now little doubt that human-induced climate change is happening. Although it remains difficult to unambiguously distinguish human-induced change from natural variation in climate at small scales, evidence of long-term and geophysical and biological changes is now apparent in many parts of the world. See ADGER Neil W., et al., Adaptation to Climate Change in the Developing World. Progress in Development Studies, Vol.3, No. 3, 2003, pp. 179-195.

¹¹⁶ See Background Paper on Vulnerability and Adaptation to Climate Change in Africa, *ibid.*, p.15.

¹¹⁷ See The Effects Oil Companies Activities on the Environment, Health and Development in Sub-Saharan Africa, Directorate-General for External Policies, Policy Development, 2011.

facilitating the people to understand the necessity, feasibility and cost to arrest global warming, as well as possible consequences. This research attempts to reflect this phenomenon. It emphasizes the need for all societies to learn to cope with changes that are predicted such as warmer temperatures, drier soils, changes in weather extremes and rising sea levels,¹¹⁸ among others. The latent legislative lacuna in regulating climate change becomes thus inherent, which necessitates a systematic study, devoted to finding ways of establishing a coordinated system of legal norms aimed at tackling the menace of climate change, adopting a style similar to the EU's, towards embracing a generalized system in the sub-Saharan Africa. This study thus aims to contribute to the development of the critical literature in this area.

1.4 Methodology

1.4.1 Analytical framework

As the research examines a perceived failure of law in the implementation of climate change policies in Nigeria and the SSA, this brings into focus the lacuna of national laws and individual country's policies in combating climate change in the sub-region. As noted earlier, the EU approach provides an enviable method for other regions especially in places like the sub-Saharan Africa, where situations are to a large similar. Analysis will then be focused at examining the measures and modus operandi of the EU system and how it can be adopted in the sub-Saharan Africa to bring about manifest appreciable results.

On the aspect of the measures in place for the adaptation and mitigation by the UNFCCC through the various Conferences, to alleviate the situation in the sub-region, the study examines the effectiveness or otherwise of same. The most relevant being the ones which address deforestation, and desertification, which provide funds for addressing climate-related issues in parts of the world.

1.4.2 Methods: The doctrinal / black letter approach

The research employs the doctrinal method also known as the black letter approach. This approach examines the law, its interpretation and application with the aid of decided cases. As the research transcends the discipline of law to other ones such as the social sciences and the natural sciences, the doctrinal approach is interspersed with interdisciplinary and legal approaches¹¹⁹. The research is not limited to only legal texts and decided cases, but similarly to methods as observed in such other disciplines. This brings about a correlation of legal texts and the policy aim anticipated from them, with

¹¹⁸That the impacts of climate change are not evenly distributed-the people who will be exposed to the worst of the impacts are the ones least able to cope with the associated risks. See ADGER Neil W., et al, (2003), *Adaptation to Climate Change in the Developing World*, *Progress in Development Studies*, Vol.3 No.3, (2003), pp. 179-195.

¹¹⁹ DOBINSON L. and JONES F, *Qualitative Legal Research*. In McConville, M. and Hong Chui, W.(eds.), *Research Methods for Law*. Edinburgh, University of Edinburgh Press, 2007, pp. 16-45. Also, MALUMFASHI Garba Ibrahim, "Green" Public Procurement Policies, *Climate Change Mitigation and International Trade Regulation: An Assessment of the WTO Agreement on Government Procurement*. CEPMLP, University of Dundee, 2010, p. 14.

the goal of authenticating their efficacy, establishing the need for enhancement of the texts and where necessary, amendment for the law to achieve its aim effectively. Following from the above, the questions for this research are as follows:

1. The purpose of this research is to investigate the provisions of Nigerian laws on climate change and how these have sufficed in mitigating the effects of climate change on the country, as a micro-situation of the sub-Saharan Africa.
2. Notwithstanding the current position of sub-regional groupings harmony in sub-Saharan Africa, how the various groups can take from the EU example in influencing their various member countries to ensure their compliance with the KP mechanisms as a way of enhancing their overall climate interests.
3. To what extent does the KP Mechanisms solve the climate-related problems of the sub-Saharan region, taking a detailed examination of the countries response to the various issues raised in different fora to address their needs?

In effect, the research questions not only seek to determine whether the sub-Saharan region has been well-off with the KP and the ensuing policies and resolutions bothering on their plights; but it also seeks to consider how the sub-region would fare in the post Kyoto era, adopting the EU approach to climate change issues. The research examines how the EU regional laws and institutions relate with the national laws, and also available jurisprudence under the Nigerian system, as well as the European system.

1.5 Structure

The research is divided into six chapters. The first contains the conceptual and theoretical background of the research, it presents the meaning and causes of climate change, it highlights the main features of the research as the objectives and motivation, justification, methodology. It presents a general overview of the study.

Chapter two examines the climate change situation in Nigeria, its contribution to the global problem by way of gas flaring, the legal regime of gas flaring in Nigeria, initiatives of the government at curbing flaring, deforestation and desertification, erosion and flooding in parts of the country, and the legal and institutional frameworks on these menaces.

Chapter three examines the issue of sustainable development as portrayed by the UN Conference on Environment and Development (UNCED), the concept under the Nigerian Law, its application and the constraints against its development in the country. An appraisal of the concept in Nigeria.

Chapter four will dwell on regional groupings and climate change. It will examine the case of the EU, its operations in coordinating its member states, and the various institutions employed. It will also consider the situation in the West African sub-regional grouping- the Economic Community of West African States ECOWAS, for such other groupings in Africa, and draw correlations with a view to drawing inspirations from the EU system.

Chapter five will examine the impacts of some of the UN coordinated conferences on climate change in the country and the sub-region and proffer how effective these have been, and how the sub region could be bettered under these regimes.

Chapter six looks at the latest developments from the decisions of the recent Conferences in the build-up to 2012 when Kyoto expires. It will also from these decisions attempt an examination of what post-Kyoto present in the scheme of things as they are now.

Chapter seven will feature an overview and appraisal of the research, examine the implications of the study on legislation and policy in the country. It will also present questions arising out of the study, and proffer recommendations and conclusion to round off.

Conclusion

This chapter has provided a basic introduction to the study. It presents an insight into the basis, the essence, a purview of the situation in some areas of the sub-region which aims to cover among others. It has also presented some key issues why the study is basically necessary and beyond that, why it is a concern for all even beyond the study area. These are very relevant to the study as they will provide a foresight to guide the reader on the essentiality of the research, as this sub-region is so strategic and important to the world that it could not to be neglected or abandoned to its situation and predicament. The next chapter will provide an analysis of the situation in Nigeria, the state of environmental laws in Nigeria vis-à-vis the policies of the state and then it will assess the effectiveness or otherwise of these, especially as far as the nation's oil exploration activities are concerned and how these impacted on the society.

CHAPTER TWO

Nigeria and Climate Change

2.0 Introduction

Human activities, mainly associated with the burning of fossil fuel have changed the chemistry of the atmosphere, which result is climate change. Even though, it in all its ramifications looks an entirely scientific problem, the solution is by no means and can never be limited to science alone, therefore, it requires an interdisciplinary policies approach. A lack of appropriate policies and legal frameworks may present barriers to the implementation of mitigation and adaptation responses, and possibly increase the vulnerabilities of certain regions and countries, groups such as women and the poor. Inadequate institutional supports and inappropriate policies can act as a constraint to adaptation and limit access to much needed natural resources for both survival and adaptation to environmental change and climate variability.¹²⁰ The International Court of Justice, ICJ, assumes that “the environment is not an abstraction, but represents a living space, the quality of life, and the very health of human beings, including generations unborn.

The existence of the general obligation of states to ensure that activities within their jurisdiction and control respect the environment of other states or of areas beyond national control is now part of the corpus of International Law relating to the environment.¹²¹ In recognition of this and similar problems as adumbrated in the Trail Smelter’s Case,¹²² modified under the Stockholm Declaration of 1972, which states that: “States have in accordance with the Charter of the United Nations and the principles of International Law, the sovereign right to exploit their own resources, pursuant to their own environmental policies and the responsibilities to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states, or of areas beyond the limits of national jurisdiction”.¹²³

2.1 The Climate Change Situation in Nigeria

Nigeria, with a population of about 170 million people, occupies a total area of 923,768 Km², with a coastline of 853 Km in the south, in the sub-Saharan region of Africa. Nigeria is potentially Africa’s richest country. As a member of the Organisation of Petroleum Exporting Countries, OPEC, it is influential in world’s energy affairs as the world’s eighth largest exporter of crude oil¹²⁴. It has however, done very little to promote other sectors of the economy like the agricultural, extractive,

¹²⁰ See Climate Governance in Africa. <http://www.boell.de/worldwide/africa/africa-climate-governance-in-africa-adaptation-strategies-and-institutions-10914.html>. Site visited 08-11-2011.

¹²¹ See *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion [1996] ICJ Rep. 226 at par.29.

¹²² *Trail Smelter Arbitration (USA/Canada)* 33 AJIL 1938 p.182. See also *The Pacific Fur Seal Case (1893)*.

¹²³ Principle 21 of the Stockholm Declaration of 1972.

¹²⁴ Infoplease, *Top World Oil Producers, Exporters, Consumers, and Importers*, 2006. Available at <http://www.infoplease.com/ipa/A0922041.html>. Site visited 27-02-2012.

etc., thus making less efforts in curbing its Dutch-disease, as oil dominates the export bag of the country.¹²⁵ Nigeria's proven oil reserves are estimated to be 37.2 billion barrels¹²⁶, claims gas reserves of about 187 trillion cubic feet, but has been a notorious flarer and venter of associated gas due to there being no gathering infrastructure in place to utilize the feedstock. It is believed that Nigeria flares around 68.66 bcf/m (a little under 2.5mmcf/d of gas), and while difficult to quantify, this suggests that the country is burning away a potential \$15million per day. There has been numerous deadlines set for gas flare-out in Nigeria over the past decade, none of which has been met. Each deadline gets replaced by a new deadline and the introduction of fines for oil companies that continue to flare has not proved enough of a deterrent. But now, the Senate of the National Assembly has enacted a Bill to put an end to the act. "Any operator who flares gas after 31 December, 2010¹²⁷ shall pay a fine and in addition will lose its license".¹²⁸ The Gas Flaring Bill stipulates that companies which flare gas from 1 January, 2011 will have to pay the prevailing international market price of gas for the amount flared. The Bill says: "It shall pay an additional 50% of the amount to the community where the gas is being flared. A shutdown of over 50 days shall be issued to the defaulting company." The penalty that the oil companies pay at the moment is \$3.50/1,000cf of gas flared.¹²⁹ According to satellite research, worldwide 168 billion cubic meters, (bcm), of natural gas is flared yearly. Nigeria accounts for 23 bcm. That is, about 13 per cent of global flaring originates from Nigeria. The GHG emissions through gas flaring are put at 400 million tons of CO₂ equivalents yearly. The amount of flared gas is equivalent to 25 per cent of the US gas consumption and 30 per cent of the EU gas consumption.¹³⁰

This issue of gas flaring in Nigeria has been a source of serious concern over the years, the situation which still persists even now. The flaring of associated gas has resulted in serious pollution in the Niger Delta area of the country, leading to damnable consequences by way of terrible hardships to the people of the vast area, causing sicknesses and diseases of various kinds, even leading to deaths of the people and animals as well as aquatic lives. This is also a major contributor to global warming. Nigeria ranks second in the world in gas flaring¹³¹, after Russia. About forty per cent of Nigeria's gas is flared, and it accounts for about 13 per cent of the world's gas flaring. Flaring takes place in more than a

¹²⁵ See Will Ghana's Oil Lubricate Her Hopes and Aspiration? <http://www.ghananewsagency.org/details/Features> Site visited 23-03-2012

¹²⁶ This represents 29.32 per cent of the total 126.847billion barrels held by the African continent, according to OPEC. Nigeria's reserves are next to Libya's reserves which stand at 47 billion barrels. See 'Nigeria Holds 29.32% of Africa's Oil Reserves- OPEC.

¹²⁷ The latest deadline is now fixed for 31st December, 2012.

¹²⁸ See Nigerian Senate Passes Gas Flaring Bill. <http://www.ihs.com/products/global.../industry-economic-report.aspx?id...> Site visited 25-03-2012.

¹²⁹ Ibid.

¹³⁰ See Fact Sheet: Harmful Gas Flaring in Nigeria. Also at http://www.foe.org/pdf/GasFlaringNigeria_FS.pdf Site visited 23-03-2012

¹³¹ See The World is at the Brink of Uncontrollable Climate Change. Also at <http://www.telegraph.co.uk/finance/newsbysector/energy/oilandgas/7741738/shell-to-cut-Nigeria-gas-flaring.html> Site visited 21-03-2012.

thousand well heads in an area about the size of Britain.¹³² In Nigeria, oil companies engage in gas flaring as a 24 hour-a-day, 365 day-a-year practice.¹³³ Oil is of immeasurable importance to Nigeria as revenue from oil resources constitutes more than eighty per cent of the country's revenue. Nigeria is endowed with the tenth largest proven natural gas reserves in the world, and according to the World Bank, gas flared in Nigeria is equivalent to total annual power generation in sub-Saharan Africa.¹³⁴ The World Bank stressed further that gas flaring in Nigeria which generates no useful energy has contributed more greenhouse gases than all other sources in sub-Saharan Africa combined.¹³⁵ Gas flaring adds about 390million tons of CO₂ in annual emissions. This is more than the potential yearly emission reductions from projects currently submitted under the Kyoto mechanisms. The cocktail of toxic substances which has been emitted in the flares for over forty years, some without cessation, including benzene and particulates has exposed the Niger Delta communities to health risks and property damage, in blatant violation of their human rights.

People live literally next door to the roaring, ground level flares that leap as high as a several story building and belch black clouds of toxic smoke in the middle of, or next door to their villages. These flares are large enough to be viewed on Google Earth. The flares affect their livelihood and health, exposing them to an increased risk of premature deaths, child respiratory illness, asthma and cancer, as well as acid rain. For example, 'very conservative' assumptions using World Bank information on the adverse effects of particulates, suggest that gas flaring from just one part of the Niger Delta (Bayelsa State) would likely cause annually 49 premature deaths, 4,960 respiratory illnesses among children 120 asthma attacks. These human health problems affect the people of the oil-producing communities in the Niger Delta, where an estimated 30 million people live with little or no health care access.¹³⁶ The situation is not any different, if not worse in the Cabinda Province of Angola, where oil spilling cases and gas flaring are also very high. These figures could be conservative estimates. Also the UNDP/World Bank postulate that Nigeria emits 70 million of the 390 million tons CO₂ and this makes Nigeria the world's 42nd biggest emitter of CO₂ from fossil fuel and cement manufacturers as at 2000, ahead of

¹³² See <http://news.bbc.co.uk/1/hi/world/Africa/7820384.stm>. Site visited 27-03-2012.

¹³³ The largest flaring operations occur in the Niger Delta region of Nigeria. See GERVET Bruno, Gas Flaring Contributes to Global Warming. Renewable Energy Research Group, Division of Architecture and Infrastructure, Lulea University of Technology, Lulea, Sweden, 2007.

¹³⁴ See <http://www.un.org/ecosocdev/geninfo/afccc/vol13no1/gas.htm>. Site visited 20-04-2012. Every day, almost 2.2 million cubic feet of natural gas is burnt during crude oil production.

¹³⁵ See <http://wiwavshell.org/shell's-environmental-devastation-in-nigeria/>. Site visited 20-04-2012. See also, The World Bank Memorandum of the President of the International Development Association and the International Finance Corporation to the Executive Directors on an Interim Strategy Update for the Federal Republic of Nigeria, February 13, 2002, Report No 23633-UNI, paragraph 15.

¹³⁶ See Justice in Nigeria Now, Environmental Protection for Human Rights, Environmental Protection and Community Livelihood, 2010, Gas Flaring.

Portugal, Switzerland, Sweden, and Norway.¹³⁷ This ranking is obtained from the World Resources Institute's Climate Analysis Indicators Tool.¹³⁸

Residents of the Niger Delta region say gas flaring is ruining their lives and livelihoods. A local traditional leader and retired chemist, says Nigeria isn't doing enough to curb the practice.¹³⁹ In the areas close to the gas flares, medical staff report treating patients with all sorts of illnesses believed to be related to the flames; bronchial, chest rheumatic, and eye problems, among others.¹⁴⁰ In 2006, the Niger Delta Natural Resource Damage Assessment and Restoration Project (an independent team of scientists from Nigeria, the UK, and the US) characterized the Niger Delta as "one of the world's most severely petroleum-impacted ecosystems." Their report noted that the Niger Delta is "one of the ten most important wetlands and marine ecosystems in the world".¹⁴¹ The damage from oil and gas operations is chronic and cumulative, and has acted synergistically with other sources of environmental stress to result in a severely impacted coastal system and compromised livelihoods and health of the region's impoverished residents.¹⁴²

According to the World Bank, over 150 billion cubic meters (or 5.3 trillion cubic feet) of natural gas are being flared and vented annually, and the annual 40 billion cubic meters (or 1.4 trillion cubic feet) of gas flared in Africa alone is equivalent to half of that continent's power consumption.¹⁴³ Nigeria's volume of gas flared between 1996 and 2006,¹⁴⁴ was equivalent to one-sixth of total gas flaring in the world, accounting for approximately 24.1 billion cubic meters. World gas flaring during this period ranged between 150-170 billion cubic meters, bcm. By comparison, the U.S. flared 2.8 bcm of gas during the same time. Nigeria's gas flares are simply the single largest source of greenhouse gases in Africa, south of the Sahara. The UNDP/World Bank in 2004 estimated Nigerian flaring at close to 2.5bcfd (over 70 million cubic meters daily), amounting to about 70 million tonnes of CO₂.¹⁴⁵ The National Oceanic and Atmospheric Administration, NOAA, said that Nigeria flared 532bcf of natural gas in 2008, down from 593 in 2007.¹⁴⁶ In 2007, SPDC, Nigeria's largest oil producer revealed that 64

¹³⁷ See What Will Our New President Do About Gas Flaring? The Punch, Nigerian Daily, Friday 15 July, 2011. Also <http://www.punch.com/Articl.aspx?theartic=Art2011031512483215> Site visited 24-10-2011

¹³⁸ See <http://cait.wri.org>

¹³⁹ See Gas Flaring Disrupts Life in Oil-Producing Niger Delta. Also at <http://www.npr.org/templates/story/story.php?storyId=12175714> Site visited 22-10-2011.

¹⁴⁰ Ibid, n.139.

¹⁴¹ See Shell's Environmental Devastation in Nigeria. <http://wiwavshell.org/shell%E2%80%99s-environment> . Site visited 22-10-2011. See also, The Effects of Oil Companies' Activities on the Environment, Health and Development in Sub-Saharan Africa. Directorate –General for External Policies of the Union, Directorate B, Policy Department, August 2011, p.17

¹⁴² Ibid. Also, Federal Ministry of Environment, et al., 2006, p.2.

¹⁴³ See Global Gas Flaring Reduction Partnership: Towards a World Free of Flares. Also at [http://siteresources.worldbank.org/EXTGGFR/Resources/GGFRbrochure\(updatedNov08\).pdf?resourcename=GGFRbrochure\(updated\)](http://siteresources.worldbank.org/EXTGGFR/Resources/GGFRbrochure(updatedNov08).pdf?resourcename=GGFRbrochure(updated)) Site visited 24-10-2011.

¹⁴⁴ According to the World Bank's Global Gas Flaring Reduction Partnership, GGFR, Nigeria flared around 16.8 bcm of natural gas in 2007. See NAYAR, An End to Nigerian Gas Flares? May 2009.

¹⁴⁵ See Nigerian Gas Flaring Fact Sheet. <http://www.climatelaw.org/cases/case-documents/> . Site visited 23-10-2011

¹⁴⁶ See What Will Our New President Do? Op. cit.

percent of associated gas was flared, while just 22 percent was sold to the Nigeria Liquefied Natural Gas (NLNG) plant. It stated further that, in 2000, the company set a target to eliminate continuous flaring at its Nigerian operations by the end of 2008, and that since 2000, it has invested some \$3billion in these gas gathering projects. However, according to a 2004 article in the New York Times, it was stated that “a high-level (Shell) review in December found that many oil field projects did not include plans to gather natural gas.”¹⁴⁷ In 2010, according to Shell’s own figure, Shell alone flared over thirty per cent more gas than in 2009.¹⁴⁸

Flaring is a high-temperature oxidation process used to burn combustible components, mostly hydrocarbons, of waste gases from industrial operations. Natural gas, propane, ethylene, propylene, butadiene and butane constitute >95% of the waste gases flared. In combustion, gaseous hydrocarbons react with atmospheric oxygen to form carbon dioxide (CO₂) and water.¹⁴⁹

2.2 Oil Transnational Corporations’ Role in Nigeria’s Climate Change Situation

Flaring and other forms of environmental pollution and abuse are the causes of the perennial and incessant unrests which reached a crescendo with the incessant cases of kidnapping and abduction of expatriates and foreign nationals, employees of the oil Transnational Corporations, TNCs, working in the Niger Delta region. These only abated to some extent since 2010, due to the amnesty programme executed by the Federal Government in 2009. With a level of seriousness and commitment by the government, a greater percentage of the militants came out and laid down their arms, and are still undergoing various phases of rehabilitation and manpower training in skills acquisition both locally and in different parts of the world. Government should therefore, take a step further, by getting the oil companies to be conspicuously committed in community development service in their areas of operation, and no form of agitation would be seen from the local communities. So for Shell to increase the level of flaring¹⁵⁰ again under whatever guise is to say the least, a spite and flagrant abuse of the efforts of the government aimed at restoring peace and normalcy to the Niger Delta region of the country. It is simply a contemptuous mockery of the resources committed to, and efforts expended on the amnesty programme of the government. In the words of the human rights vanguard Femi Falana, “a corporate actor should not be free to ignore the consequences of its actions because a government failed to hold it accountable.”¹⁵¹ In a similar vein, Geert Ritsema, spokesperson of Milieudefensie said

¹⁴⁷ See *Playing With Fire*. Also <http://ipnews.net/Africa/nota.asp?idnews=47699> Site visited 18-09-2011.

¹⁴⁸ See *Shell Breaks Promises Again and Increases Gas Flaring in Nigeria*, op cit.

¹⁴⁹ GERVET Bruno, *Global Flaring Emission Contributes to Global Warming*. A Research Thesis Submitted to the Renewable Energy Research Group, Division of Architecture and Infrastructure, Lulea University of Technology, Lulea, Sweden, 2007.

¹⁵⁰ Shell flared over 30% more gas in 2010 than in 2009, in Shell’s own account, which it says was due to increased production in Nigeria. See NNIMMO Bassey, *Shell Breaks Promises Again and Increases Gas Flaring in Nigeria*. Friends of the Earth International, 2010.

¹⁵¹ See *The Registered Trustees of the Socio-Economic Rights and Accountability Project (SERAP) v Nigerian National Petroleum Corporation (NNPC), Shell Petroleum Development Company (SPDC), ELF Petroleum Nigeria Limited, Agip Nigeria*

“what Shell has allowed to happen in Nigeria would be unthinkable here in Netherlands.”¹⁵² Shell and the other oil TNCs in the region simply have one of the worst environmental records in the world. Shell’s breach of the common law social contract stems from the Socratic point of view that “a just man is one who will, among other things recognise his obligation to the state by obeying its laws.”¹⁵³ This principle Shell has ran afoul of, and has even gone further to employ other egregious means of state force to legitimize its evils against the people.¹⁵⁴

The vulnerability or security of individuals and of societies is determined, not only by the likely responses of the resources on which individuals depend, but by the availability of resources and, crucially, by the entitlements of individuals and groups to call on these resources¹⁵⁵. This is gruesomely lacking in the sub-Saharan Africa, most especially in Nigeria, which is ranked as the world’s 20th poorest country, with 92% of her population living below the poverty line,¹⁵⁶ subsisting on less than two Dollars, that is, NGN320 (Nigerian Naira) a day.

The Nigerian state has actively connived with and played along with Shell and these other oil TNCs to subjugate and decimate its citizens for pecuniary reasons. The government instead of defending its people against the pollution and destruction of their environment and lives, had come down hard on its own citizens who are protesting against the exploitative and environmentally destructive practices of the oil TNCs with which it was wedded in partnership.¹⁵⁷ Laws were meant to be used for the social good of the people, but ironically, law has been used as instrument of expropriation and denial in the Niger Delta, such as was the case in South Africa, Group Area Act, 1953 to underpin the apartheid.¹⁵⁸ Laws were used to effectively label acts against oil operations as “criminal,”¹⁵⁹ while the same types of

PLC, Chevron Oil Nigeria PLC, Total Nigeria PLC, and ExxonMobil Corporation. Falana SAN represented the Plaintiff in this matter.

¹⁵² GEERT Ritsema of Milieudefensie-Friends of the Earth Netherlands Press Release Nigerian Oil Victims Demand Transparency from Shell via Court. <http://www.milieudedefensie.nl> Site visited 27-10-2011. See Teni Odujinrin in Third Country Report Nigeria.

¹⁵³ See Social Contract Theory. Also at <http://www.iep.utm.edu/soc-cont/> Site visited 13-08-2011.

¹⁵⁴ See The case of the “Ogoni Nine 1995, in which Ken Saro-Wiwa, environmental activist, and eight other prominent Ogoni figures were fictitiously tried and extra-judiciously murdered against world outcry.

¹⁵⁵ ADGER Neil W. et al., op cit.

¹⁵⁶ According to the Nigerian Bureau of Statistics, more than 33 million Nigerians are unemployed, very high percentage of which are graduates, the UNESCO puts the number of out of school children at over 8 million, infant mortality rate is about 85.8 of 1000 live births, under-five mortality rate is 137.9 of live births, about 12% of newborns fail to see out their first year; malnutrition prevalence is 41%, life expectancy is 48.1 years. See also, Nigeria: Still Wallowing in Poverty. Nigerian Tribune Newspaper, Tuesday, 18 October, 2011. Also at <http://tribune.com.ng/index.php/features/29812-nigeria-still-wallowing-in-poverty>. Site visited 22-10-2011.

¹⁵⁷ See SOREMEKUN Kayode, Nigeria’s Oil Diplomacy and the Management of the Niger Delta Crisis, in OBI Cyril and RUSTAD Siri Aas, (eds.), Oil and Insurgency in the Niger Delta: Managing the Complex Politics of Petro-violence, London, Zed Books, 2011, p.108

¹⁵⁸ UTUAMA Amos, The Niger Delta Crisis: The Legal Dimension, in OJAKOROTU Victor (ed.), Fresh Dimensions on the Niger Delta Crisis of Nigeria, Bangkok, JAPSS Press, 2009, p.12.

¹⁵⁹ See The Oil Pipelines Act, 1956, Cap O7, LFN 2004; Also Criminal Justice (Miscellaneous Provision) Act (Formerly Decree No. 30 of 1975.

legal measures were not adopted to label polluters.¹⁶⁰ This resulted in the militarization of the Niger Delta area especially in the 1990s, before the implementation of the amnesty programme which came on board, much later in 2009, and ushered in some fragile peace in the area.

These actions of the TNCs and the state, Hobbes in his contribution termed as the “interaction of bodies with other bodies, human or otherwise, which create certain chains of causes and effects, and which eventually give rise to the human behavior that we can plainly observe”¹⁶¹ - the situation of unrest in the Niger Delta area of Nigeria. Hobbes opined further that, human beings are reasonable, having in them the rational capacity to pursue their desires as efficiently and maximally as possible. Rationality, he said is purely instrumental, which can add and subtract, and compare sums one to another, and thereby endows us with the capacity to formulate the best means to whatever ends we might happen to live. Furthermore, Shell claimed among other reasons for continued gas flaring, dearth of infrastructure in gas gathering equipment and poor funding, because the Federal Government is not meeting its counterpart funding for the joint venture oil projects.

Shell’s rationality on this assertion is questionable, as the oil giant returns billions of Dollars in profits every year, which it repatriates to its headquarters, instead of ploughing back part of its profits made in the region to enhance its production ventures therein. Shell’s action is simply meant to intimidate Nigeria and further embarrass the country by further painting her black before the whole world. Government has thus given the oil TNCs a good ground for evasion of their corporate responsibility here. If all the government is ever interested in is the revenue from the oil, but is never willing to contribute its own quota in counterpart funding of projects in the sector, being in joint venture arrangement with the various oil TNCs, they will always hide under this guise to avoid their responsibilities to the host communities, while causing incalculable damage to their areas of operation.

It is evidently clear that Shell is only treating the Niger Delta area and indeed Nigeria with impunity, if its account herein is anything to go by: “In the BP Deepwater Horizon explosion in April 2010, 11 oil industry workers died, and a number were seriously injured. The incident led to the largest offshore oil spill in US history. The environment was damaged and people’s livelihoods suffered. Following the accident, Shell supported the response effort by providing equipment, technical expertise, and facilities to BP. We also took immediate steps to confirm and reinforce the safety of our offshore operations around the world. Our view of deepwater drilling and safety procedures confirmed that Shell’s approach is robust.” Shell here in its own account, rose up spontaneously, without instigation or motivation, in support of another oil company in disaster, whereas, in the Niger Delta, it would abandon its spillages unattended to, for weeks, even for several months, until the affected

¹⁶⁰ EMESEH Engobo, *The Niger Delta Crisis and the Question of Access to Justice*, in OBI Cyril and RUSTAD Siri Aas, (eds.), op cit., 2011, p.64.

¹⁶¹ See *Social Contract Theory*, ibid.

community(ies) rise up in arms.¹⁶² It would claim sabotage as the cause of the spill. When sabotage is claimed or suspected, although the onus is on the operator to prove that sabotage has in actual fact occurred, what is experienced in practice is that the mere claim of sabotage by the operator effectively closes the issues as far as the courts are concerned.¹⁶³ Sabotage is a real and serious problem in the Niger Delta, but Shell misuses the issue as a PR shield and makes claims that simply don't stand up to scrutiny.¹⁶⁴ According to the National Oil Spill Detection and Response Agency NOSDRA, approximately 2,400 oil spills had been reported between 2006 and 2010, that resulted from sabotage, bunkering and poor infrastructure. The amount of oil spilled in Nigeria has been estimated to be around 260,000 barrels per year for the past 50 years, according to a report cited in the New York Times. This averages as many as 546 million gallons of oil spilled into the Niger Delta over the last five decades.¹⁶⁵

Associated gas is a by-product of oil drilling. In much of the world, this gas is either used for energy or re-injected into the well. In Nigeria, Shell and other oil companies burn it in a process known as gas flaring. The gas burned in flares is not the clean natural gas used for heating or cooking, the gas is contaminated with toxic compounds, and the flares send huge toxic plumes into the air. The chemicals which end up in local waterways and fields through soot and precipitation, include carcinogens such as benzene, a deadly chemical that can cause convulsions, chromosomal damage and birth defects.¹⁶⁶ Flaring is a widely used practice for the disposal of associated gas at oil production facilities in remote locations and poor countries. While flaring is a waste and there are technologies to make use of the gas, flaring is still better than venting.¹⁶⁷ Venting on the other hand, is the release of gas

¹⁶² VIDAL John, Niger Delta Oil Spills Clean-up Will Take 30 Years, Says UN, The Guardian Online, 4 August, 2011. Available at <http://www.theguardian.com/environment/2011/aug/04/niger-deltaoil-spill-clean-up-un> . Site visited 29-07-2014. See also, SCOLNICK T.J., U.N. Report on Niger Delta Calls for Billion Dollar Shell Oil Spill Clean-up Fund, DeSmogBlog.com, 5 August, 2011. Available at <http://www.desmogblog.com/u-n-report-niger-delta-calls-billion-dollar-shell-oil-spill-clean-fund> . Site visited 29-07-2014. See as well, SHORAKA Sarah, Shell Told to Clean Up Delta on 2nd Anniversary of UNEP Report, Platform, 5 August, 2013. Available at <http://www.platformlondon.org/2013/08/05/shell-told-to-clean-up-delta-on-2nd-anniversary-of-unep-report/> . Site visited 29-07-2014. Similarly, ROWELL Andy and LUBERS Eveline, Ken Saro-Wiwa Was Framed, Secret Evidence Shows, The Independent Online, 5 December. 2010. Available at <http://www.independent.co.uk/news/world/africa/ken-sarowiwa-was-framed-secret-evidence-shows-2151577.html> . Site visited 29-07-2014. See also, DONOVAN John, Shell and the Murder of Ken Saro-Wiwa, Royal Dutch Shell Plc.com, 23 June, 2011. Available at <http://www.royaldutchshellplc.com/2011/06/23/shell-and-the-murder-of-ken-saro-wiwa/> . Site visited 29-07-2014. See likewise, Webmaster, Koko Toxic Waste Dump, National Mirror Online, 29 December, 2012. Available at <http://www.nationalmirroronline.net/news/koko-toxic-waste-dump/> . Site visited 29-07-2014. See also, YUSUF Tayo Akeem, Trafficking and Dangerous Disposal of Hazardous Wastes in Nigeria: Tackling the Root Cause, Nigerians In America, 24 March, 2009. Available at <http://www.nigeriansinamerica.com/articles/3330/1/Trafficking-and-Dangerous-Disposal-of-Hazardous-Wastes-in-Nigeria-Tackling-the-Root-Cause/Page1.html> . Site visited 29-07-2014.

¹⁶³ See *Umudje v. Shell BP Nig. Ltd.* [1975] 11 S.C. 155. Also, OKENABIRHIE Theresa O., Polluter Pays Principle in the Nigeria Oil and Gas Industry: Rhetorics or Reality? Center for Energy, Petroleum and Mineral Law and Policy, University of Dundee, 2010.

¹⁶⁴ Amnesty International, Shell's Wildly Inaccurate Reporting of Niger Delta Oil Spill Exposed, Amnesty International Report 23 April, 2012.

¹⁶⁵ See Country Brief Analysis Header Nigeria. Last updated August 2011

¹⁶⁶ See Shell's Environmental Devastation in Nigeria, *ibid*.

¹⁶⁷ See Gas Flaring. http://www.aag.org/galleries/gisum_files/Elvidge.pdf Site visited 24-11-2011

without combustion.¹⁶⁸ This is not only more dangerous, but releases gas known to absorb thermal radiation much better than CO₂, contributing more to the greenhouse effect. Environmental Rights Action/Friends of the Earth Nigeria recorded that all oil prospecting companies in Nigeria are guilty of gas flaring. The biggest culprits are Shell Petroleum Development Company, ExxonMobil and Chevron. These three companies are the major operators in Nigeria's oil production, while Total and Agip fill in some extra of the present gas flares. Presently, over 100 flare sites still emit the toxic cocktail.¹⁶⁹

In its May 2010 report, the Nigerian National Petroleum Corporation, NNPC, the State's oil conglomerate, stated that of the over 192 billion standard cubic feet, bscf, of gas produced during the period, 145 bscf was utilized, while over 43 bscf was flared at the detriment of the environment. The quantity flared represents 22.69 per cent of the total output.¹⁷⁰ Nigeria has been a leading gas flaring country in the world, with around 20 billion cubic meters (bcm), of gas flared in 2007 (847 billion cubic feet), or 45 per cent of its total production. As a Global Gas Flaring Reduction, (GGFR), partner since the start of the initiative, Nigeria has set the ambitious target of eliminating gas flaring in the next few years. With the assistance of the World Bank's GGFR partnership, the Nigerian government has developed a gas sector strategy for its domestic market, has drafted a Downstream Gas Act as part of its gas sector policy work, and is revising the country's oil and gas fiscal system. These initiatives will be major stimuli to increasing effective use of gas in Nigeria. Moreover, the GGFR programme has supported carbon credits and small scale projects. A large number of export projects based on associated gas as well as other gas sources are planned, some of which are already under implementation.¹⁷¹ According to Muna Lakhani of the Institute for Zero Waste in Africa, the flaring and wasting of an energy source, is a crime. "The practice stems mostly from the disinterest of transnational corporations like Shell. The lack of any minimum international standards, allows for these practices to continue unabated."¹⁷² It is imperative that Nigeria should be well aware of the International Court of Justice (ICJ), decision in the Corfu Channel case that it is "every state's obligation not to allow knowingly its territory to be used for acts contrary to the rights of other states."¹⁷³ Continued and incessant flaring of gas in Nigeria constitutes an abuse of the rights of other states, especially those of its neighbouring states and the world at large. It is apposite to state that national sovereignty demands of a state to recognise the duty to protect the environment in its jurisdiction and

¹⁶⁸ See A Twelve Year Record of National and Global Gas Flaring Volumes Estimated Using Satellite Data. http://www.ngoc.noaa.gov/dmsplitinterest/flare_docs/DMSP_flares_20070530_b.pdf Site visited 25-11-2011

¹⁶⁹ See Doubt Still Over Gas Flaring. <http://thenewsafrika.com/2011/04/11/doubt-still-over-gas-flaring> Site visited 22-10-2011.

¹⁷⁰ Ibid, n.49

¹⁷¹ See Global Gas Flaring Reduction Partnership, op cit. n.46

¹⁷² See Playing With Fire. Also at <http://ipnews.net/Africa/nota.asp?idnews=47699> Site visited 25-11-2011.

¹⁷³ See *Corfu Channel's Case ICJ Report 1949, p. 21*. Also, EBESSON Jonas, *Compatibility of International and National Environmental Law*, London, Kluwer Law International, 1996, p.43

equally a duty to prevent transboundary harm as well as a duty to preserve by every means possible, the global commons for present and future generations.¹⁷⁴

2.3 The Legal Regime on Gas Flaring in Nigeria.

According to Adegoke Adegoroye, before the Federal Environmental Protection Act FEPA, came into being, there were no laws on industrial pollution, hence, there was no culture of pollution control. Where laws have been enacted, they are either not sufficiently stringent or have not been followed through. For instance, legislative steps have been taken since 1969 to introduce plans for utilization or reinjection of gas, with a law prohibiting flaring being in place since 1984, but this has yet to be enforced.¹⁷⁵ Curbing gas flaring requires a global and concerted effort by governments and industry, as well as financial institutions and local communities.¹⁷⁶ The nature of law enforcement in Nigeria is a peculiar problem that has been a limiting factor in the effective policing of the environment for the general and common good of the people. Lack of good enforcement of programmes, itself an outcome of lack of *uberimma fidei* on the part of the government has been another hindrance. Inadequate monitoring or the habit of enforcement officials and government generally deliberately closing their eyes to obvious improprieties is a well known practice in different parts of the world,¹⁷⁷ especially Africa, and most particularly Nigeria. Various administrative directives and laws enacted by the federal government of Nigeria to end gas flaring in the Niger delta region have never been enforced, said Nnimmo Bassey, environmental and human rights advocate with the non-governmental group, Environmental Rights Action, ERA.¹⁷⁸ The lackadaisical attitude of the Nigerian government in implementing a policy adopted in the 1960s to develop gas-gathering facilities meant that, for several decades, the country held the dubious record of having the highest volume of gas flares both in absolute and relative terms globally,¹⁷⁹ and is still among the highest flarer.

¹⁷⁴ LARSSON Marie-Louise, *The Law of Environmental Damage: Liability and Reparation*, Stockholm, Kluwer Law International, 1999, p.156. See also the *Corfu Channel Case (UK v Albania)*, 1949, ICJ Rep. 4 at 22, where it was established, the obligatory duty of a state to prevent pollution and the responsibility to prevent harm to another state.

¹⁷⁵ See Section 3 Associated Gas Reinjection Act 1984, Cap

¹⁷⁶ RASHAD Kaldany, Director of the Oil, Gas, Mining, and Chemicals Department at the World Bank, and Chairman of the GGFR Steering Committee, sine die.

¹⁷⁷ OLOMOLA O. A., *Nigeria's Environmental Laws- A Critical Review of Main Principles, Policy and Practice*, in SIMPSON Struan and FAGBOHUN Olanrewaju, (eds.), *Environmental Law and Policy*, Lagos, Law Center, Faculty of Law, Lagos State University, 1998, p.36

¹⁷⁸ See *Playing With Fire*. Also <http://ipsnews.net/Africa/nota.asp?idnews=47699>

¹⁷⁹ EMESEH Engobo, *The Niger Delta Crisis and the Question of Access to Justice*. OBI Cyril, and RUSTAD Siri Aas, *Oil and Insurgency in the Niger Delta: Managing the Complex Politics of Petro-violence*, London, Zed Books, 2011, p.61-62

2.3.1 The Petroleum Act and the Petroleum (Drilling and Production) Regulations, 1969, Cap P10 LFN, 2004

The Nigerian government first moved to end gas flaring in 1969, promulgating the Petroleum Act, 1969 and the Petroleum (Drilling and Production) Regulations, when it brought under the control of the Minister responsible for Petroleum matters, issues on pollution of the waters and the atmosphere.¹⁸⁰ The Act provides for the exploration of petroleum from territorial waters and continental shelf of Nigeria, and vests the ownership of all on-shore and off-shore revenue from petroleum resources in the Federal Government. It has provisions on Oil Exploration Licenses; Oil Prospection Licenses; Oil Mining Licenses; Rights of Pre-Emption; Repeals; and Transitional and Savings.¹⁸¹ Regulations made under the Act includes Minerals Oils (Safety) Regulations; Petroleum Regulations; Petroleum Refining Regulations; Crude Oil (Transportation and Shipment) Regulations; Petroleum Products (Prices of Automotive Lubricating Oils) Order; Petroleum Products(Uniform Retail Prices) Order; and Petroleum (Drilling and Production) Regulations, which provides for the Licensee or lessee to adopt all practicable precautions, including the provision of up-to-date equipment to prevent pollution of inland waters, rivers, water courses, the territorial waters of Nigeria, or the high seas by oil, mud or other fluids or substances which might contaminate the water, banks or shore line or marine life, and where any such pollution occurs or loss occurred, shall take prompt steps to control and if possible end it.¹⁸² A literal interpretation of this provision makes it latently easier for the TNCs to evade responsibility in the event of a spillage or pollution.

2.3.2 The Associated Gas Reinjection Act, 1979, Cap A25, LFN 2004

In 1979, legislation banning gas flaring was promulgated. According to this Associated Gas Re-injection Act of 1979 all companies were to submit a detailed plan on gas utilization and gas re-injection program by 1980.¹⁸³ By this legislation no company was to flare gas after January 1984 without special permission from the Minister of Petroleum Resources, or in the alternative a plan showing viable options for gas utilization before commencement of operation.¹⁸⁴ The penalty for the original enactment was punishment by forfeiture of concession.

¹⁸⁰ See Section 9 (1) (iii) of the Act.

¹⁸¹ Revenue Watch Institute, Nigeria- 1969 Petroleum Act, December 1968.

¹⁸² OJO Godwin Uyi and GASKIYA Jayeoba (eds.), Environmental Laws of Nigeria: A Critical Review. ERA/FoE, Nigeria, Ibadan, Kraft Books Ltd., 2003, p.39.

¹⁸³ See Annex 3-A Flaring Policy and Regulation in Nigeria.

¹⁸⁴ See Section 3(1). Also, OKORIE Chukwuemeka, Have the Energy Laws in Nigeria Promoted and Preserved Competition in the Downstream Gas Market Since 1956? Also at

Section 3 of the Act set 1984 as the deadline after which companies could only flare gas if they have field(s) specific, lawfully issued ministerial certificates.¹⁸⁵ This act was amended in 1984 by the Associated Gas Re-Injection (Continued Flaring of Gas) Regulations (Subsidiary Legislation 43 of 1984). Since January 1984, the flaring of associated gas has been prohibited, except with written permission of the Minister. The 1984 legislation provides that: *As from the commencement of these Regulations, the issuance of a certificate by the Minister under Section 3 (2) of the Associated Gas Re-Injection Act, for the continued flaring of gas in a particular field or fields, shall be subject to any one or more of the following conditions, that is:*

(a) where more than seventy-five per cent of the produced gas is effectively utilized or conserved;

(b) where the produced gas contains more than fifteen per cent impurities, such as N₂, H₂S, CO₂, etc., which render the gas unsuitable for industrial purposes;

(c) where an on-going utilization programme is interrupted by equipment failure; provided that such failures are not considered too frequent by the Minister and that the period of any one interruption is not more than three months;

(d) where the ratio of the volume of gas produced per day to the distance of the field from the nearest gas line or possible utilization point is less than 50,000scf/km;

Provided that the Gas to Oil ratio of the field is less than 3,500 scf/bbl, and that it is not technically advisable to re-inject the gas in that field;

(e) where the Minister, in appropriate cases as he may deem fit, orders the production of oil from a field that does not satisfy any of the conditions specified in these Regulations

(2) The Minister may, from time to time, review, amend, alter, add to, or delete any provision of these Regulations as he may deem fit.

http://www.dundee.ac.uk/cepmlp/gateway/files.php?file=cepmlp_car14_54_317860524.pdf. Site visited 24-10-2011. See also Shell's Environmental Devastation in Nigeria, op cit.

¹⁸⁵ See Gas Flaring: Assaulting Communities, Jeopardising the World. Also at <http://milieudefense.nl/publicaties/rapportrn/gas-flaring-assaulting-communities-jeopardising-the-world>

By virtue of these exemption clauses, a greater percentage of the flare fields would have been exempted, and for those not exempted, the TNCs only have to pay a paltry sum of money as penalty-US 0.9 Dollars per 1,000 cubic feet of gas flared. This resulted in great revenue loss to the country.¹⁸⁶

2.3.3 The Federal Environmental Protection Act No. 58 of 1988, Cap F10, LFN 2004

In 1988, following the Koko Toxic waste Dump, the Federal Government *undertook a wholistic review of its legislation on the environment, and enacted the Federal Environmental Protection Agency*, FEPA, *Decree 58 of 1988*, otherwise known as the FEPA Act, Cap F10, LFN 2004. FEPA came as a legal and institutional *framework* intended to deal with the problems of the Nigerian environment. It was given the responsibility for control over the environment and for the development of processes and policies to achieve this. The Agency published the National Policy on the Environment, NPE, in 1989, and other sectoral regulations such as the National Environmental Protection (Pollution Abatement in Industries and Facilities Governing Wastes) Regulation 1991, which made Environmental Impact Assessment, EIA, obligatory only when so demanded by FEPA.

The FEPA Decree provides for the Act to prescribe national environmental standard for air quality, atmospheric protection, ozone protection, noise control, water quality, among others.¹⁸⁷ Its power herein was enhanced under its amended Act¹⁸⁸ of 1992, which empowers it to ‘establish more criteria, guidelines, specifications and to protect and enhance the quality of Nigeria’s air resources and to promote the public health or welfare and the normal development and productive capacity of the nation’s human, animal or plant life...’ It can make recommendation and programmes for the control of any substances, practice, process or activity which may reasonably be anticipated to endanger public health or welfare.¹⁸⁹ It also made mention of oil and gas fields development in its Schedule 1. The Decree was not too forthcoming on the issue of gas flaring, thereby making room for a serious lacuna. The Act adopted a general approach to environmental regulation and as such, was not effective in terms of achieving strict compliance by the TNCs in ensuring a sustainable exploitation of Nigeria’s petroleum resources. The Act failed to provide enough succour against the menace of gas flaring. The

¹⁸⁶ Gas flaring pumps about 110 million metric tonnes of CO₂ into the atmosphere every year, about 0.5% of the world’s CO₂ emissions. See, AJUGWO Anslem O., Negative Effects of Gas Flaring: The Nigerian Experience, *Journal of Environmental Pollution and Human Health*, Vol1, No.1, 2013, pp.6-8. See also, SUNMONI Mobolaji, Gas Flaring in Nigeria: What Are the Harmful Effects? *The Environmentalist Online*, 26 June, 2012. See as well, KHAN Brian, Gas Flaring: Major Cause of Climate Change, BP Oil Spill Solution, *Just Means Online*, 23 May, 2010. Available at <http://www.justmeans.com/blogs/gas-flaring-major-cause-of-climate-change-bp-oil-spill-solution>. Site visited 29-07-2014. See further, GERVET Bruno, Gas Flaring Emission Contributes to Global Warming, Renewable Energy Research Group, Luleå University of Technology, March 2007. See as well, UBANI E.C. and ONYEJEKWE I.M., Environmental Impact Analyses of Gas Flaring in the Niger Delta Region of Nigeria, *American Journal of Scientific and Industrial Research*, Vol.4, No.2, 2013, pp.246-252. See again, Eni, Climate Change, 23 April, 2014. Available at http://www.eni.com/en_IT/sustainability/environment/climate-change/climate-change.shtml. Site visited 29-07-2014.

¹⁸⁷ See S. 37, FEPA Act 1988.

¹⁸⁸ See S.17 (1) FEPA (Amendment) Act, 1992.

¹⁸⁹ IKHARIALE M. A., *Inducing Environmental Change Through Legislation: Some Lessons and Limits*, in SIMPSON Struan, and FAGBOHUN Olanrewaju, (eds.), *Environmental Law and Policy*, Law Center, Lagos State University, 1998, p.59.

FEPA Act as amended in 1992, was the principal environmental legislation that regulates environmental pollution in Nigeria before it was eventually repealed in 2007 by the NESREA Act¹⁹⁰. The Agency has since become a full-fledged ministry of the environment in 1999. The repeal of the FEPA and its replacement with a law that specifically excludes the Ministry of Environment from enforcing compliance in the oil and gas industry is a deeply questionable move and further entrenches government failures to ensure effective oversight of the oil and gas industry, and to protect the environment and human rights.

2.3.4 The National Environmental Standards and Regulations Enforcement Agency Act, NESREA, 2007

In 2007, the Federal Government of Nigeria further weakened any independent oversight of the oil and gas industry by significantly curtailing the authority of the Ministry of the Environment in regulating the environmental impacts of the industry. The National Assembly passed a law repealing the FEPA Act and establishing the National Environmental Standards and Regulations Enforcement Agency, NESREA. The enactment is aimed at protection and development of the Nigerian environment as well as biodiversity conservation and sustainable development of Nigeria's natural Resources.¹⁹¹ The Agency is supposed to ensure the enforcement of all policies, laws, standards, and regulations relating to the environment, including international agreements, protocols, conventions, and treaties on the environment.¹⁹² The vision of the Agency is to ensure a cleaner and healthier environment for all Nigerians, while the mission is to inspire personal and collective responsibility in building an environmentally conscious society for the achievement of sustainable development in Nigeria.¹⁹³ However, the Act establishing NESREA repeatedly bars the agency from enforcing compliance in the oil and gas sector,¹⁹⁴ including- compliance with regulations on hazardous wastes; Regulation on noise, air, seas, oceans and other water bodies; Control measures such as registration, licensing and permitting systems; Conducting environmental audits. Although, the Agency is barred by law from carrying out almost all its major functions in relation to the oil and gas sector, the governing council of the Agency is obliged by law to include a representative of the Oil Exploratory and Production Companies of Nigeria. The NESREA, being the primary environmental protection law in Nigeria, was set up as an agency whose main role is the regulation and enforcement of environmental standards.

¹⁹⁰ See The National Environmental Standards and Regulations Enforcement Agency Act, 2007; National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations; and National Environmental Protection (Management of Solid and Harmful Wastes) Regulations; the Harmful Wastes (Special Criminal Provisions etc.) Act of 1988 (Harmful Wastes Act) Laws of the Federal Republic of Nigeria. See also, OKENABIRHIE Theresa O., Polluter Pays Principle in the Nigeria Oil and Gas Industry: Rhetorics or Reality? Center for Energy, Petroleum and Mineral Law and Policy, University of Dundee, 2010.

¹⁹¹ See the Long Title to the Act, and Section 2 thereof.

¹⁹² See ODUJINRIN Teni, Third Country Report Nigeria, sine die. Also at http://www.law.ed.ac.uk/euenterpriseslf/documents/files/TC_REPORT_NIGERIA.pdf Site visited 24-09-2011

¹⁹³ See The Establishment of The National Environmental Standards And Regulations Enforcement Agency (NESREA). Also <http://www.nesrea.org/about.php> Site visited 23-09-2011.

¹⁹⁴ See Sections 7 (g), (h), (j), (K) and (l) and 8 (g), (k), (l), (m), (n) and (s) NESREA Act.

Following an initial review, the Act appears to follow the approaches of the past, namely the repealed FEPA, which yielded no results. FEPA did not exclude oil and gas industry. This, with all due respect, is no more than window dressing.

2.3.5 The National Oil Spill Detection and Response Agency (NOSDRA) Act, No 15, 2006

NOSDRA, enacted in 2006 by the National Assembly, is empowered to carry out surveillance on oil exploration and to ensure compliance with all existing environmental legislation, especially in areas of oil spills in the petroleum industry.¹⁹⁵ It has the statutory duty to coordinate oil spill management and ensure the implementation of the National Oil Spill Contingency Plan. It was thus created to police the oil companies and uphold compliance with all existing environmental legislations in the oil sector in Nigeria.¹⁹⁶ It is responsible for the surveillance and ensuring compliance with all existing environmental legislations and detection of oil spills in the petroleum sector.¹⁹⁷ However, the provision on enforcement within NOSDRA Act is weak and the Agency staff do not appear to have the capacity to undertake environmental monitoring beyond oil spill related activities. As at May 2012, a Bill for the amendment of the NOSDRA Act has already been introduced in the Senate Chamber of the National Assembly, seeking to enhance and strengthen the powers of the Act, with a view to setting out a firmer penalty, present an elaborate compensation regime to the people who suffer in a spillage and equip the Agency to hold polluters to internationally acceptable standards¹⁹⁸. This Act regrettably lacks any regulation on gas flaring. It is strictly and precisely restricted to oil spill management and implementation of the National Oil Spill Contingency Plan, NOSCP, than anything else as far as the oil and gas industry is concerned.

2.3.6 The Environmental Impact Assessment, EIA, Act No 86, 1992, Cap E12, LFN 2004

In line with the Principle 17 of the Rio Declaration which requires nations to undertake for proposed activities, an environmental impact assessment as a national instrument subject to a national authority, Nigeria promulgated the EIA Act No. 86 in 1992. Prior to the enactment of this Act, project appraisals were limited predominantly to feasibility studies and economic-cost-benefit analysis.¹⁹⁹ The Act requires an assessment to be carried out where the extent, nature or location of a proposed project or activity is such that is likely to significantly affect the environment.²⁰⁰ This requires the oil TNCs to undertake an environmental impact assessment of their projects before embarking on them.

¹⁹⁵ See Section 6 (1) of the Act.

¹⁹⁶ See Section 6 (1) (a) of the Act.

¹⁹⁷ ADEDAYO Ayoade Morakinyo 2011. Environmental Risks and Decommissioning of Offshore Oil Platforms in Nigeria. Nigeria Advanced Legal Studies Journal of Environmental Law, Vol. 1, 2011.

¹⁹⁸ NWOGU Success, Saraki Seeks Amendment to NOSDRA Act. The Punch, Nigerian Daily, 17 May, 2012.

¹⁹⁹ AMEYAN Oluwole, Environmental Impact Assessment: Insight into the Environmental Impact Regulatory Process and Implementation for Qualifying Projects, 2008.

²⁰⁰ See Section 2 of the EIA Act.

The Act prescribes that all agencies, institutions (public or private) except exempted by the Act, shall before embarking on proposed projects, apply in writing to the Federal Ministry of Environment for environmental assessment applied as activities are being planned. These exceptions it created were to significantly weaken its impact. It specifies in its Section 4 the minimum contents of an EIA, and also prescribes a Mandatory Study List²⁰¹ as spelt out in its Schedule in Appendix A, which includes projects in agriculture, fisheries, quarries, water supply, waste treatment and disposal transportation, ports, infrastructure, petroleum, mining, power generation, among others. By this EIA has become an integral part of the planning process and is mandatory for the development of oil and gas fields²⁰². It is to be noted that despite this Act, gas flaring has been unabated and the oil TNCs are even opening new flare points, which means the Act is not strictly complied with. These and other shortcomings have led some to the conclusion that Nigerian oil and gas laws and policies are unnecessarily skewed in favour of economic development at the expense of environmental wellbeing.²⁰³

The FEPA has the responsibility of exercising jurisdiction over EIA matters, a role it jointly exercises with the Ministry of Petroleum Resources acting through the environmental department of the Department of Petroleum Resources, DPR. It is said to have a clear and unacceptable conflict of interests in that it is the same Ministry of Petroleum Resources which grants certificates permitting continuous flaring by oil TNCs that will also supervise the carrying out of EIA procedures which aims to expose environmentally harmful activities such as flaring.²⁰⁴

2.3.7 Nigerian Environmental Management NEM, Act (Draft) 2000

This Act was intended to present measures aimed at achieving gas flare-out by introducing stiffer penalties and criminal liability for individuals and corporate entities engaged in gas flaring. The Act empowers the Minister to ban gas flaring, but may grant exemptions in certain circumstances.²⁰⁵ The Act brought in the innovation on gas flaring phase-out policy of the government, by introducing criminal liability for gas flaring against both the oil company as a legal entity and its management staff individually. Violators are made liable to a fine not exceeding NGN 500,000,000 (Five Hundred Million Naira),²⁰⁶ that is, an equivalent of \$4,160,000 in 2000, for the corporate bodies and its management staff shall be liable to a sentence not exceeding 10 years²⁰⁷ imprisonment each. The Section also

²⁰¹ See Section 4 (b) of the EIA Act.

²⁰² TAMUNO Paul Samuel, Legal Response to Gas Flaring in Developed and Developing Countries: a Comparative Analysis of Nigeria, United Kingdom and Norway. CEPMLP Working Research Paper 2010/14. University of Dundee, 2010, p.22.

²⁰³ AKANLE Oluwole, Pollution Control Regulation in the Nigerian Oil Industry. Nigerian Institute of Advanced Legal Studies, Lagos, 1991, p.11. Also, DURUIGBO Emeka, Multinational Corporations and International Law: Accountability and Compliance Issues in the Petroleum Industry. Ardsley, New York, transnational Publishers, 2003, p.171. Also, OSHIONEBO Evaristus, Regulating Transnational Corporations in Domestic and International Regimes: an African Case Study. Toronto, University of Toronto Press, 2009, p. 60.

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²⁰⁵ See Section 20 (2) NEM Act.

²⁰⁶ See Section 20 (4) supra.

²⁰⁷ See Section 20 (5) supra.

empowers the ministry to issue a notice in an official gazette, banning gas flaring, but may in circumstances grant special permit to flare for a limited period of time.

Gas flaring in all its ramifications is a gross violation of the Nigerian constitution 1999.²⁰⁸ Section 20 of the Constitution provides that: *The State shall protect and improve the environment and safeguard the water, air and land, forest and wild life of Nigeria.* Notwithstanding that this provision comes under Chapter II of the Constitution, which is non-justiciable, it nonetheless, confers a legal burden and obligation on the Government not only to provide, but also to ensure that a safe environment is guaranteed to the people of the country. The actions of the Government of Nigeria as far as this issue of gas flaring and other forms of environmental pollution are concerned, run contrary to this provision. A Federal High Court had held that gas flaring is illegal and a flagrant negation of the fundamental human right of the people of the Niger Delta region.²⁰⁹ The court had ordered the cessation of flaring of gas in the region, yet the Government has not deemed it fit to enforce the orders of its court and its own very enactments and regulations on the issue. The Supreme Court of Nigeria in a number of cases has berated the Government on this notorious issue of disobedience to or flagrant neglect of court orders.²¹⁰ Above all, customary international law, and the responsibility of states for the performance of their customary obligations, may provide some legal restraint on the production of greenhouse gases or on the conduct of other activities likely to result in global climate change.²¹¹

Nigeria has a wide array of legislation on its oil and gas industry, which if properly harnessed are sufficient enough to take care of all issues arising out of the operations in this sector. It is however disheartening to note that most of these laws either lack specific provisions to take care of such sensitive issue as gas flaring, or where they are provided for, the will to enforce such provisions by the government is lacking, for obvious reasons. For instance, the Petroleum Act, Cap P10 Laws of the Federation of Nigeria, LFN, 2004, which deals with issues bothering on the exploration, prospecting, mining leases, etc. of oil has not a single provision on gas flaring. The Act has sixteen sections. It is succinct to note that under this Act, a number of regulations relating to the environment were made such as The Petroleum (Drilling and Production) Regulations;²¹² The Minerals Oil (Safety) Regulations

²⁰⁸ See Sections 33 and 34

²⁰⁹ See Jonah Gbemre v Shell Petroleum Development Company Nigeria Limited and Others. (Unreported, Suit No: FHC/CS/B/153/2005). Also <http://www.chr.up.ac.za/index.php/browse-by-country/Nigeria/418-nigeria-gbemreh> SITE VISITED

²¹⁰ See Emeka Ojukwu v Military Governor of Lagos State [1986] 1 NWLR (Pt 26) 621. In similar vein, the persuasive decision, the Cyprus case of AG for the Republic v Mustapha Ibrahim of Kyrania [1964] 3 SC of Cyprus (1) that: ... the Government had to choose between two alternatives, viz, either to comply with the strict letters of the Constitution (the relevant articles being unalterable under any condition) i.e. cross its arms and do nothing but witness the complete paralysis of the judicial power, which is one of the three pillars of the State..., or to deviate from the letter of the Constitution which had been rendered inoperative by the force of events (which situation could not be foreseen by the framers of the Constitution), in order to do what was imperative and inevitable (sic) necessary to save the judicial powers....

²¹¹ BIRNIE Patricia, et al, op cit., p. 340

²¹² See Sec.2.

and licenses and leases;²¹³ and The Petroleum Refining Regulations.²¹⁴ Such other pieces of legislation include the Oil Pipelines Act Cap. O7, LFN 2004, the Oil in Navigable Waters Act, Cap. O6, LFN 2004,²¹⁵ and the Petroleum Profits Tax, PPT, Act, Cap. P13, LFN 2004, which have environmental implications, but incidentally have no adequate provisions for gas flaring, a major issue in environmental abuse in the country.

The Nigerian Oil industry is characterized by the State's oil company, the Nigerian National Petroleum Corporation, NNPC, operating in relationship with the major oil multinationals like Shell, Chevron, ExxonMobil, Texaco, Agip and, Elf by way of Joint Venture, JV, or Production Sharing Contract, PSC. A usual PSC has no less than 27 clauses dealing with such matters as recovery of operating costs and capital cost allocation, rights and obligations of the parties, payments, confidentiality, and valuation of crude oil and so forth, but with no provisions for environmental protection and remediation. This demonstrates the levity with which the state treats the issue of environmental pollution by the oil TNCs, and indicates the compromising nature of the status of the NNPC as both a regulator and a partner of the oil TNCs in the process of oil and gas exploration and production.²¹⁶

One clear problem with most of the legislation guiding practices in the oil and gas industry is the age of most of the statutes. For instance, The Petroleum Act, Cap. P.10, LFN 2004, (and its Regulations), the Petroleum Profit Tax (PPT) Act, Cap. P.13, LFN 2004, and the NNPC Act, Cap. N123, LFN 2004 are 40, 50 and 32 years old respectively. The old age and archaic nature of these legislation implies that sectors and aspects of the industry like natural gas utilization and environmental issues, which have not gained prominence over the last 40 years have remained outside their purview, hence they are subject to the arbitrariness of regulatory authorities.²¹⁷ Aside from this, it is evidently clear that the government is paying lip service to gas flare-out. In 2009, the country again pegged its gas flare-out date at 2011, and later in 2010 extended it to 2014. It is very doubtful if the government would stick to its policy to end gas flaring by 2014, if the stance of a high ranking official on it is anything to go by. The Group Managing Director of the nation's oil company, the NNPC, Mr. Austin Oniwon said at a conference in Port-Harcourt, that the fastest way to stop gas flaring was for the nation to increase its domestic and industrial gas consumption that the stoppage of gas flaring although fixed for 2014, would largely depend on ability to consume available gas.²¹⁸ This seeming unpreparedness of the government has galvanized oil TNCs in exploiting the loopholes in the AGRA Act 1979/1984, for gas flaring.

²¹³ See Sections 7-9.

²¹⁴ See Sec.3.

²¹⁵ See ATURU Bamidele, Oil, and Gas Contracts: Legal Issue and Experience from Nigeria, sine die. Also, <http://docs.google.com/viewer?a=v&q=cache:k20MYtm9CaAJ:www.energydev.net/file/650/download/650+Oil+and+Gas+Contracts>. Site visited 22-09-2011

²¹⁶ ATURU Bamidele, ibid.

²¹⁷ SODUNKE Oluseun and Kunle OBEDE, What's the Fuss About the Nigerian Petroleum Industry Bill?

²¹⁸ Containing The Flares. Also available on <http://www.businessenigeria.com/business-news/oil-gas/containing-the...> Site visited 22-09-2011.

2.4 Recent Initiatives

The government has been taking steps towards a more appreciable utilization of gas, which is hoped would enhance the acceleration of the process of compelling the oil companies to cease flaring. The Senate Chamber of the National Assembly passed the Gas Flaring Reduction Bill recently, which is awaiting concurrence by the House of Representatives. Section 1 of the draft Bill prohibits the flaring of natural gas in any oil and gas production operation after the commencement of the Act. Section 2 specifically prohibits the flaring of associated or non-associated gas after December 2010.²¹⁹ However, the set date for flare-out in the draft Bill is past, it is expected that a new and feasible future date would be fixed when the lower chamber of the National Assembly eventually passes the Bill.

2.4.1 The petroleum industry bill draft

There is a Draft Petroleum Industry Bill which is for an Act to establish the legal and regulatory framework, institutions and regulatory authorities for the Nigerian petroleum industry. The Bill is expected to establish guidelines for the operation of the upstream and downstream sectors.²²⁰ The PIB currently before the National Assembly seeks to address key issues of regulatory, institutional and fiscal framework of the Nigerian petroleum industry and proposes ways of creating institutions in the oil sector that can participate actively on the global level with other National Oil Corporations (NOCs), such as PETROBRAS of Brazil, or PETRAMINA of Indonesia. The PIB is to ensure (i) increased transparency in all activities relating to the industry, (ii) simplification and expansion of government revenue from the industry through various reforms to taxes and royalties, (iii) increase indigenous participation through relaxing barriers to entry of small and medium scale enterprises, (iv) employment generation and incentives , stipulation of minimum employment requirements for Nigerians, articulation and operation of community development programmes, (v) restructuring and reforming oil and gas institutions with a view to ensuring efficient service delivery and minimize conflict of interests. It also seeks to unbundle the NNPC into nine independent corporations with two of them in charge of regulation.²²¹

2.4.2 The Nigerian gas master plan and policy, NGMP.

There is also, the Nigerian Gas Master Plan and Policy, which seeks to take care of a National Domestic Gas Supply and Pricing Policy and Regulations; a Gas Master Plan Infrastructure Blueprint. The NGMP

²¹⁹ See Draft Gas Flaring Reduction Bill. Also <http://www.nassnig.org>

²²⁰ See Draft Petroleum Industry Bill. Also, <http://www.nassnig.org>

²²¹ GUILLERMO Perry et al, Oil and Institutions: "Tale of 2 Cities": Nigeria and Colombia. Global Development Network Working Paper Series, Working Paper No. 4, June 2011. p. 16.

was intended to be a guide for the commercialization, exploitation and management of Nigeria's gas sector. It aims at growing the Nigerian economy with gas by pursuing three key strategies: (1) structure the supplier effect of gas in the domestic economy; (2) position Nigeria competitively in high value export markets; and (3) guarantee the long term energy security of Nigeria.²²² The Domestic Gas Supply Obligation addresses the issue of domestic gas supply availability by imposing a domestic gas supply and reserves obligation on the operators, which takes into consideration government's aspirations for the domestic economy that adequate gas resources are dedicated for rapid industrialization.²²³ It has three main sections, the first being the Gas Pricing Policy. The pricing policy adopts a gas pricing framework that categorizes the demand sector into three strategic sectors and applies various pricing regimes for the sectors. The second is the Domestic Gas Supply Obligation, which assures gas availability for critical domestic utilization projects that will advance the economic growth in Nigeria. And the third is the Gas Infrastructure Blueprint. The Infrastructure Blueprint designed an integrated infrastructure strategy to support domestic, regional and export LNG markets. The blueprint provides for the establishment of three gas gathering and processing facilities, a network of gas transmission lines, which will usher in a reduced cost of gas supply from Nigeria. Pursuant to the NGMP, the Minister has issued the National Gas Supply and Pricing Regulations, to regulate the supply of gas to the domestic sector. A Department of Gas has been established under the NGSPR, to ensure the availability of gas supply to the domestic market. Also under the NGSPR, gas producers are restricted from exporting gas except when they meet their domestic gas supply obligations.²²⁴

Gas exports now contribute billions to government revenues, with the majority coming through the Nigerian Liquefied Natural Gas, NLNG, Limited project in the Bonny Island in the Niger Delta.²²⁵ The government also set up an ad-hoc Committee to halt gas flaring, under the auspices of the World Bank Global Gas Flaring Reduction Partnership (GGFR). Though, the activity of this committee has turned out to be a little more than hot air.²²⁶

2.5 Nigerian Government's Complacency and Somersaults

Government's staggering on the gas flaring issue commenced in 1969, when the first major move was made by the State to halt gas flaring in the country. When the oil companies paid scant attention to the order to set up infrastructure to utilize associated gas within five years, government gave in and

²²² Nigerian National Petroleum Corporation. Available at

<http://www.nnpcgroup.com/NNPCBusiness/MidstreamVentures/NigerianGasMasterPlan.aspx>

²²³ ONYEUKWU Humphrey, Nigerian Gas Master Plan and Policy: Is It a Constrained Energy Policy? Sine die. Also http://works.bepress.com/Humphrey_onyeukwu/6 Site visited 25-08-2011.

²²⁴ ADENIJI Adegbite and SIPASI Sina 2011. Nigeria in the International Comparative Legal Guide to Gas Regulation 2011: A Practical Cross-Border Insight into Gas Regulation Work. Global Legal Group in Association With Ashurst LLP, With Contributions from AELEX and Company

²²⁵ See Nigeria's Gas Master Plan. Also at

http://www.thisisafricaonline.com/news/fullstory.php/aid/46/Nigeria_s_gas_masterplan.html

²²⁶ See Gas Flaring: Assaulting Communities, Jeopardising the World. Also at

<http://Milieudefense.nl/publications/rapporten/gas-flaring-assaulting-communities-jeopardising-the-world>

moved the goal post to 1979, when again it could not enforce the new deadline, as the Associated Gas Re-Injection Act No. 99 of 1979, required oil corporations operating in the country to produce detailed plans for gas utilization as well as guarantee zero flares by 1984.²²⁷ This again it could not enforce. The government again set January 11, 2008 as the zero flare date, dangling punitive action for any breach, but to no avail. It announced another shift of date on December 17, 2007, this time for a December 31, 2008, which also similarly failed. In 2009, the Senate passed the Gas Flaring Bill, making it illegal for operators to flare gas in Nigeria beyond December 31, 2010, which for the umpteenth time could not also be met. Governments have thus been shifting deadlines at will in response to pressure from the oil TNCs. It is instructive to note that these shifts were mere executive orders and not backed by law. Each deadline had come and gone without any reduction, rather the rate has been increasing because of a lack of will to enforce the law against flaring. At the moment, there is no specific period to end flaring in Nigeria, as every level of government and its agencies, and even the oil companies give at will, different dates to end the anomaly.²²⁸ Nigeria seem to lose focus of this important requirement that no state is to allow its territory to be used in such a way as to damage the environment of other states or of areas beyond the limits of national jurisdiction.²²⁹ This has ensued as a result of the absolute lack of enforcement of the laws in the oil industry, due to prioritization of ‘financial pursuit’ over environmental protection, weak governance structures, corruption, and lack of organized, effective public pressure groups.²³⁰ The fact that the government is a business partner of the companies severely compromises its fairness or firmness as a regulator. There is also the issue of the capacity of the regulating agencies to adequately monitor the activities of the companies, which is very doubtful.

The Nigerian people have summarily been alienated by their own government; in utter disregard of the constitutional provision that: *the security and welfare of the people shall be the primary purpose of government.*²³¹ Successive Nigerian governments, for most part of the nation’s history have not really served the primary purpose of government, which is the promotion of the wellbeing of the governed, especially those who are least able to care for themselves.²³² It is pertinent to note that it is reported that more than sixty per cent of the populace live on less than two US Dollar daily. At a point, the government introduced levy in lieu of stoppage which yielded nothing substantial. It was noted that the payments made by the companies to continue to flare have not been effective, and are tiny compared to the loss of revenue to Nigeria. For instance, the Federal Ministry of Environment in its First National Communication to the United Nations Framework Convention on Climate Change, UNFCCC, states that: “there has been various attempts by the government to reduce gas flaring in the

²²⁷ See Gas Flaring: Assaulting Communities..., *ibid.*

²²⁸ See Doubt Still Over Gas Flaring. Also <http://thenewsafrika.com/2011/04/11/doubt-still-over-gas-flaring/>

²²⁹ See *The Trail Smelter Case* 33 AJIL (1939) 182. Also CASSESE Antonio, *International Law*, Oxford, Oxford University Press, 2001, p.381.

²³⁰ *Ibid.* n. 71

²³¹ See Section 14 (2) (b), Constitution of the Federal Republic of Nigeria, CFRN, 1999 (as amended)

²³² See OKLNG Project: Expanding Participatory Opportunities. Also at <http://www.serac.org/Publications/OKLNGRoundtable-Reportofmeetingproceedings.p>

past, including introduction of penalties for the amount of gas flared by the producing companies. These have had only little effects.” The World Bank says about these payments: “In accordance with the Associated Gas Re-Injection Act 1979, a fee is charged for flaring. This was set at 0.50 Naira per million cubic feet, mcf, but effective January 1998 is 10 Naira per mcf, which at November 2003, exchange rate is equivalent to US\$ 0.076 per mcf. This sum is payable in the same way as royalty- in foreign currency into the designated foreign account into which royalties are paid. It is worthwhile noting that in recent years, oil companies in Nigeria have been charged a total of between twenty million and fifty million Naira (or US\$ 150,000 – 370,000), annually for flaring associated gas. However, this has been seen in the overall context of gas flared. A recent study carried out for the Bureau of Public Enterprises of Nigeria estimated that each year, the country loses between US\$ 500 million and \$2.5 billion to gas flaring.”²³³

Under conventional international human rights law, states are obliged to ensure that each of their citizens enjoy basic rights and freedoms-not only so far as states must not breach such rights or freedoms acting in their own capacity, but also by ensuring that the legal and political conditions exist which will promote and protect the enjoyment of such rights and freedoms. This general obligation also includes the need to safeguard the rights of citizens as against the conduct of non-state actors.²³⁴ But sadly as against this clear stipulation, Nigeria has so far collaborated and connived with, and indeed encouraged the non-state actors- oil TNCs against the interests of her citizen, in clear and manifest contravention of its Constitution.²³⁵ Pitiable. Platform’s report blames the Nigerian government for failing to protect the rights of its citizens and urges President Goodluck Jonathan to find political solutions instead of military responses to the Niger Delta crises.

The United Nations Environment Programme UNEP, issued a report of the ecological impact of oil spills in the Ogoni region of the Niger Delta, many of which are from Shell’s facilities. The UNEP found that Shell had operated in Nigeria below international standards, and the company had certified heavily contaminated sites as “clean.” According to UNEP, restoring Ogoni land could require the biggest cleanup operation in the world,²³⁶ dwarfing BP’s response to Deepwater Horizon, and could take up to three decades to complete. Under Nigerian law, Shell is obliged to cleanup all oil spills regardless of the cause, but compensation is not available for victims where an oil spill has been caused by sabotage.²³⁷ The World Bank Report warned that 40% of habitable terrain in the Niger Delta area would disappear in 20 years if strong-willed re-mediation was not carried out. The Federal Government admitted that

²³³ Ibid, n.81

²³⁴ Ibid, n.73

²³⁵ See Section 12, CFRN, 1999 (as amended).

²³⁶ NDUJIHE, Clifford, Nigeria: Can North Survive Without the South? The Vanguard, Nigerian Daily, 22nd May, 2012.

²³⁷ See Environment News Service,2011, Shell Oil Nigeria Accused of Funding Terrible Violence. Available at Shell Oil Nigeria Accused of Funding Terrible Violence. Available at <http://www.ens.newswire.com/ens/oct2011/2011-10-05-02.html> Site visited 27-08-2012.

40,000 oil spills had occurred in the past 54 years of oil exploration.²³⁸ In spite of this, the government has simply not found the cause to be spurred on to any meaningful action in preserving its environment notwithstanding its being a party²³⁹ to the 1992 Rio Summit on the environment and all the six Agreements made thereat on specific commitments of the government to address the critical issues of: biodiversity; Climate Change; Desertification; Persistent Organic Pollutants; Prior Inform Consent; Biosafety and Kyoto Protocol; and Sustainable Development.²⁴⁰

2.6 Desertification and Deforestation in Nigeria

2.6.1 Desertification in Nigeria

Desertification is one of the most complex challenges of our time. Nowhere is this challenge more critical and the need for action more pressing than in Africa especially in the horn of Africa, which is presently experiencing the worst drought in 60 years, which placed more than 13.3 million people in need of emergency assistance. The Eastern Africa, Sahel region and the horn of African countries are just emerging from the worst drought in 60 years, since about 2-3 years back. The increasing frequency, length and intensity of drought are threatening nearly 1.1²⁴¹ billion people worldwide, with more than 2.3 billion people living in arid, semi-arid or dry humid areas- so-called drylands, with high risk of land degradation.²⁴²

sub-Saharan Africa's environment is itself hostile. Hostility here can be in two perspectives, that is, both literal and metaphorical. The rate of expansion of the Sahara has been somewhat rapid and persistent, from time since the desiccation of the Sahara in about 4,000 BC.²⁴³ In the areas of northern Nigeria and many other countries in the savannah region, desertification is a potent threat to the biology and physical well-being of the people as food production has to be continuously buoyed by artificial fertilizer and irrigation. Such hostile environment to the development and growth of agriculture has also affected the sedentarization process of many of the communities leading to such geographic phenomenon as migration southwards and other related consequences.²⁴⁴ It is

²³⁸ See NDUJIHE Clifford op. cit.

²³⁹ Nigeria signed the Convention on 13th June, 1992, ratified on 29th August, 1994 and entry into force was on 27th November, 1994.

²⁴⁰ See Reporting The Nigerian Environment, Publication of Environmental Rights Action/Friends of the Earth, 2010, at p.50.

²⁴¹ IMF: 2012 Growth in Subordinated –Saharan Africa Seen at Least 5.5%. Fox Business, EIN News, available at <http://worldinnews.com/article/95853131>. Site visited 23-03-2013.

²⁴² See Drylands Not a Lost Cause, UN Summit Declares. Also at <http://ipsnews.net/news.asp?idnews=105183> Site visited 09-10-2012.

²⁴³ LAWAL K., Ecology and Culture: Reflections on Environmental Law and Policy in Sub-Saharan Africa. In SIMPSON Struan and FAGBOHUN Olanrewaju (eds.), Environmental Law and Policy, Law Center, Faculty of Law, Lagos State University, Lagos, 1998, p.37.

²⁴⁴ Lawal, Ibid.

metaphorical in that, it is as if many African countries are yet to be alive to the practical challenges facing the environment. Governmental attitude to the issue of the preservation and protection of the environment is, at times, rather ambiguous. Where categorical statements have been made about the environment, little or grossly inadequate efforts are made to implement publicly stated policies and regulations.²⁴⁵

The northern part of Nigeria is endowed with a large expanse of arable land that has over the years proved a vital resource for agriculture and other economic activities. But the Sahara desert is advancing southwards at the rate of 0.6 kilometers per year, encroaching dangerously upon this vast savannah rendering it unsuitable for agriculture. Consequently, Nigeria loses about 350,000 square meters of its land mass to desert encroachment yearly,²⁴⁶ leading to demographic displacement in about 11 states in the north. It is also estimated that Nigeria loses about US\$ 5.1 billion every year as a result of the desert encroachment.²⁴⁷ About 35 million people in northern Nigeria are suffering from the effects of desertification, the larger majority of who are engaged in agriculture, but are being rendered jobless.²⁴⁸ As defined by the UN Convention, desertification is a process of land degradation in arid, semi-arid, and dry sub-humid areas resulting from various factors, including climatic variations and human activities;²⁴⁹ a delimitation or destruction of the biological potential of land which can lead to desert-like conditions. It is a phenomenon of impoverishment of the terrestrial ecosystem under the impact of adverse weather and population activities. The progressive deterioration of the fertile land and loss of its productive capacity renders it unsuitable for human and animal habitation. Desertification contributes to other environmental crises, such as the loss of biodiversity and global warming. The expanding desert in the north is considered to be one of the most severe environmental problems facing Nigeria. Desertification has been reported in Nigeria and other parts of West Africa since the 1920s. A combination of climatic factors and general increases in population and livestock pressure on the land and vegetation are accepted as the chief causes of desertification.²⁵⁰

Desertification may be caused by drought,²⁵¹ a consequence of climate change, or human activities such as over-cultivation, or bad irrigation which exhausts the soil, overgrazing which removes

²⁴⁵ Lawal, Ibid.

²⁴⁶ See Fight Against Desert Encroachment, Our Story: Desert Facts. Available at http://www.fadeafrica.org/pages.php?page_id=2&site_id=5. Site visited 19-10-2012

²⁴⁷ See Special Report on Desertification in Nigeria: The Sun Eats Our Land. Also at <http://www.vanguardngr.com/2010/05/special-report-on-desertification-in-nigeria-the-sun-eats-our-land> . Site visited 21-09-2011

²⁴⁸ See Desertification Threatens Economy, Food Security. Also http://ipnews.net/riomas10/2608_8.shtml . Site visited 04-01-2012

²⁴⁹ See The United Nations Convention to Combat Desertification: A New Response to an Age-Old Problem. Also <http://www.un.org/ecosocdev/geninfo/sustdev/desert.htm> . Site visited 22-07-2011.

²⁵⁰ OKORODUDU-FUBARA Margaret T., Law of Environmental Protection: Materials and Texts, Ibadan, Caltop Publications, 1998, p.244.

²⁵¹ A study conducted from 1991 to 2005 gathered that there was a temperature increase in Nigeria of 1.1°C, while the global mean temperature increase was only 0.74°C. The same study also found in the same period of time that the amount

vegetation that prevents soil erosion, poorly drained irrigation resulting in salinization of the soil, deforestation, and indiscriminate bush burning leading to undue exposure of the land. It may also be caused by social and economic factors as extreme poverty, demographic pressures on land by way of high population growth rates, unequal land distribution, refugee flows, wars, modernization that disrupts traditional farming practices and government policies that encourage the growing of cash crops on marginal land to pay off foreign debts.²⁵² Desertification is not peculiar to Nigeria alone, but to countries in the Sahel region such as Niger, Burkina Faso, Cote d'Ivoire, The Gambia, Libya, Senegal, Sudan, Egypt, Morocco, Tunisia, Mauritania, South-Africa, Namibia, The United States, Canada, Mexico, etc. The countries in the Arabian Peninsula and Israel are affected as well, but Israel has fought desert to standstill and has succeeded in increasing its cultivable land area significantly by using what is called the Consolidated Solar Power Technology.²⁵³ UNEP estimates that desertification costs the world US\$42 billion a year. Of the total, Africa loses some US\$ 9 billion a year, Asia US\$21 billion, North America US\$5 billion Australia and South America US\$ 3 billion each, and Europe US\$ 1 billion.²⁵⁴

2.6.2 Deforestation in Nigeria

It has been estimated that in developing countries, forests are disappearing at a rate of 15-20 million hectares per year. One of the greatest environmental threats to Africa is land degradation, which is seriously affecting 32 African countries. Africa is losing more than 4 million hectares of forests a year—twice the world's average deforestation rate, with some areas consequently losing over 50 tonnes of soil a year due to erosion of exposed areas.²⁵⁵ Nigeria has one of the worst environmental records in the world, with widespread social and environmental problems stemming from operations in the Niger River delta, and the world's highest deforestation rate.²⁵⁶ Deforestation is a serious problem in Nigeria, with forest loss occurring at a rate of about 3.5 per cent per year.²⁵⁷ Since 1990, the country has lost over 6 million ha or 36 per cent of its forest cover. The most biodiverse ecosystems, the old-growth forests are disappearing at an ever faster rate, between 1990 and 2005, 79 per cent of these forests were lost and since 2000, Nigeria has been losing an average 11 per cent of its primary forests each year. These figures give Nigeria the highest deforestation rate in the world.²⁵⁸ From 1990 to 2010, Nigeria nearly halved the amount of forest cover moving from 17.234 to 9.041 hectares. The

of rainfall has decreased by 81mm. see Nigeria: Tackling Deforestation Problems. Also available at <http://allafrica.com/stories/201106031011.html>. Site visited 22-02-2012.

²⁵² Ibid. n.64; n.66; also BODANSKY Daniel et al (eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2007, p.383.

²⁵³ Ibid, n.64.

²⁵⁴ Ibid, n.66

²⁵⁵ VIDAL John, *Satellite Atlas Reveals a Changing Africa*. Also at

<http://www.guardian.co.uk/environment/2008/jun/10/climatechange.conservaion>. Site visited 09-09-2011

²⁵⁶ See Nigeria: Environmental Profile. Also <http://rainforests.mongabay.com/20nigeria.htm>. Site visited 18-07-2011

²⁵⁷ Akanimo Reports, *You Are Toying With Oil Pollution Issues, ERA Tells HYPREP*, Akanimo Reports, September 20, 2013. Available at http://www.allvoices.com/contributed_news/15589972-era-indicts-hyprep-on-clean-up-deals-in-polluted-nigeria-s-oil-region. Site visited 23-09-2013.

²⁵⁸ See Nigeria. Also http://www.illegal-logging.info/approach.php?a_id=102 Site visited 15-06 2012

combination of extremely high deforestation rates, increased of deforestation in Nigeria is approximately between 350,000 and 400,000 hectares per year.²⁵⁹ For decades, tropical deforestation has been the No. 1 cause of species extinctions and the No. 2 cause of human greenhouse gas emissions, after the burning of fossil fuels. By and large, the most diverse forests on earth have been in serious decline.²⁶⁰ In Nigeria, the rate of deforestation has accelerated in recent years, an indication of increasing demand for forest products.²⁶¹

Deforestation has negative implications on the environment in terms of release of carbon dioxide through disturbing the residue of carbon in the soil,²⁶² soil erosion, loss of biodiversity ecosystems,²⁶³ loss of wildlife and increased desertification, political instability and famine as occurring currently in the Horn of Africa, which is already threatening regional peace by way of trans-border conflicts between nations in the region (Kenya and Somalia).²⁶⁴ It also hampers the stabilizing influence exercised by tropical forests on regional climate and the water cycle. Water vapour emitted from the trees through evapotranspiration stimulates rainfall whilst the roots reduce the risk of floods and drought by storing water and binding topsoil²⁶⁵. Deforestation could endanger devastating storms and in extreme situations, cyclones and such the likes, as there would be no trees and forests to act as wind-breaker. It could as well, enhance the occurrence of extreme temperatures and heat waves. In March 2012, the Nigeria Meteorological Agency sent out warning signals to people across the country of an impending heat wave, which as predicted happened, running into a couple of months.²⁶⁶ The assault on forests subsists, because the country's department of forestry has failed to implement any forestry management policy to curb deforestation since the 1970s, and without any conservation

²⁵⁹ BALARABE Ladidi Yakubu, Nigeria: Tackling Deforestation Problems. Daily Trust, Friday 3rd June, 2011, Nigerian Dailies. Also <http://allafrica.com/stories/201106031011.html> visited 21-01-2012. Nigeria has the world's highest deforestation rate of primary forests according to revised deforestation figures from the Food and Agriculture Organization of the United Nations (FAO). Between 2000 and 2005, the country lost 55.7% of its primary forests – defined as forests with no visible signs of past or present human activities. Logging, subsistence agriculture and the collection of fuelwood are cited as leading causes of forest clearing in the West African country.

²⁶⁰ Ibid, n.71

²⁶¹ KOLA-OLUSANYA Anthony et al, (eds.), Environment and Sustainability: Issues, Policies and Contentions, Ibadan, University Press, 2011, p.74.

²⁶² See The Importance of Tropical Forests. Also at <http://uk.oneworld.net/guides/forests?gelid=COvIkK176sCFedI3godGWV17w>. Site visited 23-04-2012

²⁶³ Biodiversity is the most renowned attribute of the tropical forest. One hectare of Amazon rainforest can contain more plant species than the whole of Europe. See The Importance of Tropical Forests. Also at <http://uk.oneworld.net/guides/forests?gelid=COvIkKu176sCFedI3godGWV17w> Site visited 23-04-2012

²⁶⁴ See Burkina Faso: The Man Who Stopped The Desert. Also at <http://allafrica.com/stories/201110200026.html>. Site visited 23-04-2012

²⁶⁵ Ibid, n.74

²⁶⁶ See Agency Reporter, NIMET Warns on Heat Wave. The Nation, Nigerian Daily, 27 March, 2012.

efforts or education, the society would not be informed on how to properly treat finite natural resources.²⁶⁷

2.6.3 Legal and institutional framework on desertification and deforestation in Nigeria

At the national level, there are laws which contain provisions that address the causes of desertification, such as deforestation, over-exploitation of natural resources, inappropriate agricultural practices, bush burning, etc. Such laws include the FEPA Decree, the National Parks Decree 101 of 1991, Cap N65, LFN 2004, which has the statutory responsibility to preserve, enhance, protect and manage vegetation and wild life in Nigeria, contains provisions for the establishment of protected areas used for resource conservation, water catchments protection, wildlife Department of Forestry Research created in 1954. It became semi-autonomous in 1977 by virtue of Decree No. 5 of 1977. Of course, the Nigerian Constitution, CFRN, 1999 has provisions on these. Most of the Laws created certain agencies with specific responsibilities bordering on desertification and deforestation in Nigeria.

Asides these, most of the states of the Federation have forestry, agricultural and wildlife laws, bush burning, and grazing reserve regulations. These categories of laws are directed at controlling the notable causes of desertification earlier enumerated. The most significant of these laws relevant to desertification control are the Forestry Laws, most of which are outdated and require instant review.²⁶⁸

Katsina, Kebbi, Sokoto, Yobe, and Zamfara states in Nigeria are being affected by desertification. These states with a population of about 35 million people account for about 35 per cent of the country's total land area.²⁶⁹ Between 2000 and 2010, Nigeria lost nearly a third (31 per cent) of its forest cover, while its primary forests suffered even worse. In just five years (2000 to 2005), over half of the nation's primary forests were destroyed, the highest rate in the world during that time. Yet, Nigeria's dwindling forests have never received the same attention as many other countries', such as Indonesia, Brazil, Malaysia, or Peru, even though in many ways, Nigeria struggles with deeper problems than other developing nations. Ecuador has spearheaded in passing a legislation conferring fundamental rights on nature, which means forests and other objects of nature cannot just be exploited arbitrarily. This is good for other tropical countries to follow after.

Though, it may be said that not many encouraging steps have been taken to try and lower the deforestation rates and to stop illegal logging, it should be noted that the current government is

²⁶⁷ See Nigeria: Deforestation-Looming Self Inflicted Disaster. Also at <http://allafrica.com/stories/201109110144.html>. Site visited 23-04-2012.

²⁶⁸ See Combating Desertification and Mitigating the Effects of Drought in Nigeria, National Report Submitted to the United Nations Convention to Combat Desertification, UNCCD, in Recife, Brazil, November 1999.

²⁶⁹ Combating Desertification and Mitigating ..., Ibid.

concerned about rising deforestation and environmental degradation, which is estimated to cost the country over US\$6 billion a year. It however needs to put in place measures to curb illegal logging, as only 6 per cent of the land area is protected. Timber concessions have been granted in national parks and oil-palm plantations have been allowed to replace forested areas.²⁷⁰ Environmentally, it has been named one of the worst in the world.²⁷¹

In Africa as a whole, in the early 1980s, the richest 20 per cent of the population had an income four times that of the poorest 40 per cent and 3.8 million hectares of forests and woodlands disappear every year, with four per cent of closed forests going each year in West Africa alone.²⁷²

2.7 Erosion and Flooding in Nigeria

As the northern part of Nigeria grapples with the problem of desertification, so contrastingly, the southern parts have the problems of flooding and erosion to contend with. Flooding in Nigeria has been due to natural and artificial factors. Across the globe, floods have posed tremendous danger to people's lives and properties.²⁷³ Nigeria is prone to climate induced disasters as any other parts of the world. Managing climate induced risks is a major challenge of today and for the future. The number of reported hydro-meteorological hazards (droughts, floods, wind storms, forest fires, or landslides) has significantly increased in recent years due to climate induced disasters.²⁷⁴ Floods occur in Nigeria in three main forms: coastal flooding, river flooding and urban flooding. Coastal flooding occurs in the low-lying belt of mangrove and fresh water swamps along the coast. River flooding occurs in the flood plains of the larger rivers, while sudden short-lived flash floods are associated with rivers in the inland areas where sudden heavy rains can change them into destructive torrents within a short period. Urban flooding occurs in towns and cities on flat or low-lying terrain, especially, where little or no provision have been made for surface drainage.²⁷⁵

It is noticeable in Nigeria the increasing frequency and intensity of unusual or extreme weather-related events, such as erratic and unpredictable rainfall pattern, floods, and sea level rise, thunderstorms, lightning, landslides, droughts, increased desertification and land degradation, drying-up of rivers and lakes, and constant loss of forest cover and diversity.²⁷⁶ There is increasing temperature and decreasing rainfall in the semi-arid region of the north, from the north west through the central to the

²⁷⁰ Ibid, n. 72

²⁷¹ Ibid, n.71

²⁷² LANGE Tim and HINES Colin,(1993), *The New Protectionism*, London, Earthscan Publications, p. 87.

²⁷³ See *Climate Change and Menace of floods in Nigerian Cities: Socio-Economic Implications*. Also at [http://www.thefreelibrary.com/Climate change and menace of floods in Nigerian cities'...a0235407234](http://www.thefreelibrary.com/Climate+change+and+menace+of+floods+in+Nigerian+cities'...a0235407234) . Site visited 08-05-2012

²⁷⁴ NEMA Warns of Climate-Induced Disasters. Also at <http://www.africacimatesolution.org/news.php?id=4749>

²⁷⁵ Ibid. n.55

²⁷⁶ See Odjugo, P.A.O.,(2010), *Regional Evidences of Climate Change in Nigeria*

north east, resulting in the increasing evapotranspiration, drought, and desertification in Nigeria. This has caused either reduction in water levels or total dry up of some rivers and lakes in the region, while Lake Chad is reported to be shrinking in size at an alarming rate since the 1970s.²⁷⁷ In the coastal region, a sea level rise of 0.2m and incursion of salt water into the coastal plain for about 2016-3400 sq. km has been reported.²⁷⁸ A recent study by DFID (2009) for Nigeria, predicts a possible sea level rise from 1990 levels to 0.3m by 2020 and 1m by 2050, with a rise in temperature of about 3.2C under a high climate change scenario.²⁷⁹ The low estimate predictions are for sea level rise of 0.1 and 0.2m by 2020 and 2050 respectively, and a temperature increase of 0.4 to 1C over the same periods. A report of the Nigerian Red Cross Society reveals that as a result of eight hours of heavy rains that occurred on 7 August, 2005, the heaviest and worst floods in 40 years occurred in Jalingo, the capital of Taraba state, killing over 100 people and displacing more than 50,000 others.²⁸⁰ In the south western Nigeria, August 2011, a dam overflowed as a result of continuous heavy rains, causing the death of more than 140 people and displacing thousands others, in Ibadan, one of Nigeria's biggest cities. Bridges collapsed in the flooding that also left vehicles submerged. Similarly in July, floods triggered by a heavy downpour killed at least 20 people in Lagos, when it rained heavily for several hours,²⁸¹ while some 24 people died in June when unusually heavy rains inundated a neighbourhood in Nigeria's largest northern city of Kano.²⁸² The country likewise experienced severe flooding in 2010 that affected around half a million people in two-thirds of its 36 states.

In early 2011, the Nigerian Meteorological Agency, NIMET, predicted heavy rainfall. Based on this, the Nigeria Emergency Management Agency, NEMA, sent out early warning messages to governments and citizens in seven states, for both government and people to start cleaning up drainage ditches. Formal written warnings were sent to state governments to prepare for the expected flooding, however, the state governments overlooked the warnings, and for the year running, flooding across the country has

²⁷⁷ See ODJUGO P.A.O. and IKHORIA A.I.,(2003),The Impact of Climate Change and Anthropogenic Factors on Desertification in the Semi-Arid Region of Nigeria, *Global Journal of Environmental Science*, Vol.2 (2). Also, ADEFOLALU D.O.(2007), Climate Change and Economic Sustainability in Nigeria, Paper presented at the International Conference on Climate Change and Economic Sustainability, held at the Nnamdi Azikiwe University, Enugu, Nigeria, 12-14 June, 2007

²⁷⁸ See Nigerian Environmental Study/Action Team (NEST), (2003), *Climate Change in Nigeria: A Communication Guide for Reporters and Educators*, Ibadan. Also, NWAFOR J.C.,(2006), *Environmental Impact Assessment for Sustainable Development: The Nigerian Perspective*, Enugu, Environmental and Development Policy Center for Africa. Also, Nyelong, P.N. (2004), *Global Warming and Global Waters*, *Journal of Energy and Environment* Vol. 17 (1).

²⁷⁹ See *Nigeria and Climate Change: An Update From Copenhagen to Cancun*, November 2010, Federal Ministry of Environment. Also available at <http://www.mri.uk.com/pdf/Cop%2016%20Brochure.pdf>. Site visited 17-02-2012

²⁸⁰ See *Climate Change and Menace of Floods in Nigerian Cities: Socio-Economic Implications*. Also at [http://www.thefreelibrary.com/Climate change and menace of floods in Nigerian cities'...a0235407234](http://www.thefreelibrary.com/Climate+change+and+menace+of+floods+in+Nigerian+cities...a0235407234). Site visited 21-08-2012.

²⁸¹ Dr. Regina Folorunsho of the Nigerian Institute for Oceanography and Marine Research said the 264mm of rainfall received in one day was the equivalent of the volume expected for a whole month. See <http://www.thenationonlineng.net/2011/index>. Site visited 04-04-2012

²⁸² See, *Flooding Kills 20 in Southwestern Nigeria*. Also at http://www.terradaily.com/reports/flooding_kills_20_in_Southwestern_Nigeria. Site visited 10-05-2012.

killed hundreds of people and displaced tens of thousands.²⁸³ There has been changes in rainfall in the southern part of the country and more intense land use resulting in increased deforestation, loss of forest quality and woodlands degradation across the country that would worsen desertification in the northern part of the country. Climate change has already manifested in many various ways like sea level rise leading to coastal and marine erosion and flooding, particularly in the south-south and south-west, and bleaching of the coral reefs along the coastal zone.²⁸⁴ Particularly worrisome is the Lagos flooding and erosion, where the part of the city overlooking the Atlantic ocean- the Victoria Island, erosion problem has over the years been aggravated by periodic ocean storm surges, which has reached a crisis stage, beyond the capability of the Lagos state, while the national government is not forthcoming with the required necessary assistance, in spite of the fact that the nation's President visited most of the affected areas most recently. In a report monitored by Reuters, an international news agency, coastal megacities listed as most at risk with an extreme ranking include Dhaka, Jakarta, Kinshasa, Lagos (Nigeria), Delhi and Guangzhou.²⁸⁵

From observations by the Nigerian Institute of Oceanography and Marine Research, NIOMR, the months of April to June and August to October are known as the peak periods when ocean storm surges occur along the Lagos shore line. Between three to four major storm surges are experienced annually these months. During such periods, there is a sudden rise in sea level that results in high plunging waves which top the beach and spill ocean water on to the immediate vicinity and beyond. When this happens, large amount of beach sediments are eroded and washed away, leading to flooding of large parts of the Victoria Island.²⁸⁶ In Nigeria, the problem of flooding is similar to the rest of the world. Excluding droughts, almost 90 per cent of damage relating to natural disasters is caused directly or indirectly by floods.²⁸⁷ Lagos, the erstwhile capital city of Nigeria, is rated the second largest city in Africa after Cairo in Egypt.²⁸⁸ The city, sitting on the Atlantic seaboard in the southwest of the country, is by all standards a megalopolis, but with facilities far inadequate commensurate to its population estimated at about 15 million people, half of them at two meters (6ft) above sea level, and puts them at risk as hardly any other big city in the world, said Stefan Cramer, of Germany's Heinrich Boll Foundation, and an adviser to the Nigerian Government on climate change. He said further:

²⁸³ See Nigeria: Flood Early Warning Messages Not Heeded. Also at <http://irinnews.org/report.aspx?reportid=92711>. Site visited 13-05-2012.

²⁸⁴ Ibid. n.56

²⁸⁵ BAIYEWU Leke, Nigeria Exposed to Climate Change Risks. The Punch, Nigerian Daily, 30 October, 2011, available at <http://www.punchng.com>. Site visited 06-03-2012

²⁸⁶ See AWOSIKA Larry et al, Bar Beach Victoria Island Erosion Problem: A Critical Assessment As At October 30th, 2002 And Need For Urgent Mitigating Measures.

²⁸⁷ Ibid., n. 85

²⁸⁸ See Africa's Top Ten largest Cities by Population in 2005. Also at <http://www.clickafrique.com/Magazine/ST014/>. Site visited 13-03-2012

*In 50 years with a one-meter sea level rise, 2 million to 3 million people would be homeless.... By the end of the century, we would have 2meters and by that stage, Lagos is gone as we know it.*²⁸⁹

Lagos is currently estimated to be the fastest growing city in Africa, and the 3rd in the world.²⁹⁰ Eighteen different occurrences of ocean surge events over the beach of the Victoria Island in Lagos were recorded between 1990 and 2002, and each with its devastating consequences resulting from the massive flooding and erosion.²⁹¹ The rise of sea level of only 20cm would imply a displacement of 740,000 people in Nigeria, a rise of 1m would lead to 3.7m and 2m would lead to 10 million homeless people in the country. The UNFCCC conference in Nairobi reported about the menace that one day the city of Lagos might sink completely in the sea.²⁹² The city reeks of the stench of wastes, as its wastes disposal and treatment are not commensurate with its generation. Dump sites in parts of the city have been burning incessantly for decades, spewing up smoke to the atmosphere.²⁹³ Water channels and canals criss-crossing the entire landscape of the Lagos area, being a vast area of flood plain, are constantly blocked with wastes, which partly caused serious flooding in the city in August 2011, resulting in loss of tens of lives, spanning many days.

Aside from the erosion from ocean flooding, there are palpable cases of land erosion in some states of the country. Most affected states are those of the south-east like Anambra, Abia, Enugu, Imo, and the Efon-Alaaye area of Ekiti state in the south-west geopolitical zone. In these areas, buildings have collapsed in several towns, farmers have seen their fruit trees washed away, and entire community farmlands devastated by erosion. Whole communities have been threatened by severe gully erosion. These have been the result of not only acute changing climatic conditions, but also poor urban planning, population growth and improper waste disposal.²⁹⁴ Other factors include high river levels, concentrations of overland flow following heavy rainfall, limited capacity of drainage systems and blockage of waterways and drainage channels.²⁹⁵

Flooding is an extreme weather event naturally caused by rising global temperature, which in turn results in rise in sea level thereby causing salt water to inundate coastal lands. Flooding is the most common of all environmental hazards and it regularly claims over 20,000 lives per year and adversely

²⁸⁹ See Sea Surges Could Uproot Millions in Nigeria's Megacity. Also at <http://www.reuters.com/article/2008/11/19/us-climate-nigeria-idUSTRE4A174G20081119?sp=true> . Site visited 12-04-2012

²⁹⁰ See Lagos. also at http://en.wikipedia.org/wiki/Lagos#Gensus_data . Site visited 08-04-2012

²⁹¹ OLANIYAN E. and AFIESIMAMA E.A., Understanding Ocean Surges and Possible Signals Over the Nigerian Coast: A Case Study of the Victoria Island Bar-Beach, Lagos.

²⁹² STIFTUNG Konrad Adenauer 2007, Nigeria in the Dilemma of Climate Change. Also at <http://www.kas.de/Nigeria/en/publications/11468> . Site visited 11-07-2012

²⁹³ Cases in point are the Olusosun (Ojota) and Abule-Egba Dump Sites, which constitute eye-sore and threat to the people and the environment in the fledgling city. These are to the city what gas flaring points are to the Niger Delta region.

²⁹⁴ See Nigeria's Erosion a "State of Emergency". Also at <http://www.irinnews.org/report.aspx?reportid=86863> . Site visited 28-11-2011

²⁹⁵ Ibid., n.85

affecting around 75 million people world-wide.²⁹⁶ The poorest people in the world's poorest countries will suffer the earliest and the most from climate change, according to this year's edition of the Environmental Review. The report says that due to their geographical location, low incomes, and low institutional capacity, as well as their greater reliance on climate-sensitive sectors like agriculture, the poorest countries and people are suffering earliest and are poised to suffer most.²⁹⁷ The Nigerian government needs adequate and comprehensive legal and institutional framework and good policy measures if it would be seen to be taking practical steps towards tackling these menaces. Unfortunately, in this regards, there is a yawning lacuna.

Conclusion

A critical look at the array of legislation as presented herein and the vast majority of others not analysed here presents Nigeria's sordid and shoddy handling of its oil and gas industry, the livewire of its economy. It presents the state summarily as a weak state. Weak states would normally exhibit these following, which are all clearly manifest in Nigeria: ethnic, religious, linguistic and/or other intercommunal tensions. A weak state has high urban crime rates, the ability to provide adequate measures of political goods are lacking, physical infrastructural networks are either deteriorating or completely moribund, rule of law precepts are breached more than respected,²⁹⁸ leadership despotic, providing very few political goods, GDP and other economic indicators are falling or rather badly compromised, exhibits flawed institutions and are no longer, or unwilling to perform fundamental jobs of a nation-state in the modern world, corruption are embarrassingly high and escalating, fuelled by avarice among its ruling class to the detriment of the common good of the state and the citizenry.

Most recently, a key Nigerian political figure, James Onanefe Ibori, the immediate past Governor of Delta state,²⁹⁹ for eight years- 1999-2007, was found guilty of money laundering, fraud and excessive corruption at a Southwark, London court, and was sentenced to thirteen years imprisonment. It was estimated that he embezzled about \$250 million of Nigerian public funds. This is just the one within the British system, there are several others in numerous bank accounts in several countries.³⁰⁰ The newspaper commenting further said: "with a weakened judiciary³⁰¹ and anti-graft agencies hamstrung

²⁹⁶ Ibid.

²⁹⁷ See Global Warming: Implications For Africa, available at <http://allafrica.com/stories/200804010534.html>. Site visited 15-06-2012

²⁹⁸ UN Secretary-General Kofi Annan said "the rule of law delayed is lasting peace denied, and that justice is a hand maiden of true peace". See Security Council 4833rd Meeting of 24th September, 2003. Press Release SC/7880.

²⁹⁹ One of the nine Niger Delta states. It occupies an area of approximately 17,010 sq Km, with a coastline of approximately 160 Km along the Bight of Benin. It has a population 4, 098,291 (Federal Republic of Nigeria, Official Gazette No. 24, Vol.94, 2007) See also, ABOLAGBA O.J. and OMORODION G.O., Field Survey of Fish Pond Management Practices in Delta State, Nigeria. Tropical Freshwater Biology, 15 (2006) 43-54, p.44.

³⁰⁰ Punch Editorial Board. Ibori: The Shame of a Nation. The Punch, Nigerian Daily, 19 April, 2012.

³⁰¹ James Ibori who was jailed by a London Crown Court for 13 years in April 2012, on money laundering charges had a 173 count charge on similar allegations preferred against him in a Federal High Court in Asaba, Delta State, Nigeria quashed, by Justice Marcel Awokulehin, in questionable circumstances, in 2009. He was running away from justice in Nigeria when he

by hypocritical and corrupt political leadership, corruption has become synonymous with Nigeria, so much that even the theft of NGN2trillion (Nigerian Naira), almost half of the NGN4.4 trillion 2011 budget for a dubious petrol subsidy has failed to galvanise the nation into action". It added that over \$500 billion of public funds is estimated to have been looted between 1960 and 2009, by corrupt leaders in the country. This could indeed be a very conservative estimate, it could be far more than that. It also took the intervention of the United Kingdom authorities to nab a former Governor of Bayelsa State, a sister Niger Delta state, Diepriye Alamieyeseigha, even before Ibori's. Only a failing state relies on other countries to punish its treasury looters.³⁰² These and many more are the lots and the bane of Nigeria and many African nations especially the sub-Saharan region, which accounts mostly for the gross under development of these countries and are fuelling the extremely high propensity for national and regional crises that the sub-region is noted for. The region alongside south-east Asia is reputed to be in the lowest rung of under development in the world.

One of the basic ideals of states is a strong sense of social trust among its citizens,³⁰³ which entails among others instilling in the minority a sense of care of their interests by the majority. This is one thing that is most lacking in the Nigerian state. This has been suspected for long, as presented in the Wilkins Commission Report of 1958, (even before Nigeria's independence in 1960), which made far reaching recommendations for the aversion of the situation that Nigeria is experiencing today. But the Willink's Report was not fully implemented. It has led to several incidents of uprising among the minorities in the country, most conspicuous among which are the Isaac Adaka Boro secessionist bid in the early 1960s against the Federal Government of Nigeria for its complicity in the oil-related environmental degradation of the Niger Delta area.³⁰⁴ The Nigerian civil war between 1967-70 is another case in point on the issue of minority rights against the government, and a host of other such cases, up to the present Niger Delta uprisings, in which the government have had to descend heavily on its people to the extent of razing a whole community³⁰⁵, and killing its own people extra judicially³⁰⁶. The government in an attempt to cover up its misdeeds and guilt has been waging a political war of tyranny against its people in the Niger Delta, oppressing them and committing grave genocide against defenseless people and grave crime against humanity.

was apprehended in Dubai, United Arab Emirate and extradited to the UK where he was eventually convicted after pleading guilty to the charges there. This is considered a serious indictment on the Nigerian judicial system.

³⁰² Ibid.

³⁰³ CHICKERING Lawrence and HALEY Edward, Strong Society, Weak State. Policy Review, Hoover Institution, Stanford University, No. 143, June 1, 2007

³⁰⁴ AGBONIFO John, Environmentalism and Environmental Movements in Nigeria, in KOLA-OLUSANYA Anthony et al (eds.) Environmental Sustainability: Issues, Policies and Contentions, Ibadan, University Press, 2011, p.267

³⁰⁵ ABILA Sylvanus Elijah, Historical and Philosophical Foundation of Minority Rights. In Niger Delta, in EMIRI Festus and DEINDUOMO Gowon (eds.) Law and Petroleum Industry in Nigeria: Current Challenges. Lagos, Malthouse Press, 2009, p.191.

³⁰⁶ Environmental activist Ken Saro-Wiwa and other Ogoni activists in 1995, and several such others which were not as prominent. Also, JONATHAN Ehusani A., Human Rights Dimension to Corporate Responsibility for Environmental Degradation, *ibid.*, 2009, p. 67. Also AGBONIFO John, *ibid.* p.285.

The Nigerian government has simply abdicated its responsibility and power of control through the instrumentality of the law over institutions and entities operating within its territory, including the oil TNCs, and has compromised, the result of which is the sacrificing of its people for economic interests and to satisfy the oil TNCs. This is a negation of social contract theory, which places the strict responsibility of security of the citizens of a defined territory on the government basically. The oil TNCs in turn have been financing directly and indirectly the war of attrition against the people and their environment.³⁰⁷ This is an abrasion of the people's rights to development and a safe environment that is conducive for living.³⁰⁸ The Nigerian state is facing stresses on every hand, experiencing rapid population growth, and worn down by the struggle to build schools and provide jobs for an ever-expanding population. The government is fast losing its legitimacy and authority to govern, all indices of a failing state.³⁰⁹

It is quite evident, that a cursory review of the discussed legislations as presented herein are insufficient to fight, let alone reduce flaring. Worse still, the capacity to enforce any regulation is lacking on the government's part, and without any legal standing, compliance cannot be quantified at this stage. Hence it could be summarily concluded that to date, an encompassing gas production, transportation and distribution as well as flaring law has yet to be passed.³¹⁰

³⁰⁷ Shell was accused in a law suit in the USA of playing a role in the 1995 execution of activist Ken Saro-Wiwa and other civilians by Nigeria's former military regime. Shell reached a \$15.5 million settlement to end the law suit in June 2009, but acknowledged no wrongdoing. See Associated Press, Shell Reports Record Oil Spillages in Nigeria. The Guardian, 5th May, 2010. Available at <http://www.guardian.co.uk/environment/2010/may/05/shell-oil-spill-niger-delta?INTCMP=ILCNETTXT3487>. Site visited 08-09-2011.

³⁰⁸ See Ss. 20, 33, 34 (1) (a) and 45 CFRN, 1999 (as amended). Also, TARERI Avwomakpa, 2009. A Rights Based Approach to Indigenous Minorities: Focus on the Urhobo and Ogoni Peoples of the Niger Delta in Nigeria, in EMIRI Festus and DEINDUOMO Gowon (eds.) op. cit., p.291.

³⁰⁹ BROWN Lester R., Full Planet, Empty Plates: The New Geopolitics of Food Scarcity, New York, W.W. Norton and Company Publishing, 2012, p.21.

³¹⁰ Annex 3-A Flaring Policy and Regulation in Nigeria, op. cit.

Chapter Three

Sustainable Development

3.0 Introduction

All the hues, cries and concerns about climate change stem from the failure to put in proper perspective the principle of sustainable development. A recognition of this principle in every affair and undertaking of entities will ensure a re-ordering of application of resources to meet the competing needs of human generations. The non-recognition and abuse of this vital principle stems from the inordinate exploitation and consumption of resources by certain section of the world, to the detriment of the interests of the generality of the less privileged elsewhere. This seeming disorder is what the principle of sustainable development in a way seeks to address. The principle is without doubt germane and *sine qua non* in its lay-out and application, and most explicit in its implementation. Combating climate change is vital and core to the pursuit of sustainable development, just as the pursuit of sustainable development is integral to lasting climate change mitigation.³¹¹

3.1 The Concept of Sustainable Development

Sustainable development is an evolving concept of international law,³¹² broadly defined as “development that meets the needs of the present without compromising the ability of the future generations to meet their own needs.”³¹³ It is likewise said to mean “A dynamic process which enables

³¹¹ SOKONA Youba; NAJAM Adil and HUQ, Saleemul, *Climate Change and Sustainable Development: Views From the South*, International Institute for Environment and Development, London, sine die.

³¹² See The ICJ decision in the case of Gabcikovo-Nagymaros Project (Hungary/Slovakia), 1997. The majority decision of the Court in Par. 140 describes sustainable development as a concept, but the dissenting opinion of Judge Christopher G. Weeramantry, Vice President of the court, describes it as a principle of international law with a normative value more than a mere concept. See also, ROGERS Peter P; JALAL Kazi F. and BOYD John A., *An Introduction to Sustainable Development*, London, Earthscan Publishers, 2008, p.9. Also, BELL Stuart and MCGILLIVRAY Donald, *Environmental Law*, (6th ed.), Oxford, Oxford University Press, 2006, pp. 63-64.

³¹³ See *Our Common Future*, Chapter Two: Towards Sustainable Development, A/42/427. *Our Common Future: Report of the World Commission on Environment and Development (WCED)*, Also known as the Brundtland Report. G Brundtland, ed., Oxford Press, 1987.

all people to realize their potential and improve the quality of their life in ways which simultaneously protect and enhance the Earth's life support systems."³¹⁴ The World Conservation Society on its own part defined sustainable Development as "the integration of conservation and development to ensure that modifications to the planet do indeed secure the survival and well-being of all people."³¹⁵ It is the ability to ensure equilibrium between making life better and not jeopardizing the natural resources and ecosystems for the enjoyment of the present and future generations. UNEP 1992 defines sustainable development as a means of improving the quality of human life while living within the carrying capacity of supporting ecosystem.³¹⁶ It is a matter of balancing the claims of different generations. Literally, it could mean the continuation of anything, and ecologically, it could mean maintaining the "ecological basis of human life" within a time-based structure, indicating concern for both the future and the present.³¹⁷ It evolved out of the fear of endangering the health of the planet and degrading natural resources upon which future generations would depend.³¹⁸ Sustainable development subsists on three pillars- social relations based on democracy and participation; the environment which needs to be treated with respect; and economic development, which must take cognizance of limits and potential economic growth.³¹⁹ A negation of any or combination of these makes for an imbalance, as can be observed in many parts of the globe now. Sustainable development is a balancing act between the economy and the environment, the former an entity that is separate from the latter, where the latter inevitably loses out in effect.³²⁰

Thus sustainability means that development efforts are tailored towards meeting the needs of the present without compromising the ability of future generation to meet their own needs- intra and intergenerational equity.³²¹ This requires that harmony must take no more from nature than nature

³¹⁴ See Forum for the Future, 2006. Available at <http://www.footprintnetwork.org/> . Site visited 08-04-2012.

³¹⁵ International Union for Conservation of Nature (IUCN), World Conservation Strategy: Living Resources Conservation for Sustainable Development, Gland, Switzerland, 1980. See also, MAGRAW Daniel Barstow and HAWKE Lisa D., Sustainable Development. In BODANSKY Daniel, et al. (eds.), The Oxford Handbook of International Environmental Law, Oxford, Oxford University Press, 2010, p.615.

³¹⁶ Caring for the Earth. A Strategy for Sustainable Living. See IUCN, UNEP, WWF, Gland, Switzerland, 1991

³¹⁷ FERGUS Andrew H.T. and Rowney, J.I.A., Sustainable Development: Lost Meaning and Opportunity? Journal of Business Ethics (2005) 60, 17-27, at 19.

³¹⁸ de SOYSA Indra, Filthy Rich, Not Dirt Poor! How Nature Nurtures Civil Violence. In DAUVERGNE Peter (Ed.), Handbook of Global Environmental Politics, Cheltenham, Edward Elgar Publishing, 2005, p.149.

³¹⁹ TROLL Tobias, HEADS UP or Thumbs Down? A Post-Colonial Analysis of the UN Decade on Education For Sustainable Development, May 2012. Available at http://www.academia.edu/6781296/HEADS_UP_or_thumbs_down_A_postcolonial_analysis_of_the_UN_decade_on_education_for_sustainable_development/ . Site visited 21-04-2014.

³²⁰ DREXHAGE John and MURPHY Deborah, Sustainable Development: From Brundtland to Rio 2012, Background Paper for High Level Panel on Global Sustainability, 19 September, 2010, United Nations Headquarters, New York, p.10.

³²¹ WISER Glenn M. and MAGRAW Daniel B. Jr., Principles and Approaches of Sustainable Development and Chemicals Management for a Strategic Approach to International Chemicals Management (SAICM), Center for International Environmental Law (CIEL), 2005. See also, KOLARI Tuula, The Principle of Common but Differentiated Responsibilities as Contributing to Sustainable Development Through Multilateral Environmental Agreements, in BUGGE Hans Christian and VOIGT Christina (Eds), Sustainable Development in International Law, Groningen, Europa Law Publishing, 2008, p. 254.

can replenish. The Rio Declaration requires that sustainable development should be the underlying factor for policies and activities in every sphere, and emphasised the interdependence and indivisibility of peace, development and environmental protection in efforts aimed at economic development.³²² Sustainability requires the enforcement of wider responsibilities for the impacts of decisions. This requires changes in the legal and institutional frameworks that will enforce the common interest. Some necessary changes in the legal framework start from the proposition that an environment adequate for health and well-being is essential for all human beings including future generations. Such a view places the right to use public and private resources in its proper social context and provides a goal for more specific measures.³²³

Sustainable development is all about respect to the earth's carrying capacity.³²⁴ It is a foregone precondition for future economic development, and a defining and enabling condition for economic growth.³²⁵ It presumes a drastic re-evaluation of our economic goals with nature's reality, without which the future generations' interests in many other ways might be seriously jeopardized. There is a limitation to the capacity of everything nature can provide, hence there is absolute necessity for a regulated use of the earth's resources. Even resources from the deep seabed which are estimated to last for several centuries in exploitation, if not carefully regulated would get depleted and exhausted in no time, to the chagrin of mankind. Sustainable development therefore, portrays a sense of an efficient application and usage of resources. The core idea is that each generation should refrain from activities that leave members of later generations without enough.³²⁶ It is thus a duty of all to do our very best to preserve the environment in its natural form for the future generations, so as to have in the very minimum, a consistent ozone layer rather than a depleted one.³²⁷ The incessant and arbitrary dumping of substances, often times toxic, in the atmosphere is inconsistent with this goal. The ecological restoration, where the damage is not irreversible, might be a herculean task, or the cost too prohibitive to bear.³²⁸

³²² See Principles 4 and 25, Rio Declaration.

³²³ Our Common Future, Art. 76, available at <http://www.un-documents.net/ocf-02.htm>. Site visited 28-09-2012.

³²⁴ PERCIVAL Roberts V. and ALEVIZATOS Dorothy C. (eds.) 1997. Law and the Environment: A Multidisciplinary Reader, Philadelphia, Temple University Press, 1997, p.3.

³²⁵ INGENIEUR Helmut E Lubbers, Ecology Discovery Foundation, Ecoglobe, Geneva, 2008. Available at www.ecoglobe.ch/sustain/e/iucn8723.htm. Site visited 13-08-2012.

³²⁶ PAGE Edward A., Climate Change and Future Generations, Cheltenham, Edward Elgar Publishing, 2007, p.91.

³²⁷ EBBESSON Jonas, Compatibility of International and National Environmental Law, London, Kluwer Law International, 1996, p. 248.

³²⁸ See the case of the UNEP Ogoniland Oil Assessment Report, which states that "Clean up efforts by SPDC are not leading to environmental restoration, nor legislative compliance, nor even compliance with its own internal procedures". Stating further that, environmental restoration of Ogoniland could prove to be the world's most wide-ranging and long-term oil clean-up ever undertaken.... The clean-up might take as long as 30 years, and would require an initial US\$1 billion fund injection to kick-start the clean-up, and recommended the establishment of three new institutions to support a comprehensive environmental restoration. See p.135, UNEP Ogoniland Oil Assessment Report, August 2011. Also, AMANZENWACHUKWU Chika, Ogoni Oil Spill: FG Set to Implement Cttee's Report . This Day Live, 03 July, 2012. Retrieved from www.thisdaylive.com/articles/Ogoni-oil-spill-fg-set-to-implement-cttee-s-report/119205. Site visited 18-12-2012.

According to Al Gore, a former Vice President of the USA, “[i]ndustrial civilization is violently colliding with the planet’s ecosystem,”³²⁹ hence the need for sustainable development cannot be overemphasized. It implies taking a long perspective of the preservation of natural resources and environmental quality, adopting such an approach,³³⁰ in the words of the erudite scholar Mohan Munasinghe, “that will permit sustained improvements in the quality of life at a lower intensity of resource use, thereby preserving for future generations an undiminished, or even enhanced stock of productive assets (manufactured, natural and social capital)”.³³¹ The Organization for Economic Cooperation and Development (OECD), presupposes that it must be unfair for future generations to inherit a plundered planet in combination with a huge cleaning bill.³³² The magnitude of the clean-up exercise anticipated for a proper restoration of the Ogoniland is herein envisaged. It is highly probable how the future generations of that area would not have to inherit a huge cleaning bill of the polluted environment of the whole place, if the UNEP Report is anything to go by. Analysing from business perspectives, the concept is believed to present three relationships: the first between humankind and the environment, the second between the present generation and future generations, and the third among present generations in different parts of the world, or different global social classes- the rich and the poor, the developed North and the impoverished South.³³³

Resources are classified in two: living and non-living resources, which are both renewable and non-renewable. Living and renewable resources include oceans resources like fisheries and other aquatic resources, timber and other agro resources, game animals,³³⁴ among others. While the non-living and non-renewable resources include resources such as the ore-metals, hydrocarbon resources, etc. Both are exhaustible unless guided measures are taken to regulate the harvest and put in place measures for their sustainable development. Unregulated harvest or exploitation will result in a depletion of the stock of a resource, resulting in an environmental issue or better still, a tragedy of the commons.³³⁵ Summarily therefore, sustainable development constitutes an inescapable logical necessity.³³⁶ It is the management of resources in such a way that they remain available for the development of others, and of future generation.³³⁷ Sustainable development requires vigorous attention to resource management

³²⁹ PERCIVAL Robert V. and ALEVIZATOS Dorothy C., op cit., p.396.

³³⁰ EBBESSON Jonas Compatibility of International and National Environmental Law, London, Kluwer Law International, 1996, p.233.

³³¹ MUNASINGHE Mohan, Making Development More Sustainable (MDMS), Rio Earth Summit, 1992.

³³² See “The OECD Environment Industry,” DN August 16, 1995. Also, LARSSON Marie-Louise, The Law of Environmental Damage: Liability and Reparations, London, Kluwer Law International, 1999, p.21.

³³³ BOUTILIER Robert, Views of Sustainable Development: A Typology of Stakeholders’ Conflicting Perspectives, in STARIK Mark and SHARMA Sanjay (Lead Co-Eds.), New Horizons in Research on Sustainable Organisations: Emerging Ideas, Approaches and Tools for Practitioners and Researchers, Sheffield, Greenleaf Publishing, 2005, p.19.

³³⁴ PERCIVAL Robert op cit., p.43.

³³⁵ PERCIVAL Robert, Ibid., p.43.

³³⁶ KISS Alexandre, Public Lectures on International Environmental Law. In BRADBROOK Adrian J., et al. (Eds.), The Law of Energy for Sustainable Development, Cambridge, Cambridge University Press, 2005, p.15.

³³⁷ DUHOT Stibbe Simont Monahan, Environment and Europe: European Union Environment Law and Policy and its Impact on Industry, Deventer, Kluwer Law and Taxation Publishers, 1994, p.9.

and the environment.³³⁸ Any development that falls short of this standard, is not properly so called sustainable, as it is apt to exhaust and affect either the resource or the environment or both negatively on the long run. Sustainable development seeks to intertwine and correlate together three distinct issues of economic development, social development and environmental protection;³³⁹ each of which cannot be severed one from the other. The UN General Assembly in 1997 (Rio+5), added the social and third pillar to the sustainable development equation, affirming that environmental protection, economic development and social development were three independent dimensions of sustainable development.³⁴⁰

3.2 Sustainable Development Under the UN Conference on Environment and Development

The World Commission on Environment and Development (WCED) was convened in 1983 by the UN with the objective of studying the effects of anthropogenic activity on the environment. The Commission came up with its report in 1987, which was tagged the Brundtland Report. The Report came up with three important issues viz: that the global resources should be measured, with the objective of ensuring that they are not depleted over time; that the central concern of the Report was increasing globalization of various crises, including environmental and others; and that sustainable development represents a commitment to economic growth, while avoiding pollution.³⁴¹ Sustainable development came to be acknowledged with utmost importance through the World Commission on Environment and Development, (WCED), 1987, though it could be traced to the 1972 Stockholm Conference on Human and Environment. It formed the basis of the conference in Nairobi in 1982 as a follow-up to the 1972 Stockholm conference and 1987 WCED. It was assumed to be the guiding principle for global environmental policy. What a noble idea if the intendment were to be strictly followed through. However, the need to satisfy competing interests in terms of social, economic and political choices³⁴² vis-à-vis the necessity for resource conservation should be balanced appropriately, which makes the notion of sustainable development somewhat complex and its implementation tasking to governments. This is in view of the fact that global environmental challenges constitute a vital part of the problems of global development.³⁴³

In Herman Daly's opinion, the best hope for achieving on a global scale is through imposition of environmental controls at the national level, which trade liberalization will undermine. This is

³³⁸ BLACBURN Anne M., *Pieces of the Global Puzzle: International Approaches of Environmental Concerns*, Golden, Colorado, Fulcrum Publishing, 1986, p.20.

³³⁹ TURNER Stephen J., *A Substantive Environmental Right: An Examination of the Legal Obligations of Decision-Makers Towards the Environment*, Alphen aan den Rijn, Kluwer Law International, 2009, p.8.

³⁴⁰ See UNGA Res S-19/2, 28 June, 1997. See also, BARRAL Virginie, *Sustainable Development in International Law: Nature and Operation of an Evolutive Legal Norm*, *The European Journal of International Law, EJIL* (2012), Vol.23, No2, pp.377-400. Available at <http://ejil.oxfordjournals.org/>. Site visited 25-08-2013.

³⁴¹ BELL Stuart and MCGILLIVRAY Donald, *Environmental Law* (6th ed.), Oxford, Oxford University Press, 2006, p.31.

³⁴² BIRNIE Patricia, et al, *International Law and the Environment*, (3rd ed.), Oxford, Oxford University Press, 2009, p.54

³⁴³ PERCIVAL Roberts V. and ALEVIZATOS Dorothy C. (eds.), *Law and Environment: A Multidisciplinary Reader*, Philadelphia, Temple University Press, 1997, p.365.

notwithstanding the fact that a very fundamental objective of the concept is the imposition of limitations by the present state of technology and social organisation on environmental resources and the ability of the biosphere to absorb the effects of human activities.³⁴⁴ It is a process of change in which the exploitation of resources, the direction of investment, the orientation of technological development, and institutional change are made consistent with future as well as present needs.³⁴⁵ It thus infers that, to the extent that the actions of the earlier generations damage and jeopardize the health and interests of their successors with the result that the latter cannot pursue their life plans, then this would seem to violate the principle of sufficiency nay sustainable development.³⁴⁶ Sufficiency requires of a generation to ensure that each generation is entitled to inherit a planet and cultural resource base at least as good as that of previous generations.³⁴⁷

Sustainable development necessitates strict regulation of birth and population control,³⁴⁸ towards stabilizing world population, failing which it causes a strain on the available resources,³⁴⁹ which may be overstretched due to excessive exploitation. Rapid population growth has in most cases resulted in needs unmet and has often posed severally serious problems, ranging from migration and displacement of people, internal crises, disordered societies, abuse of the environment, among others. Sound development worldwide contributes to peace.³⁵⁰ The larger percentage of the challenges over time has been borne out of unmitigated population growth and pressure over natural resources and growing inequality are the major causes of environmental degradation and prevalent high rate of crimes.³⁵¹ Africa's population is expected to more than double by 2050, from 1.1 billion people today to 2.4 billion. The 10 countries with the highest fertility rates globally are all in Africa, led by Niger where women give birth to average of 7.6 children. Burkina Faso with a fertility rate of 6 children per woman is the slowest growing of the 10 countries, all of which are among the world's poorest countries as

³⁴⁴PERCIVAL Roberts V., *Ibid.*, p. 374.

³⁴⁵ World Commission on Environment and Development, (WCED), *Our Common Future* (1987). In PERCIVAL Robert V. and ALEVIZATOZ Dorothy C. (Eds.) 1997. *Law and Environment: A Multidisciplinary Reader*. Philadelphia, Temple University Press, p.373.

³⁴⁶ PAGE Edward A., *Climate Change Justice and Future Generations*, Cheltenham, Edward Elgar Publishing, 2007, p.91.

³⁴⁷ PAGE Edward A., *ibid.* p.91

³⁴⁸According to Al Gore, that, from the beginning of humanity's appearance on earth to 1945, it took more than ten thousand generations to reach a population of 2 billion people, but now, in the course of one human life time, that is from 1945 till now, the world population will increase from 2 to more than 9 billion.... See Al Gore, *Earth in the Balance: Ecology and the Human Spirit* (1992), in PERCIVAL Robert V. and ALEVIZATOS Dorothy C. *op cit.*, p.409.

³⁴⁹ See Article 5, Agenda 21, tagged Population and Sustainability, which urges governments to develop implement population policies integral with their economic development programmes.

³⁵⁰ BLACKBURN Anne M., *Pieces of the Global Puzzle: International Approaches to Environmental Concerns*, Golden, Colorado, Fulcrum Publishing, 1986, p.21.

³⁵¹ IISD Reporting Services, *Summary of the World Congress on Justice, Governance and Law for Environmental Sustainability*, UNEP World Congress Bulletin, Vol.203, No.1, June 2012. Also at [HTTP://WWW.IISD.CA/UNCSD/RIO20/UNEPWC](http://www.iisd.ca/uncsd/rio20/uneppwc).

well. Nigeria³⁵² the most populous nation on the continent with more than 174 million people is projected to be the third most populous in the world by 2050 (from its present tenth position), with 440 million, after China and India.³⁵³ Niger in contrast to the Netherlands, which both have roughly 17 million people today, the former has 50 per cent of its population younger than 15 compared to the latter's 17 per cent in that category. The population Reference Bureau estimates that 43,000 infant deaths were recorded in Niger in 2012, while in the Netherlands the contrasting figure was 650.³⁵⁴

Sustainable population growth is a fundamental environmental concern,³⁵⁵ but it is disheartening to realize that many developing countries do not have a population policy to monitor birth and death rates, and other issues relating to population control. The result of which is rapidly rising population with its attendant inadequate provision of basic social amenities like water, energy, shelter, and its attendant food shortage, oftentimes famine. Coupled with these is the rising incidence of drought in many parts of the globe, even the developed countries are not spared of this. These are also compounded by inadequate, and proper short and long term planning on the part of the governments of most of those nations. Correspondingly, there is the need to control and regulate industrial and commercial activities to take cognizance of the availability of resources, otherwise, over-exploitation might result in a depletion of the resources. That sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development; and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.³⁵⁶ Furthermore, proliferation of toxic chemicals and hazardous wastes might arise,³⁵⁷ among other forms of ecological problems associated with highly industrialized areas.

Herman Daly³⁵⁸ further opined that, it is living within environmental constraints of absorptive and regenerative capacities, which are both global in the form of greenhouse effect, ozone shields, and local in the form of soil erosion, deforestation, and so on.³⁵⁹ The commons are the backbone of

³⁵² Nigeria ranks 7th most populous nation globally with a population of 166, 629,000 in 2012 and 174, 507,539 in 2013. See SAJID, Top Ten Plus 2012. Available at <http://toptenplus.com/top-10-most-populated-countries/>. See also, Aneki 2013, Most Populated Countries in the World. Available at <http://www.aneiki.com/populated.html>. Sites visited 22-09-2013.

³⁵³ MURPHY Dan, A Look at Global Population Trends, Yahoo News Online 21 September, 2013. Available at <http://news.yahoo.com/look-global-population-trends-131057366.html>. Site visited 22-09-2013.

³⁵⁴ Murphy, *ibid*.

³⁵⁵ Blackburn, *op cit.*, p.20.

³⁵⁶ See Sustainable Development: A/42/427. Our Common Future: Report of the World Commission on Environment and Development. Also, Annex, Chapter 2, UN Documents Cooperation Circles.htm

³⁵⁷ PERCIVAL Robert A. and Alevizatos, Dorothy C. *Ibid.*, p.375.

³⁵⁸ DALY Herman, From Adjustment to Sustainable Development: the Obstacle of Free Trade, 15 *Loyola of L.A. International and Comp. L.J.* 33 (1992)

³⁵⁹ DALY Herman 1997, From Adjustment to Sustainable Development: The Obstacle of Free Trade (1992). In PERCIVAL Robert V. and ALEVIZATOS Dorothy C. *ibid.* p.387.

sustainability, as the biodiversity around us provided all that we need to survive.³⁶⁰ But nations' insatiable financial desires and craze for industrialization would put this at jeopardy, which is why nations operating under the notion of sovereignty are apt to do things which put them and their neighbours, and the world at large at risk with utter impunity. Nations also acting under the notion of free trade carry things to the extreme, making free trade a dangerous negation to the concept of sustainable development.³⁶¹

In the Brundtland Report formulation, sustainable development was clearly a political and social construct, and not a scientific blueprint.³⁶² It attempts to integrate environmental considerations into economic and other development, and takes into account other than environmental needs while formulating the principles of environmental protection.³⁶³ According to the 2002 World Summit on Sustainable Development³⁶⁴ (WSSD), there are three interdependent and mutually reinforcing pillars of sustainable development viz: economic development, social development and environmental protection. Development is a human right. Extreme poverty, as is prevalent in Africa, especially the sub-Saharan Africa (SSA), and in the Asias, violates human dignity upon which all human rights are founded, and a new kind of equitable economic growth is needed to redress and eradicate such poverty. Taking a human rights approach to poverty is a path towards the empowerment of the poor,³⁶⁵ a core responsibility of sustainable development, aimed at preserving the dignity of humankind, which is entrenched in modern international human rights law. Unfortunately, a bleak picture of poverty is painted over the sub-Saharan Africa, as the region is reputed to be the poorest in the world.

The UN Children's Fund (UNICEF), reports that 70.8 per cent of Nigeria's population subsists on less than US\$1 per day, and 92.4 per cent on less than US\$2 a day.³⁶⁶ Nigeria has accumulated more than US\$300 billion in oil revenue over the past 25 years, but has an average per capita income that is less than US\$1 a day. Its social indicators remain lower than those of sub-Saharan Africa as a whole and

³⁶⁰ KANTE Bakary, For the Common Good, New Agriculturist, WREN Media Production, September 22008. Retrieved from <http://www.new-ag.info/en/view/point.php?a=535> . Site visited 08-10-2012.

³⁶¹ PERCIVAL Robert A. and ALEVIZATOS Dorothy C. Ibid.

³⁶² WCED, *Our Common Future*, Oxford, Oxford University Press, 1987 at 51, where it states that "No single blueprint for sustainability will be found, as economic and social systems and ecological conditions differ widely among countries". See also, BAKER, S. et al., (eds.) *The Politics of Sustainable Development*, London, Routledge, 1997.

³⁶³ FITZMAURICE, M .A., *International Protection of the Environment*, The Hague, Kluwer Law International, 2002, p.47.

Also, LOIBL, G., *Environmental Protection and Sustainable Development*, in CEDE, F. and SUCHARIPA, L. (eds.), *The UN Law and Practice*, Kluwer Law International, 2001, pp.1-15.

³⁶⁴ See United Nations, *Johannesburg Summit 2002*. Available at www.johannesburgsummit.org . Also, SWART Rob, et al., *Climate Change and Sustainable Development: Expanding the Options*. *Climate Policy* 3S1 (2003), S19-S40, S21.

³⁶⁵ NDERITU Wilfred, *Human Rights in Africa: Legal Perspectives on their Protection and Promotion*. *The United Nations and the Advancement of Human Rights in Africa*, 2009, 81-103.

³⁶⁶ UPI.com, *Energy Resources: Nigerian Oil Output Slumps*, United Press International, September 2012. Available at http://www.upi.com/Business_News/Energy-Resources/2012/09/05/. Site visited 09-06-2012

much worse than other regions of the developing world.³⁶⁷ Constitutional dictates on environmental protection, biodiversity preservation and sustainable development, and the duty to conserve these should not be such as are merely within the confines of mere rhetorics and semantics, because they are not merely simple rules whose effectiveness is thus confined. Rather, they are vital and living principles which steer and restrict the way in which authorities exercise their powers.³⁶⁸ Sustainable development requires a duty of us to confer rights not only on the present generation, but to look beyond itself to those who are to come after us. The recognition of the concept of sustainable development is not merely a concern for the developing world, but is also accepted as a criterion of State conduct by the developed world.³⁶⁹

The recognition issue confronting this concept³⁷⁰ stems from the controversies about whether it is an inspiring concept or a solid legal principle conveying a set of concrete rights and duties. The choice of a principle in the amendment of the EU Treaty may denote that for the authors of the Amsterdam Treaty, sustainable development is consolidated to a principle. It is a significant amendment since sustainable development has so far been indiscriminately used in many disciplines more as a slogan than a guiding principle. This has prevented the concept from developing a precise uniform legal content.³⁷¹ Touching on the legal essence of this principle, due cognisance has to be taken of the fact that the principle has found expression in several many Conventions- over 300, many of which were deposited with the Secretary General of the UN, numbering over 500, most of which govern the behaviour of States and establish enforceable rights and obligations among them.³⁷² Specific mention was made of sustainable development in 112 multilateral treaties, roughly 30 of which have universal participation, hence are conventions which are technically binding on the parties.³⁷³ Treaties constitute one the two main methods of creating legally binding rules among international community

³⁶⁷ ZHOU Yiping (Ed.), *Effective Hydrocarbon Management: Lessons From the South*, United Nations Development Programme, 2009, p.3. Available at <http://ssc.undp.org/content/ssc/library/publications/books/EffectiveHydrocarbonManagement.html>. Site Visited 18-09-2012.

³⁶⁸ LAVRYSEN, Luc, *The Right to the Protection of a Healthy Environment*. World Congress on Justice, Governance and Law for Environmental Stability, Rio, 2012, p.4

³⁶⁹ SEGGER Marie-Claire Cordonier and Ashfaq, Khalfan, *Sustainable Development: Principles, Practices and Prospects*. Oxford, Oxford University Press, 2004.

³⁷⁰ The ICJ would only clarify this on the necessity to reconcile economic development with protection of the environment, as aptly expressed in the concept of sustainable development, in the Gabčikovo/Nagymaros Project Case. See ATAPATTU Sumudu, *Climate Change, Differentiated Responsibilities and State Responsibility: Devising Novel Legal Strategies For Damage Caused by Climate Change*. In RICHARDSON Benjamin J.; Le BOUTHILLIER Yves; McLEOD-KILMURRAY and WOOD Stepan (Eds.), *Climate Law and Developing Countries: Legal and Policy Challenges For the World Economy*, Cheltenham, Edward Elgar Publishing, 2011, p.45.

³⁷¹ MAHMOUD Said, *Protection of the European Environment After the Amsterdam Treaty*, Stockholm Institute for Scandinavian Law, 1957-2009, p.125.

³⁷² KOHONA Palitha T. B., *The International Rule of Law, Treaties on Sustainable Development and Compliance*, 2003. Available at www.treaties.un.org/doc/source/training/regional/2003/7-9October.htm. Site visited 28-08-2013.

³⁷³ BARRAL Virginie, *Sustainable Development in International Law: Nature and Operation of an Evolutive Legal Norm*, *The European Journal of International Law EJIL*, (2012), Vol.23, No.2, pp.377-400.

states. Both treaties and the other main method- custom, have the common basic necessity of resting on consent of the contracting parties for effectiveness and enforceability, that is, tacit agreement (*tacitum pactum*).³⁷⁴

The location of treaties within the hierarchy of norms is inseparable from that of the relationship between International and Municipal Laws, and depending on the theory of relationship between both systems of law entrenched in a legal order, treaties may be positioned higher or lower than, or be at the same level as domestic law.³⁷⁵ The legality of sustainable development may then be a matter of judicial notice, in as much as the contracting parties agreed to be bound by the terms of the treaty embodying it. A key element in the creation of a contract, just as it is in international law, is an intention to create legal relations which is held sacrosanct and cannot be vitiated unilaterally by either parties, is *pacta sunt servanda*. The views of Samuel Pufendorf (1632-1694) and of Cornelius van Bynkershoek (1673-1743) are especially noteworthy in this connection. In his book, *De jure naturae et gentium* (1672), the former described as one of the inviolable rules of natural law that each man must keep his word without breaking it.³⁷⁶ The latter expressed the opinion that, without the principle of good faith and that of the binding force of contracts, international law would be entirely destroyed.³⁷⁷ Every barrier, legal, administrative, or otherwise must be removed to make for smoother operation of the system. Notwithstanding the controversy on the status of sustainable development and the failure of the ICJ to categorically lay it to rest, the essence of sustainable development cannot be overemphasised, as the status has not and cannot affect its substance and application in the consideration of issues in environmental law and several other disciplines and aspects of human endeavours where it applies. As long as a treaty is in compliance with the main features of international treaties as specified by the 1969 Vienna Convention on the Law of Treaties which regulates international treaties between States and International Organisations,³⁷⁸ it should suffice for a legal standard, to the extent that treaties are agreements between the parties to it, and agreements are meant to be legally binding and enforceable legal documents.³⁷⁹ It is argued that in

³⁷⁴ Treaties of every kind, when made by the competent authority are as obligatory upon nations as private contracts are binding upon individuals, and thus to be kept with the most scrupulous good faith. No arbitral tribunal has ever rejected the rule of *pacta sunt servanda*, or even thrown doubt on it. See, Law of Treaties. Draft Convention and Comment, prepared by the Research in International Law of the Harvard Law School, 29 A.J.I.L. Supp. 977 (1935). See also, WEHBERG Han, *Pacta Sunt Servanda*, 53 AJIL 1959, 775 at 785.

³⁷⁵ OYEBODE Akindede B., *Of Norms, Values and Attitudes: The Cogency of International Law*, Excerpts of an Inaugural Lecture Delivered at the University of Lagos, Nigeria, 2011. See also, OYEBODE Akindede B., *The Cogency of International Law*, The Punch Newspaper Online, March 5, 2012. Available at <http://www.punchng.com/feature/the-law-you/the-cogency-of-international-law/>. Site visited 26-10-2012.

³⁷⁶ PUFENDORF Samuel, *De jure naturae et gentium*, Book II, chap. III, p.23; Book III, chaps. III, IV, pp.1,2. See also, WEHBERG Han, *Pacta Sunt Servanda*, 53 AJIL 1959, 775 at 779.

³⁷⁷ van BYNKERSHOEK Cornelius, *Quaestionum juria publici libri duo* (1737), II cap. 10. See also, WEHBERG Han, *Pacta Sunt Servanda*, 53 AJIL 1959, 775 at 779.

³⁷⁸ CASSESE Antonio, *International Law*, Oxford, Oxford University Press, 2001, p.118.

³⁷⁹ See Certain German Interests in Polish Upper Silesia (Merits), PCIJ (1926), Series A, No.7 at 29, where the PCIJ stated that, 'a treaty only creates law as between the States which are parties to it.' See also CASSESE Antonio, *ibid.*, p.126.

conventional provisions where it is set out that an incentive such as those where parties commit to strive to or promote, are in and of themselves perfect legal rules, and as such valid norms of international law. This is premised on the fact that the softness of the provisions relating to sustainable development does not bar them from being valid normative propositions, but merely increases the margin of appreciation of the contracting parties in the execution of their obligations.³⁸⁰ International environmental law as a part of international law, though nouveau, yet is arguably the most dynamic part, which shape and constrains States' behaviour, dictating what they are permitted to do and what they are prohibited from doing as well as what they are required to do, distinctly and conspicuously incorporates sustainable development.

The place of sustainable development in international law seems settled to the extent that international law is a horizontal system whereby States at once make, interpret and enforce international law, being developed from an international law of co-existence to an international law of cooperation.³⁸¹ The UNFCCC in Article 2 provides for the need to stabilize atmospheric GHG concentrations to prevent dangerous anthropogenic interference in the climate system: to enable economic development to proceed in a sustainable manner; to ensure food production is not threatened; and allow systems to adapt naturally.³⁸²

The Brundtland Report highlights two elements of the concept: firstly, it is a substantive recognition that development must be geared towards meeting basic human needs. Secondly, that there are limits, that is, that though development must meet human needs, yet it is bounded by the evolving constraints of human abilities and also by diverse environmental limitations. The tension between environmental limits and economic and social development pressures is bridged through the concept of sustainable development. The International Institute for Sustainable Development (IISD), describes sustainable development as an open and participatory process of environmental, social, economic, cultural³⁸³ and political change that can be achieved through protecting and enhancing ecosystems, transforming the direction of investments and orientation of technology, and redesigning institutions to ensure current and future potential to meet the needs and aspirations of communities.

Sustainable development presumes a drastic re-evaluation of our economic goals with nature's reality without which the future generations' interests in several other ways might be seriously jeopardized. It

³⁸⁰ BARRAL Virginie, Sustainable Development in International Law: Nature and Operation of an Evolutive Legal Norm, *The European Journal of International Law (EJIL)*, 2012 Vol.23 No2, 377-400, at 384,385.

³⁸¹ BARRETT Scott, *An Economic Theory of International Environmental Law*, in BODANSKY Daniel; BRUNNÉE Jutta and HEY Ellen (Eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2010, p.232. See also, SCHRIJVER Nico J., *The Evolution of Sustainable Development in International Law: Inception, Meaning and Status*, The Hague, Martinus Nijhoff Publishing, 2008, p.165.

³⁸² MUNASINGHE Mohan, *Addressing Climate Change and Sustainable Development Challenges Together: The Role of Statistics*. Keynote speech at Session 1 of the UN Conference on Climate Change and Official Statistics, Oslo, 14 April, 2008.

³⁸³ See International Institute of Sustainable Development (USD), *Impoverishment and Sustainable Development*, Winnipeg, USD, 1996.

is thus a representation of a delicate balancing of competing interests.³⁸⁴ Sustainable development entails that the available resources be made sufficient to meet the basic needs of all, leaving none in poverty, rather ensuring that the poor get their fair share of resources to sustain growth. That is, equitable distribution of resources. It is a process of change in which the exploitation of resources, the direction of investment, the orientation of technological development and institutional change are made consistent with the future as well as present needs.³⁸⁵ Of particular and important note to this concept is the North- South divide. Where in the North it calls for restraint in the use of natural resources, whereas in the South, it implies a higher living standard within an ecological framework.³⁸⁶

All actors agree now that the environment cannot be considered in isolation from other issues, most significantly development.³⁸⁷ In the words of His Excellency, Judge Nagendra Singh, former President of the International Court of Justice, "...environment and development go together and have to be examined simultaneously...."³⁸⁸ It is apposite to describe sustainable development as a compromise between environmental protection and economic growth since the exploitation of resources is to facilitate economic progression.³⁸⁹ The basic aim of sustainable development is to avert the tragedies of over-exploitation and environmental overload, which might be of serious consequences to the world.³⁹⁰ It requires that the rate of depletion of non-renewable resources should foreclose as few future options as possible.³⁹¹

Sustainable development is about the provision of fairness and opportunities for the entire world's people, not just the privileged few, without further destroying the world's finite resources and carrying capacity. It is on this note that the action of the US not participating in Kyoto not only aberration, but most unfair in all its ramifications, to other nations both developed, which took voluntary but legal carbon reduction targets under Kyoto, as well as the developing world, which in most cases are the ones most affected by the effects so far of the climate change. The action of the US to abstain from participating and taking voluntary emission reduction responsibility under the KP is tantamount to the summation of Mahatma Gandhi that "there is enough for everybody's need, but not enough for anybody's greed,"³⁹² as this merely portrays the US as not wanting to compromise its opulence no

³⁸⁴ SEGGER Marie-Claire Cordonier and KHALFAN Ashfaq, *Sustainable Development Law: Principles, Practices and Prospects*, Oxford, Oxford University Press, 2004, p.ix.

³⁸⁵ WCED, *Our Common Future* (1987), in PERCIVAL Robert V. and ALEVIZATOS Dorothy C. (eds.), *Law and the Environment: A Multidisciplinary Reader*, Philadelphia, Temple University Press, 1997, pp.373-374.

³⁸⁶ EBBESSON Jonas, *Compatibility of International and National Environmental Law*, London, Kluwer Law International, 1996, p.234.

³⁸⁷ ROWLANDS Ian H., *The Politics of Global Atmospheric Change*, Manchester, Manchester University Press, 1995, p. 217. See also, Principle 4 , UNCED Declaration of Principles, 1992.

³⁸⁸ See Foreword to the Report of the Experts Group on Environmental Law of the WCED.

³⁸⁹ BIRNIE Patricia, et al., *International Law and the Environment* (3rd ed.), Oxford, Oxford University Press, 2009, p.55.

³⁹⁰ EBBESSON Jonas, *Compatibility of International and National Law*, London, Kluwer Law International, 1996, p.233.

³⁹¹ See A/42/427. *Our Common Future: Report of the WCED*.

³⁹² United Nations Research Institute for Social Development (UNRISD), *Green Economy and Sustainable Development: Bringing Back the Social Dimension*. Report of the UNRISD Conference, Geneva, October 2011, p.6.

matter what others suffer, which calls for sacrifice from others. It is a matter of balancing the claims of different generations. It is basically to underscore the requirement that future generations are not denied or deprived of a full range of options, hence C. G. Weeramantry, a former Vice-President of the International Court of Justice (ICJ), said “ [i]n sustainable development law, we are in the realm of future generations”.³⁹³ He opined further in his separate opinion in the 1997 decision on Gabčíkovo-Nagymaros Project, that the concept of sustainable development derived from the practice of ancient civilisations and traditional legal systems in Asia, the Middle East, Africa, Europe, the Americas, the Pacific and Australia, concluding that, sustainable development “is one of the most ancient of ideas in the human heritage. Fortified by the rich insights that can be gained from millennia of human experience, it has an important part to play in the service of international law.”³⁹⁴ It is salient to point out notwithstanding all, that the principle of sustainable development has been adopted as a core principle in environmental issues. A good first step in 1985 was to include a specific mandate on environmental policies in the Treaty of the European Community, which based EU environmental policies on the principles of prevention, precaution and requirement of polluters to pay for the damage they caused. It is more pertinent to point out that, it was even formulated in a progressive manner, allowing Member States to go beyond what had been agreed upon at the EU level, where necessary.³⁹⁵ Though, the principle was accepted with some reluctance by the EU as one of the aims of the EC Environmental policy, it has come to accept that sustainable development is not limited to economic and social dimensions, but also to the environment,³⁹⁶ and has since formed the very basis and essence of the EU’s environmental policy.

A comprehensive digest on sustainable development is the Agenda 21 of the 1992 UNCED. It is a major blueprint, a comprehensive global plan of action for governments and organisations in areas in which human impacts on the environment emanating from the UNCED Rio 1992. It is a whole plan of life encompassing governmental system, energy, food production, educational system, health-care, transportation system, etcetera. Agenda 21 proffers a unifying approach embracing the generality of the nations in line with the Rio Principles.³⁹⁷ It requires states to engage in a continuous and constructive dialogue, and that sustainable development should become a priority item on the agenda of the international community. For this to be achievable, and for its success, it needs to overcome confrontation and to foster a climate of genuine cooperation and solidarity was emphasised. Also is

³⁹³ SEGGER Marie-Claire Cordonier and KHALFAN Ashfaq (eds.), *Sustainable Development Law: Principles, Practices and Prospects*, Oxford, Oxford University Press, 2004, p. xi.

³⁹⁴ SCHRIJVER Nico J., *The Evolution of Sustainable Development in International Law: Inception, Meaning and Status*, The Hague, The Hague Academy of Internal Law, 2008, p.34.

³⁹⁵ HONTELEZ John, *EU Sustainable Development: A Critical Perspective From Environmental Organisations*, in PALLEMAERTS Marc and AZMANOVA Albena (Eds.), *The European Union and Sustainable Development: Internal and External Dimensions*, Brussels, Brussels University Press, 2006, 157.

³⁹⁶ KRÄMER Ludwig, *Regional Economic Integration Organizations: The European Union as an Example*, in BODANSKY Daniel; BRUNNNÉE Jutta and HEY Ellen (Eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2007, p.866.

³⁹⁷ BIRNIE Patricia et al., *International Law and the Environment*, (3rd Ed.), Oxford, Oxford University Press, 2009, p.55.

the need to strengthen national and international policies and multinational cooperation for adaptation to the new realities stressed.³⁹⁸ It does not connote stifling growth, rather it emphasizes a right to development and advances an equitable satisfaction of the needs of present and future generations.³⁹⁹ Although Agenda 21 seems seriously weakened by compromise and negotiation, it remains yet the most comprehensive and if implemented, effective programme of action ever sanctioned by the international community. The message is clear: that poverty, and excessive consumption by the affluent populations place damaging stress on the environment.⁴⁰⁰ Some developed and “advanced” developing nations, principal among which are the US, China and India have yet to come to terms with this, which have refused to take voluntary emissions reduction under the expired Kyoto Protocol, and are still not willing to see issues from the perception of the rest of the world, in spite of the glaring evidence of imminent dangers.

Sustainability requires the enforcement of wider responsibilities for the impacts of decisions. This requires changes in the legal and institutional frameworks that will enforce the common interest. Some necessary changes in the legal framework start from the proposition that an environment adequate for health and well-being is essential for all human beings including future generations. Such a view places the right to use public and private resources in its proper social context and provides a goal for more specific measures.⁴⁰¹ Sustainable development can only be achieved through biodiversity management laws and an institutional system that allows for deeper reflection on the implementation of a green economy. The complexity of environmental challenges would simply require law to go beyond environmental issues to such issues as the green economy and growth, the social agenda and governance, as enunciated in the Rio+20 perspectives.⁴⁰² The 1994 Anti-Desertification Convention incorporated the principle of sustainable development, providing that, “sustainable economy, growth, social development and poverty eradication are priorities of affected developing countries, particularly in Africa and are essential to meeting sustainability objectives.”⁴⁰³

Regrettably, climate change has been inversely related to sustainable development in that, it undermines the latter and unfairly penalizes the poor.⁴⁰⁴ No effort could be spared in re-ordering the trend if future generations’ interests would not be unjustifiably jeopardized. Absolute and total

³⁹⁸ International Cooperation to Accelerate Sustainable Development in Developing Countries and Related Domestic Policies. Agenda 21, Division for Sustainable Development, UN Department of Economic and Social Affairs.

³⁹⁹ BIRNIE Patricia et al., *International Law and the Environment*, (3rd Ed.), Oxford, Oxford University Press, 2009, p.55.

⁴⁰⁰ Department of Public Information, Earth Summit, UN Conference on Environment and Development 1992, May 1997. Retrieved from <http://www.un.org/geninfo/bp/enviro.html>. Site visited 18-02-2013.

⁴⁰¹ See Our Common Future, Art. 76. Also at <http://www.un-documents.net/ocf-02.htm>. Site visited 21-04-2013.

⁴⁰² IISD Reporting Services, A Summary Report of the World Congress on Justice, Governance and Law for Environmental Sustainability, UNEP World Congress Bulletin, Vol. 203, No.1, Rio, June 22, 2012. Available at <http://www.iisd.ca/uncsd/Rio20/unepwc>. Site visited 18-02-2013.

⁴⁰³ SCHRIJVER Nico J., *The Evolution of Sustainable Development in International Law: Inception, Meaning and Status*, The Hague, Martinus Nijhoff Publishing, 2008, p.123.

⁴⁰⁴ MUNASINGHE Mohan, Addressing Climate Change and Sustainable Development Challenges Together: The Role of Statistics. Keynote speech at Session 1 of the UN Conference on Climate Change and Official Statistics, Oslo, 14 April, 2008.

dependence on oil as a main source of energy by the industrialized nations would only aggravate the threat, hence the efforts of some nations notably, especially the US, at harnessing green energy as an alternative source of power is a welcome development and a step in the right direction in sustainable development.

3.2.1 Precautionary principle

Asides the traditional and entrenched environmental law policy of polluter pays principle, which would only accomplish, but to a limited extent in time, scope and situations, is the enhanced and comprehensive preventive policy of precautionary principle. The Precautionary principle originated from the German principle of *vorsorgeprinzip*⁴⁰⁵ meaning “foresight,” which is a philosophical approach to risk prevention involving concepts of good environmental management,⁴⁰⁶ which evolution started since the 1930s and gradually developed till it was popularized in the 1970s. Having its origin in environmental considerations and norms, the principle has grown so versatile, spreading into other disciplines and maturing into an ethical principle, transcending its origin into a policy guide. Precaution may be emerging as a rule of customary international law, but has already become a guiding norm in international environmental law on global and regional levels.⁴⁰⁷

Precaution is an inherent element of risk analysis,⁴⁰⁸ borne out of the fact that it is impossible to guarantee a complete absence of any risk in the conduct of human activities. It highlights unknowns in risk assessment, even though its meaning has been continuously disputed.⁴⁰⁹ It is also embedded in the proof that a conduct is sustainable. It identifies uncertainties in any activity to be undertaken. The principle applies when there is limited awareness, high stakes and an effective solution to some social problems. The problem here is that of balancing the level of proof, need to identify a given activity as a threat and the quality and quantity of the threat as measured by its possible impact on human well-being, that is, the interplay between the awareness and high stakes components.⁴¹⁰ However, the principle states that if an action or policy has a suspected risk of causing harm to the public or to the environment, in the absence of scientific consensus that the action or policy is harmful, the burden of

⁴⁰⁵ See The Federal Emission Protection Act, 1974.

⁴⁰⁶ BELL Stuart and MCGILLIVRAY Donald, *Environmental Law* (6th Ed.), Oxford, Oxford University Press, 2006, p.70

⁴⁰⁷ SEGGER Marie-Claire Cordonier, et al., *Prospects for Principles of International Sustainable Development Law After the WSSD: Common but Differentiated Responsibilities, Precaution and Participation*, RECIEL 12 (1) 2003, Blackwell Publishing, Oxford.

⁴⁰⁸ See Codex Alimentarius Commission 2005: 102, par.11. See also, POLLACK Mark A. and SHAFFER Gregory C., *When Cooperation Fails: The International Law and Politics of Genetically Modified Foods*, Oxford, Oxford University Press, 2009, p.169.

⁴⁰⁹ LEVIDOW Les and CARR Susan, *Genetically Modified Food on Trial: Testing European Democracy*, New York and Oxon, Routledge, Taylor and Francis, 2010, p.33.

⁴¹⁰ PAGE Edward, *Climate Change, Justice and Future Generations*, Cheltenham, Edward Elgar Publishing, 2007, p.31.

proof that it is not harmful falls on those taking the action. This principle underpins a social responsibility to protect the public from exposure to harm when scientific investigation has found a plausible risk. The precautionary principle has greatly enhanced and encouraged the nature of risk analysis since originally codified in the early 1980s, resulting in some jurisdictions incorporating it into a liability perspective.⁴¹¹ However, in some instances, notably in WTO policy, there is in effect an anti-precautionary principle, under which the burden of proof is on society to quickly show that a new product is dangerous rather than on the innovator to show that it is safe.⁴¹²

The precautionary principle was borne out of the fact that decisions have to be made having regards to other considerations such as the risk and potential for harm.⁴¹³ It is presumed that in a condition of global insecurity and uncertainty, it is vital to imagine and prepare for the most dangerous scenario, that is, on the basis of the “worst case” scenario.⁴¹⁴ The principle is of a normative idea rather than a positivist scientific conception which encourages policy makers to consider how to account for growing complexity and uncertainty.⁴¹⁵ It is also believed that environmental issues are often consequential and how to respond to them is the job of the network of realism: legitimate dangers which require a dynamic precautionary principle.⁴¹⁶ Precaution is an antidote to the limitations of science, which itself is the very basis of environmental law. The precautionary principle singles out scientific uncertainty, because it is often raised as a barrier to protective action.⁴¹⁷ The principle does not represent a concrete obligation, but rather a guiding principle for law and decision makers.⁴¹⁸

Environmental issues are detected, diagnosed and revolve around, or are perceived through scientific descriptions; hence science plays a determining role in the conception and implementation of environmental law. The seeming cooperation and interdependence between the two subject disciplines notwithstanding, a common ground of understanding and agreement is missing between them, as the one presents a nature of uncertainty and unpredictability, while the other (legal rule)

⁴¹¹ SMYTH Stewart J. et al., *Innovation and Liability in Biotechnology: Transnational and Comparative Perspectives*, Cheltenham, Edward Elgar Publishers, 2010, p.18.

⁴¹² SAUNDERS P.T., *Use and Abuse of the Precautionary Principle*. Institute of Science in Society Submission to US Advisory Committee on International Economic Policy (ACIEP) Biotech. Working Group, July 2000.

⁴¹³ BELL Stuart and McGillivray, Donald, *Environmental Law* (6th Ed.), Oxford, Oxford University Press, 2006, p.70.

⁴¹⁴ LACY Mark J., *Security and Climate Change: International Relations and the Limits of Realism*, London, Routledge, 2005, p.23.

⁴¹⁵ HANSON Meira, *Making Sense of the Precautionary Principle: GM as a Case in Point*. In PHILLIPS Catherine (ed.), *Environmental Justice and Global Citizenship*, Oxford, Inter-Disciplinary Press, 2004, p.59. Retrieved from www.inter-disciplinary.net/publishing-files/idp/eBooks/EJGC2_1.6.pdf. Site visited 05-11-2012

⁴¹⁶ LACY Mark J., *ibid.*, p.11.

⁴¹⁷ MYERS Nancy and RAFFENSPERGER Carolyn, *A Precaution Primer: An Ounce of Prevention is Worth a Pound of Cure*, Science and Environmental Health Network, 2001. Available at <http://www.sehn.org>. Site visited 08-11-2012.

⁴¹⁸ VERHEYEN Roda, *Climate Change Damage and International Law: Prevention Duties and State Responsibility*, Leiden, Martinus Nijhoff Publishers, 2005, p.75.

presents predictability.⁴¹⁹ The principle complements and encourages science based decision-making and as a significant catalyst to enhanced sustainable development.⁴²⁰ It was meant to provide a more systematic response to the growing problem of scientific uncertainty in environment and health decision-making.⁴²¹ Precaution is an overarching principle that will always require contextual elaboration.⁴²² It is used in debates about such issues to support the notion that scientific analysis of risks should form the core of environmental rules and decisions notwithstanding that such analysis may be uncertain.⁴²³ The principle comes handy in cases of scientific uncertainty, or in situations of potential risk or harm to human, animal or the environment is observed, without a sufficient quantification.⁴²⁴

The principle is a rule whereby risks should always be minimized, or whereby precautions should be taken in cases of threat regardless of their likelihood, notwithstanding the costs of such measures.⁴²⁵ This stems from the fact that, it behoves the government to avert a breakdown of trust and a crisis of public confidence in the actors that have traditionally been involved in science policy and the introduction of new technologies, hence the need to achieve a more transparent and inclusionary decision-making process,⁴²⁶ by the government as custodian of public confidence. It encourages science-based decision as a significant catalyst to enhanced sustainable development. Is “more scientific as to the distribution of a future risk- that is, a larger variability of beliefs- should induce society to take stronger prevention measures today.”⁴²⁷ The principle remains to be seen as of significant essence in that its most meaningful applications concern where they are potentially irreversible like in biodiversity- where it may be significantly affected.⁴²⁸ From whatever perception of definition it is viewed, the principle has two basic elements:

⁴¹⁹ de SADELEER Nicolas, *The Principles of Prevention and Precaution in International Law: Two Heads of the Same Coin?* In FITZMAURICE Malgosia et al (eds.), *Research Handbook on International Environmental Law*, Cheltenham, Edward Elgar Publishing, 2010, p.185. Retrieved from

www.desadeleer.eu/uploads/papers/ResearchHandbookOnInternationalEnvLawChap9.pdf . Site visited 08-11-2012.

⁴²⁰ SEGGER Marie-Claire Cordonier, et al, *Prospects for Principles of International Sustainable Development Law After the WSSD: Common But Differentiated Responsibilities, Precaution and Participation*. *Reciel* 12 (1), 2003, Oxford, Blackwell Publishing, 54-68, 62.

⁴²¹ CISDL Legal Brief, *Precaution in International Sustainable Development Law*, The Wingspread Conference on the Precautionary Principle, WSSD, Johannesburg, September 2002

⁴²² McDONALD Jan, *Tr(e)ading Cautiously: Precaution in WTO Decision Making*. In FISHER Elizabeth et al. (Eds.), *Implementing the Precautionary Principle: Perspectives and Prospects*, Cheltenham, Edward Elgar Publishing, 2006, p. 161.

⁴²³ BELL Stuart and McGillivray, Donald, *Environmental Law* (6th Ed.), Oxford, Oxford University Press, 2006, p.70.

⁴²⁴ McDONALD Jan, *op cit.*, p.161.

⁴²⁵ HANSON Meira, *Making Sense of the Precautionary Principle: GM as a Case in Point*, in PHILLIPS Catherine (ed.), *Environmental Justice and Global Citizenship*, Oxford, International Disciplinary Press, 2004, p.58. Retrieved from http://www.inter-disciplinary.net/publishing-files/idp/eBooks/EJGC2_1.6pdf . Site visited 21-04-2012.

⁴²⁶ HANSON Meira, *ibid*. Available at www.inter-disciplinary.net/critical-issues/ethos/environmental-justice-and-global-citizenship/project-archives/3r/session-4-gm-precautions-risks-and-decision-making/ . Site visited 26-08-2013.

⁴²⁷ GOLLIER Christian et al., *Scientific Progress and Irreversibility: An Economic Interpretation of the Precautionary Principle*, *Journal of Public Economics*, 2000, 75 (2), 229-253.

⁴²⁸ O'RIORDAN Timothy and CAMERON James, *Interpreting the Precautionary Principle*, London, Earthscan Publications, 1994. Retrieved from http://books.google.com/books/about/Interpreting_the_Precautionary_Principle.html?id=9qp87 . Accessed August 2012.

-an expression of a need by decision-makers to anticipate harm before it occurs; and
-the establishment of an obligation, for an action to prevent or minimize an harm, even yet unpredicted scientifically.⁴²⁹ The principle applies not only to the prevention of climate change, but also to the mitigation of its adverse effects, that is, to adaptation measures.⁴³⁰
Any action that helps to prevent harm and to protect humans and the environment in the face of scientific uncertainty qualifies as a precautionary action.⁴³¹

The principle gives weight (but not dominance) to taking anticipatory measures to protect human health and the environment in the face of scientific uncertainty.⁴³² The principle's significance is thus more in its challenge to conventional science, arising from the rise of new risk-based technologies as in the CFCs, the genetically modified organisms (GMOs),⁴³³ and such likes. It incorporates an unscientific conception of risk, such that environmental activities can be defined as hazardous on purely subjective grounds, that is, if people think that an activity is harmful, then is harmful.⁴³⁴ It prescribes due care and restraint in the protection of the environment or human health, even where there is no evident threat of harm or risk of harm from the activity or substance.⁴³⁵ It is thus innovative, which aspect of it is the requirement that action should be taken to control or abate possible environmental interference, even when there is scientific uncertainty as to the effects of the activities.⁴³⁶ It is the prior evaluation of the potential impact of a project, hence could be reasonably inferred that the Environmental Impact Assessment (EIA), critically assessed could be said to represent precautionary principle.⁴³⁷

Precaution means the proponents of activities which might lead to significant, serious or irreversible harm should ensure to take measures (or permit measures to be taken), to prevent this damage (including halting the proposed activities), even if there is a lack of scientific certainty as to the existence and severity of the risk.⁴³⁸ The essence of the principle lies in the vulnerability of natural

⁴²⁹ See Principle 15 Rio Declaration. Also Article, Precautionary Principle. Available at http://en.wikipedia.org/wiki/Precautionary_Principle. Accessed August 2012.

⁴³⁰ VERHEYEN Roda, *Climate Change Damage and International Law: Prevention Duties and State Responsibility*, Leiden, Martinus Nijhoff Publishers, 2005, p.74.

⁴³¹ MYERS Nancy and RAFFENSPERGER Carolyn, *A Precaution Primer: An Ounce of Prevention is Worth a Pound of Cure*, Science and Environmental Health Network, 2001. Available at <http://www.sehn.org>. Site visited 30-09-2012.

⁴³² HANSON Meira, *supra*, p.59.

⁴³³ de SADELEER Nicolas, *The Principles of Prevention and Precaution in International Law: Two Heads of the Same Coin?* In FITZMAURICE Malgosia; ONG, David M. and MERKOURIS Panos (Eds), *Research Handbook on International Environmental Law*, Cheltenham, Edward Elgar Publishing, 2010, p.185.

⁴³⁴ PAGE Edward, *Climate Change, Justice and Future Generations*, Cheltenham, Edward Elgar Publishing, 2007, p.31

⁴³⁵ EBBESSON Jonas, *Compatibility of International and National Environmental Law*, London, Kluwer Law International, 1996, p.253.

⁴³⁶ FREESTONE David, *The Precautionary Principle*. In CHURCHILL Robin and FREESTONE David, (Eds) *International Law and Global Climate Change*, London, Graham and Trotman/Martinus Nijhoff, 1991, p.31.

⁴³⁷ EBBESSON Jonas, *op cit.*, p.253.

⁴³⁸ SEGGER Marie-Claire Cordonier and KHALFAN Ashfaq, *Sustainable Development Law: Principles, Practices and Prospects*, Oxford, Oxford University Press, 2004 p. 144.

systems, hence the need for preventive environmental protection mechanisms rather than subsequent remediation.⁴³⁹ The importance of the principle in sustainable development cannot be overemphasized in that, the carrying capacity of the global environment and the regional ecosystems may not be adequately known or predicted. Most earth's resources are simply finite, hence adequate measures need to be put in place to ensure their judicious exploitation and guarding against over-exploitation. In the words of Nnimmo Bassey, Executive Director, Environmental Rights Action/Friends of the Earth, Nigeria,⁴⁴⁰ "[I]t is clear to us that the biggest threat to human survival in today's world is not the threat of nuclear holocaust, nor the threat of so-called terrorism, but the threat of a completely devastated environment. It is most likely that if this situation continues unabated, then we may soon find ourselves at a threshold where the carrying capacity and life sustaining potential of the environment would be breached, and then the flood gates of disasters will be fully opened, and life, or at very least, human life may become imperiled."

The principle is premised on a number of factors among which are: that, it is required to avert foreseen or unforeseen harm from occurring; it is necessary where scientifically, there exists uncertainties as to casualty and other such consequences in an action; it is to attend to mitigating avoidable and untenable dangers or hazards; also where some form of scientific uncertainties exist; where basic form of scientific analysis is mandatory; and, where interventions should be proportional to the chosen level of protection and the magnitude of possible harm.⁴⁴¹ It has been described as an explicit embodiment of "aversion to uncertainty," otherwise called "aversion to ambiguity."⁴⁴² The principle underpins a social responsibility to protect the public from exposure to harm when investigation has found a plausible risk, supposing that where an action has a suspected risk of causing harm to the public or to the environment, in the absence of scientific consensus that the action or policy is harmful, the burden of proof that it is not harmful falls on those taking the action. It is also of the essence where serious or irreversible impacts could be occasioned, such as reductions in environmental management capacity not repairable in the short term, and such the likes.⁴⁴³ In 1998, a gathering of health experts agreed on four key issues as concerning the principle viz: action to prevent harm despite uncertainty; shifting the burden of proof to proponents of a potentially harmful activity; examination of a full range of alternatives to potentially harmful activities, including no action; and,

⁴³⁹ SEGGER Marie-Claire and Khalfan, Ashfaq, supra, p.51

⁴⁴⁰ NNIMMO Bassey, "The Land is Dying", Presentation by the Environmental Rights Action/Friends of the Earth, at the Association of Nigerian Authors (ANA) 2001 Annual Convention, Port-Harcourt, October-November 2001.

⁴⁴¹ See World Commission on the Ethics of Scientific Knowledge and Technology (COMEST), *The Precautionary Principle*, 2005, p.13.

⁴⁴² STERN Nicholas, *The Economics of Climate Change: The Stern Review*, Cambridge, Cambridge University Press, 2007, p.39.

⁴⁴³ DOVERS Stephen, *Precautionary Policy Assessment for Sustainability*, in FISHER Elizabeth et al., (Eds.), *Implementing the Precautionary Principle: Perspectives and Prospects*, Cheltenham, Edward Elgar Publishing, 2006, p.92.

democratic decision making to ensure inclusion of those affected.⁴⁴⁴ That is, increasing public participation in decision making.⁴⁴⁵

The principle shares a lot of things in common with sustainable development, beginning from the definition, to judicial support, and application. To start with, it has a conceptual problem owing to its complexity, which could be summed up in its three core elements viz: awareness, in the form of knowledge between two variables; reasonable grounds of conviction of the harmful effects of the process or activity, and reasonable grounds on which to claim that preventing the activity will be less costly to human well-being than the alternative. Meaning the principle applies where there is limited awareness, high stakes and an effective solution to some social problem.⁴⁴⁶ For the purpose of this research, it could be seen as human activities which may lead to morally unacceptable harm that is scientifically plausible but uncertain, to which actions shall be taken to avoid or diminish that harm.⁴⁴⁷ It suffers limited judicial support in international law,⁴⁴⁸ even though it has attained the status of a principle of customary international law. In the Gabčíkovo-Nagymaros Project,⁴⁴⁹ Hungary argued that in international law, States were required to take precautionary measures to anticipate, prevent, or minimize damage to their transboundary resources and mitigate adverse effects;⁴⁵⁰ which the Court accepted in general, but yet failed to adequately articulate the status of the principle. It has also, lacked any consistent application in international conventions, just as it is incapable of being prescribed as anything other than a general guide to action, because its formulation, implementation, impact and implications still raise some difficult issues.⁴⁵¹ The status as a rule of customary international law has remained in doubt,⁴⁵² which has impinged its effectiveness, as it was not generally agreed its status on whether it is customary law, or an approach. It must be pointed out that environmental sustainability can only be enhanced by effective legal regimes and an effective implementation with accessible legal procedures.⁴⁵³ This would warrant that nations should review and

⁴⁴⁴ CISDL Legal Brief, Precaution in International Sustainable Development Law, The Wingspread Conference on the Precautionary Principle, WSSD, Johannesburg, September 2002.

⁴⁴⁵ TICKNER Joel and Kriebel, David, The Role of Science and Precaution in Environmental and Public Health Policy, in FISHER Elizabeth et al., (Eds.), *Implementing the Precautionary Principle: Perspectives and Prospects*, Cheltenham, Edward Elgar Publishing, 2006, p.44.

⁴⁴⁶ PAGE Edward A., *Climate Change, Justice and Future Generations*, Cheltenham, Edward Elgar, 2007, p.31.

⁴⁴⁷ World Commission on the Ethics of Scientific Knowledge and Technology, *supra*, p.14.

⁴⁴⁸ See the EC Measures Concerning Meat and Meat Products (Hormones) (1998) AB-1997-4, WT/DS26/AB/R, where, against the European Communities argument that precautionary principle was a part of custom, the WTO Appellate Body distinguished it drawing from the failure of the ICJ to so hold in the *Gabčíkovo-Nagymaros Case*.

⁴⁴⁹ Gabčíkovo-Nagymaros Project (Hungary v Slovakia) (1997) ICJ Rep.7

⁴⁵⁰ HOWLEY Jessica, *The Gabčíkovo-Nagymaros Case: The Influence of the International Court of Justice on the Law of Sustainable development*. Queensland Law Student Review, Vol.2, No.1, 2009, p.11.

⁴⁵¹ DUPUY Pierre-Marie, Formation of Customary International Law and General Principles, in BODANSKY Daniel et al (eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2010, p.452.

⁴⁵² BIRNIE Patricia, et al, *International Law and the Environment (3rd Ed.)*, Oxford, Oxford University Press, 2009, p.16.

⁴⁵³ See Rio+20, Declaration on Justice, Governance and Law for Environmental Sustainability, June 2012.

shore-up their legislations in line with current realities, while no efforts may be spared to ensure easy access to justice.

Notwithstanding the above, the principle enjoys wide acceptance, featuring prominently in many conventions⁴⁵⁴ and regional declarations and agreements,⁴⁵⁵ as well as decisions.⁴⁵⁶ Not less than sixteen global and regional environmental treaties and protocols covering a wide range of topics and geographic regions contain reference to the precautionary principle, precautionary approaches, precautionary measures, or precaution, as it were.⁴⁵⁷ It was first recognised in international law in the World Charter for Nature, adopted by the UN General Assembly in 1982,⁴⁵⁸ and has since been adopted in over fifty multilateral instruments.⁴⁵⁹ The London Declaration issued by the North Sea States at the end of the second International North Sea Conference in November 1987 explicitly states⁴⁶⁰ that:

... in order to protect the North Sea from possibly damaging effects of the most dangerous substances, a precautionary approach is necessary which requires action to control inputs of such substances even before a causal link has been established by absolutely clear scientific evidence.

The 1992 Rio Declaration gave the principle an unparalleled elaboration stating that: “In order to protect the environment, the precautionary approach should be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”⁴⁶¹ The IPCC presumes that precautionary principle is an action giving rise to possible, but quantifiably unknown and potentially very large risks which ought to be avoided or corrected.⁴⁶² Also, the UNFCCC gives credence to the principle by acknowledging that:

⁴⁵⁴ See The Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES), 1975; The Vienna Convention, 1988 and its Montreal Protocol on the Protection of the Ozone Layer, 1989 ; The OSPAR Convention 1997; The Convention on Biological Diversity, 1993; The WTO’s Agreement on Sanitary and Phytosanitary Measures, 1994; etcetera.

⁴⁵⁵ See The North Sea Ministerial Conferences, 1987, 1990; The Bergen Ministerial Declaration on Sustainable Development in the Economic Commission for Europe Regions, 1990; The Ministerial Conference on the Environment of the UN Economic and Social Commission for Asia and the Pacific, 1991; The Bamako Convention on the Ban of Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, 1991; The Rio Declaration, etcetera.

⁴⁵⁶ The EC Measures Concerning Meat and Meat products (Hormones) WT/DS26/AB/R, 1998; Southern Bluefish Tuna Cases (New Zealand v Japan; Australia v Japan) 2000 ILR 148.

⁴⁵⁷ TROUWBORST Arie, *Precautionary Rights and Duties of States*, Leiden, Martinus Nijhoff Publishers, 2006, pp.21-22.

⁴⁵⁸ COM (2000)1 Final of 02 February, 2000, p.11.

⁴⁵⁹ WIENER, J.B., *Precaution*. In BODANSKY Daniel et al, (eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2007, p.599.

⁴⁶⁰ CHURCHILL Robin and FREESTONE David (Eds.), *International Law and Global Climate Change*, London, Graham and Trotman, 1991, p.23.

⁴⁶¹ Rio Declaration on Environment and Development, Principle 15, June 14, 1992, UN Doc. A/ Conf.151/5/Rev.1 (1992), reprinted in 31 I.L.M. 876 (1992). See also, CISDL Legal Brief, *Precaution in International Sustainable Development Law*, The Wingspread Conference on the Precautionary Principle, WSSD, Johannesburg, September 2002

⁴⁶² PAGE Edward, *Climate Change , Justice and Future Generations*, Cheltenham, Edward Elgar Publishing, 2007, p.30

*The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures....*⁴⁶³

The Bergen Ministerial Declaration prescribes that policies must be based on the precautionary principle in order to achieve sustainable development, while in the Rio Declaration on Environment and Development, a precaution principle was established:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

In similar vein, the EU accords recognition to the principle in its Rules, stating:

*Community policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Community. It shall be based on the precautionary principle and on the principles that preventive action shall be taken, that environmental damage should as a priority be rectified....*⁴⁶⁴

The EU attaches much premium to this principle stating that: “The precautionary principle applies where scientific evidence is insufficient, inconclusive, or uncertain and preliminary scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal, or plant health may be inconsistent with the high level of protection chosen by the EU.”⁴⁶⁵ It is a regional legal provision applicable in the EU,⁴⁶⁶ recognised by the TEU as a formal principle, which the European Commission has set up guidelines for the application, to guide against its abuse as a disguised protectionist trade measure, compatible with the EU’s international

⁴⁶³ See Principle 3 (3) UNFCCC 1992. Also, TAYLOR Prue, *An Ecological Approach to International Law: Responding to Challenges of Climate Change*, London, Routledge, 1998, p.25.

⁴⁶⁴ See Art. 130r(2), The Maastricht Treaty. Provisions Amending the Treaty Establishing the European Economic Community with a View to Establishing the European Community, Maastricht, February 1992. See also, BACKES Chris W. and VERSCHUUREN Jonathan, M., *The Precautionary Principle in International, European and Dutch Wildlife Law*, Colorado Journal of International Environmental Law and Policy, Vol.9, No.1, pp.43-70. Also, WILLIAMS Andrea and VERSCHUUREN Jonathan, *The Implications of the Precautionary Principle in European Environmental Policy and Law*, in *Paradigms*, The Kent Journal of International Relations, Vol.7, No.1, Summer 1993, pp.31-42. Also, HÄNCHER Leigh, *EC Environmental Policy: A Precautionary Tale?* In FREESTONE David and HEY Ellen (Eds.), *The Precautionary Principle and International Law: The Challenge of Implementation*, The Hague, 1996, pp.187-207.

⁴⁶⁵ See European Commission Communication on the Precautionary Principle, February 2000.

⁴⁶⁶ See Article 130r(3) EC Treaty, also Article 130r(2) Maastricht Treaty.

obligations such as those under the WTO and the UN European Commission 2000.⁴⁶⁷ The EU had early asked Member States to make individuals participate in environmental decisions which concerned them, and citizens' rights in this regards were progressively extended.⁴⁶⁸ The fact remains that it has dictated the tone of the level of care in most of these and indeed many other declarations, which goes to underscore the premium of importance attached to the principle. It can therefore, not be simply overlooked by whatever circumstance or subjugated under any argument. It is a guiding principle that can rightly be described as watchdog of sustainable development, in all its ramifications.

The concept of pollution today as it stands, transcends real materialized or harm, to imagined risks for such, hence the whole essence of precaution in environmental law.⁴⁶⁹ Considering the unambiguity of the Principle 15 of the Rio Declaration among others, these should form the basis of the *modus operandi* of the oil TNCs in the Niger Delta of Nigeria, but they have rather chosen to ignore same, and embarked on wanton pollution of the environment, contributing large-scale to global warming in such a scale as they dared not do in their countries of origin, and other developed nations where they operate. States are required to put their environment to harmless use, and not to constitute a threat, nuisance or harm to other States- "sic utere tuo ut alienum non laedas." This is a principle of international law, a negation of which constitutes an infringement on the rights of other states.

Humbly, Nigeria's handling of its gas flaring and incidences of oil spillage by the TNCs within its territory is a flagrant negation of this basic legal norm of a responsibility. Further, the 1992 UNCED, requires States to enact effective environmental legislation, and put in place such environmental standards, management objectives and priorities as to reflect the environmental and developmental context to which they apply.⁴⁷⁰ In international environmental law, protection of the citizenry against harm caused known and recognizable hazards which threaten life and property remains a basic and fundamental obligation of the government.⁴⁷¹ No government under any guise may abrogate this inalienable duty, the result of which might give rise to a state of lawlessness and anarchy and collapse of order as witnessed in the Niger Delta most recently, and in the extreme case, warrant litigation beyond the nation's shores, as in the Trail Smelter's case between the US and Canada. If for nothing at all, it becomes pertinent to state an imperative formulation of precautionary principle as in the 1998

⁴⁶⁷ Von SCHOMBERG René, *The Precautionary Principle and Deliberation*. In FISHER Elizabeth; JONES Judith and von SCHOMBERG René (Eds.), *Implementing the Precautionary Principle: Perspectives and Prospects*, Cheltenham, Edward Elgar, Publishing, 2006, p.25.

⁴⁶⁸ KRÄMER Ludwig, *Thirty Years of Environmental Governance in the European Union*, in MACRORY Richard (Ed.), *Reflections on 30 Years of EU Environmental Law: A High Level of Protection?* Groningen, Europa Law Publishing, 2006, p.566.

⁴⁶⁹ EBBESSON Jonas, *Compatibility of International and National Environmental Law*, London, Kluwer Law International, 1996, p.252.

⁴⁷⁰ See Principle 11, 1992 UNCED Declaration of Principles.

⁴⁷¹ CISDL Legal Brief, *Precaution in International Sustainable Development Law*, The Wingspread Conference on the Precautionary Principle, WSSD, Johannesburg, September 2002

Wingspread Statement that: “when an activity raises threats of harm to human health, precautionary measures should be taken even if some cause-and-effects relationships are not fully established scientifically.” The principle is an ethic of life which seeks how much could be avoided of an unknown damage.⁴⁷²

In summary, the precautionary principle can be wrapped up in the aphorism: “An ounce of prevention worth a pound of cure”; and an expression of a philosophy of anticipated action.⁴⁷³

3.2.2 Principle of participation

Environmental issues are such as concerning the public generally, or in some cases, a certain section of the community. This brings about the essence of public participation in environmental matters. Many individuals may have their own experiences with environmental problems,⁴⁷⁴ which makes it imperative for such to have contributions to such environmental issues. In the words of Antonio Herman Benjamin, “...environmental challenges also transcend historical legal approaches and require judges to incorporate not just the views of different parties, but also the interests of the collective and of future generations.”⁴⁷⁵ It is that it is advisable to attempt to better align policy arguments to those of the stakeholders and not solely on scientific knowledge or the expert-based knowledge.⁴⁷⁶ It makes for effective integration of interests- government efficiency and social fairness, as people try their best to make public interests demands in development process, which is most necessary to achieve the benign interaction between the state and the society.⁴⁷⁷ It is the promotion of more open decision-making structures.⁴⁷⁸ The origins of public participation are based on currents of ideas that capture the public imagination such as, in Germany in the late 1960s, public interest was aroused by fish poisonings

⁴⁷² MYERS Nancy and RAFFENSPERGER Carolyn, A Precaution Primer. Science and Environmental Health Network, 2001. Available at <http://www.sehn.org/>.

⁴⁷³ de SADELEER Nicolas, The Principles of Prevention and Precaution in International Law: Two Heads of the Same Coin. In FITZMAURICE Malgosia et al (Eds.), Research Handbook in International Environmental Law, Cheltenham, Edward Elgar Publishing, 2010, p.184.

⁴⁷⁴ RYDING Sven-Olof, Environmental Management Handbook: The Holistic Approach- From Problems to Strategies, Amsterdam, IOS Press, 1992, p.501.

⁴⁷⁵ IISD Reporting Services, A Summary Report of the World Congress on Justice, Governance and Law for Environmental Sustainability, UNEP World Congress Bulletin, Vol. 203, No.1, Rio, June 22, 2012. Available at <http://www.iisd.ca/uncsd/Rio20/unepwc> . Site visited 28-02-2013.

⁴⁷⁶ CLIQUET An, et al., Legitimacy Issues in Public Participation in Coastal Decision Making Processes: Case Studies From Belgium and France. Ocean and Coastal Management 53 (2010), 760-768, 766. Available at www.elsevier.com/locate/ocecoaman . Site visited 13-07-2013.

⁴⁷⁷ HU Hai, Research on Public Participation in Sustainable Urbanisation Process, Journal of Politics and Law, Vol.5, No. 2, June 2012. Available at <http://dx.doi.org/10.5539/jpl.v5n2p162> . Also at www.ccsenet.org/jpl . Site visited 22-01-2013.

⁴⁷⁸ VERWEIJ Marco, Transboundary Environmental Problems and Cultural Theory: The protection of the Rhine and the Great Lakes, Hampshire, Palgrave Publishers, 2000, p.141

in the Rhine River resulting from industrial discharges of toxic wastes and other scandals involving private waste removal firms.⁴⁷⁹

Participation may take different forms, most common of which is the public enquiry, called local public inquiry in the United Kingdom (UK), enquête publique in France, and Erörterung in Germany.⁴⁸⁰ In the US, public participation is statutorily encouraged, and the public is also encouraged to comment on certain environmental issues such as clean-up decisions or such similar matters before final decisions are made. Similarly, in the EU the principle has become a general principle of EU legal provision, as the European Commission acknowledged in European Commission 2002a,⁴⁸¹ and established by case law.⁴⁸² Alternatively, groups can bring actions against the Environmental Protection Agency (EPA) for various obvious issues arising out its activities.⁴⁸³ It is often helpful to seek the public's view regarding environmental problems, as interested citizens can be a valuable asset in the development of effective environmental management programmes.⁴⁸⁴ In doing this, it is pertinent to establish the issue of legitimacy of interest, which must be established as the basis for participation. That is, such should be in the public interest rather than in the participant's interest. What is important is that participation should underscore public interest, especially in matters concerning nature conservation.⁴⁸⁵

Public participation is a process through which stakeholders influence and share control over development initiatives, and the decisions and resources which affect them.⁴⁸⁶ It is a planned effort to involve citizens in the decision-making process and to prevent or resolve citizen conflict through mutual two-way communication- the feed-forward and the feed-back process. By feed-forward is meant the information communicated from public officials to citizens concerning public policy, while feed-back is the communication of information from citizens to public officials concerning public policy.⁴⁸⁷ Participation might be manipulative, passive, consultative or incentive-driven.⁴⁸⁸ The Aarhus

⁴⁷⁹ WEALE Albert, *The New Politics of Pollution*, Manchester, Manchester University Press, 1992, p.165.

⁴⁸⁰ LAMBRECHTS Claude, *Public Participation in Environmental Decisions*. In WINTER Gerd (Ed.), *European Environmental Law: A Comparative Perspective*, Aldershot, Dartmouth Publishing, 1996, p.96.

⁴⁸¹ See Commission of the European Communities, Brussels, Communication From the Commission, 11.12.2002 COM (2002) 704 final, p.3. Available at eur-lex.europa.eu/lexUriServ.do?uri=COM:2002:0704:FIN:en:PDF. Site visited 23-08-2013.

⁴⁸² CFI Case T-74/00, *Artogodan GmbH v Commission of the European Communities (2002)*. See also, JANSSEN Anne-May and Van ASSELT Marjolein, *The Precautionary Principle in Court: An Analysis of Post-Pfizer Case Law*, in Van ASSELT Marjolein B.A.; VERSLUIS Esther and VOS Ellen (Eds.), *Balancing Between Trade and Risk: Integrating Legal and Social Science Perspectives*, Oxon, Routledge Publishing, 2013, p.197.

⁴⁸³ CALLAND Dean and SCHLIESSNER Ursula, *Trends and Developments in Current Environmental Liability and Responsibility: A United States/European Union Comparison*, in ENMARCH-WILLIAMS Herbert (ed.), *Environmental Risks and Rewards for Business*, Chichester, 1996, p.83.

⁴⁸⁴ RYDING Sven-Olof, *Environmental Management Handbook: The Holistic Approach- From Problems to Strategies*, Amsterdam, IOS Press, 1992, p.502.

⁴⁸⁵ CLIQUET An, et al., *Legitimacy Issues in Public Participation in Coastal Decision Making Processes: Case Studies From Belgium and France*. *Ocean and Coastal Management* 53 (2010), 760-768, 767. Available at www.elsevier.com/locate/ocecoaman. Site visited 06-09-2013.

⁴⁸⁶ DALAL-CLAYTON Barry and BASS Stephen, *Sustainable Development Strategies: A Resource Book*, Organisation for Economic Co-operation and Development (OECD), Paris and United Nations Development Programme, New York. London, Earthscan Publications, 2002, p.178.

⁴⁸⁷ CANTER Larry W., *Environmental Impact Assessment (2nd Ed)*, New York, McGraw Hill, 1996, pp.587-588.

Convention requires that, “the public concerned should be informed early in the decision making procedure about the proposed activity and the nature of the decision that may be taken.”⁴⁸⁹ To the UN, it is designed “to address the existence of scientific uncertainty in areas where our failure to anticipate future harm may lead to disaster.”⁴⁹⁰ It requires that the public must be given the information in a timely and effective manner as well as reasonable time for participation. The UNCED specifies that environmental issues are best handled with the participation of all concerned citizens.⁴⁹¹ The Declaration enunciates the public’s rights to environmental information and participation, as a counterpart of the citizen’s general duty to protect the environment for present and future generations.⁴⁹² Public participation is a concept of open government, as against the tradition of secrecy and aversion to public involvement.⁴⁹³ It becomes imperative then, to treat the investment of time and effort of the participating actors as scarce resources that need to be handled with care and respect.⁴⁹⁴ It can be instrumental in whipping-up the people’s interest in programmes that will lead to accelerated development of the environment and its preservation. Public participation is a key component of decision-making in precautionary principle. It is simply to galvanize the public contribution in issues of public interest. Government ought to make conscious efforts to improve public participation capabilities by promoting rational participation through individual involvement in social organisations actively.⁴⁹⁵

It is allowing the people to influence the outcome of plans and working processes.⁴⁹⁶ It is the need to prevent and arrest a breakdown of public confidence in actors traditionally involved in decision-making process and the introduction of new technologies such as scientists, politicians, industry necessitates

⁴⁸⁸ DALAL-CLAYTON *supra*, pp.178-179.

⁴⁸⁹ See Art. 6 Aarhus Convention. Also, WOLF Susan and STANLEY Neil, *Wolf and Stanley on Environmental Law*, (5th Ed.), Oxon, Routledge, 2011, p.567.

⁴⁹⁰ See UN Economic and Social Council 1997. Also JANSSEN Anne-May and Van ASSELT Marjolein, *The Precautionary Principle in Court: An Analysis of Post-Pfizer Case Law*. In Van ASSELT Marjolein B.A., VERSLUIS Esther and VOS Ellen (Eds.), *Balancing Between Trade and Risk: Integrating Legal and Social Science Perspectives*, Oxon, Routledge Publishing, 2013, p.197.

⁴⁹¹ See Principle 10 Rio Declaration. See also, TURNER Stephen J., *A Substantive Environmental Right: An Examination of the Legal Obligations of Decision-Makers Towards the Environment*, Alphen aan den Rijn, Kluwer Law International, 2009, p.11.

⁴⁹² LAMBRECHTS Claude, *Public Participation in Environmental Decisions*. In WINTER Gerd (Ed.), *European Environmental Law: A Comparative Perspective*, Aldershot, Dartmouth Publishing, 1996, p.96.

⁴⁹³ JENDROSKA Jerzy, *Public Information and Participation in EC Environmental Law: Origins, Milestones and Trends*. In MACRORY Richard (Ed.), *Reflections on 30 Years of EU Environmental Law: A High Level of Protection?*, Groningen, Europa Law Publishing, 2006, p.63.

⁴⁹⁴ STIRLING Andy et al., *A Framework for the Precautionary Governance of Food Safety: Integrating Science and Participation in the Social Appraisal of Risk*. In FISHER Elizabeth et al., (Eds.), *Implementing the Precautionary Principle: Perspectives and Prospects*, Cheltenham, Edward Elgar Publishing, 2006, p. 307.

⁴⁹⁵ HU, Hai, *Research on Public Participation in Sustainable Urbanisation Process*, *Journal of Politics and Law*, Vol.5, No. 2, June 2012. Available at <http://dx.doi.org/10.5539/jpl.v5n2p162>. Also at www.ccsenet.org/jpl. Site visited 22-01-2013.

⁴⁹⁶ Common Implementation Strategy for the Water Framework Directive (2000/60/EC). Guidance Document No.8.

Available at

circa.europa.eu/Public/irc/env/wfd/library?!=/framework_directive/guidance_documents/guidancesnos8publicspar/EN_1.0_&a=d. Site visited 17-09-2013

the principle of participation to achieve a more transparent and inclusionary decision-making process.⁴⁹⁷ The complexity of environmental challenges require law to go beyond environmental issues, which makes the involvement of as many vested interests as possible inevitable. Indeed, most environmental organizations would strongly favour public participation in decision-making at all possible levels.⁴⁹⁸ This therefore, warrants the inescapable objectives of public participation thus: it is directed toward identification of problem-solving approaches (alternatives) that may not have been considered in normal planning processes;⁴⁹⁹ active participation by affected persons is not only desirable, but necessary if international sustainable development objectives are to be met.⁵⁰⁰ Active participation is thus pivotal to the attainment of the objectives of international sustainable development. Other core issues include education of the citizenry on Environmental Impact Statement (EIS), and their purpose, and dissemination of information on the study progress and findings. Likewise, resolving conflicts that exist over the proposed action, and then, identification of problems, needs and important values relating to the determination of the environmental resources important to various segments of the public in an area.⁵⁰¹

Involving individuals in negotiations in turn creates massive organizational challenges in ensuring that everyone is in the right place at the right time, working for the same agreed agenda in a common language with the necessary documentation and with the opportunity to express a view and be heard. This in theory, could generate greater potential for achieving an acceptable outcome with joint gains for all.⁵⁰² By the means of participation, it becomes easier to achieve objectives in both international treaties and in soft law.⁵⁰³ The participation process needs only be designed in such a way that the various actors are encouraged to contribute to the process on all issues within their competence, in

⁴⁹⁷ PIERI Elisa, *The GM Nation Debate: Participatory Decision Making?* in PHILLIPS Catherine (Ed), *Environmental Justice and Global Citizenship*, Oxford, Inter-Disciplinary Press, 2004, p.71.

⁴⁹⁸ VERWEIJ Marco, *Transboundary Environmental Problems and Cultural Theory: The protection of the Rhine and the Great Lakes*, Hampshire, Palgrave Publishers, 2000, p.178.

⁴⁹⁹ CANTER Larry, *ibid.*, p.595.

⁵⁰⁰ Ensuring environmental sustainability is one of the eight-point Millennium Development Goals (Goal 7) targeted to be met by 2015. This requires that all efforts must be explored to ensure target is met, hence no prospective opinion or contribution towards goal achievement could be left out. Already, one of the prime goals under this has been missed- which has potential grave consequences, that is, the 2010 target for biodiversity conservation which could not be met. See also, SEGGER Marie-Claire Cordonier et al, *Prospects for Principles of International Sustainable Development Law After the WSSD: Common but Differentiated Responsibilities, Precaution and Participation*, RECIEL 12 (1), Oxford, Blackwell Publishing, 2003, p.64.

⁵⁰¹ CANTER Larry W., *Environmental Impact Assessment* (2nd Ed), New York, McGraw Hill, 1996, pp.593, 595.

⁵⁰² DEPLEDGE Joanna, *The Organization of Global Negotiations: Constructing the Climate Change Regime*, London, Earthscan, 2005, pp.8-9.

⁵⁰³ SEGGER Marie-Claire Cordonier et al, *Prospects for Principles of International Sustainable Development Law After the WSSD: Common but Differentiated Responsibilities, Precaution and Participation*, RECIEL 12 (1), Oxford, Blackwell Publishing, 2003, p.64.

which they can offer something to improve the quality of the final result.⁵⁰⁴ Public participation aims at expanding the involvement of non-state actors in decision-making procedures, since government has since ceased to exclusively speak and act on behalf of public interests. This has affected decision-making especially concerning environmental matters both in international and national contexts. Over the years,⁵⁰⁵ non-governmental organizations have been actively and increasingly involved in the evolving international environmental matters. It is emphasised that a stronger and more institutionalized involvement of civil society in intergovernmental decision-making could provide broader support for norms on sustainable development and environmental protection, and better protect the interests of marginalized groups and future generations.⁵⁰⁶ Public participation is made effective in sustainable development when the actual benefits obtained by the people are visible through the participation process which is manifested in the government's response to public opinions and also the degree of the public satisfaction to government behaviours. It is imperative that government thus fully respect and focus on the participatory right of the public, while the public respects the authority of the government acting under the legal framework.⁵⁰⁷

Emphasising the participation of all concerned citizens at the relevant levels, Principle 10 of the Rio Declaration seeks to promote access to information, public participation and access to justice in environmental matters.⁵⁰⁸ The WCED 1987 requires for sustainable development, a political system that secures effective citizen participation, which cannot be said to be in the Nigerian situation. Rio+20 Summit Report in Chapter II, Par. 43 specifically reaffirms the Principle 10 rights of access to information, public participation and access to justice,⁵⁰⁹ nations' agreement to better involvement of civil society. By these, the need to extend this principle to all sectors of society cannot be overemphasized. Agenda 21 emphasized the desirability of direct participation in governance by identifying important roles for women, youths, indigenous peoples and their communities, non-government organizations, local authorities,⁵¹⁰ workers and their trade unions, business and industry,

⁵⁰⁴ STIRLING Andy et al., A Framework for the Precautionary Governance of Food Safety: Integrating Science and Participation in the Social Appraisal of Risk, in FISHER Elizabeth et al., (Eds.), *Implementing the Precautionary Principle: Perspectives and Prospects*, Cheltenham, Edward Elgar Publishing, 2006, p. 307.

⁵⁰⁵ In the second half of the 19th century, NGOs were instrumental to the Convention on bird protection; in the 20th century, they have been instrumental to the regulation of fishing activities and preservation of a variety of marine mammals; and since the Stockholm Conference, have been well represented in every other conference on environmental issues. About 400 NGOs attended the 1972 Stockholm Conference, an estimated 2,400 of them attended the 1992 Rio Conference. See also, EBBESSON Jonas, Public Participation, in BODANSKY Daniel et al (Eds.), *The Oxford Handbook of International Law*, Oxford, Oxford University Press, 2010, p.683. Also, YAMIN Farhana, *NGOs and International Environmental Law: A Critical Evaluation of their Roles and Responsibilities*, RECIEL 10 (2), 2001, Oxford, Blackwell Publishers.

⁵⁰⁶ UNEP, *21 Issues for the 21st Century: Result of the UNEP Foresight on Emerging Environmental Issues*. United Nations Environment Programme (UNEP), Nairobi, 2012, p.17.

⁵⁰⁷ HU, Hai, Research on Public Participation in Sustainable Urbanisation Process, *Journal of Politics and Law*, Vol.5, No. 2, June 2012. Available at <http://dx.doi.org/10.5539/jpl.v5n2p162>. Also at <http://www.ccsenet.org/jpl>.

⁵⁰⁸ WOLF Susan and STANLEY Neil, *Wolf and Stanley on Environmental Law*, (5th Ed.), Oxon, Routledge, 2011, p.564.

⁵⁰⁹ See Art.3, The Aarhus Convention. 25 June, 1998. Available at <http://ec.europa.eu/environment/Aarhus>.

⁵¹⁰ HENS Luc, *The Rio Conference and Thereafter*. In NATH Bhaksar et al. (Eds.), *Textbook on Sustainable Development*, Brussels, VUBPress, 1996, p.293.

the scientific and technological community and farmers.⁵¹¹ Furthermore, Agenda 21 set the framework for national sustainable development strategies widening environmental policies and adding principles such as equity, poverty reduction, as well as framing the economy-ecology conflict.⁵¹² This was evidently manifested in the 2002 World Summit on Sustainable Development (WSSD), in which the role of civil society both in the preparation towards and in actual participation was significant, their lobbying for strong formulation of environmental rights gave a clearer focus to the report.⁵¹³

This will give the people a sense of belonging and relevance, instead of alienation, which at its peak, could engender strife, threat to peace, and actual disturbance of the peace; accounts for revolt at the slightest provocation of the locals, whereas public participation enhances the acceptance of decisions and trust in public authorities.⁵¹⁴ It has a further advantage of flow of information exchange mechanism, serves as source of information on some intrinsic local values, aids in establishing the credibility of the planning and assessment process. Further, it provides for both judicial and public examination of the factors and considerations in the decision making process, also brings the government to be responsive to issues beyond those immediately related to the project,⁵¹⁵ among others.

Environmental protection needs to take account of all aspects in order to be successful and to ensure sustainable development,⁵¹⁶ which accounts for why public participation is especially important in environmental decision-making. This gives the public the possibility to express its concerns and enables public authorities to take due account of them.⁵¹⁷ Modern democracy requires that citizens have extensive rights in participating in state and social affairs,⁵¹⁸ which are fundamental and cannot be

⁵¹¹ Agenda 21, Chapters 23-32. See also, SEGGER Marie-Claire Cordonier et al, *Prospects for Principles of International Sustainable Development Law After the WSSD: Common but Differentiated Responsibilities, Precaution and Participation*, RECIEL 12 (1), Oxford, Blackwell Publishing, 2003, p.65.

⁵¹² NIESTRY Ingeborg, *Sustaining Sustainability: A Benchmark Study on National Strategies Towards Sustainable Development and the Impact of Councils in Nine EU Member States*. EEAC the Network of European Environment and Sustainable Development Advisory Councils, Den Haag, 2005, p.15.

⁵¹³ KRAVCHENCKO Svitlana, *The Role of Civil Society*, In BRADBROOK Adrian J. et al (Eds.), *The Law of Energy for Sustainable Development*, Cambridge, Cambridge University Press, 2005, p.522.

⁵¹⁴ The case of the Niger Delta area of Nigeria is a case in point, where the peoples of the area after suffering years of neglect, resorted to taking laws in their hands causing serious breaches to the peace of the entire area, seriously affecting the nation's revenue, until the government of the Federation was forced to come terms with them. See also, EBBESSON Jonas, *Public Participation*, in BODANSKY Daniel et al (Eds.), *The Oxford Handbook of International Law*, Oxford, Oxford University Press, 2010, pp.687.

⁵¹⁵ CANTER Larry W., *Environmental Impact Assessment (2nd Ed)*, New York, McGraw Hill, 1996, p.588.

⁵¹⁶ A narrow meaning of sustainable development would simply be environmental protection, and meeting the basic and human needs of present and future generations. See KHOR Martin, *Effects of Globalisation on Sustainable Development After UNCED*, Third World Network (TWN). Available at <http://www.twinside.org/sg/title/rio-cn.htm> . Accessed 22-05-2013.

⁵¹⁷ JENDROSKA, Jerzy, *Public Information and Participation in EC Environmental Law: Origins, Milestones and Trends*. In MACRORY Richard (Ed.), *Reflections on 30 Years of EU Environmental Law: A High Level of Protection?* Groningen, Europa Law Publishing, 2006, p. 66.

⁵¹⁸ HU, Hai, *Research on Public Participation in Sustainable Urbanisation Process*, *Journal of Politics and Law*, Vol.5, No.2, June 2012. Available at <http://dx.doi.org/10.5539/jpl.v5n2p162> . Also at www.ccsenet.org/jpl .

whimsically denied or abrogated by the government. In Nigeria, the reverse is the case, where the government through a system of legislation alienates the people, rather than make for their participation in matters concerning the people's environment. The combined effects of various sections of the Land Use Act, 1978,⁵¹⁹ the Minerals and Mining Act, 1999⁵²⁰ and of course the very grund norm, the Constitution of the Federal Republic of Nigeria CFRN, 1999,⁵²¹ among many other such legislation, seek to oust the people the participatory right hitherto enjoyed on the land. Corresponding to this is the denial of access to justice by the Nigerian state, which is nothing but a negation of an important principle of sustainable development. This has led to more litigations opening up in foreign jurisdictions, notably the US, the UK and most recently, the Netherlands, as the local inhabitants find solace in airing their grievances therein in preference to indigenous courts, where decisions are known to always favour the TNCs no matter the genuineness of their cause. Suffices to say that on matters in which the indigenous courts have denied justice to the litigants, these foreign courts have granted justice,⁵²² as is it said that justice should not only be done, but must be manifestly seen to have been done. As successive administrations in the country has systematically stymied the people directly and indirectly, it has degenerated to a situation where the people of the areas resorted to "self-help" by kidnapping and abductions to drive home their point. Environmental issues are more often consequential and how to respond to them is the job of the network of realism: legitimate dangers which require a dynamic public participation.⁵²³ An ideal public participation would provide the basis for attention toward impact-mitigation measures.

By the Aarhus Convention, it constitutes the minimum rights concerning specific activities and installations, plans, programmes, policies, executive regulations, among other generally applicable rules.⁵²⁴ The people in an area or community bear more the brunt in the event of an environmental disorder in their community, than the government agency or authority which may be far alienated from the venue of the occurrence. Environmental issues are best handled with the participation of all

⁵¹⁹ See Sections 1, 28 and 29 LUA, 1978, Cap L5, LFN 2004.

⁵²⁰ See Section 1 MM Act 1999, Cap M12, LFN 2004.

⁵²¹ See Section 44 CFRN, 1999.

⁵²² A few of these cases include the *Wiwa v Shell* Case in the US court, which though was not to go through the whole hug of trial, but Shell applied for out-of-court settlement and paid several millions of US Dollars to the litigants. The latest in the array of such is the *Barizaa and Others v Shell* Case in the Netherlands, decided on 30 January, 2013. Shell was found guilty of causing oil spill destroying farmlands and fishing ponds in area covering about four communities in the Akwa Ibom state of Nigeria, and was ordered to pay damages to the farmers and fishermen. See FAYEMI Joke, and Van DIJL, Marten/Milieudefensie, Africa in Progress- Radio show: Long Distance Liability and the Niger Delta, Radio Netherlands Worldwide AFRICA, 31 January, 2013. Available at www.rnw.nl/Africa/radioshow/radio-show-long-distance-liability-and-niger-delta. Site visited 030-10-2013

⁵²³ LACY Mark J., *Security and Climate Change: International Relations and the Limits of Realism*, London, Routledge, 2005, p.11.

⁵²⁴ EBBESSON Jonas *ibid*, p.698. See also BIRNIE Patricia et al, *International Law and the Environment* (3rd Ed), Oxford, Oxford University Press, 2009, p.274.

concerned citizens, at the relevant level.⁵²⁵ The Land Use Act and related statutes in the Nigerian law, which clearly ostracize and alienate the people in environmental issues concerning them should at least be reviewed or repealed altogether, to make for true participation of the Niger Delta people in their own affairs. Then and only then can there be true peace in the region and a proper solution found for the incessant cases of pollution plaguing the entire area. Public participation should therefore be encouraged because it helps not only to focus on the topics of greatest concern, but may also identify sources of information and local environmental expertise.⁵²⁶

Besides, the participation of major groups may be viewed as a recognition of their human right of expression.⁵²⁷ Even more, giving non-state actors a more influential role in law-making and the implementation of existing laws challenges the state-centered nature of international law; while allowing public involvement serves to legitimize environmental decisions.⁵²⁸ It was emphasised the necessity of employing the Aarhus Convention as a model to advance the implementation of the Rio Principle 10 at the global level, with the motive to bringing law to remote communities, removing procedural impediments for access to justice by vulnerable groups, while ensuring that environmental information, both from public and private entities, is placed in the public domain and disclosed without procedural restraints.⁵²⁹ Emphasised further the need for enhancing capacity building of judges in environmental law, the need for judges to have skills in crafting new and innovative concepts and procedures in the area of sustainable development, such as the public trust doctrine, and serves as a check on executive inaction and abuse of power in the environmental area. It also pointed out the need for international network for exchanging information on law cases and environmental justice information.⁵³⁰

Not only in the US is it employed, but is gaining more popularity and acceptance generally, nationally, regionally and in international documents. In 1986, the United Nations General Assembly Declaration on the Right to Development conferred on the principle a centralized status, from which it has over time, become intimately linked with achieving objectives in both international treaties and soft law.⁵³¹ The EU in its Fifth Environmental Action Programme (1993-2000), likewise accorded important role to

⁵²⁵ AKO Rhuks Temitope, The Judicial Recognition and Enforcement of the Right to Environment: Differing Perspectives From Nigeria and India, NUJS Law Review, October-December 2010, 423-445, 426.

⁵²⁶ HENS Luc, The Rio Conference and Thereafter. In Nath, Bhaskar et al. (Eds.), Textbook on Sustainable Development, Brussels, VUB Press, 1996, 302.

⁵²⁷ SEGGER Marie-Claire Cordonier et al, Prospects for Principles of International Sustainable Development Law After the WSSD: Common but Differentiated Responsibilities, Precaution and Participation, RECIEL 12 (1), Oxford, Blackwell Publishing, 2003, p.64.

⁵²⁸ EBBESSON Jonas, Public Participation. In BODANSKY Daniel et al (Eds.), The Oxford Handbook of International Law, Oxford, Oxford University Press, 2010, pp.684, 687.

⁵²⁹ IISD Reporting Services, A Summary Report of the World Congress on Justice, Governance and Law for Environmental Sustainability, UNEP World Congress Bulletin, Vol. 203, No.1, Rio, June 22, 2012. Available at <http://www.iisd.ca/uncsd/Rio20/unepwc>.

⁵³⁰ IISD Reporting Services, *ibid*.

⁵³¹ Segger, et al, *ibid*, p.64.

citizens in ensuring the enforcement of environmental legislation.⁵³² The Brundtland Report is also not left out in this vein, acknowledging public participation as a necessary means for achieving sustainable development.⁵³³ This has also impacted on corporate organizations attitude to the public, which now give room for better information flow to the public to allow for comments on industry. This means on the overall that it has enhanced environmental reporting, as in the EU, environmental groups participate more actively in two distinct ways: firstly, by participating in the formulation and development of environmental law and policy; and secondly, acting as watchdogs to monitor compliance with EU environmental law, and complaining to the European Commission with regard to cases where EU law has breached or inadequately enforced.⁵³⁴

It was recommended by the Rio+20 Congress, that to facilitate public participation in environmental decision making, financial incentives and free access to information be provided, making technology available to communities, and making reports on the state of the environment available to the public to help in understanding gaps and actions on environmental sustainability.⁵³⁵ These will go a long way in motivating the level of participation of the members of the communities in contributing to efforts in sustaining the environment, as many who have ordinarily good idea and incentives might lack the wherewithal to put same forward to the appropriate agencies for necessary actions. On the whole, active participation is pivotal to the attainment of the objectives of international sustainable development.

3.2.2 Principle of prevention

Prevention is a fundamental principle of international law regarding the responsibility of a polluting state for transboundary pollution.⁵³⁶ It is suggestive that the precautionary principle requires preventive action wherever there is a sufficiently substantial threat notwithstanding the existence or not of uncertainty. Prevention predates, and is distinct from precautionary in that to avert “certain” hazards is preventive and to avert “uncertain” hazards is precautionary. In reality, there exist blurred boundaries between a precautionary principle and the preventive principle,⁵³⁷ yet the distinction between them is relevant and apparent. That the precautionary principle teaches preventive action in the face of uncertainty does not sever it from the main, preventive trunk. It is rather to be considered as an enlargement or even the most developed form of the preventive principle. The preventive thus

⁵³² WOLF Susan and STANLEY Neil, *Wolf and Stanley on Environmental Law*, (5th Ed.), Oxon, Routledge, 2011, p.565.

⁵³³ Brundtland Commission, *Our Common Future*, Oxford, Oxford University Press, 1987, p.65.

⁵³⁴ WOLF Susan and STANLEY Neil, *Wolf and Stanley on Environmental Law*, (5th Ed.), Oxon, Routledge, 2011, p.565.

⁵³⁵ IISD Reporting Services, *A Summary Report of the World Congress on Justice, Governance and Law for Environmental Sustainability*, UNEP World Congress Bulletin, Vol. 203, No.1, Rio, June 22, 2012. Available at <http://www.iisd.ca/uncsd/Rio20/unepwc>. Site visited 13-04-2013.

⁵³⁶ SOROOS Marvin S., *Decision Making: Analytical Tools for Environmental Decision Making*, in Mirovitskaya, NATLIA and ASCHER William (Eds.), *Guide to Sustainable Development and Environmental Policy*, Durham, Duke University Press, 2001, p.248.

⁵³⁷ TROUWBORST Arie, *Precautionary Rights and Duties of States*, Leiden, Martinus Nijhoff Publishers, 2006, p.94.

constitutes a most fundamental principle of environmental protection.⁵³⁸ This is the presence or absence of scientifically established and well-understood causal relationships that defines the distinction with precautionary action.⁵³⁹

Principle 21 of the Stockholm Declaration requires states responsibility “to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.”⁵⁴⁰ Prevention envisages the elimination of the problem-causing activity in a fashion that is as economically efficient and socially acceptable as possible.⁵⁴¹ It is on this note that it becomes imperative that concrete strategies be put in place to get oil-producing states to reduce to absolute minimal limits their gas flaring, like in the case of Saudi Arabia, and as Russia seems to be doing with the array of efforts it is making to market its gas resources. If other oil-producing nations, especially the poorer ones like the sub-Saharan African oil-producers, could put in such concerted and consistent efforts, gas flaring as a source of global warming might sooner than is expected become a thing of the past. After all, the chlorofluorocarbon (CFC) family was effectively prevented by the Montreal Protocol and subsequent amendments at London and Copenhagen, which were able to recommend and enforce a reduction to zero of CFC emissions in industrial countries.⁵⁴² Notwithstanding this, on the basis of current scientific understanding, it is impossible to prevent all risk of dangerous climate change.⁵⁴³

The principle found an early affirmation in the Trail Smelter Case.⁵⁴⁴ For the avoidance of many obvious uncertainties and difficulties in state responsibility, customary international law may not easily fulfill basic functions of deterrence, prevention and compensation, it then becomes inevitable that prevention becomes the Golden Rule for the environment, both for ecological and economic

⁵³⁸ TROUWBORST Arie, Evolution and Status of the Precautionary Principle in International Law, in BODANSKY Daniel and FREESTONE David, (Eds.), International Environmental Law and Policy Series, The Hague, Kluwer Law International, 2002, p.39. Also IUCN, Commentary on the IUCN Draft International Covenant on Environment and Development, 1995. Available at <http://www.iucn.org/themes/law/covenant.pdf> at Article 6. Site visited 13-04-2013.

⁵³⁹ TROUWBORST Arie, op cit., 2002, p.37.

⁵⁴⁰ See also Principle 2 of the 1992 UNCED Declaration, which in addition to the above provision acknowledges in accordance with the Charter of the UN and the principles of international law, the sovereign states right to exploit their own resources, but pursuant to their own environmental and developmental policies.

⁵⁴¹ STIRLING Andy et al., A Framework for the Precautionary Governance of Food Safety: Integrating Science and Participation in the Social Appraisal of Risk, in FISHER Elizabeth et al., (Eds.), Implementing the Precautionary Principle: Perspectives and Prospects, Cheltenham, Edward Elgar Publishing, 2006, p. 304.

⁵⁴² MOFFAT Ian, Global Warming: Scientific Modelling and its Relationship to the Economic Dimensions of Policy, in OWEN D. Anthony and HANLEY Nick (Eds.), The Economics of Climate Change, Routledge Explorations in Environmental Economics, London, Routledge, Taylor and Francis Group, 2004, p.27.

⁵⁴³ STERN Nicholas, The Economics of Climate Change: The Stern Review, Cambridge, Cambridge University Press, 2007, p.334.

⁵⁴⁴ See the Trail smelter Case, (United States v Canada) 1941, UN Rep. Int'l Arb. 1905 (1949). See also, SOROOS Marvin S. Duty of Prevention of Environmental Harm, in MIROVITSKAYA Natalia and ASCHER William (Eds.), Guide to Sustainable Development and Environmental Policy, Durham, Duke University Press, 2001, p.248.

reasons.⁵⁴⁵ Although much environmental legislation is drafted in response to catastrophes, preventing environmental harm is cheaper, easier, and less environmentally dangerous than reacting to environmental harm that already has taken place.⁵⁴⁶ What is of essence here is the elimination of threat-causing substance in a manner that is economically efficient and socially acceptable to the society.⁵⁴⁷ It denotes the prevention of risks of harm whose relative likelihood can be expressed, or in the least, in the probabilities.⁵⁴⁸ This principle can be said to underscore the majority of environmental decisions and agreements.⁵⁴⁹ The principle does not include a minimum of threshold of harm, because the obligation is one of conduct, not of result. It however requires parties to exercise due diligence, acting reasonably and in good faith to regulate public and private activities within its jurisdiction or control that are potentially harmful to any part of the environment.⁵⁵⁰ In the context of the oil industry, effective prevention involves establishing an appropriate regulatory system based on international best practices and the effective enforcement of regulations. Nigeria's balking has resulted in its trading the dignity of its people at the expense of government's interests and its corporate partners- the TNCs.⁵⁵¹

3.3 Sustainable Development in Nigeria

Sustainable development was envisaged in Nigeria's national environmental policy, which requires positive and realistic planning in reconciling human needs with the carrying capacity of the environment. This implies therefore, that the policy is built on the sustainable development principles of precaution, which requires that lack of full scientific knowledge shall not be a reason for postponing cost-effective means to prevent environmental degradation in the event of serious threats of irreversible damage to the environment. It also requires the pollution prevention pays principle (3p+), the polluter pays principle (PPP), the user pays principle (UPP), the principle of intergenerational equity which essentially presumes that the different groups of people in the country in the present generation have equal right to benefit equally from the exploitation of resources and equal right to a clean and

⁵⁴⁵ TAYLOR Prue, *An Ecological Approach to International Law: Responding to Challenges of Climate Change*, London, Routledge, 1998, 108.

⁵⁴⁶ Encyclopaedia Britannica: Facts Matter, Environmental Law. Available at <http://www.britannica.com/EBchecked/topic/76>. Site visited 21-08-2013.

⁵⁴⁷ STIRLING Andy et al., *A Framework for the Precautionary Governance of Food Safety: Integrating Science and Participation in the Social Appraisal of Risk*. In FISHER Elizabeth et al. (Eds.), *Implementing the Precautionary Principle: Perspectives and Prospects*, Cheltenham, Edward Elgar Publishing, 2006, p.304.

⁵⁴⁸ McDONALD Jan, *Tr(e)ading Cautiously: Precaution in WTO Decision Making*, in FISHER Elizabeth et al. (Eds.), *Implementing the Precautionary Principle: Perspectives and Prospects*, Cheltenham, Edward Elgar Publishing, 2006, p. 161.

⁵⁴⁹ TROUWBORST Arie, *Evolution and Status of the Precautionary Principle in International Law*, in BODANSKY Daniel and FREESTONE David, (Eds.), *International Environmental Law and Policy Series*, The Hague, Kluwer Law International, 2002, p.35.

⁵⁵⁰ IUCN, *Commentary on the IUCN Draft International Covenant on Environment and Development*, 1995. Available at <http://www.iucn.org/themes/law/covenant.pdf> at Article 6. Site visited 06-06-2013.

⁵⁵¹ TSUNGA Arnold, *South Africa: ICJ Concerned by the Tragic Events at the Lonmin Mines*, August 17, 2012. Available at <http://www.icj.org/south-africa-icj-concerned-by-the-tragic-events-at-the-lonmin-mines/> / Site visited 11th October, 2012.

healthy environment; and the subsidiary principle, which allows affected communities to make decisions through the authorities closest to them.⁵⁵²

The country is only at a transition stage to sustainable development as envisaged in the National Policy on the Environment of 1989,⁵⁵³ expected to be a launch pad for social justice, self-reliance and sustainable development in this current millennium. To the extent that no substantive sustainable development programme is in place as far as the energy industry is concerned in the country, the sector which could have been a benefit to the country has been its nemesis. The resources are seen as curse, meant only to enrich the governing and business elites, while host communities and national economies have seen few if any benefits.⁵⁵⁴ The oil states are successful because they are cash-rich, preserved from actual demise and aloof from domestic and external pressures, but have failed because they share the worst elements of the petro-state and the African postcolonial state.⁵⁵⁵

The environmental impact of oil production unmitigated by effective state regulation has everywhere been harmful, and in seasoned oil provinces such as the Niger Delta, it amounts to grave damage for the ecosystem and local health and livelihood.⁵⁵⁶ Considering that environment is very important, upon which virtually all things rest, consisting of natural resources both abiotic and biotic, such as water, air, soil, fauna and flora, and the interaction between the same factors as well as the characteristic aspects of the landscape.⁵⁵⁷ Environmental economists describe the natural environment as source, sink and service provider in that, on the one hand, the environment is a source of energy and materials, which are transformed into goods and services to meet human needs. It is on the other hand, a sink for wastes and emissions generated by producers and consumers; while in yet another perspective, it provides a number of basic conditions for human life and the economy as in the form of a stable climate.⁵⁵⁸ In Nigeria, there is an apparent lack of proper management of petroleum resources by the manifest laxity in implementation and enforcement of regulatory control, and general lack of policies to govern the administration of same, which has resulted in non-availability of reliable figures and data of goings-on in the industry, as important as the sector is to the nation's economy. This has made control of the oil TNCs rather an uphill task, where and when the government at all felt the need to do so. In a sector so strategic to the revenue and otherwise aspects of life of a country like Nigeria, there

⁵⁵² Source: National Environmental Standards and Regulations Enforcement Agency (NESREA).

<http://www.nesrea.org/environmentalpolicies.php>.

⁵⁵³ STEVENS Lisa, The Illusion of Sustainable Development: How Nigeria's Environmental Laws Are Failing the Niger Delta, Vermont Law Review, Vol.36, 2011, pp.387-407.

⁵⁵⁴ Source: Directorate-General for External Policies, Policy Department, European Parliament, The Effects of Oil Companies' Activities on the Environment, Health and Development in Sub-Saharan Africa, 2011, p.13.

⁵⁵⁵ Source: Directorate-General for External Policies, Ibid.

⁵⁵⁶ SOARES de OLIVIERA Ricardo, Oil and Politics in the Gulf of Guinea, New York, Columbia University Press, 2007, p.8.

⁵⁵⁷ BOCKEN Hubert; DESCAMPS Hannes and SLABBINCK Robin, International Sources of Environmental Liability, Part 1, Europe and Environment Division, Environment and Infrastructure Department, Ministry of the Flemish Community, in Cooperation with Ghent University Department of Civil Law, J.P. Heirman Publishing, 2006, p.6.

⁵⁵⁸ ALBERT Marina and JOFFRE Sylvain, Environmental Changes and Human Development, in STANNERS David and BOURDEAU Philippe (Eds.), Europe's Environment: The Dobris Assessment, European Environment Agency, Copenhagen, Earthscan Publications, 1995, p.13.

should be a proper and effective corporate governance framework for operators by which their daily activities are effectively monitored. This will serve to reduce the astronomically high level of fraud and theft, while ensuring better revenue income for the government for all-round development in every sphere of the country's life. This could include legislation and soft law as well as recommendations, and corporate governance codes.

It is difficult for the TNCs and other actors in the Nigerian oil sector to take the legal regime guiding the sector seriously when the Nigerian government itself clearly does not. Although, Nigeria relies most heavily on the oil sector for the larger percentage of its income- about ninety-five per cent net income, the paltry laws guiding the activities in the industry renders much of the specific strengths and weaknesses of the laws moot. This casts a very high doubt on the seriousness of the nation on the sustainable development of this crucial sector which has remained the sole sustenance of its economy for decades running. As much as between 150,000 and 180,000 barrels of crude oil are stolen daily from a production of about 2.5 mbp/d, the greater percentage- almost 90%, of which is ferried abroad to mainly the Balkan region and refineries in Singapore by a well-orchestrated syndicate involving locals and foreign nationals; while the remainder is refined locally in the jungles by the locals involved, for sale on road sides within the country. The locals hack into the pipelines to steal in an industrial-scale, in a much sophisticated manner,⁵⁵⁹ hijack oil vessels on Nigeria's internal waters. The activities of these syndicates have been very critical that the Nigerian Minister of Finance, Ngozi Okonjo-Iweala complained in May 2012 that the government lost a fifth of its oil revenues to theft in April.⁵⁶⁰ These cartels have been able to sustain for so long till now, because neither the state oil firm- the NNPC, nor the government nor the oil TNCs were publishing transparent figures about how much oil they produced, making it much harder to detect missing cargoes. Official figures put the estimate of the oil theft by the international syndicate at about 20 per cent of its total oil.⁵⁶¹ What more, in Nigeria politicians, military officers, militants, oil industry personnel, oil traders and communities profit from oil theft, making cracking down very difficult as it could inflame tensions among powerful figures, particularly in the southern oil-producing Niger Delta region. The cost of this is quite staggering, costing roughly US\$6 billion a year in lost revenue.⁵⁶² This is by no means a huge loss to an impoverished, corrupt nation crying for development with every resource at its disposal. There is then every probability that Nigeria produces more than what it has declared, but the difference unaccounted for. The Niger Delta provides a stark case study of the lack of accountability of a government and its

⁵⁵⁹ COCKS Tim/ Reuters, Balkans, Singapore Top Buyers of Stolen Nigerian Oil – Expert, Thomson Reuters, October 22, 2012. Available at [file:///E:/Balkans,Singapore top buyers of stolen Nigerian oil – expert....](file:///E:/Balkans,Singapore%20top%20buyers%20of%20stolen%20Nigerian%20oil%20-%20expert....) Site visited on 26 October, 2012.

⁵⁶⁰ Cocks, *ibid*.

⁵⁶¹ COCKS Tim/Reuters, Shell Can't Say When Will Lift Nigeria Force Majeure, Thomson Reuters, October 23, 2012. Available at [file:///E:/Shell can't say when will lift Nigeria force majeure- Yahoo....](file:///E:/Shell%20can't%20say%20when%20will%20lift%20Nigeria%20force%20majeure-%20Yahoo....) Site visited on 26 October, 2012.

⁵⁶² SIMON Ben, Nigeria Oil Theft a Global Criminal Enterprise, AFP News, September 19, 2013. Available at <http://uk.finance.yahoo.com/news/Nigeria-oil-theft-global-criminal-215426828.html>. Site viewed 22-09-2013.

people, and of multinational companies' almost total lack of accountability when it comes to impact of their operations relative to human rights,⁵⁶³ and sustainable development.

The activities of the syndicate, in other words bunkering, has been made much easier because of the state of the pipelines in the oil producing areas. These are mostly laid bare, and even when buried are so shallow. They are not properly policed, monitored or maintained, hence giving room for men of the underworld to have a field day helping themselves to the pipelines. The consequences of these are the indiscriminate incidences of oil spillage and explosions in different parts of the Niger Delta. However, not all the cases of the oil spillages result from the activities of these bunkerers, a very high percentage are the result of the TNCs failure to maintain, upgrade or assess the state of their facilities before they give way due to old age or worn-out and dilapidated condition. Oil pipelines are known to be routinely left to rust and rupture and in some cases cause oil leakage whose seepage may continue for several days, often times weeks before they are replaced.⁵⁶⁴

Aside from these, the government has not even been able to monitor its finances well. It is an array of indebtedness by the rich oil TNCs, some of which are richer than the country itself. For instance it was reported that Addax, now a unit of China's state-owned Sinopec, is owing Nigeria US\$ 1.5 billion in unpaid royalties, part of a \$3billion black hole of unpaid bonuses and royalties owed by oil firms. Shell is owing the Federal Government 137.57 billion Naira for gas sold from its Bonga Deep Offshore Field, while other oil majors TNCs owed [b]etween \$58million for gas flaring. They are also not adhering to newer higher fines.⁵⁶⁵ The flagrant and deliberate act of gas flaring, and sheer reluctance to channel gas resources to good use, as well as the excessive wastage of crude oil by the oil TNCs with the strong connivance of, the aiding and abetting of same by the government, are acts punishable under the law. These constitute crime not only against the present generation of people living in the Niger Delta areas, who have been agitating against these act but have been consistently silenced by the use of state force apparati and coercion. It is even more an illegality against future generations, not only of the Niger Delta areas, but of Nigerians generally, considering a native American proverb that we do not inherit the environment from our fathers, but rather, we borrow it from generations after us.⁵⁶⁶ These non-chalant acts are manifest abuse against sustainable development and a deliberate negation of same. One wonders if any of these oil TNCs could ever embark on such a callous and nefarious

⁵⁶³ Amnesty International, Nigeria: Petroleum, Pollution and Poverty in the Niger Delta, Amnesty International Publications, London, 2009, p.10.

⁵⁶⁴ KINGSTON Kato Gogo, Shell Oil Company in Nigeria: Impediment or Catalyst of Socio-Economic Development?, African Journal of Social Sciences, Vol.1 No.1, February 2011, pp.15-36, 21.

⁵⁶⁵ Agency Reporter, \$183m Oil Fund Missing- Ribadu Committee, The Punch Newspaper, October 25, 2012. Available at <http://www.punchng.com/news/183m-oil-fund>. Site visited on October 25, 2012.

⁵⁶⁶ RODI Michael (Ed), The Paradigm Shift Towards Energy Sustainability: Climate Change, Innovation and the Optimal Instrument Mix, Proceedings of the Summer Academy 'Energy and the Environment', Greifswald, 20 July-8 August 2008, Berlin, Lexion Publishers, 2010, p.3.

campaign of wastage, destruction and degradation in any part of Europe or America where they have their origins without courting dire consequences for it.

The government has consistently failed to seriously implement environmental protection into its development strategy. Whatever attempts it has made have been frustrated by its poor regulatory effectiveness. The pathetic situation of the nation is thus that of one enduring the environmental costs of the developed world's current extraordinary energy consumption levels, considering that the greater percentage of the oil produced go to the US, China and Europe, the first two which constitute the world's largest economies. The question then is, how long is this attitude of to sustainable development in every sphere of human endeavours? More than five decades after oil exploration activities commenced in the country, the currently level of gas flaring in the country is not expected, not for any reason at all. A National Gas Policy was put in place in 1995 with the aim of augmenting the taxes levied on the associated gas being flared, and to incorporate clauses which require the exploitation of gas into all new license block concessions being issued.⁵⁶⁷ government-guided wastage of the natural resources going to continue, despite the awakening of the world.

The whole gamut of the almost non-existence of any meaningful sustainable development programme in Nigeria stems from the inadequacy of both the policy and legal instruments, while the enforcement of the existing environmental rules and regulations has been problematic, especially as there are no clear demarcation of responsibilities between the Agency, Federal and State Ministries, the inadequacy of the monitoring and enforcement mechanisms.⁵⁶⁸ Nigeria fails to realise that unsustainable development is the underlying cause of climate change, and development pathways will determine the degree to which social systems are vulnerable to climate change. Climate change will have a direct impact on the development in relation to climate sensitive activities such as agriculture, and consequences on social issues such as poverty and education.⁵⁶⁹ According to the Africa Learning Barometer of the Centre for Universal Education at Brookings, of the continent's 128 million school-aged children, about 37 million will learn so little while in school as to make little or no appreciable difference between them and those who never attended school at all, while 17 million will never attend school.⁵⁷⁰ Nigeria has the highest number of children in the world, according to the United

⁵⁶⁷ Global Oil Insight, Nigerian Gas- An Unwelcome Bounty, CGES, April 2002. Available at <file:///E:/Nigerian Gas-An Unwelcome Bounty.htm> Site visited October 29, 201 2.

⁵⁶⁸ Nigeria Country Profile: Implementation of Agenda 21: Review of Progress Made Since the United Nations Conference on Environment and Development, 1992.

⁵⁶⁹ HUQ Saleemul; REID Hannah and MURRAY Laurel A., Climate Change and Development Links, Gatekeepers 123 Series, International Institute for Environment and Development, London, 2006, p.4.

⁵⁷⁰ Van FLEET Justin W., Africa's Education Crisis: In School But Not Learning, Brookings Online, 17 September, 2012. Available at <http://www.brookings.edu/blogs/up-front/posts/2012/09//17-africa-education-crisis-van-fleet> . Site visited 24-05-2013.

Nations Education, Scientific and Cultural Organization (UNESCO),⁵⁷¹ which put the figure at approximately 10.5 million children out of school, while globally, sub-Saharan Africa accounts for more than half of the out-of-school children.⁵⁷² Agriculture has been and remains a most important vocation in the continent, employing 65 per cent of the labour force, while accounting for 32 per cent of gross domestic product (GDP);⁵⁷³ yet in spite of these, agricultural production in the continent is quite low compared to the rest of the world, the result of which are food shortage, malnutrition, hunger and starvation, and many people living below poverty line, among others.

The need to review, amend and harmonise the various laws and regulations governing the industry with a view to giving the force of law to these cannot be overemphasised, if there should be a turn around for meaningful development in the industry. Despite the strong drive to maximise domestic gas use, Nigeria's gas production will remain far in excess of its demand. Nigeria's difficulties in finding export markets lie in the huge costs of transporting gas, not just the building of infrastructure, but the running and maintenance of it.⁵⁷⁴ Marketing Nigeria's gas is supposed to be a project of long-term nature and so this excuse cannot be reasonable enough, that is, that the running and maintenance involves huge costs and therefore, the country could not source market for it. Definitely flaring the resource through all these decades is neither the alternative nor the solution to it. This tells much of the perception of the decision makers in the nation who chose to waste a resource of high-yielding revenue,⁵⁷⁵ rather than channel it resourceful economic venture as is done in many other developed and developing nations. This further goes to confirm that sustainability is definitely not in the purview of those in the helm of affairs over the years despite the nation's active participation in international community's efforts at stemming global warming. Considering the fact that crude oil and gas constitute the livewire of Nigeria's revenue and economy, there should be no amount or resources too much expensive to commit to developing the sector, as this will eventually yield dividends in the long run. If

⁵⁷¹ According to the World Bank's latest statistics of the education sector, 30 million school-age children are out of school globally, of which above 10 million are from Nigeria, with the northern part accounting for 8 million of this population. See also, FAGBEMI Abiodun, Corruption, Bane of Nigerian Institutions Access to World Bank Facilities, The Guardian Newspapers Online, Tuesday, 29 October, 2013. Available at

<http://www.ngrguardiannews.com/index.php/business/business-news/137098-corruption-bane-of-nigerian-institutions-access-to-world-bank-facilities.html>. Site visited 30-10-2013.

⁵⁷² ABDULMALIK Abdulrahman, SHOCKING: Nigeria Holds World Record in Number of Children Out of School, Premium Times Online, 11 June, 2013. Available at <http://www.premiumtimesng.com/news/138442-shocking-nigeria-holds-world-record-in-number-of-children-out-of-school.html>. Site visited 27-06-2013.

⁵⁷³ The World Bank Group, Fact Sheet: The World Bank and Agriculture in Africa, 2013. Available at <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/0,,contentMDK:21935583~pagePK:146736~piPK:146830~theSitePK:258644,0>. Site visited 27-06-2013.

⁵⁷⁴ See Global Oil Insight, Nigerian Gas- An Unwelcome Bounty, Centre for Global Energy Studies, (CGES), April 2002. Available at <http://www.cges.co.uk/resources/articles/2002/Nigerian-gas-%E2%80%93-an-unwelcome-bounty>. Site visited 22-08-2013.

⁵⁷⁵ Considering that oil accounts for 95% for export earnings and over 80% of national revenue, hence pivotal to the nation's political economy. See ODUKOYA Adelaja Odutola, Oil and Sustainable Development in Nigeria: A case Study of the Niger Delta, Journal of Human Ecology, Vol.20, No.4, 2006, 249-258, 250.

market could not be found for this vital resource, such alternative venture as reinjection back into the oil fields could have been adopted, which has often been used to prolong the life of the oil field and maximise its output. This also constitute a useful way of harnessing vast volumes of gas. Reinjection has been taking place in the country since 1978 when 1.1million cu m (40 million cf) per day was reinjected back into the Oguta field alone. This might have been stopped or discouraged now by the oil TNCs because it is easier to flare,⁵⁷⁶ and since no proper regulatory monitoring and administration, these oil TNCs do what they felt is easier for them, with the government looking the other way.

For instance, Saudi Arabia has been able to reduce wastages in the oil and gas industry, by channeling the resources to use in feedstock and power for industry (for example, petrochemicals, plastics and fertilizer). These capitalize on Saudi Arabia's "competitive advantage" as a producer of low-cost energy to generate national value through jobs, exports and economic diversification. Nigeria still imports the fertilizer it uses in agriculture, notwithstanding that it is a net importer of food. Before the discovery of oil, Nigeria was self-sufficient in food production, and the world's highest exporter of oil-palm produce. But all that has become a thing of the past now, while the oil industry for which the agriculture was abandoned is likewise not developed. Most of the gas produced has been associated- initially considered a nuisance, as in Nigeria, but now forms a vital pillar of the country. All natural gas produced in the country is consumed domestically. Gas currently fuels around 35 per cent of power generation, with the remainder coming from a mix of diesel, heavy fuel oil and crude oil.⁵⁷⁷ For every barrel of oil produced in Nigeria, roughly 30 cu m (1000 cf) of associated gas is produced. About 70 million cu m (2.5 bcf) of this gas (70%) is flared every day. This equates to about 450,000 barrels of crude oil equivalent per day, or a quarter of the gas flared throughout the world.⁵⁷⁸

The impact of extensive pollution and damage to the environment evinces corporate failure and bad practice by the oil TNCs, and serious government neglect. In the Niger Delta, the TNCs have been failing to adopt sufficient measures to prevent environmental damage and to address the negative impact they have caused.⁵⁷⁹ For whatever reasons the oil TNCs continue to pose antagonism to every attempt at cessation of flaring, then it is high time the government put in place an environmental enterprise

⁵⁷⁶ Oil TNCs such as Shell, ExxonMobil, Chevron, and Agip argue that the absence of a domestic market, the imposition of price controls and the high cost of building infrastructure to capture and distribute natural gas have made it economically unviable to end flaring. See HOWDEN Daniel, Visible from Space, Deadly on Earth: The Gas Flares of Nigeria, The Independent Newspaper, Tuesday April 27, 2010. Available at <http://www.independent.co.uk/news/world/Africa/visible-from-space-deadly-on-earth-the-gas-flares-of-Nigeria/>. Site visited April 4, 2011.

⁵⁷⁷ LAHN Glada and STEVENS Paul, Burning Oil to Keep Cool: The Hidden Energy Crisis in Saudi Arabia, The Royal Institute of International Affairs, Chatham House, London, December 2011, p.5.

⁵⁷⁸ See Global Oil Insight, Nigerian Gas- An Unwelcome Bounty, Centre for Global Energy Studies, (CGES), April 2002. Available at <http://www.cges.co.uk/resources/articles/2002/Nigerian-gas-%E2%80%93-an-unwelcome-bounty>.

⁵⁷⁹ BEGER Nicolas and BERGH Lise, EU Companies Must Respect Human Rights, Amnesty International, EU Office, Brussels, June 30, 2009.

liability regime like in China,⁵⁸⁰ to effectively curb the non-challant attitude of the TNCs to flaring. However, an effective EELR would require the support of the society, which is readily available in the Niger Delta, and political institutions that respect the rule of law, which is almost absolutely lacking in Nigeria. In Saudi Arabia, even though there is no overarching energy policy, but is still significantly different from many nations where a coordinated and coherent energy policy is entirely lacking. The nation launched the National Energy Efficiency Programme (NEEP), in 2002 to devise and run programmes aimed at inducing lasting structural and behavioural changes in the energy industry and increased adoption of energy-efficient technologies.⁵⁸¹ This by all standards is a giant stride towards sustainability in the energy sector. The nation has been able to effect the involvement and coordination of a range of existing agencies – ministries, legislatures, regulators, private and public companies, and municipal authorities⁵⁸² in enhancing its energy sector and ensuring a standard is set.

The legitimacy of the Nigerian legal system is plagued with political interference and brazen high corruption. An enterprise liability regime has particular applications to the environmental regulatory context because it tends to encourage [o]perators to take efficient precautions in situations where, without enterprise liability, they are particularly undeterrable.⁵⁸³ The government should do well to discourage political interference in state institutions, and be willing to ensure strict compliance to its regulations by legal and corporate institutions operating within its jurisdiction. These done, the reproachful practice of gas flaring with utter impudence might be taken care of once for all. Rather than constitute a clog in the wheel of progress in terms of conservation and sustainable development efforts of the government, the TNCs should be made to play a role in the areas of operation by way of corporate social responsibility (CSR), considered as implementing sustainable development on the company level.⁵⁸⁴ The International Commission of Jurists (ICJ), in a study said that business corporations, including TNCs operating mainly in Nigeria's oil sector, are unwilling to adopt practices that respect the well-being of people and protect the environment- arguing this would involve too heavy costs. It added further that, it is not about changing everything but clarifying some rules and adopting amendments to a few laws and procedures,⁵⁸⁵ as it is evident that the present oil and gas, and environmental regimes in Nigeria cannot achieve sustainable oil and gas exploration and

⁵⁸⁰ KAMYKOWSKI Zachary, Taking Sustainable Development Seriously: The Case for an Effective Environmental Enterprise Liability Regime in China, in BANERJEE Raka (Ed), *The Journal of International Policy Solutions*, Spring 2008, Vol.9, pp. 3-13, 6. See also, WANG Alex, *The Role of Law in Environmental Protection in China: Recent Developments*, *Vermont Journal of Environmental Law*, Vol.8, 2006-2007, pp.196-223. Available at <http://www.vjel.org/journal/VJEL10057.html> Site visited 24-08-2013.

⁵⁸¹ LAHN Glada and STEVENS Paul, *op cit*, pp.15-16.

⁵⁸² LAHN Glada *ibid.*, p.22.

⁵⁸³ Kamykowski, *ibid*, p.5.

⁵⁸⁴ NIESTROY Ingeborg, *Sustaining Sustainability: A Benchmark Study on National Strategies Towards Sustainable Development and the Impact of Councils in Nine EU Member States*. EEAC the Network of European Environment and Sustainable Development Advisory Councils, EEAC, Den Haag, 2005, p.38.

⁵⁸⁵ LOPEZ Carlos, *Nigeria: Human Rights Abuses Involving Corporations*, Publications: Access to Justice, International Commission of Jurists, Geneva, 2012.

production. TNCs though international in character, yet are creatures of domestic law. It then behoves every state to take effective steps to regulate the activities and operations of the TNCs within their territories and ensure means of compliance by them. Non-state actors operating in other territories than their countries of origin therefore should be bound not only under this point, but also by the fact that customary international rules are universally binding with or without the consent of states or other actors.⁵⁸⁶

It is without gainsaying that Nigeria cannot afford to continue on this present trend, for reasons that sustainability should be the watchword in the Niger Delta where more than sixty per cent of the people depend on the natural environment for their livelihood.⁵⁸⁷ To these, environmental quality and sustainability constitute the bases of life. One of the effects of the unregulated and indiscriminate oil exploitation in the Niger Delta is that it puts many out of jobs as the mainstay of the people of the area- farming and fishing have been devastatingly adversely affected by the almost daily occurrence oil spillage (most cases of which were never reported),⁵⁸⁸ and gas flaring. Between 1976 and 1990, there were 2,676 reported cases of oil spillage, with 38 per cent of these caused by equipment malfunction, 21 per cent caused by corrosion of equipment, while a meager 3 per cent were caused by sabotage.⁵⁸⁹ Shell's (the leading oil TNC in Nigeria), oil spills in Nigeria represented 40 per cent of Shell's worldwide spills between 1982 and 1992, mainly resulting from poorly maintained pipelines,⁵⁹⁰ which frequently leak, causing water pollution and fountains of emulsified oil pouring into villagers' fields.⁵⁹¹

⁵⁸⁶ MORRIS Kathleen, *The Emergence of Customary International Law Recognizing Corporate Liability for Violations of International Human Rights and Environmental Law*, Gonzaga Journal of International Law, Spokane, 2010, pp. 1-29, 6.

⁵⁸⁷ See the United Nations Development Programme (UNDP), *Niger Delta Development Report*, 2006, p.74. Also, Amnesty International, *Nigeria: Petroleum, Pollution and Poverty in the Niger Delta*, Amnesty International Publications, London, 2009, p.14.

⁵⁸⁸ Frequent oil spills are a serious problem in the Niger Delta. The oil companies would not employ the best industrial practices in their operation, while not dealing with the spills swiftly, and the lack of effective clean-up greatly exacerbates the human rights and environmental impacts of such spill, which also constitute a serious negation of the principle of sustainable development. As of 2008, NOSDRA had identified approximately 2,000 sites in need of restoration to their possible state from the effects of pollution. Some of these had been polluted more than once, the most of which were Shell's sites. See Amnesty International, *Nigeria: Petroleum, Pollution and Poverty in the Niger Delta*, Amnesty International Publications, London, 2009, p.8. See also, Department of Petroleum Resources Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGASPIN), Section F, p.269. According to the UNDP, more than 6,800 spills were recorded between 1976 and 2001, with no effective clean-up system and insufficient government oversight on these. See, BEGER Nicolas and BERGH Lise, *EU Companies Must Respect Human Rights*, Amnesty International, EU Office, Brussels, June 30, 2009

⁵⁸⁹ Environmental Watch Nigeria, *Environment and Social Cost in Niger Delta Region, and Contribution of Multi-National Oil Company (A Shell Petroleum Development Company Case Study)*, January 14, 2007.

⁵⁹⁰ In a recent landmark ruling in the Bodo Community Case against the oil-giant Shell, Justice Akenhead of the London Technical and Construction Court on 20 June, 2014 found Shell responsible for failing to take reasonable steps to avoid oil spillage in the Niger Delta, by not installing leak detection systems, surveillance equipment and anti-tamper equipment. See, Agency Reporter, *Court Ruling Paves Way for New Claims Against Shell Over Pollution in Niger Delta*, Ekklesia Online, 22 June, 2014. Available at <http://www.ekklesia.co.uk/node/20585>. Site visited 28-07-2014. See also, DAY Leigh, *London High Court Rules That Shell Nigeria Could be Legally Liable for Bunkering*, Leigh Day Online, 20 June, 2014. Available at <http://www.leighday.co.uk/News/2014/June-2014/London-High-Court-rules-that-Shell-Nigeria-could-be-legally-liable-for->

Nigeria cannot and has no reason to continue such a gross devastation of the environment and health risk to the lives of its innocent people in an attempt to meet the increasing and insatiable demand for fossil fuels in the developed world. The people of which are reluctant to embrace sourcing other cheaper and cleaner sources of energy, such as wind energy and solar energy, even in the face of vigorous campaign and commitment by its government. The fact that they could always get cheap crude oil resources from other parts of the world, dictating the price, not minding if other people are paying the price for their own enjoyment, in a hard way notwithstanding. These are countries that have the technological know-how to easily and more cheaply source green energy, if willing to. The developed economies especially China and the US, consume more than half of the global oil and gas produced,⁵⁹² they account for a quarter of the global oil and gas production with less than eight per cent of the world's remaining reserves. For instance, the National Wildlife Federation (NWF), report finds that the current 112th US Congress has voted one out of every five times against legislation drafted in favour of environmental issues.⁵⁹³ The high consumption rate in the developed countries makes resources depletion in the developing countries ominous and with damning consequences to the people and their economies.⁵⁹⁴ Since 2008 when the US increased the exploration of its crude oil, up till 2011, it has been ranked number five after Russia, Nigeria, Iran and Iraq, in gas flaring.⁵⁹⁵

Unsustainable development and the pursuit of economic growth to serve the interests of the rich and powerful- the industrialized West, are fuelling climate change.⁵⁹⁶ This unbridled and insatiable demand of the developed West for energy resources- mainly crude oil and gas, is driving the inexplicable

[bunkering](#) . Site visited 28-07-2014. See further, SEKULARAC Ivana and DEUTSCH Anthony, Dutch Court Says Shell Responsible for Nigeria Spills, Reuters Online, 30 January, 2013. Available at

<http://www.reuters.com/article/2013/01/30/uk-shell-nigeria-lawsuit-idUKBRE90T0DC20130130>. Site visited 28-07-2014.

⁵⁹¹ CAREW Koriambanya S. A., NOTE David and Goliath: Giving the Indigenous People of the Niger Delta a Smooth Pebble- Environmental Law, Human Rights and Re-Defining the Value of Life, 7 Drake J. Agric. L. 493, 495 (2002). See also, MORRIS Kathleen, The Emergence of Customary International Law Recognizing Corporate Liability for Violations of International Human Rights and Environmental Law, Gonzaga Journal of International Law, Spokane, 2010, 1-29, 9.

⁵⁹² The developed industrialized countries of the northern hemisphere, particularly the Western countries are characterized by high level of energy consumption, it is estimated that the these countries with a population of a quarter of the world population consume some 75% of the world's energy, 79% of commercial fuels, 85 % of wood products and 72% of steel products. See SMITH I. O., Sustainable Development and Environmental Diplomacy: Reconciling Economic Growth With Environmental Protection by the Year 2000 and Beyond, in SIMPSON Struan and FAGBOHUN Olanrewaju (Eds.), Environmental Law and Policy, Law Centre, Faculty of Law, Lagos State University, 1998, p.247.

⁵⁹³ GRAEBER Daniel J., Big Oil's Influence on US Politics, OilPrice.com, October 18, 2012. Available at <http://www.economywatch.com/economy-business-and-finance-news/big-oil-influence-on-us-politics.18-10.html> . Site visited 19-10- 2012.

⁵⁹⁴ NLIAM Oscar, Globalization, Petroleum Industry and Sustainable Development: the Implication for Nigeria, September 2010. Available at Social Science Research Network, SSRN: <http://ssrn.com/abstract=1671987> . Accessed 12 October, 2012.

⁵⁹⁵ BIRON Carey L., U.S. Outlier in New Push to Reduce Gas Flaring, Inter Press Service News Agency, October 2012. Available at <http://www.ipsnews.net/2012/10/u-s-outlier-in-new-push-to-reduce-gas-flaring/> . Site visited November 17, 2012.

⁵⁹⁶ TIWANA Mandeep, What Does Barack Obama's Re-election Mean for Global Civil Society? Citizens Movement, November 14, 2012. Available at <http://blogs.civicus.org/civicus/2012/11/14/what-does-barack-obamas-re-election-mean-for-global-civil-society/> . Site visited November 16, 2012.

exploitation of the resources of the developing nations at such an alarming rate that it calls seriously for caution. Worse still, these developing nations all have little or nothing, but aggravating corruption, festering crises and widespread striking poverty to show for it. And as if these were not enough, depreciating infrastructure and alarming crime rate threaten their very existence. These have only enhanced the more the weakening power of inequality and the destructive power of a warming planet,⁵⁹⁷ and thus call for concern. It is instructive to note that the International Energy Agency in its latest World Energy Outlook, concluded that after 2017, the world will lock in too much fossil energy infrastructure to limit warming to 2°C – the target of Durban’s negotiators.⁵⁹⁸

The insensitivity of the government and the oil majors to securing oil installations, pipelines and products over the years has resulted in high magnitude of oil thefts and smuggling which have become a thriving business for some people, both within and outside the country. A sizeable percentage of refined petroleum products imported into Nigeria never get to the consumers, but are smuggled large-scale into neighbouring countries in the region by a powerful cartel cutting across different strata of the society. These smuggle and divert oil products meant for different parts of the nation to Togo, Benin, Ghana, Mali, Burkina-Faso and others. In November 2011, Republic of Benin’s Finance Minister acknowledged that more than three-quarters of the fuel consumed in his country was illegally imported from Nigeria. Some smugglers and local dignitaries have reaped generous rewards, and “micro-petro states” have sprung up on either side of the border between Togo and Benin, where “local officials... are largely independent of national law and its enforcement.” Despite the scale of the smuggling, the authorities have done little to stop it.⁵⁹⁹ Nigeria is losing an estimated US\$1 billion a month to oil theft, while fraudulent natural gas deals with oil TNCs have cost the nation \$29 billion over the past decade. Bunkering costs Nigeria around US\$12 billion a year, according to the nation’s Finance Minister, adding that the overall drain on the economy could be as high as \$14 billion in 2011.⁶⁰⁰

Government’s non-implementation of, and failure to enforce oil and gas environmental laws is a major cause of the ambiguity hampering the real implementation of the desired objectives, as well as the wide discretion conferred on policy and decision makers regulating the oil and gas industry in

⁵⁹⁷ TIWANA Mandeep *ibid*.

⁵⁹⁸ PRICKETT Glenn, After the Kyoto Protocol, What Next for Climate Change?, The Nature Conservancy, November 28, 2011. Available at <http://www.blog.nature.org/2011/11/28/after-the-kyoto-protocol-whats-next-for-climate-change/>. Site visited November 16, 2012.

⁵⁹⁹ BOZONNET Charlotte, Trade in Smuggled Fuel from Nigeria Oils Economies of West Africa: Subsidies by Lagos Leads to Flourishing Demand for Illegal Exports. In Guardian Weekly, Tuesday 2 October, 2012. Available at <http://www.guardian.co.uk/world/2012/oct/02/smuggle-fuel-west-africa/>. Site visited 01-11-2012.

⁶⁰⁰ Energy Resources, Nigeria Loses Billions in Oil, Gas Theft, United Press International, Inc., October 25, 2012. Available at http://www.upi.com/Business_News/Energy-Resources/2012/10/25. Site visited 01-11-2012.

Nigeria.⁶⁰¹ For instance, the proposed Petroleum Industry Bill has similarly followed the same path, leaving the decision to stipulate a gas flaring cessation date to the Minister, what otherwise should be a major policy thrust of the legislation. This being the case, it could summarily be assumed that the Bill is as good as “delivered dead,” as it would in the long run, not bring about any change in the status quo. This has always worked contrary to the state’s interest. Nigeria’s road to a sustainable development policy in the oil and gas sector is simply because politicians- civilians and military-politicians alike, have found it relatively easy to make speeches on sustainable development with buzzwords and easy-to-use phrases that can be used rather vaguely but without serious commitment, meaning that the concept of sustainable development and what it really implies for governance is still rather intangible to the politicians.⁶⁰²

Aside these, the issue of corruption is about the greatest concern the Nigerian state has to grapple with, but it is saddening that the state is not getting it right on this crucial issue that is threatening to bring the state to its knees. Until this is really dealt with, no meaningful reform can succeed in any sector of the nation’s life. The Nigerian treasury has been squeezed at both ends of the oil trade-upstream, by one of the biggest frauds in Nigerian history related to a fuel subsidy worth upward of US\$16 billion in 2011, and downstream, by the theft of oil of an industrial scale at source. In 2011, state agencies reported that, gangs ruptured pipelines 4,468 times, compared to an average of 1,746 a year in 2001-2010.⁶⁰³ Nigeria is losing an estimated US\$1 billion a month to oil theft, while fraudulent natural gas deals with oil TNCs have cost the nation \$29 billion over the past decade. Bunkering costs Nigeria around US\$12 billion a year, according to the nation’s Finance Minister, adding that the overall drain on the economy could be as high as \$14 billion in 2011.⁶⁰⁴ In 1998, the UN Special Rapporteur’s Report on Nigeria accused Nigeria and Shell of violating human rights and failing to protect the environment, and called for an investigation into Shell’s activities in Nigeria.⁶⁰⁵

Executive interference with anti-graft agencies’ operations and a weak, overburdened judiciary have undermined the fight against corruption. The government merely pays lips service to fighting corruption, as its key actors are mostly at the receiving end. Out of the not many cases of politically exposed persons (PEPs) being prosecuted, just four have so far been successfully concluded, albeit with little or no prison terms, in a period of about ten years. Some of the worst cases of corruption in the

⁶⁰¹ NLIAM Oscar, Globalization, Petroleum Industry and Sustainable Development: the Implication for Nigeria, September 2010. Available at Social Science Research Network, SSRN: <http://ssrn.com/abstract=1671987>. Accessed 12 October, 2012.

⁶⁰² DALAL-CLAYTON Barry and BASS Stephen, Sustainable Development Strategies: A Resource Book, Organisation for Economic Co-operation and Development (OECD), Paris and United Nations Development Programme, New York. London, Earthscan Publications, 2002, p.83.

⁶⁰³ Energy Resources, Nigeria Loses Billions in Oil, Gas Theft, United Press International, Inc., October 25, 2012. Available at http://www.upi.com/Business_News/Energy-Resources/2012/10/25

⁶⁰⁴ Energy Resources, *ibid*.

⁶⁰⁵ KINGSTON Kato Gogo, Shell Oil Company in Nigeria: Impediment or Catalyst of Socio-Economic Development?, African Journal of Social Sciences, Vol.1 No.1, February 2011, pp.15-36, 1.

nation include but not limited to the US\$180 million Halliburton Bribery Scandal,⁶⁰⁶ and the US\$16 billion power funds under the erstwhile administration of President Obasanjo, investigated by the House of Representatives, but of which no issue has so far been generated. In a programme in Nigeria recently, the President of the Republic of Rwanda, said that Nigeria with its vast population and resources has the capacity to solve its problems of corruption and underdevelopment. Speaking further, he said that Africa has everything it needs for development..., spoilt with resources that we can use to develop Africa.⁶⁰⁷ This incidence of large-scale corruption in the country has become a source of concern to other countries in the African continent, looking up to Nigeria for inspiration and regional leadership, owing to Nigeria's influence in African and lately international affairs. Large scale corruption in the country has also led to a prohibitive level of poverty among the citizenry, as public monies which should have been channeled to various developmental aspects end up being misappropriated by public officials. Transparency International in its 2011 Report ranked Nigeria 143 out of 183 nations surveyed by the organization.⁶⁰⁸ Poverty is widespread in the nation, and more especially in the oil producing areas where oil prospecting activities have brought the whole area to bare land badly polluted that the UNEP Report on Ogoniland degradation said some places might take a whopping thirty years, with an initial cost of US\$1 billion to attain meaningful restoration, because of the extreme level of contamination.

Nigeria has an estimated population of 162.5 million in 2011, according to the UNFPA,⁶⁰⁹ which is rising astronomically unless adequate measures are taken to check the rise, failing which sustainable development may be impossible.⁶¹⁰ Of this, 112.5 million live in relative widespread poverty

⁶⁰⁶ OMONOBI Kingsley, \$180m HALLIBURTON SCANDAL: Two ex-Heads of State Battle Jonathan, The Vanguard Online, 30 October, 2012. Available at <http://www.vanguardngr.com/2012/10/180m-halliburton-scandal-two-ex-heads-of-state-battle-jonathan/> . Site visited 30-07-2014. See also, BBC, Shell and Halliburton Quizzed Over Nigeria 'Corruption,' BBC News Africa Online, 30 November, 2010. Available at <http://www.bbc.co.uk/news/world-africa-11877434> . Site visited 30-07-2014. See further, BBC, Dick Cheney Faces Bribery Scandal Charges in Nigeria, BBC News Africa Online, 2 December, 2010. Available at <http://www.bbc.co.uk/news/world-africa-11902489> . Site visited 30-07-2014. See as well, OLUFOWOBI Sesan et al., How Govt Agencies Killed \$180m Halliburton Bribery Case, Punch Online, 1 April, 2012. Available at <http://www.punchng.com/news/how-govt-agencies-killed-180m-halliburton-bribery-case/> . Site visited 30-07-2014. See again, SMITH David and Reuters, Dick Cheney to be Charged in Nigeria Corruption Case, The Guardian Online, 2 December, 2010. Available at <http://www.theguardian.com/world/2010/dec/02/dick-cheney-halliburton-nigeria-corruption-charges> . Site visited 30-07-2014.

⁶⁰⁷ OKPI Allwell, Nigeria Too Big to Fail- Rwandan President, The Punch Newspaper, Sunday, November 11, 2012. Available at <http://www.punchng.com/news/Nigeria-too-big-to-fail-rwandan-president/> . Site visited November 11, 2012.

⁶⁰⁸ YISHAU Olukorede, Transparency International Ranks Nigeria 143rd on Corruption Index, The Nation Newspapers, December 2, 2011. Available at <http://www.thenationonlineng.net/2011/index.php/news/28348-transp> . See also, AKOSILE Abimbola, Nigeria: The Nation Drops Nine Steps in 2011 Corruption Index, This Day Newspapers, December 2, 2011. Available at <http://allafrica.com/stories/201112021162.html> . Site visited November 10, 2012.

⁶⁰⁹ British Council, Gender in Nigeria Report 2012: Improving the Lives of Girls and Women in Nigeria: Issues, Policies, Action, (2nd Ed), UKaid, British Council Nigeria, 2012. Available at <http://www.dfid.gov.uk/Documents/publications1/Gender-Nigeria2012.pdf> . Site visited November 6, 2012. Nigeria's population in 2013 is estimated to be above 170 million.

⁶¹⁰ DAS GUPTA Monica, Population, Poverty and Climate Change, The World Bank Policy Research Working Paper 6631, October 2013, p.2

conditions,⁶¹¹ compounded by sharply rising population growth rates. Its Human Development Index (HDI), is 0.459 giving the nation a 156th position out of 187 countries with comparable data. While the HDI of the sub-Saharan African region increased from 0.365 in 1980 to 0.463 in 2011 and 0.471 in 2012, Nigeria placed below regional average (sub-Saharan), of 0.475.⁶¹² The percentage of Nigerians living in absolute poverty rose to 60.9 per cent in 2010, compared with 54.7 per cent in 2004, according to the National Bureau of Statistics data.⁶¹³ Nigeria reportedly received a whopping US\$228 billion from oil export between 1981 and 1999, yet the number of people living on less than \$1 (₦150), per day has more than doubled in three decades, between 1970 and 2000.⁶¹⁴ Income inequality rose from 0.429 in 2004 to 0.447 in 2010.⁶¹⁵ There was a disconnect between the country's Gross Domestic Product (GDP)⁶¹⁶ growth rate of 7.75 per cent and the high poverty rate, the UNDP in August 2012 pointed out that Nigeria for almost a decade has been recording consistently high economic growth rate that has not produced commensurate employment opportunities and reduction in poverty among its citizens. It said unemployment in the labour force grew from 12.3 per cent in 2006 to 23.9 per cent in 2011, while youth unemployment was 46.5 per cent in 2011.⁶¹⁷ Nigeria is thus in a new group of middle-income countries (including India, China, Pakistan and Indonesia), that have large numbers of poor people. Between them, these countries contain two-thirds or 850 million of the world's poor

⁶¹¹ ONUBA Ifeanyi, 112.5 Million Nigerians Live in Poverty- NBS, The Punch Newspaper, Tuesday, February 14, 2012. Available at <http://www.punchng.com/business/business-economy/112-5-million-nigerians-live-in-poverty-nbs/>. Site visited November 6, 2012.

⁶¹² International Development Indicators, Nigeria: Country Profile: Human Development Indicators, 2011 Report. See also, FALAYI Kunle and ADEOYE Gbenro, How Nigeria's Poor Make the Rich Richer, The Punch Newspaper Online, October 12, 2013. Available at <http://www.punch.com/feature/how-nigerias-poor-make-the-rich-richer/>. Site visited 12-10-2013. See also, ALAO Adesanya, ICAN Laments Poverty, Unemployment in Nigeria Despite 6% GDP Growth, Worldstage Online, 9 October, 2013. Available at <http://worldstagegroup.com/index.php?active=news&newscid=11221&catid=28>. Site visited 12-10-2013. See further, Country Profile: Human Development Indicators, International Human Development Indicators, UNDP, 2013. Available at <http://hdrstats.undp.org/en/countries/profiles/NGA.html>. Site visited 12-10-2013.

⁶¹³ SUBAIR Gbola, Nigeria's Poverty Level Rises, Hits 71.5% Sokoto, Niger Top List of Poorest States, Nigerian Tribune Newspaper, Monday February 13, 2012. Available at <http://tribune.com.ng/index.php/front-page-news/35947-nigerias-poverty-level-rises-hits-715-sokoto-niger-top-list-of-poorest-states>. Site visited November 6, 2012. See also, BBC News Africa, Nigerians Living in Poverty Rise to Nearly 61%. February 13, 2012. Available at <http://www.bbc.co.uk/news/world-africa-17015873>. Site visited November 6, 2012

⁶¹⁴ OGUNMOLA 'Dele and BADMUS Alani Isiaka, Meeting the Challenges of the Millennium Development Goals in Nigeria: Problems, Possibilities and Prospects, University of New England, Australia, 2010, p.2. In Proceedings of the International Conference on Meeting the Millennium Development Goals: Old Problems, New Challenges. La Trobe University, Melbourne, Australia. Available at http://www.latrobe.edu.au/humansecurity/assets/downloads/MDGconfpapers/Ogunmola_and_Badmus.pdf. Site visited November 15, 2012.

⁶¹⁵ ONUBA Ifeanyi *ibid*.

⁶¹⁶ According to the World Bank, Nigeria's GDP is the world's 41st highest but only the 161st highest per capita, and during the 2000s GDP and unemployment rose paradoxically in near parallel formation. With an annual population growth of 3%, that is a population of 740 million by 2100, will be unsustainable. See, SAYNE Aaron, Climate Change Adaptation and Conflict in Nigeria, Special Report, United States Institute of Peace, June 2011. Available at http://www.usip.org/sites/default/files/Climate_Change_Nigeria.pdf. Site visited 05-06-2011.

⁶¹⁷ Editor, Business Services, Rising Poverty Level in Nigeria Worries UNDP, The Guardian Newspaper, Thursday, August 30, 2012. Available at http://nrguardiannews.com/index.php?option=com_content&view=article&id=97171:rising-poverty-level-in-nigeria-worries-undp&catid=31:business. Site visited November 6, 2012.

people.⁶¹⁸ This palpable state of inequity in Nigeria is one of the highest in the world,⁶¹⁹ with the top 20 per cent of the population controlling 65 per cent of national assets. Although, there has been significant growth in recent years, with per capita income crossing the \$1000 mark in 2006, there is still the prevalence of extreme poverty, with agriculture the major growth determinant, accounting for about 7 out of 10 poor.⁶²⁰ In the 40 years between 2010-50, the developing countries will probably grow by more than 2 billion, while the developed by less than 40 million. These differences are due mainly to variations in fertility.⁶²¹ The effects and consequences of extreme poverty are far-reaching, as it is estimated that roughly 400 million children live in extreme poverty worldwide, despite a sharp decline in the population of poor children over the past three decades. 721 million people reportedly live in extreme poverty in 2010 compared to 1981, and children accounted for one in three of those living in extreme poverty around the world in 2010. While extreme poverty rates have declined in all regions, the world's 35 low-income countries, 26 of which are in Africa, registered 100 million more extremely poor people today than three decades ago. In 2010, 33 per cent of the extreme poor lived in low-income countries compared to 13 per cent in 1981.⁶²²

⁶¹⁸ British Council, Gender in Nigeria Report 2012: Improving the Lives of Girls and Women in Nigeria: Issues, Policies, Action, (2nd Ed), UKaid, British Council Nigeria, 2012. Available at <http://www.dfid.gov.uk/Documents/publications1/Gender-Nigeria2012.pdf>. Site visited November 6, 2012. See also, DODE Robert Oghenedoro, Yar' Adua 7-Point Agenda, the MDGs and Sustainable Development in Nigeria, Global Journal of Human Social science, Vol.10, Issue 4, 2010, pp.2-8, 2.

⁶¹⁹ According to Jim Yong Kim, the World Bank President, speaking at the 2014 IMF/World Bank Spring Meetings, stated that the number of Nigerians living in poverty is increasing significantly. He said further that, Nigeria is one of the top five countries that has the largest number of poor, with 7% of the world poor, ranking third in the world, representing 70% of its 170 million population, while India ranked first with 33% of the world poor, and China ranked second with 13%, then Bangladesh with 6% and Democratic Republic of Congo with 5%. See The World bank, Poverty Headcount Ratio at \$2 a Day (PPP) (% of population), 2014. Available at <http://www.data.worldbank.org/indicator/SI.POV.2DAY>. Site visited 15-07-2014. See also, OMOH Gabriel, Nigeria, Third on World Poverty Index-World Bank, The Vanguard Newspapers Online, 11 April, 2014. Available at <http://www.vanguardngr.com/2014/04/440695/>. Site visited 02-05-2014. See further, PASQUALI Valentina, The Poorest Countries in the World, Global Finance, 2014. Available at <http://www.gfmag.com/global-data/economic-data/the-poorest-countries-in-the-world>. Site visited 15-07-2014. ADAMU-NAN Sani, Concerns Over Spiraling Poverty in Nigeria, Nigerian Tribune Newspapers Online, 31 May, 2014. Available at <http://www.tribune.com.ng/quicklinkss/features/item/6652-concerns-over-spiraling-poverty-in-nigeria/6652-concerns-over-spiraling-poverty-in-nigeria>. Site visited 02-07-2014. See as well, Editorial, World Bank Report on Poverty in Nigeria, May 2014. Available at <http://www.dailyindependentnig.com/2014/05/world-bank-report-poverty-nigeria/>. Site visited 02-05-2014. See, SUBAIR Gbola, 70 Million Nigerians Are Poor, Says World Bank: Jigawa Poorest in Nigeria, 14 May, 2013. Available at <http://www.tribune.com.ng/news2013/index.php/en/news/item/11829-70-million-nigerians-are-poor-says-world-bank-jigawa-state-poorest-in-nigeria>. Site visited 02-05-2014. See again, BANGUDU Oluwaseyi, World Bank Indicts Jonathan's Government, Says Massive Poverty, Unemployment Killing Nigerians, Premium Times Online, 12 June, 2013. Available at <http://www.premiumtimes.com/business/138525-world-bank-indicts-jonathans-government-says-massive-poverty-unemployment-killing-nigerians.html>. Site visited 02-05-2014.

⁶²⁰ Editor's Note, Nigeria: New Human Development Report, AfricaFocus, March 5, 2010 (100305). Available at <http://www.africafocus.org/docs10/nig1003b.php>. Site visited 12-10-2013.

⁶²¹ HAYES Adrian C. and ZHAO Zhongwei, Population Prospects in East and Southeast Asia, January 2012. Available at <http://www.eastasiaforum.org/2012/01/30/population-prospects-in-east-and-southeast-asia/>. Site visited 10-10-2013.

⁶²² Press Release, Report Finds 400 Million Children Living in Extreme Poverty, The World Bank, Washington, D.C., October 10, 2013. Available at <http://www.worldbank.org/en/news/press-release-400-million-children-living-extreme-poverty/>. Site visited 13-10-2013. See also, Agency Reporter, 400 Million Children Live in Extreme Poverty- World Bank, The Punch

Unemployment and underemployment rates are higher in the core oil producing states of the Niger Delta than in any other parts of the nation, reaching levels of 50 per cent. Unemployment particularly among the youths has helped to drive and sustain high levels of violence and criminality throughout the delta region.⁶²³ Nigeria has 10.5 million children out of school, the largest number in the world. There is poor investment in research and development, while budgetary allocations to the education sector is on a steady decline in the face of astronomically rising population, the higher percentage of it being extremely young population. The nation is estimated to have a population of about 170 million people as at July 2012.⁶²⁴ Nationally, the maternal mortality rate is 545 deaths per 100,000 live births, nearly double the global average, and is even worse in some parts of the nation. The nation has 2 per cent of the world's population, but 10 per cent of global maternal deaths.⁶²⁵ These indices do not portray that of a nation taking any cognizance of sustainability. Nigeria is home to the largest number of poor people in the world, after China and India.⁶²⁶ In different regions of the world, there has been a shortage of jobs, with levels of unemployment already high in many countries, but the World Bank estimates that just to maintain in 2020 the 2005 levels of employment of the working age population, very substantial job creation is required. It estimates that the number of jobs in sub-Saharan Africa would have to increase by about 50m per cent, which translates into employment growth of 2.7 per cent, because the population aged 0-14 is growing sharply in the SSA, the numbers entering work age will continue to rise sharply for decades, due to the high fertility in the SSA, typically the poorest countries. It states further that the least developed countries have an estimated average of 4.2 children per woman in 2010-15, while the estimate for SSA is 5.1 children per woman in 2010-15, and its population is projected to rise from 0.64 to 3.82 billion between 2000 and 2100 (UN 2013, medium variant).⁶²⁷ This constitutes additional stress on the already distressed situation of the SSA, which calls for urgent and properly monitored family planning programmes⁶²⁸ in the region to stem the high fertility, and facilitate development and as witnessed in the South Asian region, where lower fertility has facilitated improvement in the economies of countries. Lower fertility can also help the poorest

Online, October 11, 2013. Available at <http://www.punch.com/news/400-million-children-live-in-extreme-poverty-world-bank/>. Site visited 11-10-2013.

⁶²³ FRANCIS Paul, LAPIN Dierdre and ROSSIASCO Paula, *Securing Development and Peace in the Niger Delta: A Social and Conflict Analysis for Change*, Woodrow Wilson International Center for Scholars, Washington D.C. 20004, 2011, p.2.

⁶²⁴ 2012 CIA World Factbook, July 2012. Available at http://www.theodora.com/wfbcurrent/Nigeria/Nigeria_people.html. Visited November 8, 2012.

⁶²⁵ British Council Report, *ibid*.

⁶²⁶ IGBUZOR Otiye, *The Millennium Development Goals: Can Nigeria Meet the Goals in 2015?* Paper presented at a symposium on Millennium Development Goals and Nigeria: Issues, Challenges and Prospects organised by the Institute of Chartered Accountants of Nigeria (ICAN), July 27, 2006, Abuja.

⁶²⁷ DAS GUPTA Monica, *Population, Poverty and Climate Change*, The World Bank Policy Research Working Paper 6631, October 2013, pp.7-8.

⁶²⁸ Experiences from the South Asian countries like the Republic of Korea in the 1960s, Indonesia and lately Bangladesh and Nepal shows that sustained fertility decline can occur in poor countries, given political commitment to family planning programmes. This has been low in many SSA countries, and has contributed to their slow fertility decline. See DAS GUPTA Monica, *ibid.*, p.12.

countries' efforts to mitigate the effects of climate change such that the shocks affect fewer people, while more resources per capita are available for coping with them. These resources can likewise be used for adaptation measures, such as efforts to slow the decline in food production. Population growth imposes a direct burden of resource depletion on developing countries, as it is estimated that the rate of depletion of 'genuine wealth per capita' in the SSA during the 1970-2000 was such that it would be halved about every 25 years.⁶²⁹

More than one-third of the countries in the SSA, several of them fragile and conflict-affected States, had an extreme poverty rate of more than 50 per cent in 2010. In 12 countries in the SSA, the extreme poverty rate is more than 60 per cent, in four cases- Burundi, the Democratic Republic of Congo, Liberia and Madagascar, it is above 80 per cent.⁶³⁰ In 1990, 56 per cent of Africans lived on under US\$1.25 a day, accounting for 15 per cent of those in poverty worldwide. Over the subsequent 20 years, the region's poverty rate dropped to 48 per cent, which is expected to fall further to 24 per cent by 2030, representing 300 million people, but its share of global poverty balloons to 82 per cent, because of the superior pace of poverty reduction elsewhere and Africa's faster population growth.⁶³¹ In the last decade in 60 per cent of developing countries including large countries like Brazil and Mexico, incomes of the bottom 40 per cent actually grew faster than the average of the population, which means that there was a fall inequity. No country has transited beyond middle-income status while maintaining high levels of inequity.⁶³² Between 1990 and 2010, the share of the population of the developing world living in extreme poverty was cut in half, which marks a fulfilment of the first and foremost Millennium Development Goals (MDGs 1a) five years ahead of schedule. China, India and the SSA together account for three-quarters of the world's poor people. China with 683.2 million of these was able to undergo a dramatic transformation by virtue of its rapid, though inequitable consumption growth, bringing a percentage point in global poverty and single-handedly keeping the world on in transiting from extreme poverty. Its poverty line drops off sharply in the mid-1990s onward. India with 448.3 million of these also has large numbers of its population on the precipice of escaping poverty, but its poverty is largely exhausted. While the SSA which has 289.7 of these is however still struggling in its fight with poverty, with hundreds of millions of its people still located behind the poverty line.⁶³³

⁶²⁹ DAS GUPTA Monica, *ibid.*, p.8.

⁶³⁰ The World Bank, End Extreme Poverty and Promote Shared Prosperity, The World Bank Group Goals, 2013. Available at <http://www.worldbank.org/content/dam/Worldbank/document/WB-goals2013.pdf>. Site visited 23-10-2013.

⁶³¹ CHANDY Laurence; LEDLIE Natasha and PENCIAKOVA Veronika, Africa's Challenge to End Extreme Poverty by 2030: Too Slow or Too Far Behind?, Brookings, May 2013. Available at <http://www.brookings.edu/blogs/up-front/posts/2013/05/29-africa-challenge-end-extreme-poverty-2030-chandy>. Site visited 23-10-2013.

⁶³² The World Bank, End Extreme Poverty and Promote Shared Prosperity, The World Bank Group Goals, 2013. Available at <http://www.worldbank.org/content/dam/Worldbank/document/WB-goals2013.pdf>. Site visited 23-10-2013.

⁶³³ CHANDY Laurence; LEDLIE Natasha and PENCIAKOVA Veronika, The Final Countdown: Prospects for Ending Extreme Poverty by 2030, The Brookings Institution, Washington D.C., April 2013. Available at http://www.brookings.edu/~media/research/files/reports/2013/04/ending_extreme_poverty_chandy/the_final_countdown.pdf Site visited 23-10-2013

3.4 Conclusion

Sustainable development is no doubt the livewire of conservation which if strictly adhered to by nations in exploitation of resources and dealing with the atmosphere, the present state of apprehension about the sustenance of nature from imminent irredeemable damage would adequately be taken care of. But it has been most difficult and impossible to abide by the provisions of this all-important nouveau principle. Developing nations are the most susceptible ones in this, being technologically disadvantaged and thus suffer a damning degradation of multinational corporations doing business with them to exploit their resources for revenue generation, to the overall detriment of these nations and the world at large. In most of these nations, the cardinal principles of sustainable development, which seek to integrate economic development, social development and environmental protection in decision making have been neglected in the process of oil and gas development activities in the region.⁶³⁴ It is envisaged that Nigeria's oil reserves might be depleted by around 2030 if exploitation continues at this rate, yet the nation has not seen reason enough to halt its indiscriminate wastage of the resource. The country's case is an example of one which is at loggerheads with the principles inculcated in sustainable development.

There is a deep disconnection between the government and the social structures that enable sustainable development, which constitutes a grave challenge to the government in the face of mounting livelihood insecurity and other critical pains and sacrifices resulting from these wide arrays of reforms the government is implementing.⁶³⁵ It is unfortunate that, for a plethora of reasons, policies and programmes in Nigeria usually do not yield the expected results. Some of these reasons may include but not limited to absence of consistent enabling framework and, or regulations to sustain their execution through, lack of continuity, absence of due process, ethnic and political divides in the body polity of Nigerian economic development,⁶³⁶ and above all, governments lacklustredness and shoddy-manner of doing things. The oil TNCs operating in Nigeria participate with the Nigerian state oil corporation- NNPC, in production sharing contracts as operators/contractors, but so far are not known to address the triple bottom line aspect of sustainability. This has encouraged the TNCs in lack of transparency, environmental degradation, insensitivity to stakeholders concern, which has exposed them to communal unrests and public criticisms.⁶³⁷ Suffices to say that sustainable development policies are wont to fail in many developing nations for obvious reasons which includes, unclear or overlapping jurisdictions among institutions of government, lack of long term planning and deficient monitoring, lack of environmental data, inadequate or non-auditing of government spending on

⁶³⁴ NLIAM Oscar, Globalization, Petroleum Industry and Sustainable Development: the Implication for Nigeria, September 2010. Available at Social Science Research Network, SSRN: <http://ssrn.com/abstract=1671987>. Site visited 12 October, 2012.

⁶³⁵ ONAKUSE Stephen and Lenihan, Eamon, Policies, Programmes, and Sustainable Development in Nigeria: A Critique, Centre for Sustainable Livelihoods, University College, Cork, Ireland, 2007, Vol.1, No. 1, pp.41-58, 49.

⁶³⁶ Onakuse, *ibid.*, p.44.

⁶³⁷ ASAOLU T. O. et al, Sustainability Reporting in the Nigerian Oil and Gas Sector, Proceedings of the Environmental Management Conference, Federal University of Agriculture, Abeokuta, Nigeria, 2011.

environmental matters, non-monitoring of results of national environmental policy implementation, and lack of sufficient or irregular reporting on compliance with international conventions decisions.⁶³⁸

It is safe therefore, to round up from the above that mere paper works would not be tantamount to real sustainability issues on the ground, which the Nigerian government has not yet started the groundwork. It is thus convenient to conclude that there are no concrete signs that the nation is pursuing any sustainability.

Chapter Four

Regional Groupings and Climate Change

4.0 Introduction

A global problem like climate change which effects are felt in different places and in diverse manners and dimensions require multifaceted approaches in curbing it. The European Union's approach to this issue has gone to prove the veracity of this, being an organization of states of the European countries, but is nonetheless making giant strides in spearheading global efforts at curbing this monstrous menace. This apart from the efforts of its individual member states differently. This calls for a proper understanding of its approach with a view to recommending it perhaps to other such union of states in other parts of the world. The dimension of attention of several many nations to climate change seems to warrant the introduction and enhancement of the EU approach. If the level of cooperation in the EU could likewise be achieved in some other parts of the world, there definitely should be greater expectation of better positive results towards arresting the worrisome trend of global warming necessitating change that threatens human existence as it presently is. In other words, this is simply a challenge to national leaders to look beyond the frontiers of their nations and national interests to a common global interest starting from their different regions or continents. The EU model is being reviewed herein with a view to strongly recommending it to the sub-Saharan African region, which is crying for attention now.

4.1 The European Union

The European Union (EU)⁶³⁹ is a unification of 28⁶⁴⁰ independent states which came together as an instrument for promoting political and economic cooperation in order to prevent further conflict in

⁶³⁸ See UNEP World Congress Bulletin, A Summary Report of the World Congress on Justice, Governance and Law for Environmental Sustainability, International Institute for Sustainable Development, June 2012.

⁶³⁹ The European Union started originally in 1952 as the European Coal and Steel Community (ECSC), when six nations namely Belgium, France, Germany, Italy, Luxembourg and the Netherlands, came together under a pact- the ECSC, with the aim of ending bloody wars and securing a lasting peace. This aim was expanded in 1957 with the establishment of the European Atomic Energy Community (EURATOM), and the creation of a "common market" and christened the European Economic Community. The Union has enlarged to 28 member nations presently with the accession of more nations over the

Europe after the World War II. It has a distinct and separate legal personality that is separate from the legal personalities of its constituent Member States,⁶⁴¹ whose sovereignty remains intact and indivisible, despite the EU's supranational system. It does not have a constitution by which its affairs are governed, but has a set of Treaties⁶⁴² by which its activities are regulated. The European Union (EU), came to being in 1992- Treaty of Maastricht, from a process of transformation from the World War II, consisting of the EC and Euratom, which are distinct legal entities but which have the same member states.⁶⁴³ It is a unique union of states in regional harmonization and governance, with institutions whose authority transcend the Member States. European unification followed the famous Monnet inspired declaration of Robert Schuman of 9 May, 1950 which was explicit on the road to be followed, specifying that "Europe will not be built all at once or according to a single plan. It will be built through concrete achievements which first create a *de facto* solidarity.... The pooling of coal and steel production was to provide for the setting up of common foundations for economic development as a first step in the federation of Europe."⁶⁴⁴ This has spelt the systematic evolution of the European Union to this stage.

The EU is an early starter on environmental matters, clearly before many other nations and regions of the world. In 1957, then as the European Economic Community, it already had policy agenda on the environment,⁶⁴⁵ even if this was not to come into fruition until in the 1970s. But over the last forty years, EU environmental policy has gradually expanded to become unique among international

succeeding years. These include Denmark, Ireland and the United Kingdom, which ascended in 1973; Greece which accessed in 1981; Portugal and Spain which accessed in 1986; Austria, Finland and Sweden which accessed in 1995; Cyprus, Czechoslovakia, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia which accessed in 2004, and Bulgaria and Romania in 2007, while Croatia accessed on 1 July, 2013 as the latest Member State. See WEATHERHILL Stephen, *Law and Integration in the European Union*, Oxford, Oxford University Press, 1995, p.7.

⁶⁴⁰ At the time of ratification of the KP, the Community consisted of 15 Member States, which increased later to 28, thus while the EU's commitments under the KP are limited to the collective actions of the EU-15, the Community retains authority to create Community-wide climate change policies and to oversee the progress of the entire EU-27 in complying with the UNFCCC and the KP. See CARLARNE Cinnamon Piñon, *Climate Change Law and Policy: EU and US Approaches*, Oxford, Oxford University Press, 2010, p.160.

⁶⁴¹ Carlarne, *ibid.*, p.144.

⁶⁴² See Treaty establishing the European Coal and Steel Community (ECSC), signed 18 April, 1951, entered into force 23 July, 1952, (expired 23 July, 2002); Treaties of Rome- EEC and EURATOM Treaties, signed 25 March, 1957, entered into force 1 January, 1958; Merger Treaty- Brussels Treaty, signed 8 April, 1965, entered into force 1 July, 1967; Single European Act (SEA), signed 17 February, 1986 (Luxembourg)/ 28 February, 1986 (The Hague), entered into force 1 July, 1987; Treaty on European Union- Maastricht Treaty, signed 7 February, 1992, entered into force 1 May, 1999; Treaty of Nice, signed 26 February, 2001, entered into force 1 February, 2003; Treaty of Lisbon, signed 13 December, 2007, entered into force 1 December 2009. See also, European Union, *EU Treaties*. Available at http://europa.eu/eu-law/treaties/index_en.htm . Site visited 13/05/2013.

⁶⁴³ KRÄMER Ludwig, *Regional Economic Integration Organizations: The European Union as an Example*, in BODANSKY Daniel, BRUNNÉE Jutta and HEY Ellen (Eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2010, p.855.

⁶⁴⁴ MOUSSIS Nicholas, *Guide to European Policies (7th Revised Ed.)*, Rixensart, European Study Service Publication, 2001, p.4.

⁶⁴⁵ de BOISSEZON, Birgit, *History of EC Environmental Research*. In *EU Research for the Environment 2008-2013*, European Commission, Directorate-General for Research , Communication Unit, Brussels, 2008, p.5.

organizations dominated by states.⁶⁴⁶ Save for the economic recession in a couple of its Member States,⁶⁴⁷ it is noted for its remarkable capacity for steady growth, that it has been largely unaffected by the political and economic vicissitudes and an aura of pessimisms that have plagued quite a number of other issues on the EU agenda.⁶⁴⁸ This has and more, especially its great postwar accomplishments in the area of peace, won for it the 2012 Nobel Peace Prize.⁶⁴⁹ In 1973, the first European Environmental Action Programme was launched, just as the Protection of the Environment Programme, as well as the Environment and Consumer Protection Directorate.⁶⁵⁰ The European Community EC, environmental laws began with the Directive on the Classification, Packaging and Labeling of Dangerous Preparations,⁶⁵¹ and that relating to the Permissible Sound Level and the Exhaust System of Motor Vehicle.⁶⁵²

The EU environmental policy has its foundation in the Paris Summit Meeting of Heads of State and Government of the European Economic Community (EEC), in October 1972. This gave birth to the Environmental Action Programme which was adopted in 1973 by a task force within the Commission, which eventually transformed to the Directorate-General (DG) for the Environment.⁶⁵³ This DG was created under the European Commission, to protect, preserve and improve the environment for the present and future generations. It has the responsibility to propose policies on environmental protection in the EU, and to ensure that member states correctly apply EU environmental laws. The EDG came to take a central position such that it became a condition precedent for other Directorates General in preparing their own proposals for directives or regulations,⁶⁵⁴ as Article 130r (2) SEA⁶⁵⁵ specifically stipulates that environmental protection requirements must be integrated into the

⁶⁴⁶ JORDAN Andrew, Introduction: European Union Environmental Policy-Actors, Institution and Policy Processes. In JORDAN Andrew (Ed), *Environmental Policy in the European Union: Actors, Institutions and Processes*, London, Earthscan, 2002, p.1.

⁶⁴⁷ Among the worst hit are Greece, Italy, Ireland, Portugal, Spain and lately, France which is suffering because of its own failure to enact long-overdue structural reforms, without which it cannot compete favourably within the European currency union. See Editorial Board, *Washington Post*, European Union Economic Crisis Grinds On, *Washington Post Online*, May 15, 2013. Available at http://articles.washingtonpost.com/2013-05-15/opinions/39281707_1_european-unity-european-union-france. Site visited last on 28-08-2013. See also, LAMBSDORFF Alexander Graf, *Germany Must Not Shy Away From Economic Leadership of the EU*, *The Guardian Online*, 23 August, 2013. Available at <http://www.theguardian.com/commentisfree/2013/aug/23/germany-economic-leadership-eu>. Site visited last 28-08-2013.

⁶⁴⁸ JORDAN Andrew, *ibid.*, p.1.

⁶⁴⁹ Editorial Board, *Washington Post*, *ibid.*

⁶⁵⁰ de BOISSEZON Brigit, *EU Research for the Environment 2007-2013*, European Commission, Directorate for Research Cooperation, 2008, p.5.

⁶⁵¹ See Directive 67/548.

⁶⁵² See Directive 70/157. See also Fu Cong, *The Evolution and Transformation of European Environmental Policy*

⁶⁵³ The EC Council by a regulation in 1990 created the European Environmental Agency, initially intended to be no more than a conduit for information between the Community institutions member states and other concerned parties. See VANDERMEERSCH Dirk and COHEN Alexander F., *European Community*. In BREARLY Mark (Ed.), *Environmental Liabilities and Regulation in Europe*, The Hague, International Business Publishing Limited, 1993, p.3.

⁶⁵⁴ LONDON Caroline and LLAMAS Michael, *Protection of the Environment and the Free Movement of Goods*, London, Butterworths, 1995, p.10.

⁶⁵⁵ See Art. 191 TFEU.

definition and implementation of other EU policies.⁶⁵⁶ The 1973 Programme of Action was explicit on the formation of an environmental policy for the European Communities, stating in its Preamble, “the constant improvement of the living conditions” of the people of Europe and “the harmonious development” of the economies of the Member States.⁶⁵⁷

The need for the development of an environmental policy⁶⁵⁸ at the EU level was borne out of the need to forestall different national environmental policies and standards from obstructing the common market trade for which the EU was conceived originally.⁶⁵⁹ It viewed that differences in environmental standards constituted a barrier to free trade, and should be addressed by harmonization.⁶⁶⁰ The policy was conceived from the onset to be compatible with economic and social development.⁶⁶¹ The most conspicuously contested resource in EU policy making is the formal competence to act. The transfer of legal authority from the nation state to the EU is also the most tangible expression of the supposed erosion of national sovereignty. Thus EU is dependent on the Member States for its power to act, it has competences only if they are based on the Treaty and/or specific legislation, to be enacted by the Member States gathered in the Council.⁶⁶² However, there is marked departure and improvement under which there are two types of competence- exclusive, and shared competences.⁶⁶³ There are the Co-Decision principle, the principle of Proportionality and Subsidiarity, and the Qualified Majority Voting, procedures of reaching decisions. Subsidiarity was institutionalized in the EU’s Maastricht Treaty both as a substantive principle decision-making should be made as close as possible to the citizens, and as a procedural principle, prescribing that the EU shall only take action if Member States cannot achieve the intended objectives, and can therefore only be better achieved by the Community. These underscoring reasons of the subsidiarity principle both engender its legitimacy and effectiveness.⁶⁶⁴ Such action as the EU took on environmental matters before 1972 was incidental to the central goal of removing the barriers to trade, and focused on harmonizing national environmental

⁶⁵⁶ ZACKER Christian, *Environmental Law of the European Economic Community: New Powers Under the Single European Act*, 14 *Boston College International and Comparative Law Review*, Vol. XIV, No.2, 1991, 249-278.

⁶⁵⁷ London, *op cit.*, p.5.

⁶⁵⁸ See Article 3(k) TEU, which specifies an environmental policy as a means for attaining a harmonious and balanced development of economic activities in the region. See also JANS Jan, *The Development of EC Environmental Law*. In WINTER Gerd (Ed.), *European Environmental Law: A Comparative Perspective*, Aldershot, Dartmouth Publishing, 1996, p.275.

⁶⁵⁹ HEINELT Hubert et al, *European Policy: The European and a Paradigm Shift*. In HEINELT Hubert et al (Eds.), *European Union Environmental Policy and New Forms of Governance: A Study of the Implementation of the Environmental Impact Assessment Directive and the Eco-Management and Audit Scheme Regulation in Three Member States*, Aldershot, Ashgate Publishing, 2001, p.2.

⁶⁶⁰ McCORMICK John, *Environmental Policy in the European Union*, New York, Palgrave Publishing, 2001, p.44.

⁶⁶¹ See the Council’s Declaration of 22 November, 1973.

⁶⁶² LIEFFERINK Duncan, *Environment and the Nation State: The Netherlands, the European Union and Acid Rain*, Manchester, Manchester University Press, 1996, p.50.

⁶⁶³ See Art. 2(1) and (2), TFEU 2007. See also, LAVRYSEN Luc, *The Treaty of Lisbon and Environmental Protection*, *Tijdschrift voor Milieurecht*, TMR 2009, pp.206-218.

⁶⁶⁴ KALSSON-VINKHUYZEN Sylvia I; JOLLANDS Nigel and STAUDT Lawrence, *Global Governance for Sustainable Energy: The Condition of a Global Public Goods Approach*, *Ecological Economics*, Vol.83, November 2012, pp.11-18.

laws with a view to removing obstacles to that goal.⁶⁶⁵ It finances projects that contribute to environmental protection in the EU.⁶⁶⁶

The Single European Act (SEA), of 1987 amended the EEC Treaty⁶⁶⁷ while giving specific mention to the environment in Articles 100a and 130 r-t. The adoption of the SEA granted environmental policy legal status under the Community law,⁶⁶⁸ thus removing any lingering doubts about Community jurisdiction in the environmental field, and provided an explicit legal basis for Community policy, defining its objectives.⁶⁶⁹ It has the objectives to preserve, protect and improve the quality of the environment, to contribute towards protecting human health, and to ensure a prudent and rational utilization of natural resources.⁶⁷⁰ The SEA 1987, changed the European Economic Community (EEC), to the European Community (EC), which upon adoption of the Treaty on European Union (Treaty of Maastricht), 1992 took a new nomenclature as the European Union (EU).

The Act came with a number of principles among which are the subsidiarity principle,⁶⁷¹ which requires the EC to act only on environmental issues where, its policy objectives are better attained at EU level than at the level of individual Member States.⁶⁷² Though the EC's potential legal competence in the EU's environmental policy is comprehensively defined, it is fraught in practice with the limitations in the principle of subsidiarity which draws a boundary between the respective activities of the EU, the Member States, and the regional authorities. It gives responsibility to the EU only when there would be more effective implementation at the EU level than at the national level.⁶⁷³ The beauty of subsidiarity entails in that, decision is taken as closely as possible to the citizens of the Union.⁶⁷⁴ It concerns the

⁶⁶⁵ McCormick, *ibid.*, p.41.

⁶⁶⁶ De BOISSEZON Brigit, *ibid.*

⁶⁶⁷ See Article 114, which provides for regulatory measures in pollution of water and air.

⁶⁶⁸ LONDON Caroline; LLAMAS Michael and LONDON Brizay, *Protection of the Environment and the Free Movement of Goods*, London, Butterworths, 1995, p.6.

⁶⁶⁹ DUHOT Stibbe Simont Monahan, *Environment and Europe: European Union Environment Law and Policy and Its Impact on Industry*, Deventer, Kluwer Law and Taxation Publishers, 1994, p.4

⁶⁷⁰ London, et al, *ibid.*, p.7.

⁶⁷¹ See Article 130r(4) EC Treaty, also, Article 3b(2), Maastricht Treaty.

⁶⁷² The Principle of Subsidiarity requires the Community to take action only if and insofar as the objectives of the proposed action cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale or effects of the proposed action, be better achieved by the Community. Any such action by the Community shall not go beyond what is necessary to achieve the objectives of the Treaty. See MISONNE Delphine et al., *Legal Constraints on National Measures to Promote Environment-Friendly Products*, SPSP II, Brussels, Belgian Science Policy, 2004, -p.41. See also, GLAESNER Hans-Joachim, *The Single European Act: Attempt at an Appraisal*, *Fordham International Law Journal*, Vol.10, Issue 3, Article 4, 1986, p.458. Also, DINAN Desmond, *The Single European Act*.

⁶⁷³ See Article 130r (4) EEC Treaty. Also, JANS Jan *ibid.*, p.275. See as well, WILKINSON David, *Maastricht and the Environment: The Implications for the EC's Environment Policy of the Treaty on European Union*. In JORDAN Andrew (Ed.), *Environmental Policy in the European Union: Actors, Institutions and Processes*, London, Earthscan Publications, 2002, p.41.

⁶⁷⁴ See Article 3B The Maastricht Treaty. See also, SCOTT Joanne, *EC Environmental Law*, London, Longman Publishing, 1998, p.3. Also, CARLARNE Piñon Cinnamon, *Climate Change Law and Policy: EU and US Approaches*, Oxford, Oxford

relationship between social self regulation and assumption of responsibilities by the State.⁶⁷⁵ It also guarantees Europe granting basic environmental quality for all its citizens, setting quality standards to which the environmental components no matter where they are within Union, should in principle correspond.⁶⁷⁶ Competences in the field of environment are shared between the Member States and the EU, yet this limited scope has not prevented the EU from formulating its own approach to climate change independently of its Member States.⁶⁷⁷ Notwithstanding the above, the EU has often encouraged a higher level of environmental protection within the member states than might have been the case.⁶⁷⁸ It must be emphasised also that, in the event of conflict between national law and EC law, the latter prevails.⁶⁷⁹ That the EU encourages a higher level of environmental protection within the Member States on the basis of subsidiarity principle does not conflict the precedence of Union Rules over national laws, in that Union Rules having been promulgated for the attainment of the objectives of the Treaty, Member States cannot, outside the framework of the Union institutions, assume obligations which might affect these Rules or alter their scope.⁶⁸⁰ The principle not only enhanced the integration process, but also marked a step forward in a new balance in decisional supranationality.⁶⁸¹ The Act also gave greater legitimacy to and enhanced the “Polluter pays” principle, one of the cornerstones of EU environmental policy,⁶⁸² which was incorporated by the EC Treaty. Though this is predicated on the condition that under EU law, a case of pollution only arises where provision was made for the purpose of restricting emissions, and such limits have been exceeded.⁶⁸³ There are other ones provided under Article 130r(2), which are not as such enforceable since they merely refer to Union environmental policy, rather than to individual measures taken at Union level.⁶⁸⁴

University Press, 2010, p.149. See also, LIEFFERINK Duncan, *Environment and the Nation State: The Netherlands, the European Union and the Acid Rain*, Manchester, Manchester University Press, 1996, p.195

⁶⁷⁵ GERD, Winter, *Matching Tasks and Competences in the EC Multi-Level Environmental Administration*. In MACRORY Richard (Ed.), *Reflections on 30 Years of EU Environmental Law: A High Level of Precedence?* Groningen, Europa Law Publishing, 2006, p.408.

⁶⁷⁶ Faure, M.G. and Lefevere, J.G.J., *Integrated Pollution Prevention and Control: An Economic Appraisal*. In BACKES Chris and BETLEM Gerrit (Eds.), *Integrated Pollution Prevention and Control: The EC Directive from a Comparative Legal and Economic Perspective*, The Hague, Kluwer Law International Publishing, 1999, p.106.

⁶⁷⁷ See Article 4(2)(e) TEU. See also, PAVESE Carolina B. and TORNEY Diarmuid, *The Contribution of the European Union to Global Climate Change Governance: Explaining the Conditions for EU Actorness*, *Revista Brasileira De Politica Internacional*, Vol.55, No. spe Brasilia, 2012, pp.130-1. Available at

http://scielo.br/scielo.php?pid=s003473292012000300008&script=sci_arttext. Site visited 13-04-2013.

⁶⁷⁸ McCORMICK John, *Environmental Policy in the European Union*, New York, Palgrave Publishing, 2001,p.42

⁶⁷⁹ KRÄMER Ludwig, *Regional Economic Integration Organizations: The European Union as an Example*. In BODANSKY Daniel, BRUNNÉE Jutta and HEY Ellen (Eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2010, p.857.

⁶⁸⁰ Duhot, *ibid.*, p.19.

⁶⁸¹ Liefferink, *ibid.*, p.196.

⁶⁸² JANS Jan, *The Development of EC Environmental Law*. In Winter, Gerd (Ed.), *European Environmental Law: A Comparative Perspective*, Aldershot, Dartmouth Publishing, 1996, p.285.

⁶⁸³ Duhot, *ibid.*, p.29.

⁶⁸⁴ KRÄMER Ludwig, *Focus on European Environmental Law*, London, Sweet & Maxwell, 1997, p.131. Also Duhot, *op. cit.*, p.31 and JANS Jan *op cit.*, pp.320-321.

There is also the precautionary⁶⁸⁵ and Prevention principles, invoked because of the insufficiency of the polluter pays principle in procuring a solid policy base,⁶⁸⁶ which presumes that action be taken at an early stage, rather than the longer question of repairing after damage has been done.⁶⁸⁷ Then, the Proximity principle which prescribes the disposal of waste as close to its source as possible, and that environmental damage should, as a matter of priority, be rectified at source.⁶⁸⁸ It is succinct to say, that the environmental Article 130r-t (SEA) is now Articles 174-6⁶⁸⁹ under the Amsterdam Treaty, 1999 by re-numbering. Environmental protection was to formally become one of the one of the aims of the EC in the Treaty of Maastricht.⁶⁹⁰ And under the Amsterdam Treaty of 1999,⁶⁹¹ environmental protection is to be fully integrated into the definition and implementation of the Community policies and activities as requested in Article 3, with particular emphasis.⁶⁹² And in 1994, for the purpose of a central data collection point, came the establishment of the European Environment Agency.⁶⁹³ The objectives of Article 100 originally included the prevention, elimination and avoidance of distortion of competition,⁶⁹⁴ between national and Community environmental policies

The EU carries out its activities and operations through three main institutions acting as access and blocking points within the EU environmental process,⁶⁹⁵ having the power of veto, to halt the passage of a legislation or policy. Each of the main EU institutions contains actors who act as potential blocking or veto points to any initiative.⁶⁹⁶ The EU is an overarching regional group of sovereign states, providing coordinating functions for them and harmonizing their policies on certain issues, through a centralized governance system. It aims to create compatible legal structures for the region on

⁶⁸⁵ See Article 130r(3) EC Treaty, also Article 130r(2) Maastricht Treaty.

⁶⁸⁶ Duhot, *ibid.*, p.31.

⁶⁸⁷ KRÄMER Ludwig, *Focus on European Environmental Law*, London, Sweet & Maxwell, 1997, p.131. Also Duhot, *op. cit.*, p.31 and JANS Jan *op cit.*, p.284.

⁶⁸⁸ See the Walloon Waste Import Ban Case- Commission v Belgium, Case C-2/90 (1992) ECR I-4433, where the Court of Justice taking inspiration from the Basel Convention, implied that it was the duty of each region, or local entity to take the appropriate measures to ensure the collection, treatment and disposal of its own waste. See also, Duhot, *op cit.*, p.33. Also, DaimlerChrysler AG v Land Baden-Württemberg, (2001) Case C-324/99

⁶⁸⁹ JORDAN Andrew, *Introduction: European Union Environmental Policy – Actors, Institutions and Policy Processes*, in JORDAN Andrew (Ed.), *European Union Environmental Policy – Actors, Institutions and Policy Processes*, London, Earthscan Publications, 2002, p.3.

⁶⁹⁰ See Article 2 of EC Treaty. Also, DUHOT Stibbe Simont Monahan, *Environment and Europe: European Union Environment Law and Policy and its Impact on Industry*, Deventer, Kluwer Law and Taxation Publishers, 1994, p.9.

⁶⁹¹ See Article 6 on the Promotion of Sustainable Development.

⁶⁹² Asser Institute, *European Environmental Law After Lisbon: An Introduction*, The Hague. Available at http://www.asser.nl/default.aspx?site_id=7&level1=12219&level214663. Site visited 31 January, 2013.

⁶⁹³ HEINELT, Hubert et al, *European Policy: The European and a Paradigm Shift*. In HEINELT Hubert et al (Eds.), *European Union Environmental Policy and New Forms of Governance: A Study of the Implementation of the Environmental Impact Assessment Directive and the Eco-Management and Audit Scheme Regulation in Three Member States*, Aldershot, Ashgate Publishing, 2001, p.2.

⁶⁹⁴ JANS Jan, *The Development of EC Environmental Law*. In Winter, Gerd (Ed.), *European Environmental Law: A Comparative Perspective*, Aldershot, Dartmouth Publishing, 1996, p.273.

⁶⁹⁵ ZITO Anthony R., *Creating Environmental Policy in the European Union*, London, Macmillan Press, 2000, p.43.

⁶⁹⁶ Zito *ibid.*, p.23.

economic matters and several others. It is pertinent to note its capacity to pursue foreign relations as if it were a sovereign state by entering into agreements with other nations, signing environmental conventions alongside Member States.⁶⁹⁷

4.1.1 The European Union Institutions

The EU operates through an organised system of organs called the EU institutions and agencies, some of which include the European Council, the Council of the EU, the Commission, the Parliament, and the Court of Justice among others. These four as mentioned however, have spheres of influence on environmental matters. These institutions operate in a complementary manner, and act as checks and balances one to another.

4.1.1.1 The European Council⁶⁹⁸

The Institution comprises the Heads of State or Government of the Member States, together with the President of the European Commission, the President of the European Council, and the High Representative for Foreign Affairs and Security Policy. It started informally in 1974 as a forum for discussion between EU leaders. It acquired a formal status in 1992 and became an official institution in 2009. Its meetings called Summits are held usually about four times yearly (twice every six months), bringing EU leaders together to decide on broad political direction and priorities, and major initiatives as well as, providing the Union with the necessary impetus for its development.⁶⁹⁹ Meetings are convened and chaired by its permanent President, who is appointed by the EU Heads of State or Government, for a term of two and half years, renewable only once.⁷⁰⁰ It therefore, elects its own President by a qualified majority. It takes decisions by consensus, unless the Treaties specify otherwise. It may also adopt decisions by unanimity or by qualified majority.⁷⁰¹ It has no formal legislative power, but exercises powers on such high profile policy areas as the foreign policy, police and justice planning, composition of the Commission, among others.⁷⁰² It also prepares and ensures the follow-up to

⁶⁹⁷ GRANT Wyn; MATTHEWS Duncan and NEWELL Peter, *The Effectiveness of European Union Environmental Policy*, London, Macmillan Press, 2000, p.92.

⁶⁹⁸ See Articles 235 and 236 TFEU.

⁶⁹⁹ LAVRYSEN Luc, *The Treaty of Lisbon and Environmental Protection*, *Tijdschrift voor Milieurecht*, TMR 2009, pp.206-218.

⁷⁰⁰ The first permanent President, Herman Van Rompuy was unanimously appointed by the Heads of State or Government at their informal meeting in Brussels on 19 November 2009, to take office at the entry into force of the Lisbon Treaty on 1 December, 2009, and re-appointed for a second term from 1 June 2012 to end on 30 November 2014. See European Council, *The President of the European Council*. Available at <http://www.european-council.europa.eu/the-president/the-presidents-role>. Site visited 28-08-2013.

⁷⁰¹ European Union. Available at <http://europa.eu/about-eu/institutions-bodies/European-council/>. Site visited 28-08-2013.

⁷⁰² European Council, Wikipedia. Available at <mhtml:file:///E:\European Council-Wikipedia, the free encyclopedia.mht>. Site visited 30-08-2013.

meetings of the European Council, in liaison with the President of the European Council and the Commission.⁷⁰³

4.1.1.2 The Council of the EU⁷⁰⁴

Created by the ECSC as the “Special Council of Ministers,” with the aim of counter balancing the High Authority (now the Commission). The Council, otherwise called “Council of Ministers” is the only major institution directly having the representatives of the Member States governments,⁷⁰⁵ and constitutes the ultimate legislative body. The Council meets in different configurations comprising Member States ministers, depending upon the issue at hand. Along with European Council is the Union’s main policy-making body. It is the Union’s main decision-making, a legislative,⁷⁰⁶ budgetary and coordinating authority.⁷⁰⁷ It has a requirement for openness and transparency of proceedings,⁷⁰⁸ hence it meets in public when deliberating and voting on a draft legislation act or in a general debate. Its membership comprises Member States ministers responsible for a particular subject like the environment, finance, agriculture, and so on. It is a regulatory body whose approach to legislative measures follows that of the Commission. It serves as the point at which the interests of the Member States most obviously intersect with those of the EU as a whole. It is the institution ultimately responsible for deciding (in conjunction with Parliament) what will become EU law and what will not.⁷⁰⁹ It has the power to take decisions.⁷¹⁰ Under the TFEU, it operates in a system of cooperation procedure with the Parliament on environmental legislation. It thus shares lawmaking and budgetary powers with the European Parliament.⁷¹¹ Its powers to enact legislation are however, dependent on the submission of a proposal by the Commission. It adopts legislative acts by way of co-decision with the EP; helps coordinates Member States’ policies; develops the common foreign and security policy by means of strategic guidelines set by the European Council; concludes international agreements on behalf of the Union; and adopts the Union’s budget in association with the EP.⁷¹² Under the TFEU, Council of Ministers agrees on environmental legislation on the basis of unanimity, with the Parliament’s role of non-

⁷⁰³ Lavrysen, *ibid.*

⁷⁰⁴ See Articles 237-243 TFEU.

⁷⁰⁵ DUHOT Stibbe Simont Monahan, *Environment and Europe: European Union Environment Law and Policy and Its Impact on Industry*, Deventer, Kluwer Law and Taxation Publishers, 1994, p.183. See also, *European Union, EU Institutions and Other Bodies*. Available at http://europa.eu/about-eu/institutions-bodies/index_en.htm. Site visited 27-08-2013.

⁷⁰⁶ The EU’s laws are made by the Council, together with the EP. See Consilium, *The Council of the European Union*. Available at <http://www.consilium.europa.eu/council>. Site visited 30-08-2013. See also, LAVRYSEN Luc, *The Treaty of Lisbon and Environmental Protection*, *Tijdschrift voor Milieurecht*, TMR 2009, pp.206-218.

⁷⁰⁷ LACASTA Nuno S; DESSAI Suraje and POWROSLO Eva, *Consensus Among Many Voices: Articulating the European Union’s Position on Climate Change*, *Golden Gate University Law Review*, Vol. 32, Iss.4 [2002], Art.2, p.362.

⁷⁰⁸ See Art.15 TFEU. Also, Council Decision of 1 December, 2009- Official Journal L325, 11.12.2009, p.35. See also, Consilium, *The Council of the European Union*, *ibid.*

⁷⁰⁹ McCORMICK John, *Environmental Policy in the European Union*, New York, Palgrave Publishing, 2001, pp.124-125.

⁷¹⁰ See Article 145, Treaty of Rome.

⁷¹¹ CARLARNE Piñon Cinnamon, *Climate Law and Policy: EU and US Approaches*, Oxford, Oxford University Press, 2010, p.145.

⁷¹² See Consilium, *The Council of the European Union*, *ibid.*

binding consultation. It also introduced a system of Qualified Majority Voting (QMV),⁷¹³ in which votes are weighted in accordance to Member States population, to reach its decision,⁷¹⁴ and in such cases, Council has to act in cooperation with the Parliament.

At the initial period before the SEA, issues concerning the environment had required a unanimous Council vote,⁷¹⁵ however, this changed and became far more liberal under the Maastricht Treaty, which emphasised a clear distinction between Articles 100a and 130r, by which implication, environmental legislation no longer require adoption by the Council, rather the Council only acts by qualified majority on issues concerning both the environment and internal market, or a combination of both.⁷¹⁶ The Council has the power over the adoption or rejection of new laws, which makes it a key source of pressure on the Commission.⁷¹⁷ Meetings of the Council are organized and serviced by the Committee of Permanent Representatives (COREPER), which also plays decisive roles in forging compromises and preparing Council meetings.⁷¹⁸ Aside from the Council of Ministers, there is the European Council, which comprises EU leaders- heads of state or government, whose meetings are essentially summits. It is responsible for setting the EU's general political direction and priorities. It also handles more complex or sensitive matters that could not be dealt with at the lower levels of intergovernmental cooperation, but has no legislative powers whatsoever.⁷¹⁹

4.1.1.3 The European Commission⁷²⁰

There is also the Commission, the executive body of the EU, which comprises members, otherwise called Commissioners, appointed by agreement of Member States. Each Member State appoints one member, except for the larger Member States (France, Germany, Italy, Spain and the United Kingdom) which appoint four members each. In other words, it comprises 28 Commissioners, headed by a President and eight Vice Presidents, chosen from among the Commissioners each appointed for a five year term.⁷²¹ The President is nominated by the European Council, for approval by the European Parliament, while the President-elect in turn, appoints Commissioners from the candidates forwarded

⁷¹³ See Art. 238 TFEU.

⁷¹⁴ WILKINSON David, Maastricht and the Environment: The Implications for the EC's Environment Policy of the Treaty on European Union. In JORDAN Andrew (Ed.), Environmental Policy in the European Union: Actors, Institutions and Processes, London, Earthscan Publications, 2002, p.42.

⁷¹⁵ See Article 100, which provides that "the Council shall, acting unanimously on a proposal from the Commission, issue directives for the approximation of such provisions laid down by law, regulation or administrative action in Member States as directly affect the establishment or functioning of the common market"

⁷¹⁶ VANDERMEERSCH Dirk and COHEN Alexander F., European Community. In BREALEY Mark (Ed.), Environmental Liabilities and Regulation in Europe, The Hague, International Business Publishing Limited, 1993, pp.4, 5.

⁷¹⁷ McCormick, *ibid.*, p.92.

⁷¹⁸ McCormick, *ibid.*, p.125.

⁷¹⁹ European Council, European Union, How the EU Works, Brussels. Available at <http://europa.eu/about-eu/institutions-bodies/European-council/>. Site visited 23-03-2013.

⁷²⁰ See Articles 244-250 TFEU.

⁷²¹ European Union, European Commission. Available at http://europa.eu/about-eu/institutions-bodies/European-commission/index_en.htm. Site visited 28-08-2013.

by Member States, subject to approval by the Parliament.⁷²² The Commission operates through a number of Directorates General and Services under it, several of which play a significant role in climate policy, most notably the DGs for environment, energy, and taxation among others.⁷²³ The DGs are headed each by a Commissioner. It presently has 33 Departments (DGs) and 11 Services. The members once appointed act in the interest of the Union, and not in their individual national interests. It is solely responsible for initiating legislative proposals for adoption by the Council and the Parliament,⁷²⁴ thus directly involved in the process of EU legislation in conjunction with the European Parliament and the Council of the European Union. As “the guardian of the Treaties,”⁷²⁵ it sets the agenda for the other institutions. It is also responsible for implementing common policies, managing the budget, as well as the programmes of the EU.⁷²⁶ It has a monopoly over the development of new proposals for law and initiating legislative proposals.⁷²⁷ It statutorily carries out its responsibilities completely independent.⁷²⁸ It is the duty of the Commission to ensure that EU environmental law is incorporated into the national law of Member States, and that they are actually applied and enforced.⁷²⁹ It monitors the Member States implementation, application and enforcement of EU law, and may bring actions against same for failure to implement, apply and enforce legislation before the CJEU.⁷³⁰ It represents the interests of the Union as a whole.⁷³¹

4.1.1.4 The European parliament⁷³²

The European Parliament (EP), which represents the EU citizens, was first created under the ECSC 1952 as the Assembly, originally with supervisory and consultative powers and no legislative input, but has since become one of the strongest EU institutions, over the years.⁷³³ It is a direct representative of the citizens of the Member States of the EU,⁷³⁴ based on a system of degressive proportionality,⁷³⁵ for

⁷²² European Commission > About the European Commission. Available at http://www.ec.europa.eu/about/index_en.htm . Site visited 23-03-2013.

⁷²³ LACASTA Nuno S, *ibid.*, p.369.

⁷²⁴ KRÄMER Ludwig, Regional Economic Integration Organizations: The European Union as an Example. In BODANSKY Daniel, BRUNNÉE Jutta and HEY Ellen (Eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2010, p.856.

⁷²⁵ DUHOT Stibbe Simont Monahan, *Environment and Europe: European Union Environment Law and Policy and Its Impact on Industry*, Deventer, Kluwer Law and Taxation Publishers, 1994, p.182.

⁷²⁶ Carlarne, *ibid.*, p.145.

⁷²⁷ McCormick, *ibid.*, p.91. Also Duhot, *ibid.*, p.182.

⁷²⁸ See Art. 17(1) and (2) TEU.

⁷²⁹ KRÄMER Ludwig, *ibid.*, p.857.

⁷³⁰ See Article 211 (formerly Article 155). See also, GRANT Wyn, MATTHEWS Duncan and NEWELL Peter, *The Effectiveness of European Union Environmental Policy*, London, Macmillan Press, 2000, p.74.

⁷³¹ European Union, *EU Institutions and Other Bodies*. Available at http://europa.eu/about-eu/institutions-bodies/index_en.htm . Site visited 27-08-2013.

⁷³² See Articles 223-234 TFEU.

⁷³³ ELKINS Michael, *An Analysis of the Changes Made to the European Parliament*, The New Researcher, 2010, Vol.4, pp30-34.

⁷³⁴ DUHOT Stibbe Simont Monahan, *Environment and Europe: European Union Environment Law and Policy and its Impact on Industry*, Deventer, Kluwer Law and Taxation Publishers, 1994, p.185.

a duration of five years, through a system of degressive proportionality. It currently consists of 754 members (MEPs), as against the maximum 751 stipulated by the Lisbon Treaty. This is being planned to regularize in the 2014 EP Elections, when 12 Member States are also expected to yield one seat each to accommodate Croatia which is ascending with 12 members in the Parliament.⁷³⁶ Croatia formally accessed the EU on 1 July, 2013. The EP elects its own President and other officers from among its members.⁷³⁷ It is the only directly elected decision-making body of the EU,⁷³⁸ with the introduction of direct elections to it in 1979. Both the Maastricht and Amsterdam Treaties enhanced the powers of the EP, yet it lacks one of the defining powers of a conventional legislature⁷³⁹ in that, it cannot on its own initiate or generate proposals for new laws, but could formally request the Commission to submit any appropriate proposal on any matter which it considers important, neither could it handle petitions from the public.⁷⁴⁰ It however wields considerable influence over both the Council and the Commission, in that, it has the power to question the Commission,⁷⁴¹ also to question the Council's decisions and to make recommendations, while both institutions have to agree with, consult or act in conjunction, or cooperate with the Parliament, unlike previously when the Council often acted without waiting for the Parliament to give its opinion.⁷⁴² These are variously described as the consultation, co-operation and co-decision procedures.⁷⁴³ The introduction of the co-decision procedure under the Maastricht Treaty and broadened under the Amsterdam Treaty serve to broaden and simplify the process, while increasing the EP's legislative powers beyond what obtained erstwhile, which the Lisbon Treaty now expands to other articles, to make the EP's powers more enhanced in terms of influencing the legislation, making the co-operation procedure almost, if not altogether unnecessary.⁷⁴⁴ Where there is a failure of any of these, as between the Parliament and the Council, a conciliation procedure is commenced at which the Commission participates.⁷⁴⁵ The EP has critical power-balancing tools, in that,

⁷³⁵ Carlarne, *ibid.*, 146.

⁷³⁶ NADKARNI Isabel Teixeira, European Parliament News, EP Seats After 2014 Elections: No Member State to Lose More Than One MEP. 13-03-2013. Available at <http://www.europal.europa.eu/news/en/pressroom/content/20130308IPR06302/html/EP-seats-after-2014-elections-no-member-state-to-lose-more-than-one-mep/>.

⁷³⁷ See Art.14 TEU.

⁷³⁸ Carlane, *ibid.*, p.146

⁷³⁹ McCormick, *ibid.*, p.114.

⁷⁴⁰ See Article138b(2) EC Treaty, now Art. 154 TFEU. Also KRÄMER Ludwig, *The Elaboration of EC Environmental Legislation*. In WINTER Gerd (Ed.), *European Environmental Law: A Comparative Perspective*, Aldershot, Dartmouth Publishing, 1996, p.304. See also, KRÄMER Ludwig, *Thirty Years of Environmental Governance in the European Union*. In MACRORY Richard (Ed.), *Reflections on 30 Years of EU Environmental Law: A High Level of Protection?* Groningen, Europa Law Publishing, 2006, p.559.

⁷⁴¹ See Art. 230 TFEU.

⁷⁴² GRANT Wyn; MATTHEWS Duncan and NEWELL Peter, *The Effectiveness of European Union Environmental Policy*, London, Macmillan Press, 2000, p.34.

⁷⁴³ LISTER Charles, *European Union Environmental Law: A Guide for Industry*, Chichester, John Wiley & Sons Publishing, 1996, p.

⁷⁴⁴ ELKINS Michael, *ibid.*

⁷⁴⁵ See Article138b (2) EC Treaty. Also KRÄMER Ludwig, *The Elaboration of EC Environmental Legislation*. In WINTER Gerd (Ed.), *European Environmental Law: A Comparative Perspective*, Aldershot, Dartmouth Publishing, 1996, p.307.

it now has increased legislative powers under the name of ordinary legislative procedure,⁷⁴⁶ (ex co-decision),⁷⁴⁷ compared to what obtained under the Maastricht Treaty where a requirement for a simple majority rather than an absolute majority in the assent procedure as obtained under the Single European Act, which reduced the EP's powers. It can either approve the Commission or adopt a motion of censure against it as a whole.⁷⁴⁸ It also monitors the activities of both the Commission and the Council,⁷⁴⁹ having the power to either approve or censure the Commission and to remove the institution en bloc if it feels the need to do so. A considerable power it has always held the signing of the ECSC.⁷⁵⁰ The Parliament has been particularly active in matters of environmental policy.⁷⁵¹

4.1.1.5 The Court of Justice of the European Union⁷⁵²

Another very important institution of the EU is the Court of Justice, which includes the Court of Justice, the General Court, and specialized courts. The CJEU originally is a creature of the Treaty establishing the European Coal and Steel Community (ECSC), 1952⁷⁵³ to ensure that the law was observed in the interpretation and application of the Treaties. It thus acts as the constitutional guardian of the Treaties of the EU law, as re-emphasised by the TFEU and seeing to the observance of the rules laid down for the interpretation of the Treaty.⁷⁵⁴ It reviews the legality of the acts of the institutions of the EU; ensure that the Member States comply with obligations under the Treaties; and interprets EU laws at the request of national courts and tribunals.⁷⁵⁵ The judges are appointed by the Member States, with one judge from each State,⁷⁵⁶ and eight Advocates-General, also nominated by the Member States, who act as advisors to the Court. The Court sits in chambers of three or five or the Full Court or the Grand Chamber(13 Judges).⁷⁵⁷ Cases may be brought by the EU institutions against each other, just as natural or legal persons can bring cases under EU law against Member States, or the Commission,⁷⁵⁸ for natural or legal persons, where in some circumstances, such is to challenge decisions addressed to them personally or are of direct and individual concern to the person. From the inception of the Treaty

⁷⁴⁶ See Articles 289 and 294 TFEU.

⁷⁴⁷ European Union, EU Institutions and Other Bodies. Available at http://europa.eu/about-eu/institutions-bodies/index_en.htm. Site visited 27-08-2013.

⁷⁴⁸ Carlarne, *ibid.*, p.146.

⁷⁴⁹ Duhot, *ibid.*, p.185.

⁷⁵⁰ See Art. 234 TFEU. See also, ELKINS Michael, *ibid.*

⁷⁵¹ KRÄMER Ludwig, E.C. Treaty and Environmental Law (3rd Ed), London, Sweet and Maxwell, 1998, p.

⁷⁵² See Articles 251-281 TFEU.

⁷⁵³ See CVRIA, Court of Justice of the European Union. Available at http://curia.europa.eu/jcms/J02_6999/. See also, KAPSIS Ilias, The Courts of the European Union. In CINI Michelle (Ed.), European Union Politics (2nd Ed), Oxford, Oxford University Press, 2007, 189.

⁷⁵⁴ Grant, *ibid.*, p.38.

⁷⁵⁵ CVRIA, Court of Justice of the European Union. Available at curia.europa.eu/jcms/J02_6999/. Site visited 28-08-2013.

⁷⁵⁶ Carlarne, *ibid.*, p.147.

⁷⁵⁷ See Art. 251 TFEU. See also, KISS Alexandre and SHELTON Dinah, Guide to International Environmental Law, Leiden, Martinus Nijhoff Publishers, 2007, p.228. See also, ITZCOVICH Guilio, Constitutional Reasoning in the European Court of Justice, Social Science Research Network, February 2013. Available at <http://ssrn.com/abstract=2228979>. Site visited 02-09-2013.

⁷⁵⁸ See Art. 263(4) TFEU.

of the European Union, the Court can impose financial penalties on Member States which fail to comply with its judgments.⁷⁵⁹ The Court's decisions have helped in no small measure to provide a sound footing for the EU's environmental policy, and enhanced the growth of the body of environmental law in the region.⁷⁶⁰ Its decisions in the 1960s and 1970s helped to legitimize the Commission's activities and tighten the legal framework of compliance with EU rules.⁷⁶¹ It undertakes judicial review of the Community institutions, acting within the powers given to them by the Treaties.

The Court enjoys full jurisdiction,⁷⁶² unlike the Parliament which lacks the exhaustive powers of a parliament. It has contributed immensely to the effective enforcement of EC law by delivering more than 400 judgments as at 2004 ending,⁷⁶³ the larger percentage of which are on Member States for not properly incorporating, applying, or enforcing and strengthening the status of EC environmental law,⁷⁶⁴ in other words, implementation of Community environmental law is not taken lightly with erring Member States.⁷⁶⁵ Individuals may enforce EU regulations in national courts, by virtue of the ECJ judgments, which established that certain EU requirements have "direct effect on individuals."⁷⁶⁶ Hence, individuals may sue the state for damage for failure to implement the requirements, or for inadequate implementation. An exemption to this basic rule is however, in the Lombardi's case,⁷⁶⁷ in which the ECJ held that Article 4 of the Waste Framework Directive, which requires a Member State to ensure that waste is disposed of without endangering human health and without harming the environment, does not accord individuals the right to sue in their national courts.⁷⁶⁸ The EU by Directive 75/442EEC on waste made to regulate most types of solid waste not regulated through specific Community legislation. It encourages Member States to promote waste prevention.⁷⁶⁹ This Directive thus became a framework for all Community waste legislation. The legislation is somewhat versatile, dealing with provisions on the prohibition of dangerous, harmful or uncontrolled waste

⁷⁵⁹ Grant, *ibid.*, p.38.

⁷⁶⁰ McCormick, *ibid.*, p.40.

⁷⁶¹ Jordan, Andrew *ibid.*, p.6.

⁷⁶² Kapsis, *ibid.*, p.193.

⁷⁶³ In all, 26, 800 judgments and orders have been delivered since 1952: the Court of Justice, roughly 17, 200, the General Court, roughly 8,700 (since 1989), THE Civil Service tribunal, roughly 900, since 2005. The Court completed 595 Cases in 2012, 638 Cases in 2011, of which 357 were with judgments, and 168 were orders. About 53% of the judgments delivered in 2012 were delivered without opinion. See CVRIA, CJEU Annual Report 2012, January 2013. Available at HTTP://curia.europa.eu/jcms/uploads/docs/application/pdf/2013/04/192685_2012_6020_cdj_ra_2012_en_proof_01.pdf. Site visited 28-08-2013.

⁷⁶⁴ See Commission of the European Communities (Supported by United Kingdom) v Kingdom of Denmark (1998). *Journal of Environmental Law*, 1990, 2(1): 89-107. See also the Wallonian Waste Case *supra*.

⁷⁶⁵ KRÄMER Ludwig *ibid.*, p.857.

⁷⁶⁶ See Twyford Parish Council v Secretary of State for Transport, *Journal of Environmental Law*, 4(2) 273.

⁷⁶⁷ Comitato di Coordinamento per la Difesa della Cava v Regione Lombardi (1994), ECR I-483. Case C-236/92

⁷⁶⁸ MUMMA Albert, *Judicial Review of Administrative Action*. In WINTER Gerd, *European Environmental Law: A Comparative Perspective*, Aldershot, Dartmouth Publishing, 1996, pp.138-9.

⁷⁶⁹ See Directive 78/319 on Toxic and Dangerous Waste (OJ No L84, 31.03.1978, p.43) Article 4.

recovery or disposal,⁷⁷⁰ which have the effect of convincing industry to opt for cleaner technology.⁷⁷¹ However, several aspects of economic development are not yet sustainable in practice, as waste production is not yet stabilized and energy consumption is increasing, sectoral integration is still weak in some Member States and priorities seem to be given to economic growth in traditional terms, with significant negative effects on the environment.⁷⁷² The situation here may have since improved tremendously with advancement in technological advances and stricter observance of Union's statutory provisions. Its decisions have established that the founding treaties were more than international agreements, that EU law produced direct effects and individual rights which national courts must protect, and that EU law should be directly and uniformly applied in all the Member States.

The CJEU has also extended the scope of application of the precautionary principle to all policies involving scientific uncertainty, introducing extremely useful clarifications on its application, especially as regards public health.⁷⁷³ The European Court of Justice also played a very prominent role in the evolution of the EU environmental policy, by way of a number of landmark decisions, which swayed the direction of the policy contrary to what the other EU institutions or organs have initially held. The decisions in the ERTA,⁷⁷⁴ and the Inland Waterway Vessels⁷⁷⁵ are some of the most prominent ones. See also the Procureur de la République v Association de Défense des Brûleurs d'Huiles Usagées (ADBHU) case.⁷⁷⁶ The CJEU has succeeded in uplifting the development of the EU environmental law by consistently supporting the Union's preferred competence in environmental policy as against national competence, backing up the Commission in the uneasy task of overseeing the implementation of EU law in the Member States, and clarifying the meaning of key elements of the treaties.⁷⁷⁷ The EU legal system has proven to be extremely efficient for harmonisation and creation of a common legal culture among Member States, particularly in environmental law.⁷⁷⁸ The CJEU in its early life has ensured the growth of policy at the European level, by developing the doctrine of direct effect and the precedence

⁷⁷⁰ See Article 4 Amended Waste Framework Directive (Directive 2008/98/EC).

⁷⁷¹ de VILLENEUVE Carel H. V., *Legal Aspects of Prevention by Technologies, Products and Management: Production Processes*, in WIGGERS-RUST Lidy F.; van OPHEM, J.V., de VILLENEUVE Carel H.V., DOUMA W. Th., and van Rijswijk, (Eds.), *Waste Prevention in the EEC*, Amsterdam, W.E.J. Tjeenk Willink Zwolle Publishing, 1994, p.22.

⁷⁷² Organisation for Economic Development and Cooperation (OECD), *Environmental Performance Reviews: Belgium*, Centre français d'exploitation du droit de copie (CFC), Paris, OECD Publications, 1998, p.26.

⁷⁷³ De SADELEER Nicolas, *The Principles of Prevention and Precaution in International Law: Two Heads of the Same Coin?* In FITZMAURICE Malgosia; ONG, David M. and MERKOURIS Panos, (Eds.), *Research Handbook on International Environmental Law*, Cheltenham, Edward Elgar Publishing, 2010, p.194.

⁷⁷⁴ Commission of the European Communities v. Council of the European Communities Case 22/70, [1971] ECR 263.

⁷⁷⁵ Opinion 1/76, 26 April, 1977, [1977] ECR 741. See also DUHOT Stibbe Simont Monahan, *Europe and Environment: European Union Environment Law and Policy and its Impact on Industry*, Deventer, Kluwer Law and Taxation Publishers, 1994, p.18.

⁷⁷⁶ Case 240/483 of 1985.

⁷⁷⁷ McCormick, *ibid.*, p.133.

⁷⁷⁸ BURGUES Julio Garcia et al, *A Common Heritage: EU Environmental Law and National Judges*, *Journal for European Environmental and Planning Law (JEEPL)*, 7.2, 2010,221-233.

of EU over domestic law, passing down a series of landmark judgments that have affected the character and scope of environmental policy.⁷⁷⁹ A European Forum of Judges for the Environment (EUFJE), was established in February 2004, with the objective of promoting the enforcement of national, European and international environmental law in a perspective of sustainable development by training national judges in European law in general and European environmental in particular. This goes to enhance the capabilities of the national judges tremendously, to tackle problems of European environmental law.⁷⁸⁰ In 1973, the Environment and Consumer Protection Committee DG (III), and the Committee on the Environment in the European Parliament were instituted.⁷⁸¹

Its environmental policy now adds up to considerably more than the sum of national environmental policies, and it currently enjoys powers such as the ability to negotiate externally with other states⁷⁸² in international meetings, and to levy financial sanctions on those actors that do not uphold its laws and policies, which hitherto normally are the exclusive preserve of states.⁷⁸³ It has since gone farther than its initial objectives. In the present dispensation, the Union's power to enter into international agreements in the field of the environment is no longer in doubt, sake of Article 130r(4) and (5) of the SEA and Article 130r(1) Maastricht Article,⁷⁸⁴ which combined together to empower Community to participate in international environmental agreements, and that Community's aim shall be to promote measures at international level to deal with regional or worldwide environmental problems.⁷⁸⁵ In instances where it has been a party to an international environmental agreement, it has not usually been the primary participant in negotiations, but has signed only after the Member States have reached a common position and have all signed in their own rights,⁷⁸⁶ in keeping with the principle of subsidiarity, and in recognition of the level of political integration of the Member States of the Union.

⁷⁷⁹ See *Commission of the European Communities v Council of the European Communities (Waste Directive) Case 155/91 [1993] ECR I- 2869*. See also DOUGLAS-SCOTT Sionaidh, *Constitutional Law of the European Union*, Essex, Pearson Education Limited, 2002, p. 165. Further, WEALE Albert, *Environmental Rules and Rule-Making in the European Union*. In JORDAN Andrew (Ed.), *Environmental Policy in the European Union: Actors, Institutions and Processes*, London, Earthscan Publishing, 2002, p.200.

⁷⁸⁰ LAVRYSEN Luc, *Application of European Environmental Law by National Courts*, *Environmental Law Network International (ELNI)*, No.2, 2008, p.80.

⁷⁸¹ EU Environmental Issues and Policies Guidelines. Available at <http://www.google.com/search?q=The+Fourth+EC+Environmental+Action+Programme&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official>. Site visited 13-03-2013.

⁷⁸² See Article 174(1) and (4), now Art. 191 TFEU. Also Article 228 (now 300). The Dublin Regulation 1990 required the Community to play a leading role in promoting international action on the environment. See also, McCORMICK John, *Environmental Policy in the European Union*, New York, Palgrave Publishing, 2001, p.268.

⁷⁸³ JORDAN Andrew, *Introduction: European Union Environmental Policy- Actors, Institutions and Policy Processes*. In JORDAN Andrew (Ed.), *Environmental Policy in the European Union: Actors, Institutions and Processes*, London, Earthscan Publications, 2002, p.2.

⁷⁸⁴ See Articles 21 and 22 TFEU.

⁷⁸⁵ DUHOT Stibbe Simont Monahan, *Environment and Europe: European Union Environmental Law and Policy and its Impact on Industry*, Deventer, Kluwer Law and Taxation Publishers, 1994, p.18.

⁷⁸⁶ McCORMICK John, *Environmental Policy in the European Union*, New York, Palgrave Publishing, 2001, p.268.

A formal foundation having been laid by the body of state leaders, for the EEC in 1972, environmental policy became incorporated in the activities under the Maastricht Treaty,⁷⁸⁷ like the promotion of research and technological development. The Treaty was amended in Article 2, to reflect the Treaty's impact in broadening the system's objectives thus: "The Community shall have as its task..., to promote throughout the Community a harmonious, balanced and sustainable development of economic activities...."⁷⁸⁸ Environmental legislation gained momentum in the 1980s, when the EU environmental policy experienced relatively rapid and profound transformation, owing to an increased public concern for environmental matters.⁷⁸⁹ In formulating its various policies on different issues, the EU institutional system, gives different actors, ideas, and interests opportunities to exert their influence on the environmental policy process,⁷⁹⁰ so that in the end the result is a consensus of the generality of opinions, hence its policies are usually broad-based. These include states, non-states such as non-governmental organisations (NGOs), and international organisations. Major EU environmental initiatives are being taken outside the Commission and larger member states, which often prove to have remarkable endurance against the explicit wishes of key member states and the Commission.⁷⁹¹ It is thus evident that the EU's environmental policy-making is creating a global presence the EU, with a status of powerful regional governance, where even nations are not finding it easy to maintain a national standard.

European Union (EU), environmental law has come to be viewed as a multinational issue, and an important part of the EU's programme to create an internal market.⁷⁹² This stems from the fact that regional groupings for a common market and common policies without a comprehensive common environmental policy will no doubt suffer a substantial defect in its implementation, if the associating states have parallel environmental policies, which are at variance one from another. The EC states at the onset suffered several conflicts of interest on environmental matters, but in spite of this, over 200 pieces of legislation have been passed,⁷⁹³ covering many aspects of environment policy including treatment of waste, air, soil, and water pollution control, protection of natural resources and of endangered species. Then, came the establishment of the European Environmental Agency in 1994, as

⁷⁸⁷ See Article 3 EC Treaty

⁷⁸⁸ WEATHERHILL Stephen and Beaumont, Paul, *European Union Law: The Essential Guide to the Legal Workings of the European Union*, Penguin Books, 1999, p.33.

⁷⁸⁹ JORDAN Andrew, *ibid.*, p.4

⁷⁹⁰ ZITO Anthony R., *Creating Environmental Policy in the European Union*, Hampshire, Macmillan Press Limited, 2000, p.12.

⁷⁹¹ Zito, *ibid.*, p. 6.

⁷⁹² VANDERMEERSCH Dirk and COHEN Alexander F., *European Community*. In BREARLY Mark (Ed.), *Environmental Liabilities and Regulation in Europe*, The Hague, International Business Publishing Limited, 1993, p.1.

⁷⁹³ It is contended that between 1989 and 1991, the EU adopted more environmental statutes than in the previous 20 years combined, which has brought the environmental *acquis* to well over 500 legislative items, with the posture of one of the fastest growing areas of EU activity. See JORDAN Andrew, *Introduction: European Union Environmental Policy- Actors, Institutions and Policy Processes*. In JORDAN Andrew (Ed.), *Environmental Policy in the European Union- Actors, Institutions and Processes*, London, Earthscan Publications, 2002, p.6.

a central data collection point.⁷⁹⁴ The Community developments have impacted on the Member States leading in instances to identity of clear instances in which the environmental policy of the EU has altered the policy position, institutions or practices of Member States. Instances such as the UK's 1990 Environmental Protection Act, which was brought about in order to implement the requirements of the 1984 air pollution framework directive, and Spain, whose total dependence on Brussels has been notably marked in the environmental field.⁷⁹⁵

4.1.2 Instruments of Implementation

The EU has developed a distinctive system of environmental enforcement, a supra-national system of enforcement, which is unique amongst contemporary systems of governance, but it remains to be perfected and more attractive, to avoid delay in attaining end result, as is currently experienced.⁷⁹⁶ The Commission has the duty under the Treaty⁷⁹⁷ to ensure the application of Union measures by the Member States. It has no power of inspection, but relies entirely on the information provided to it by individual complaints, parliamentary petitions and questions, non-governmental organizations (NGOs), and the Member States themselves. From the very beginning of the European construction, a special role was given to the private individual in the enforcement of Community law. In Van Gend en Loos, 1962,⁷⁹⁸ it was stated that the vigilance of private individuals to protect their rights amounts to an effective supervision in addition to the supervision entrusted by Articles 169 and 170, to the diligence of the Commission and the Member States. It is apposite therefore, to state that in environmental matters, private individuals are only granted access to justice upon proof that their rights or interests are directly affected by a violation of environmental law. But common interest groups are progressively granted access to the national courts, notwithstanding, always under more or less restrictive conditions.⁷⁹⁹

The obligation to implement EU law is found in Article 10 TFEU, which requires Member States to “take all appropriate measures, whether general or particular, to ensure fulfillment of the obligations

⁷⁹⁴ HEINELT Hubert et al, *Environmental Policy: The European Union and a Paradigm Shift*. In HEINELT Hubert et al (Eds.), *European Union Environment Policy and New Forms of Governance: A Study of the Implementation of the Environmental Impact Assessment Directive and the Eco-Management and Audit Scheme Regulation in Three Member States*, Aldershot, Ashgate Publishing Limited, 2001, p.2.

⁷⁹⁵ WEALE Albert, *Environmental Rules and Rule-Making in the European Union*. In JORDAN Andrew (Ed.), *Environmental Policy in the European Union: Actors, Institutions and Processes*, London, Earthscan Publishing, 2002, p.202.

⁷⁹⁶ MACRORY Richard, *The Enforcement of EU environmental Law*. In MACRORY Richard (Ed.), *Reflections on 30 Years of EU Environmental Law: A High Level of Protection?*, Groningen, Europa Law Publishing, 2006, p.394.

⁷⁹⁷ The Treaties consist in the main, the primary rules which include the Paris 1951, Rome 1957, the Merger Treaty of 1965, the Single European Act 1986, Maastricht 1992, Amsterdam 1997, Nice Treaty, and Lisbon 2007, which constitute the primary rules, the others as discussed above constitute the secondary rules.

⁷⁹⁸ NV Algemene Transport- en Expeditie Onderneming van Gend and Loos v Netherlands Inland Revenue Administration (1963).

⁷⁹⁹ DEKETELAERE Kurt and SCHUTYSER Frederik, *Enforcing Environmental Legislation in the European Union*. In DEKETELAERE Kurt (Ed.), *Environmental Law-Supplementary, International Encyclopedia for Environmental Law*, The Netherlands, Kluwer Law International, 1998, p.239.

arising out of this Treaty or resulting from action taken by (the) institutions.”⁸⁰⁰ Article 189(3) of the EEC Treaty also sets out five different types of legal instruments viz: regulations, directives, decisions, recommendations, and opinions.⁸⁰¹ Regulations and Directives constitute the most effective instruments of the EU environmental policy, more than the others.⁸⁰² Regulations have general application and are binding in their entirety and directly applicable in all Member States,⁸⁰³ as there is no need for transposition into national law. They are directly applicable and are automatically enforceable on specified date.⁸⁰⁴ It thus may or must only be implemented to the extent required by specific provisions of the Regulation.⁸⁰⁵ There is a prohibition on national transposition.⁸⁰⁶ They thus constitute sources of national law within the EU legal order thereby presenting a deepening interdependence of EU and national legal orders.⁸⁰⁷ Regulations are the most powerful, based on particular provisions of the Treaties, and usually requiring Member States to take action to ensure compliance with their provisions.⁸⁰⁸ They are often employed to lay down rules of procedure, or technical standards, or to amend or to adjust an existing law. They are employed where the EU intended to implement requirements of international conventions. They provide for sanctions in case of non-compliance, which may be enforceable by the national courts.⁸⁰⁹ They create rights that are legally enforceable at both the national and EU levels.⁸¹⁰

Next are Directives,⁸¹¹ which are acts of the European Union which require Member States to achieve a particular result, without dictating the means of achieving that result.⁸¹² These constitute the most common means of enacting environmental policy.⁸¹³ They are addressed to Member States and institutions rather than to individuals. They thus have vertical direct effect, as against the State, and

⁸⁰⁰ GRANT Wyn; MATTHEWS Duncan and NEWELL Peter, *The Effectiveness of European Union Environmental Policy*, London, Macmillan Press, 2000, p.70.

⁸⁰¹ HILDEBRAND Philipp M., *The European Community’s Environmental Policy, 1957 to “1992”: From Incidental Measures to an International Regime?* In JORDAN Andrew (Ed.), *Environmental Policy in the European Union: Actors, Institutions and Processes*, London, Earthscan Publications, 2002, p.14.

⁸⁰² KRÄMER Ludwig, *Regional Economic Integration Organizations: The European as an Example*,. In BODANSKY, Daniel; BRUNNÉE Jutta and HEY Ellen (Eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2010, p.862.

⁸⁰³ Hildebrand, *ibid.*, p.15.

⁸⁰⁴ McCormick, *ibid.*, pp.71-72.

⁸⁰⁵ LAVRYSEN Luc, *The European Court of Justice and the Implementation of Environmental Law*. In MACRORY Richard (Ed.), *Reflections on 30 Years of EU Environmental Law: A High Level of Protection?* Groningen, Europa Law Publishing, 2006, p.436.

⁸⁰⁶ Case 34/73 Variola v Amministrazione delle Finanze dello Stato [1973] ECR 981.

⁸⁰⁷ WEATHERHILL Stephen, *Law and Integration in the European Union*, Oxford, Oxford University Press, 1995, p.81.

⁸⁰⁸ Grant, *ibid.*, p.71.

⁸⁰⁹ KRÄMER Ludwig, *Focus on European Environmental Law* (2nd Ed.), London, Sweet and Maxwell, 1997, pp.199-120

⁸¹⁰ Carlarne, *ibid.*, p.150.

⁸¹¹ See Art.288 TFEU.

⁸¹² LAVRYSEN Luc, *Renewable Energy Policies and Law in the EU*. Being text of a Paper presented at the 2nd Sino-Europe Conference on Environmental Law “Sustainable Development and Natural Resources Conservation,” September 14-16, 2012, Wuhan, China.

⁸¹³ Grant, *ibid.*, p.70.

not horizontal direct effect, as against private individual.⁸¹⁴ They require the Member States to adopt their own legally binding measures to give full effect to the Directive within their domestic legal system,⁸¹⁵ hence more flexible than Regulations, but are regarded as binding as to the result to be achieved.⁸¹⁶ This means they are binding only in terms of the result to be achieved and not the form or methods undertaken to achieve that goal,⁸¹⁷ as the Directive determines the freedom of implementation allowed to the Member States, the objectives, the form of harmonization, any exemption clauses, and the more general context.⁸¹⁸ The fact that Directives depend on national and local structures and attitudes make them peculiarly vulnerable, because they may lack thorough monitoring.⁸¹⁹ It remains to be seen the extent of the vulnerability of Directives, considering that, within the area of indirect enforcement, the administrative arrangements are guided by national administrative law, though there may also be special requirements set out by EC secondary law. Added to this is the fact that, EC primary law acts as a guardian over the procedures of Member States by requiring effectiveness and non-discrimination in implementing substantial EU legislation.⁸²⁰ Most focus on outlining general policy objectives, while some are aimed at harmonisation of regional law, they are generally binding on Member States in terms of their goals and objectives. The extent of the harmonisation a Directive provides has always been an issue, whether maximum or uniform, or for a mixed or another form of harmonisation. That is besides the issue of the level of the compliance of the domestic law.⁸²¹

The bulk of European environmental legislation is laid down in Directives,⁸²² which implies the need for transposition into national law, which in a way, complicates the problem of enforcement. For instance, in 1995, only 91 per cent of all environmental directives were transposed into national law, leaving 20 to 22 Directives not transposed in certain Member States.⁸²³ These might be very important legislation that should touch on the lives of the people that have been left out. In Van

⁸¹⁴ See Marshall v. Southampton and South West Hampshire Area Health Authority (Teaching). Case 152/84 [1986] ECR 723.

See also, Weatherhill, *ibid.*, p.123.

⁸¹⁵ Carlarne, *ibid.*, p.151. See also, McCormick, *ibid.*, p.72.

⁸¹⁶ Hildebrand, *ibid.*, p.14. Also, Krämer, *ibid.*, p.120.

⁸¹⁷ Grant, *ibid.*, p.128

⁸¹⁸ Lavrysen, *ibid.*, p.437.

⁸¹⁹ WEATHERHILL Stephen, *Law and Integration in the European Union*, Oxford, Oxford University Press, p.83.

⁸²⁰ GERD Winter, *Matching Tasks and Competences in the EC Multi-Level Environmental Administration*. In MACRORY Richard (Ed.), *Reflections on 30 Year of EU Environmental Law: A High Level of Procedure?* Groningen, Europa Law Publishing, 2006, p.401.

⁸²¹ LAVRYSEN Luc, *Application of European Environmental law by National Courts*, in *Environmental Law Network International (ELNI) Review*, No.2, 2008, p.79.

⁸²² See Art.288 TFEU. See also, JOHSON, Stanley P. and CORCELLE Guy, *The Environmental Policy of the European Communities* (2nd Ed.), London, Kluwer Law International, 1995, p.4.

⁸²³ DEKETELAERE Kurt and SCHUTYSER Frederik, *Enforcing Environmental Legislation in the European Union*. In DEKETELAERE Kurt (Ed.), *Environmental Law-Supplementary, International Encyclopedia for Environmental Law*, The Netherlands, Kluwer Law International, 1998, p. 236.

Duyn,⁸²⁴ the CJEU developed the doctrine of direct effect, whereby it decided that Directives too could have direct effect, where it was unimplemented or badly implemented,⁸²⁵ otherwise, Member States could avoid the effect of a Directive simply by not transposing the Directive into national law. Notwithstanding this, Directives could have direct effect, as it may still have certain legal effects even where it has not been transposed into domestic law. In this wise, it can be relied upon in law against a domestic legal provision that conflicts with it, especially in a case where the Member State acting contrary to Article 249, EC Treaty⁸²⁶ has not taken or has taken insufficient measures to transpose the Directive.⁸²⁷ Directives are capable of invocation before national courts, especially where such has been left unimplemented after its deadline.⁸²⁸ A Directive is binding, as to the result to be achieved, upon each Member State to which it is addressed, but leaves to the national authorities the choice of form and methods to achieve this result.⁸²⁹ Again, the applicable procedural law is that of the Member State carrying out the proceedings, subject to special requirements and the general EU principles of effectiveness and non-discrimination.⁸³⁰ Improper implementation of Directives by Member States was acknowledged at the Maastricht Intergovernmental Conference, and was said that it is central to the coherence and unity of the process of European construction that each Member State should fully and accurately transpose Directives into national addressed to it within the deadlines laid down.⁸³¹ Directives are unique in that they act as bridge between EU law and national law.⁸³²

Then there are Decisions, which are individual Acts binding in their entirety,⁸³³ and can be aimed at Member States, companies or individuals.⁸³⁴ Article 288⁸³⁵ provides that it shall be binding only on those specified in it. It has the force of law, hence, it does not require any implementation.⁸³⁶ Community's adoption and adherence to international environmental conventions have been by way

⁸²⁴ See Yvonne van Duyn v Home Office, Case 41/74 (1974) ECR, 1337. See also, Comitato di Coordinamento per la Difesa della Cava v Regione Lombardia (1984), Case C-236/92 ECR I 483.

⁸²⁵ LAVRYSEN Luc, Renewable Energy Policies and Law in the EU. Being text of a Paper presented at the 2nd Sino-Europe Conference on Environmental Law "Sustainable Development and Natural resources Conservation," September 14-16, 2012, Wuhan, China.

⁸²⁶ See Article 288 TFEU

⁸²⁷ LAVRYSEN Luc, The European Court of Justice and the Implementation of Environmental Law. In MACRORY Richard (Ed.), Reflections on 30 Years of EU Environmental Law: A High Level of Protection? Groningen, 2006, p.441. See also, Grant, *ibid.*, p.70

⁸²⁸ See Pubblico Ministero v Ratti [1979] Case 148/78 ECR 1629. See also, Weatherhill, *ibid.*, p.122.

⁸²⁹ LAVRYSEN Luc, The Protection and Sustainable Development of the Mediterranean-Black Sea Ecosystem, Proceedings of the International Court of the Environment Foundation (ICEF) International Conference, Venice, 24-26 May, 2007.

⁸³⁰ Gerd, *ibid.*, p.401.

⁸³¹ Grant, *ibid.*, p.72.

⁸³² Weatherhill, *ibid.*, p.83.

⁸³³ WOLF Susan and STANLEY Neil, Wolf and Stanley on Environmental Law (5th Ed.), Oxon, Routledge Publishing, 2011, p.77.

⁸³⁴ McCormick, *ibid.*, p.73

⁸³⁵ See Art. 340 TFEU.

⁸³⁶ Wolf, *ibid.*, p.77.

of decisions.⁸³⁷ They have administrative rather than legislative goals,⁸³⁸ and constitute the normal form of action where a Community regulation makes money available for environmental purposes.⁸³⁹ The other instruments are Recommendations, opinions and guidelines, which generally lack legal force,⁸⁴⁰ they are merely persuasive,⁸⁴¹ according to the ECJ,⁸⁴² and usually employed only to draw public attention to some agreements and policy guidelines. These are thus rarely adopted in environmental law, however a Recommendation may have relevance to the interpretation of national law prompted by the EC Recommendation.⁸⁴³ It is important to point out that, not only does the EU have a sheer volume of legislation on the environment, but its environmental law increasingly tends to set specific environmental standards,⁸⁴⁴ a key point to its global leadership in environmental issues.

4.1.3 European Environmental Agency

The Agency was set up in 1994, emanating from the Council Regulation EEC No. 1210/90 of 7 May, 1990, but became operational in 1996, with the aim of managing information and network observation as well as to ensure the dissemination of comparable information. The Agency acknowledges its goal as an independent source of environmental information, which is demand-driven and requiring efficiency. Its responsibilities also include helping the EU and Member States make informed decisions about improving the environment, integrating environmental considerations into economic policies and moving towards sustainability, equally to coordinate the European environment information and observation network.⁸⁴⁵ It also plays critical role in monitoring and implementing EU environmental legislation, disseminating environmental information and providing scientific and technical support to Member States. It does not seek to create more data, but to make more effective use of existing data by aggregating and standardizing it.⁸⁴⁶ Its management consists of a Board, a Bureau, Executive Director and Scientific Committee. The consists of one representative of each of the Member States, two representatives of the Commission and two scientific personalities nominated by the European Parliament. The Bureau is composed of a Chairperson, about five vice-chairpersons, one Commission representative and one member nominated by the European Parliament. The Board appoints the Executive Director and designates the Scientific Committee,

⁸³⁷ KRÄMER Ludwig, *Focus on European Environmental Law* (2nd Ed.), London, Sweet and Maxwell, 1997, p.123.

⁸³⁸ McCormick, *ibid.*, p.73; Also, Weatherhill, p. 83.

⁸³⁹ Krämer, *ibid.*, p.123.

⁸⁴⁰ See Article 189.

⁸⁴¹ Carlarne, *ibid.*, p.151; Also, Hildebrand, *ibid.*, p.14.

⁸⁴² See Case C-322/88, Grimaldi v Fonds des Maladies Professionnelles [1989] ECR 4407.

⁸⁴³ Weatherhill, *ibid.*, p.84.

⁸⁴⁴ VANDERMEERSCH Dirk and COHEN Alexander F., *European Community*. In BREARLY Mark (Ed.), *Environmental Liabilities and Regulation in Europe*, The Hague, International Business Publishing, 1993, p.1.

⁸⁴⁵ European Environment Agency, *Who We Are*. Available at <http://www.eea.europa.eu/about-us/who>. Site visited 09-04-2013. See also, Carlarne, *ibid.*, p.157.

⁸⁴⁶ Grant, *ibid.*, p.32.

prepare the annual and multi-annual work programmes of the Agency, while the Bureau takes executive decisions for the running of the Agency.⁸⁴⁷

4.1.4 Environmental Funding

The EU established the Community's Structural Funds meant to reduce the gap between the Community's rich and poor regions, and for the proper running of the Single Market and for building research and innovation capacities corresponding to each region's situation and priorities.⁸⁴⁸ The Funds are particularly environmentally friendly in that: they are meant for the improvement of the less-developed regions; the conversion of the regions seriously affected by industrial decline; the acceleration of the adaptation of agricultural structures, and the development of rural areas.⁸⁴⁹ These are as well coupled with technical assistance funded by the EU, which has been instrumental in its goal attaining full alignment of candidate countries with the EU environmental acquis.⁸⁵⁰

There is likewise, the Cohesion Fund meant to finance environmental and transport infrastructure projects in Member States, whose Gross National Product (GNP), is less than 90 per cent of the Community average, some of which comprise the four cohesion countries- Greece, Ireland, Portugal and Spain, and the low-economy Eastern and Central European nations who the EU in the 2000s.⁸⁵¹ Such beneficiary is however to avoid excessive government deficits within the meaning of Article 104c EC Treaty.⁸⁵² An estimated €235 billion would have been transferred under the EU's Structural and Cohesion Funds from richer to poorer regions to redress the gap in income and opportunity between regions of the EU, which are aimed also at the sustainable development of cities and declining urban areas.⁸⁵³

⁸⁴⁷ European Environment Agency, Governance. Available at <http://www.eea.europa.eu/about-us/governance>. Site visited 09-04-2013.

⁸⁴⁸ European Commission, Investing in European Research, Structural Funds. Available at http://ec.europa.eu/invest-in-research/funding/funding04_en.htm. Site visited 09-04-2013.

⁸⁴⁹ Duhot, *ibid.*, p.55.

⁸⁵⁰ AZMANOVA Albena, The Legal and Economic Imperatives of Sustainable Development in Eastern Europe: Reconciling Post-Communism With EU Membership. In PALLEMAERTS Marc and AZMANOVA Albena (Eds.), *The European Union and Sustainable Development: Internal and External Dimensions*, Brussels, VUBPRESS, 2006, p.332.

⁸⁵¹ Ireland's average annual GNP growth in 2011-2014 forecast to be 3.3% of the average, while Spain's economy shrank by 0.1% in the second quarter of 2013, its unemployment stands at 27% the same time, and the GDP in Italy contracted by 0.2%. See Finfacts Team, News: EU Economy, April 2010. Available at http://www.finfacts.ie/irishfinancenews/article_1019475.shtml. Also, Finfacts Team, August 2013. Available at http://www.finfacts.ie/irishfinancenews/article_1026396.shtml. Sites Visited 30-08-2013. See also DARLINGTON Shasta, 2020 Olympics: The Contenders Pros, Cons. Available at <http://www.edition.cnn.com/video/data/2.0/sports/2013/09/07/pkg-darlington-olympics-2020-bid-preview.cnn.htm>. Site visited 07-09-2013.

⁸⁵² Duhot, p.57.

⁸⁵³ BERNHEIM Thomas, The EU Sustainable Development Strategy: Its Implementation and Ongoing Review. In PALLEMAERTS Marc and AZMANOVA Albena (Eds.), *The European Union and Sustainable Development: Internal and External Dimensions*, Brussels, Brussels University Press, 2006, p.85.

4.2 EU Climate Change : Legal and Institutional Policies and Framework

The EU is the only regional organization participating in the UNFCCC and the Kyoto Protocol as a party. It is doing so alongside its Member States,⁸⁵⁴ and constitutes the only regional economic integration organization to sign and ratify the UNFCCC. In the late 1980s, a number of scientific reports, most prominent among which is the Intergovernmental Panel on Climate Change (IPCC), established climate change as a serious concern and heightened public anxiety on it, necessitating the formation of various negotiating blocs across the different regions of the world.⁸⁵⁵ The EU's environmental legislation rate among the best and most advanced and progressive globally in diverse areas from greenhouse gas emissions trading to recycling, waste management, biosafety and eco-labelling.⁸⁵⁶ Starting 1979 when the issue of human induced climate change first came up as a research issue, wherein the Council adopted a multiannual EU research programme in the field of climatology, to the Fourth Environment Action Plan in 1987,⁸⁵⁷ and in the Fifth Environmental Action Plan. It was similarly identified as a priority, adopted from the 1992 UNCED, introducing the concept of sustainable development into the EU environmental policy. It also acknowledged the need for both mitigation and adaptive measures.⁸⁵⁸

Consequent upon the UN setting of negotiations in train towards a global instrument to address the climate change concern,⁸⁵⁹ distinct negotiating blocs were rapidly formed,⁸⁶⁰ with the EU constituting a formidable and impressive force in combating climate change. Similarly are business concerns and cartels such as the energy giants, and the Organization of Petroleum Exporting Countries (OPEC). In 2000, the EU established the European Climate Change Programme (ECCP), with the responsibility to identify the most environmentally beneficial and cost-effective policies and measures to enable the EU meet its commitments under the Kyoto Protocol, to drive forward efforts to meet the targets set by the Kyoto Protocol.⁸⁶¹ Combating climate change formed part of the EU foreign policy.⁸⁶² It has

⁸⁵⁴ Carlarne, *ibid.*, p.159

⁸⁵⁵ Grant, *ibid.*, pp. 120 and 104.

⁸⁵⁶ AFIONIS Stavros and STRINGER Lindsay C., *European Union Leadership in Biofuels Regulation: Europe as a Normative Power*, *Journal of Cleaner Production*, Vol.32, September 2012, pp.114-123.

⁸⁵⁷ STRECK Charlotte and FREESTONE David, *The EU and Climate Change*. In MACRORY Richard (Ed.), *Reflections on 30 Years of EU Environmental Law: A High Level of Protection?* Groningen, Europa Law Publishing, 2006, p.87. See also Grant, p.120.

⁸⁵⁸ Streck, *ibid.*, p.90.

⁸⁵⁹ Grant, *ibid.*, p.104.

⁸⁶⁰ Besides the EU, some other groups include the Midwestern Greenhouse Gas Reduction Accord (MGGRA), the Western Climate Initiative (WCI), the New England Governors ' Conference Climate Change Action Plan 2001 (NEG/ECP), the Western Governors Association (WGA), the West Coast Governors Global Warming Initiative (WCG), the Southwest Climate Change Initiative (SCCI), the Alliance of Small Island States (AOSIS), among others. Some of these are transboundary initiatives between the US and Canada, which are regional groupings to consolidate against climate change. See CARLARNE Cinnamon Piñon, *Climate Change Law and Policy: EU and US Approaches*, Oxford, Oxford University Press, 2010, pp.64-5. See also, Grant, *ibid.*, p.104.

⁸⁶¹ SKJÆRSETH Jon Birger, *Major Oil Companies in Climate Policy: Strategies and Compliance*. In STOKKE Olav Schram; HOVI Jon and ULFSTEIN Geir (Eds.), *Implementing the Climate Regime: International Compliance*, London, Earthscan Publishing, 2005, p.196. Also, BRUGGEMAN Véronique and DELVAUX Bram, *EU Energy Policy and Legislation Under Pressure Since the*

thus to a large extent with the US, determined the international climate commitments since the adoption of the UNFCCC in 1992.⁸⁶³ To date, the EU and its Member States have adopted an impressive array of policies and measures aimed at reducing GHG emissions,⁸⁶⁴ with a stabilization target based on 1990 levels, one with a clearer and stronger than the Convention's.⁸⁶⁵ With a lot of instruments representing different regulatory approaches being adopted, the EU managed largely to overcome the constitutional problem not having a general competence for an EU energy policy.⁸⁶⁶

A more serious commitment on climate change and development gained momentum on the Community level when in 1999, the Council instigated the Commission to come up with an action plan to integrate climate change into the EU's development. This materialised in 2003 with the adoption of a key document which laid the foundation for an integrated strategy for addressing climate change and poverty reduction concerns with an action plan for 2004-2008.⁸⁶⁷ The EU is taking massive steps in mainstreaming the environment and climate objectives, leading to far-reaching environmental reforms of the CAP.⁸⁶⁸ The ECCP adopted a multi-stakeholder approach, serving both as an instrument of implementation for EU climate policies and as a vehicle for participation by industry, by which it was able to carry along the European Petroleum Industry Organization (EUROPIA), consisting of 21 oil companies and refineries, which initially vehemently opposed the EU's climate policy, especially the carbon/energy tax. The body now embraces the EU's emission trading directive.⁸⁶⁹ The ECCP areas of concentration centered on energy, transport, industry and research, with attention on emissions trading, a major policy focus of the EU.

The EU has strict policy framework on each of these, which are observed by the Member States. Since 1973, six Environmental Action Programmes have been developed and implemented, with each of them providing a platform for the discussion of European environmental policy for the next decade, while putting EU policy in the context of international developments.⁸⁷⁰ The amount, scope and stringency of EU environmental regulation have been growing since the 1980s, but this is quite

UNFCCC and the Kyoto Protocol? In PEETERS Marjan and DEKETELAERE Kurt (Eds.), *EU Climate Change Policy: The Challenge of New Regulatory Initiatives*, Cheltenham, Edward Elgar Publishing, 2006, p.225.

⁸⁶² Streck, *ibid.*, p.91.

⁸⁶³ Skjærseth, *ibid.*, p.188.

⁸⁶⁴ Streck, *ibid.*, p.88.

⁸⁶⁵ Grant, *ibid.*, p.105.

⁸⁶⁶ Deketelaere, *ibid.*, p.17.

⁸⁶⁷ LANFRANCHI Marie-Pierre and MALJEAN-DUBOIS Sandrine, *Climate Change in the European Union Development Cooperation Policy*. In Richardson, Benjamin et al (Eds.), *Climate Law and Developing Countries: Legal and Policy Challenges for the World Economy*, Cheltenham, Edward Elgar Publishing, 2009, p.386.

⁸⁶⁸ POTOČNIK Janez, *Living Well, Within the Limits of the Planet*, Europa Press Releases Rapid, December 2012. Available at http://europa.eu/rapid/press-release_SPEECH-12-900_en.htm.

⁸⁶⁹ Skjærseth, *ibid.*, p.196.

⁸⁷⁰ Streck, *op cit*, p.89.

consistent with a great deal of important norm and standard setting going on at national level.⁸⁷¹ This implies that growth of environmental concern in the EU is a coincidence of national environmental growth. Environmental policy is essentially regulatory,⁸⁷² rather than distributive or redistributive. Regulatory policy requires a thorough and expert knowledge of the regulated activities.⁸⁷³ Successive Environment Action Programmes have emphasised improvement on energy efficiency, Specific Actions for Vigorous Energy Efficiency (SAVE), changing from fossil fuel to other more efficient sources with less emission and consequence to the atmosphere- less GHG effects. Fossil fuels (oil, gas and coal) constitute about 80 per cent of current power consumption in the world, and by 2030 global energy consumption is estimated to increase by almost 60 per cent. Fossil energy resources are limited, exhaustible and are polluting by emitting CO₂ into the atmosphere, responsible for global warming. But solar energy is inexhaustible, does not emit CO₂ and is available everywhere, capable of being sourced or generated domestically by every house. It does not produce toxic waste nor encroach on the food chain unlike the nuclear power and biofuels respectively.⁸⁷⁴ It has thus since 1997, promoted renewable energy sources as a priority. In 2001, Member States were bound by a Directive⁸⁷⁵ to take measures to promote the growth of electricity produced from renewable energy sources in accordance with indicative national objectives.⁸⁷⁶ It takes as a priority, the establishment of an EU-wide emission trading scheme, the evaluation of the ECCP as basis for further measures, encouraging renewable energy generation, with a view to doubling its share in the gross consumption from 6 per cent in 1997 up to 12 per cent in 2010 and a mandatory national overall target ranging between 13 per cent and 40 per cent by 2020.⁸⁷⁷ In the transport sector, identifying actions to reduce GHGs from aviation, improving transport logistics and organization, reducing vehicle emissions.⁸⁷⁸ It introduced the clean car policy, which required the introduction of catalytic converter in all cars in 1992.⁸⁷⁹ This brought about the introduction of unleaded petrol into the auto industry in the EU, spearheaded by Germany, which has considerable more experience in the catalyst technology than most of their European competitors. This brought a great relief from the effects of Lead on human

⁸⁷¹ WEALE Albert, *Environmental Rules and Rule-Making in the European Union*. In JORDAN Andrew (Ed.), *Environmental Policy in the European Union: Actors, Institutions and Processes*, London, Earthscan Publications, 2002, p.207.

⁸⁷² See Article 35 TFEU. See also, *Commission of the European Communities v. French Republic [1984]. Case 173/83*. Also, LAVRYSEN Luc, *The European Court of Justice and the Implementation of Environmental Law*. In MACRORY Richard (Ed.), *Reflections on 30 Years of EU Environmental Law: A High Level of Protection?* Groningen, Europa Law Publishing, 2006, p.417.

⁸⁷³ Grant, *ibid.*, pp.2-3.

⁸⁷⁴ LEPERCQ Thierry, *Solar Energy is the Path from Fossil Fuels to the Future*, in JOHNSON Brian (Managing Ed.), *Research: European Research and Innovation Review*, Brussels, Iss.9, May 2009, p.61.

⁸⁷⁵ See Directive 2001/77/EC, of September 2001.

⁸⁷⁶ PALLEMAERTS Marc and WILLIAMS Rhiannon, *Climate Change: The International and European Policy Framework*. In PEETERS Marjan and DEKETELAERE Kurt (Eds.), *EU Climate Change Policy: The Challenge of New Regulatory Initiatives*, Cheltenham, Edward Elgar Publishing, 2006, p.45.

⁸⁷⁷ Bruggeman, *ibid.*, p.226. See also, LAVRYSEN Luc, *Renewable Energy Policies and the Law in the EU*, *ibid.*

⁸⁷⁸ Streck, *op cit.*, p.91.

⁸⁷⁹ See the Consolidated Directive (91/441/EEC) of 1991. See also, LIEFFERINK Duncan, *Environment and the Nation State: The Netherlands, the EU and Acid Rain*, Manchester, Manchester University Press, 1996, pp.100-1.

health.⁸⁸⁰The transport sector contributes a third of the EU's CO₂ emissions, yet the task of reducing transport emissions is one of the biggest climate change challenges the EU is facing.⁸⁸¹ In 2003, the second ECCP Progress Report indicates that there is a clear shift of focus from development of measure to implementation, as presented by the Commission.⁸⁸²

European Union Emissions Trading Scheme (EU ETS)

Emissions trading was first mooted by the US and appeared within the negotiation process in a UNFCCC Secretariat paper on policies and measures prepared for the third Ad Hoc Working Group on the Berlin Mandate (AW GBM), in March 1996.⁸⁸³ The EU Emissions Trading Scheme (EU ETS),⁸⁸⁴ started on 1 January, 2005, was launched with the purpose of reaching the EU reduction target according to the KP, and in a cost-effective way.⁸⁸⁵ Even though shrouded in a complicated design,⁸⁸⁶ yet constitutes a single largest carbon market in the world with 1.6 gigatons of CO₂ worth some €28 billion in trade in 2007, representing the world's most far reaching GHG reduction policy, which limits CO₂ emissions from 12, 000 facilities across Europe and by mid-2012 has covered some 11,000 installations (power stations and industrial plants) in EU 28 plus Norway, trading about €75 billion (its lowest since 2008), a fall from the previous year's €112 billion.⁸⁸⁷ There are some 10 emissions trading

⁸⁸⁰ Liefferink, *ibid.*, p.98.

⁸⁸¹ Streck, *op cit.*, p.102.

⁸⁸² Streck, *ibid.*, p.98.

⁸⁸³ STEPHAN Benjamin, *Europe in the International Climate Negotiations: Seeking Explanations for the EU's Changing Stance on Emissions Trading*, Institut für Politische Wissenschaft, Universität Hamburg, July 2008.

⁸⁸⁴ See Directives 2009/29/EC; 2008/101/EC; 2004/101/EC; and 2003/87/EC. The ETS was premised on a system in which businesses would purchase pollution permits at a price as determined by the economic forces of supply and demand, intended to be self-regulatory, whereby businesses investing in environmentally-friendly technology would buy fewer certificates, or entirely non at all, or may have some to sell. See, JUNG Alexander, *The EU's Emission Trading System Isn't Working*, Climate Justice Now, 17 February, 2012. Available at <http://www.climate-justice-now.org/the-eus-emission-trading-system-isnt-working/>. Site visited 06-02-2014. See also, European Commission, *Climate Action, The EU Emissions Trading Scheme (EU ETS)*. Available at http://ec.europa.eu/clima/policies/ets/documentation_en.htm . Site visited 05-03-2014.

⁸⁸⁵ ZETTERBERG Lars et al, *Europe's Choice- Facts and Function of the EU Emissions Trading System*, Mistra Indigo, Gothenburg, May 2014, p.6.

⁸⁸⁶ BUEN Jorund; CHRISTIANSEN Alte Chr.; TANGEN Kristian and SKOGEN Anders, 2003: *The End of the Beginning?* In BEGG Kathryn; Van der WOERD Frans and LEVY David (Eds.), *The Business of Climate Change: Corporate Responses to Kyoto*, Sheffield, Greenleaf Publishing, 2005, p.24.

⁸⁸⁷ BIRNIE Patricia; BOYLE Alan and REDGWELL Catherine, *International Law and the Environment*, Oxford, Oxford University Press, 2009, pp.367-8. See also, The Center for Climate and Energy Solutions, *Climate Change 101 Understanding and Responding to Global Climate Change*, The Pew Center on Global Climate Change, sine die. See also, FLACHSLAND Christian; MARSCHINSKI Robert and EDENHOFER Ottmar, *Global Trading Versus Linking: Architectures for International Emissions Trading*, *Energy Policy*, Vol.37, Iss.5, May 2009, pp.1637-1647. See further, World Nuclear Association, *Policy Responses to Climate Change*, March 2014. Available at <http://www.world-nuclear.org/info/Energy-and-Environment/Policy-Responses-to-Climate-Change/>. Site visited 13-05-2014.

systems in the world covering about 9 per cent of the world's carbons emissions.⁸⁸⁸ The aviation sector was included in the ETS scheme from 2012.⁸⁸⁹ The EU ETS is the central pillar of EU climate policy, by cap-and-trade system.⁸⁹⁰ The EU ETS was conceived to cover more than 40 per cent of the total greenhouse gas emissions in the EU 839 installations, corresponding to a third of the total EU-27 greenhouse gas emissions.⁸⁹¹ It covers electricity and major industrial sectors (including oil, iron and steel, cement, and pulp and paper), that altogether produce nearly half of the EU's CO₂ emission.⁸⁹² The legal framework for the EU ETS constitutes an important but not the only part of EU climate policy,⁸⁹³ having an impact of making it easier for energy commodities prices on the carbon market to be detected.⁸⁹⁴ Almost half of Europe's CO₂ emissions⁸⁹⁵ are a phased programme,⁸⁹⁶ whose third phase is expected to continue beyond 2012,⁸⁹⁷ reviewed periodically to propose developments in the scheme.⁸⁹⁸ It covers almost half of Europe's CO₂ emissions.⁸⁹⁹ Its major advantage being that it gives the industry the flexibility to identify the most cost-efficient GHG abatement possibilities.⁹⁰⁰ This

⁸⁸⁸ ZETTERBERG Lars et al, op cit, p.6.

⁸⁸⁹ KULOVESI Kati, Exploring the Landscape of Climate Law and Scholarship: Two Emerging Trends, in HOLLO Erkki J.; KULOVESI Kati and MEHLING Michael (Eds.), *Climate Change and the Law*, Dordrecht, Springer Publishing, 2013, p.53.

⁸⁹⁰ BRUNNER Steffen et al., *Emissions Trading Systems: An Overview*, Potsdam Institute for Climate Impact Research, Discussion Paper, p.2.

⁸⁹¹ European Environment Agency, *Greenhouse Gas Emission Trends and Projections in Europe 2008: Tracking Progress Towards Kyoto Targets*, EEA Report, No.5/2008, p.81

⁸⁹² The Center for Climate and Energy Solutions, op cit.

⁸⁹³ PEETERS Marjan, *Legislative Choices and Legal values: Considerations on the Further Design of the European Greenhouse Gas Emissions Trading Scheme from a Viewpoint of Democratic Accountability*. In FAURE Michael and PEETERS Marjan (Eds.), *Climate Change and European Emissions Trading: Lessons for Theory and Practice*, Cheltenham, Edward Elgar Publishing, 2008, p.35.

⁸⁹⁴ European Environment Agency, *Energy and Environment Report 2008*, EEA Report, No.6/2008, p.60

⁸⁹⁵ NORDHAUS William D., *Economic Analyses of the Kyoto Protocol: Is There Life After Kyoto?* In ZEDILLO Ernesto (Ed.), *Global Warming: Looking Beyond Kyoto*, Washington D.C., Brookings Publishing, 2008, p.91.

⁸⁹⁶ An average of 10, 675 installations participated in the first trading period, while the second trading period (2008-2012), the EU wide cap amounts to 2.08 billion allowances per year. See, European Environment Agency, *Greenhouse Gas Emission Trends and Projections in Europe 2008: Tracking Progress Towards Kyoto Targets*, EEA Report, No.5/2008, pp.82, 88.

⁸⁹⁷ A single EU-wide cap on emission allowances applies from 2013 and will be cut annually, reducing the number of allowances available to businesses to 21% below the 2005 level by 2020. See LAVRYSEN Luc, *Renewable Energy Policies and Law in the EU*. Being text of a Paper presented at the 2nd Sino-Europe Conference on Environmental Law, "Sustainable Development and Natural Resources Conservation", September 14-16, 2012, Wuhan, China.

⁸⁹⁸ The ETS has been established for two trading periods, spanning 2005-2007 and secondly, 2008-2012. During these periods, the trading system got under way and the first constraints were placed on emissions with a view to achieving the 2012 targets; and in the second period, countries were to meet to meet the emissions caps of the EU's burden sharing respectively. See GERNOT Klepper and PETERSON Sonja, *The European Emissions Trading Regime and the Future of Kyoto*. In ZEDILLO Ernesto (Ed.), *Global Warming: Looking Beyond Kyoto*, Washington, D.C., Brookings Institution Press, 2008, p.102. See also, Stern, *ibid.*, p.383.

⁸⁹⁹ NORDHAUS William D., *Economic Analysis of the Kyoto Protocol: Is There Life After Kyoto?* In ZEDILLO Ernesto (Ed.), *Global Warming: Looking Beyond Kyoto*, Washington, D.C., Brookings Institution Press, 2008, p.91.

⁹⁰⁰ The European-headquartered supermajors spearheaded by BP and Shell were the first to publicly recognise that actions should be taken to reduce GHG emissions. TotalFinaElf has recently then BP and Shell in making emission reduction commitments. The BP and Shell statements were eventually followed by specific group GHG targets in 1998, followed by the creation of internal emissions trading systems. Both BP and Shell have invested strongly in solar energy and other

scheme was further enhanced by the Linking Directive⁹⁰¹ adopted in September 2004, with the aim of promoting the development of the project based mechanisms, adhere to the environmental and social responsibility policies of the EU, emphasising that project based mechanisms should only supplement and not replace domestic actions.⁹⁰² Under the EU ETS, there is a basic design for aviation emissions cap,⁹⁰³ which is calculated on the average of annual emissions in 2004-2006, which is expected to cap at 95 per cent by 2013. Air passenger traffic flow has increased tremendously over the years from 88 million in 1972 to 344 million in 1994, and 827 million in the EU 27 by 2012 and expected to raise carbon emissions to 1.638 billion tonnes per year in 2050 from 391 million tonnes in 2006,⁹⁰⁴ with a consequence of increased air emissions. It is estimated that a single trans-Atlantic return flight emits half the CO₂ emissions produced by all other sources (lighting, heating, motor vehicles, etc.), consumed by an average person per year.⁹⁰⁵ It is also estimated that emissions from civil aviation globally will rise from approximately 415 million tons of CO₂ in 1992 to 1,440- 2,302 million tons in 2050.⁹⁰⁶ Aviation is the fastest growing source of greenhouse gas emissions in the transport sector and the most climate-intensive form of transport, accounting for about 5 per cent of global warming.⁹⁰⁷ Emissions here are calculated based on the entire flights departing from or arriving

renewables. See UZZELL Jesse, An Institutional Comparison of Two Sectoral Responses to the Political Economy of Climate Change, in BEGG Kathryn; van der WOERD Frans and LEVY David (Eds.), *The Business of Climate Change: Corporate Responses to Kyoto*, Sheffield, Greenleaf Publishing, 2005, p.167.

⁹⁰¹ See, Directive 2004/101/EC of the European Parliament and Council, amending Directive 2003/87/EC. See also, Official Journal of the European Union, 13-11-2004. Available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:338:0018:EN:PDF> . Site visited 05-03-2014.

⁹⁰² Streck, *ibid.*, p.105.

⁹⁰³ See Directive 2008/101/CE, of the European Parliament and of the European Council Amending Directive 2003/87 so as to include Aviation activities in the scheme for Greenhouse Gas Emission Allowance Trading within the Community. [2009] O. J. L8/3 (Directive 2008/101/EC). See also, KULOVESI Kati, Addressing Sectoral Emissions Outside the United Nations Framework Convention on Climate Change: What Roles for Multilateralism, Minilateralism and Unilateralism? *RECIEL* 21 (3) 2012, p. 199.

⁹⁰⁴ CORSELLI-NORDBLAD Loulse and BIALAS-MOTYL Anna, Nearly 830 Million Air Passengers in 2012..., Eurostat Newsrelease, 5 November, 2013. Available at http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/7-05112013-BP/EN/7-05112013-BP-EN.PDF . Site visited 06-02-2014. See also, NELSEN Arthur, New Research Fuels Global 'ETS for Airlines Idea,' *EurActiv*, 3 April, 2013. Available at <http://www.euractiv.com/climate-environment/new-research-fuels-global-ets-ai-news-518219> . Site visited 06-02-2014.

⁹⁰⁵ OYESHOLA Dokun O.P., *Sustainable Development: Issues and Challenges for Nigeria*, Ibadan, Daily Graphics Publishers, 2008, p.228.

⁹⁰⁶ MACINTOSH Andrew and WALLACE Lailey, *International Aviation Emissions to 2025: Can Emissions Be Stabilised Without Restricting Demand?* Australian National University Center for Climate Change Law and Policy, 2008. Available at http://www.law.anu.edu.au/CCLP/WP1_2008%20international_aviationemissions_to_2025.pdf . Also at <http://www.sciencedirect.com/science/article/pii/S0301421508004217#> . Site visited 04-03-2014. See further, KULOVESI Kati, Addressing Sectoral Emissions Outside the United Nations Framework Convention on Climate Change: What Roles for Multilateralism, Minilateralism and Unilateralism? *RECIEL* 21 (3) 2012, p.196.

⁹⁰⁷ LEAL-ARCAS Rafael, *Proposing a Global Emissions Trading Scheme: The Inclusion of Aviation and Shipping*, 2013. Available at <http://www.stakeholderforum.org/sf/outreach/index.php/previous-editions/192-cop-19-day-1-framework/1537-proposing-a-global-emissions-trading-scheme-the-inclusion-of-aviation-and-shipping> . Site visited 18-02-2014. See also, HUI C.A.O., *EU Internal Climate Policy-Making and its International Negotiations: A Two-Level Game Approach*, Working Paper Series on European Studies Institute of European Studies Chinese Academy of Social Studies, Vol.7, No.3, 2013.

at an EU airport.⁹⁰⁸ Europe passed a law in 2008 to require airlines to account for emissions for the entirety of any flight that takes off or lands at any airport in Europe, even if that flight began or ended as far away as Shanghai or San Francisco. Airlines from outside of the EU would be required to surrender allowances, if they depart from or arrive at an airport in the EU. The EU approach is deemed remarkable because a number of countries including the US and many developing countries did not commit themselves to emissions reduction under the KP.⁹⁰⁹ How the EU would enforce this approach remains an issue under international law, but for a provision of the Chicago Convention on Civil Aviation principles that all laws and provisions of a country must be applied on all aircraft regardless of their nationality, which provides an indication for the possible legality of the approach.⁹¹⁰ Under the European system, airlines must show each year that they have bought a sufficient number of carbon permits to compensate for their emissions on those routes.⁹¹¹ However, the International Civil Aviation Organisation (ICAO),⁹¹² has reached a preliminary agreement in October 2013, to develop global rules to control airlines emissions, representing a first major move towards industrywide rules to limit carbon pollution as a way of addressing aviation greenhouse gas emissions. This will ensure that all airlines are treated fairly wherever they fly. In spite of this, a number of countries continue to reject the EU Regulations,⁹¹³ increasing pressure on the region to scale back or repeal one of its flagship environmental laws by which it sought explicit endorsement to levy carbon fees on international airlines using European airports for the length of their flights within European airspace.⁹¹⁴ By this measure, all emissions from flights between airports in the European Economic Area (EEA)- the 28 EU Member States plus Norway and Iceland would continue to be covered. From 2014 to 2020, flights to and from countries outside the EEA would benefit from a

⁹⁰⁸ Kulovesi, *ibid.*, p.199.

⁹⁰⁹ SHEELHAASE Janina D. and GRIMME Wolfgang G., Emissions Trading for International Aviation- an Estimation of the Economic Impact on Selected European Airlines, *Journal of Air Transport Management* Vol. 13 2007, pp.253-263.

⁹¹⁰ SHEELHAASE Janina D. and GRIMME Wolfgang G., *ibid.*

⁹¹¹ KANTER James, U.N. Group Moves to Develop Global Airline Emission Rules, *The New York Times Online*, 4 October, 2013. Available at <http://www.nytimes.com/2013/10/05/business/international/un-group-moves-to-develop-global-airline-emissions-rules.html?src=recg> . Site visited 06-10-2013.

⁹¹² 191 Member Nations ICAO 38th General Assembly meeting in Montreal, Canada Friday 4th October, 2013. It decided that there should be a single market-based measure (MBM), applicable to international emissions from 2020 onwards. See, European Commission Com(2013)722 final, Directive of the European Parliament and of the Council. Available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0722:FIN:EN:PDF> . Site visited 03-03-2014.

⁹¹³ The EU Aviation Emissions Cap Regulation has since 2012 been suspended after facing a storm of criticisms from countries like the US, China, India, Russia, Brazil, and several other nations. See also, Current Affairs, Aviation Bodies Hail Agreement to Curb Carbon Emissions, *Business Standard Online*, Monday, October 7, 2013. Available at <http://www.business-standard.com/article/current-affairs/aviation-bodies-hail-agreement-to-curb-carbon-emissions-1131005003051.html> . Site Visited 07-10-2013. See also, Case C-366/10 The Air Transport Association of America, American Airlines Inc., Continental Airlines Inc., United Airlines Inc. v The Secretary of State for Energy and Climate Change [2011] OJ C260/9 (Case C-366/10).

⁹¹⁴ KANTER James, *ibid.*

general exemption for those emissions that place outside EEA airspace.⁹¹⁵ The CJEU ruling in favour of the Scheme in this case, declared that the EU aviation scheme is compatible with international law. Regardless of the nuances against the scheme, it has succeeded in promoting low-carbon strategies in many major emitting industries, hence ICAO agreed in October 2013 to develop a global market-based measure for international aviation.⁹¹⁶ The step of the EU on this is a right step in the direction, considering the fact that aviation and shipping emissions have been on the agenda of the UNFCCC since the first COP in 1995, yet no concrete measures to control them have agreed,⁹¹⁷ so it could rightly assumed that these same forces would always move to frustrate any measure that the UNFCCC, ICAO or any such other body might want to take to control them, if a regional group like the EU does not brave it and make the move. This is despite that the KP⁹¹⁸ indicates that Annex I Parties shall pursue limitation or reduction of emissions of GHGs from aviation and marine bunker fuels, working through the ICAO and the IMO respectively.⁹¹⁹ , It thus infers that ICAO's supposed position on EU's ETS on this sector is misplaced and unfounded to say the least.

In 1996, the EU enunciated its intention to double its share of renewable sources of energy by 2010,⁹²⁰ the Commission thus embarked on enhancement of renewable energy sources⁹²¹ as part of its strategy to reduce GHG emissions, attaining a 22 per cent target in 2006,⁹²² and by 2012, it recorded a further level fall of 1.4 per cent, which is expected to further reduce by 20 per cent from the 1990 levels by 2020. EU's energy mix in terms of production and consumption reflects heavy dependence on oil and gas and a combination of renewables, solid fuels and nuclear. Energy imports stands at 54.8 per cent of EU's total consumption in 2008.⁹²³ A marked shift from fossil fuels is remarkable in the region, as renewable electricity output capacity is expected to have grown by about 50 per cent to 512 gigawatts at the end of the decade,⁹²⁴ while generation capacity from fossil fuels is

⁹¹⁵ HEDEGAARD Connie, European Commission to Press Ahead With Airspace Coverage of the EU ETS Despite ICAO Assembly Defeat, GreenAir Online, 2014. Available at <http://www.greenaironline.com/news.php?viewStory=1768> . Site visited 03-03-2014.

⁹¹⁶ LEAL-ARCAS Rafael, Proposing a Global Emissions Trading Scheme: The Inclusion of Aviation and Shipping, 2013. Available at <http://www.stakeholderforum.org/sf/outreach/index.php/previous-editions/192-cop-19-day-1-framework/1537-proposing-a-global-emissions-trading-scheme-the-inclusion-of-aviation-and-shipping> . Site visited 18-02-2014.

⁹¹⁷ KULOVESI Kati, op cit., p.196.

⁹¹⁸ See Art. 2.2 .

⁹¹⁹ KULOVESI Kati, op cit., p.196.

⁹²⁰ Skjærseth, ibid., p. 200.

⁹²¹ See the Renewable Sources of Energy, White Paper for a Community Strategy and Action Plan of 26 November, 1997, COM/1997/599. See also, Bruggeman, ibid., p.237.

⁹²² Streck, ibid., p.100.

⁹²³ ARINAITWE Patson Wilbroad, Treaty of Lisbon: Advancing European Union's Energy Security Through External Energy Policy, Academia.edu, January 2013. Available at http://www.academia.edu/2562205/TREATY_OF_LISBON_ADVANCING_EUROPEAN_UNIONS_ENERGY_EXTERNAL_ENERGY_POLICY.pdf . Site visited 29-09-2013.

⁹²⁴ Scientists estimate that the world's wind power potential, that is, the maximum power that can be extracted by a given number of wind turbines over increasingly larger areas could yield up to 7.5 terawatts of electricity, which is more than

expected to rise marginally by 0.7 per cent to 471 gigawatts. EU imports more than 80 per cent of the oil and of the gas it consumes, with 34 per cent of natural gas and 33 per cent of the oil coming from Russia in 2009, with an estimated increase to 70 per cent of the overall energy needs by 2030 if current is not reversed. Its energy consumption design has oil taking 37 per cent, gas 24 per cent, solid fuels 18 per cent, nuclear 14 per cent and renewable resources 7 per cent.⁹²⁵ The EU's strategy for sustainable development contains a number of energy-related measures, including a phase-out of subsidies for fossil fuel production and consumption by 2010.⁹²⁶ This has gingered non-fossil fuel energy drive considerably in parts of the EU, as at least 4 states in northern Germany now get not less than 46 per cent of their electricity from wind.⁹²⁷ A number of European, but non-EU Member States, would have been in the ninety per cent margin then.⁹²⁸ In addition to the Energy Trading Directive are Directives on energy efficiency,⁹²⁹ the promotion of electricity produced from renewable energy sources,⁹³⁰ and others. Now there is a broad and complex package of regulatory measures established at the EU level, representing a mix of instruments such as soft laws, market-based instruments⁹³¹ and

enough to fuel half the world's power demand in 2030; where a gigawatt is equal 1 billion watts and 1 terawatt is 1 trillion watts. See, TABUCHI Hiroko and UENO Hisako, To Expand Offshore Power, Japan Builds Floating Windmills, The New York Times Online, October 24, 2014. Available at <http://www.nytimes.com/2013/10/25/business/international/to-expand-offshore-power-japan-builds-floating-windmills.html>. Site visited 28-10-2013.

⁹²⁵ Arinatwe *ibid.* see also, BAHGAT G., North Africa: Energy Partnership (2009), OPEC Energy Review, pp.155-169, at 158. See further, European Commission, Europe's Energy Position- 2010 Annual Report of the Market Observatory for Energy, SEC (2011) 272 of 1st March 2011. Also, CARLOS Padros and COCCILO Endrius E., Security of Energy Supply: When Could National Policy Take Precedence Over European Law? Energy Law Journal, (2010) Vol.31, No.1, pp.31-54. Available at <http://www.felj.org/docs/elj311/15-31-PadrosCocciolo-SecurityofEnergySupply-031210.pdf> Site visited 01-10-2013. Also, European Commission Communication, The EU Energy Policy: Engaging With Partners beyond Our Borders, SEC (2011), 1022 final. Available at <http://eur-lex.europa.eu/LexUriServ.do?uri=SEC:2011:1022:FIN:EN:PDF>. Site visited 01-10-2013.

⁹²⁶ BOSSELMANN Klaus, Ethical Implications. In BRADBROOK Adrian J. et al (Eds.), The Law of Energy for Sustainable Development, Cambridge, Cambridge University Press, 2005, p.90.

⁹²⁷ BROWN Lester R., Full Planet, Empty Plates: The New Geopolitics of Food Scarcity, New York, W.W.Norton Publishing, 2012, p.117.

⁹²⁸ Norway leads with an estimate of 96%, Switzerland 73%, Montenegro 69%, and Latvia 68%; while France will lead in the nuclear generator with around 63 gigawatts, and Estonia will lead in the fossil fuels with 83%. There are 147 nuclear reactors providing energy within the EU. Stress tests carried out on each of these in 2011 revealed more action for improved safety. See MORISON Rachel, Renewables to Exceed Fossil Fuels in European Generation by 2020, Bloomberg News, 3 April, 2013. Available at www.renewaenergyworld.com/rea/news/article/2013/04/renewable-to-exceed-fossil-fuels-in-european-generation-by-2020. Site visited 19 April, 2013. See also, European Union, Energy, European External Action Service (EEAS). Available at http://eeas.europa.eu/delegations/Nigeria/key_eu_policies/energy/index_en.htm. Site visited 30-05-2013.

⁹²⁹ See Directive 2003/96/EC, which has been superseded by the Energy Efficiency Directive 2012/27 EU. Others may include Directive on the restriction of the use of natural gas (Council Directive 75/404), and of petroleum products (Council Directive 75/405, as well as that on common target for reducing the consumption of petroleum products (Council Decision 77/706). See DHONDT Nele, Integration of Environmental Protection into Other EC Policies: Legal Theory and Practice, Groningen, Europa Law Publishing, 2003, p.390.

⁹³⁰ See *Outokumpu Oy*, [1998] Case C-213/96 ECR I-1777, where a tax benefit was given for green electricity.

⁹³¹ A major constituent is the Article 30 TFEU, and Product Levies, which prescribes the prohibition of customs duties on imports and exports and charges having equivalent effect, which is relevant to environmental policy. Likewise are environmental taxes, emissions trading and incentives. See LAVRYSEN Luc, The European Court of Justice and the Implementation of Environmental Law. In MACRORY Richard (Ed.), Reflections on 30 Years of EU Environmental Law: A High Level of Protection? Groningen, Europa Law Publishing, 2006, p. 418. Also, ROSENSTOCK Manfred, Energy Taxation Within

the traditional command and control regulation.⁹³² The goal of the EU as outlined in its Action Plan for Energy Efficiency⁹³³ is the attainment of reduction of its energy consumption by 20 per cent in 2020, through an objective of reducing reliance on energy imports,⁹³⁴ while promoting alternative forms of energy, and developing minimum efficiency requirements for energy-using appliances, enhanced awareness among consumers regarding sensible and economic energy use, improving the efficiency of energy production, transport and distribution of heating and electricity, and improving the energy performance of buildings.⁹³⁵ The EU has such a large body of environmental policy that it is called “environmental acquis.”⁹³⁶ The EU within its mandate of creating an efficient internal market, engaged with the Member States on reducing subsidies in the energy sector, formulating policies that also have direct influence on energy, by virtue of its far-reaching competence on environmental protection.

In 2003, the Council and the Parliament adopted a Directive⁹³⁷ on the promotion of the use of biofuels as a source of renewable energy and alternative supplies to the oil consuming sectors especially the transport sector. Renewable energy consists of wind power, solar (photovoltaic) energy, biomass, geothermal energy, heat-pump systems and biofuels, which are considered to be of immense importance in mitigating the impacts of climate change.⁹³⁸ It was envisaged to promote a minimum percentage of biofuels for transport starting with two per cent in 2005, and 5.75 per cent in 2010. This Directive requires Member States to place biofuels and other renewable fuels on their markets.⁹³⁹ The objectives of the EU action can be seen in two major perspectives: to integrate the sector within the common market, and to secure renewable energy supplies.⁹⁴⁰ The EU has outlined in its Renewable

the EU. In PEETERS Marjan and DEKETELAERE Kurt (Eds.), *EU Climate Change Policy: The Challenge of New Regulatory Initiatives*, Cheltenham, Edward Elgar Publishing, 2006, p.240. See also, SOARES Claudia Dias, *Critical Issues in Implementing Energy Taxation*. In Peeters, Marjan, *ibid.*, p.261.

⁹³² Deketelaere, *ibid.*, p.5.

⁹³² Grant, *ibid.*, p.122.

⁹³³ Communication from the Commission, *Action Plan for Energy Efficiency: Realising the Potential*, COM (2006) 545 final (Oct. 19, 2006).

⁹³⁴ Communication from the Commission, *An Energy Policy for Europe*, Brussels, 10th January, 2007, COM (2007) 1 final. Available at http://eur-lex.europa.eu/LexUriServ/site/en/com/2007/com2007_0001en01.pdf. Site visited 29-09-2013. See also, ARINAITWE Patson Wilbroad, *Treaty of Lisbon: Advancing European Union's Energy Security Through External Energy Policy*, Academia.edu, January 2013. Available at http://www.academia.edu/2562205/TREATY_OF_LISBON_ADVANCING_EUROPEAN_UNIONS_ENERGY_EXTERNAL_ENERGY_POLICY.pdf. Site visited 29-09-2013

⁹³⁵ VOUTILAINEN Pekka, *Developing Energy Policy for Europe: Finnish Perspective on Energy Cooperation in the European Union*, *Energy Law Journal*, 2008, Vol.29, No.1, pp.121-139 at 125. Available at http://www.felj.org/docs/elj291/developing_energy_policy_for_europe.pdf. Site visited 30-09-2013.

⁹³⁶ Van DEVEER Stacy D., *Effectiveness, Capacity Development and International Environmental Cooperation*. In DAUVERGNE Peter (Ed.), *Handbook of Global Environmental Politics*, Cheltenham, Edward Elgar Publishing, 2005, p.103.

⁹³⁷ Directive 2003/30/EC.

⁹³⁸ Voutileinen, *ibid.*, p.126.

⁹³⁹ Bruggeman, *ibid.*, pp.228-9.

⁹⁴⁰ Dhondt, *ibid.*, p.388.

Energies Roadmap, the objective of increasing the proportion of renewable energies in its energy mix by 20 per cent in 2020.⁹⁴¹ Early environmental legislation concentrated on command and control provisions in conformity with the prevailing convictions in continental Europe, which however, became more flexible, giving room for discretion to national/local authorities. This also has given way to EU's decision in principle, not to harmonise standards for industrial installations. Notwithstanding these, is still generally perceived that command and control measures are the core approach to the effective protection of the European environment.⁹⁴² Measures under this are such as covering regulations in the area of water pollution, air pollution, waste management, control of chemicals and noise reduction.⁹⁴³ The EU's stance on renewable energy stems from the fact that, the use of any renewable energy source makes a significant contribution towards climate protection, placing energy supply on sustainable ecological footing and consequently helping to conserve the natural balance. This is in keeping with the Kyoto Protocol demands and the EU Directive on electricity production from renewable energy sources.⁹⁴⁴ The most important source of renewable energy in the EU was biomass and waste, accounting for 67.7 per cent of primary renewable production in 2009; while hydropower constitutes the other main contributor with 19.0 per cent, and wind energy contributes 7.7 per cent, rising from a previously relatively low rate of production.

The volume of renewable energy produced within the EU thus increased overall by 60.2 per cent between 1999 and 2009.⁹⁴⁵ More than three-quarters (77.3%) of the renewable energy produced in Cyprus was from solar energy. Wind power production was particularly high in Ireland (41.4%), Spain (27.3%) and Denmark (21.0%). Geothermal resources constitutes close to one-third percentage of the renewable energy production in Italy, while hydropower constitutes close to one-third of renewable sources in Austria, Slovenia and Sweden, and constitutes even higher in Norway, Switzerland and Croatia. The output of renewable energy in Germany grew at an average rate of 13.1 per cent per

⁹⁴¹ Communication from the Commission to the Council and the European Parliament: Renewable Energy Roadmap- Renewable Energies in the 21st Century: Building a More Sustainable Future, COM (2006) 848 final (Oct. 1, 2007). See also, VOUTILAINEN Pekka, *ibid.*, p.126.

⁹⁴² KRÄMER Ludwig, Regional Economic Integration Organisations: The European Union as an Example. In BODANSKY Daniel; BRUNNÉE Jutta and HEY Ellen (Eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2010, p.863.

⁹⁴³ JOHNSON Stanley P. and CORCELLE Guy, *The Environmental Policy of the European Communities* (2nd Ed.), London, Kluwer Law International, 1995, p.5.

⁹⁴⁴ See Directive 2009/28/EC of the EP and of the Council of 23 April, 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC. See also, LAVRYSEN Luc, *Climate Change Policies in the European Union*. Being excerpts from a Paper presented at the Hofstra University, April 2013. See further, de GRAAF Kars, *Balancing Exploitation and Protection of the Dutch North Sea: The Dutch Struggle With the Need for Wind Energy at Sea and a Legal Framework for the Protection of the Marine Environment*. In BUGGE Hans Christian and VOIGT Christina (Eds.), *Sustainable Development in International and National Law*, Groningen, Europa Law Publishing, 2008, p. 575.

⁹⁴⁵ LAVRYSEN Luc, *Renewable Energy Policies in the European Union*. Being text of a Paper presented at the 2nd Sino-Europe Conference on Environmental Law, Sustainable Development and Natural Resources Conservation, Wuhan, China, September 2012.

annum between 1999 and 2009, constituting regional lead, while Belgium, Ireland and Slovakia recorded average growth rates in excess of 10 per cent per annum.⁹⁴⁶ The current policy is known as 20-20-20, by which members should reduce greenhouse gas emissions by 20 per cent relative to 1990 levels. It also requires a 20 per cent improvement in energy efficiency, a binding EU-wide at least 27 per cent of renewables was recommended by the European Commission, which called for a 40 per cent emissions reduction by 2030, giving greater flexibility to member countries to determine their own energy mix.⁹⁴⁷ This is perceived as a weak policy proposal by the EU's Executive Branch. The European Parliament however on February 5, 2014 voted for three binding targets for 2030, it voted for a 40 per cent cut in CO₂ emissions, 30 per cent share of the energy market for renewables and a 40 per cent improvement in energy efficiency, all by 2030, final decision is left for the European Council to ensure that the EU's promise to cut its greenhouse gas emissions by 80-95 per cent by 2050 is not jettisoned and to ensure a positive way forward for European renewables technologies.⁹⁴⁸ The EP proposed a more coherent policy instrument to incorporate instruments available within the EU regional policy to achieve the 2030 targets, employing a better use of the European Structural and Investment Funds, and better coordination between the Council, the Commission and the European External Action Services.⁹⁴⁹ There is every possibility of the EU putting its weight strongly on the renewables considering the advantages they have over the other sources. Large scale investment in renewables promises to push down electricity prices, and give advantage to European industries. Unlike fossil fuels and nuclear, there is no "fuel" to the cost of wind solar or hydro, because wind, solar and water resources are free meaning that once investment costs are paid-off, energy prices can be lowered.⁹⁵⁰ These are besides the fact investments in renewables will engender high employment rates with the rise of technology-based industries springing up with it, as example from Germany has already shown. The Commission estimates roughly 400,000 net new jobs will be created if the EU meets its 2020 energy savings target.⁹⁵¹

⁹⁴⁶ Lavrysen, *ibid.* see also, http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Renewable_energy_statistics .

⁹⁴⁷ Charlemagne, The Storm Over New European Union Climate-Change Targets, *The Economist*, Vol. 410, No. 8871, January 25, 2014, p.23.

⁹⁴⁸ SMITH Eleanor, European Parliament Rejects Commission's One-Legged 2030 Policy, *European Renewable Energy Council*, EREC, 5th February, 2014. Available at http://www.erec.org/fileadmin/erec_docs/Documents/Press_Releases/EREC_Press_Release_EP_rejects_Commission_2030_proposal.pdf . Site visited 07-02-2014. See also, EurActiv, Parliament Backs Strong EU Stance on 2030 Clean Energy Goals, 6th February, 2014. Available at <http://www.euractiv.com/video/parliament-backs-strong-eu-stanc-533316> . Site visited 06-02-2014.

⁹⁴⁹ European Parliament, 2013/2135 (INI) – 27/01/2014 Committee Report Tabled for Plenary, Single Reading, European Parliament/ Legislative Observatory, Version 6.15, 7 February, 2014. Available at <http://europa.eu/oeil/popups/summary.do?id=1334398&t=d&l=en> . Site visited 08-02-2014.

⁹⁵⁰ Friends of the Earth Europe, Why Europe Needs Binding Targets for 2030- for Greenhouse Gas Emissions Reductions, Renewable Energy and Energy Savings, 2013. Available at <http://www.foeeurope.org/2030-climate-plan> . Site visited 08-02-2014.

⁹⁵¹ Friends of the Earth Europe, Why Europe Needs Binding Targets for 2030- for Greenhouse Gas Emissions Reductions, Renewable Energy and Energy Savings, 2013. Available at <http://www.foeeurope.org/2030-climate-plan> . Site visited 08-02-2014.

Carbon energy tax and the Specific Actions for Vigorous Energy Efficiency (SAVE)⁹⁵² programme were expected to achieve the bulk of the emissions reductions of the EU and its Member States, which constitute the main policy thrust of the Union.⁹⁵³ A carbon tax would also, make the economy more resilient, in that it would make the economy more competitive in international trade, considering that, export superstar Germany has among the highest energy prices in the world, while the list of countries with the lowest energy prices is littered with import-dependent basket-cases like Egypt, and Pakistan. To be competitive, a country has to be ready to react to changes in the global economy. A carbon tax would be better than the regulatory alternative, as it is more flexible and resilient to market-based environmental policies than the command-and-control regulations which are inherently rigid and brittle, and actually providing perverse incentives to waste energy. A carbon tax would enhance the resilience that the economy needs to respond not just to environmental risks, but also to geopolitical and trade shocks. A carbon tax would tax efficiency, as it is much more broadly based, since economic activity of every sort depends to some extent on carbon-based energy, hence a low rate of tax herein would raise a large amount of revenue, which could present revenue neutrality where it is enhanced to the detriment of other rates of tax revenue.⁹⁵⁴ It would spur innovations in energy efficiency and carbon-free energy sources.⁹⁵⁵ Indeed, the CO₂/energy tax which was shelved in November 1994 as a result of the reluctance of the Member States to agree on the proposal was to later become the very centerpiece of the EU climate policy.

The need for an energy tax was seen in the context of international developments in relation to climate change,⁹⁵⁶ and protection of the environment, which is one of the essential objectives of the Community. It is seen as an important objective of the Community's energy policy towards ensuring that the methods of producing electrical energy are particularly environmentally friendly.⁹⁵⁷ It was meant to take the place of emissions regulation that fixed standards for all sources, and to provide a

⁹⁵² See Directive 93/76/EEC, of 1993.

⁹⁵³ Grant, *ibid.*, p.122.

⁹⁵⁴ DOLAN Ed, Why Conservatives Should Love a Carbon Tax, in Judith Curry Climate Etc. Online, 1 July, 2013. Available at <http://judithcurry.com/2013/07/01/why-conservatives-should-love-a-carbon-tax/>. Site visited 10-10-2013.

⁹⁵⁵ HANSEN James, Goddard Institute for Space Studies. In 300.org, Science and Economics Experts: Carbon Tax Needed Not Carbon Trading. Available at <http://sites.google.com/site/300orgsite/science-economics-experts-carbo-tax-needed-not-carbon-trading/>. Site visited 11-10-2013.

⁹⁵⁶ The Organisation for Economic Co-operation and Development (OECD), to which many EU Member States are members, with a clear interest in economic models and tools, spearheaded and galvanized, as the first international organisation in the European region to assert the benefits of taxes as environmental instruments, stressing the need to integrate economic and environmental policies into one concern. This received motivation by single countries like the Dutch and the Danes creating taxes, which the Community feared might cause economic mechanism disruption, hence had a motivation to consider an EC tax. See Zito, Anthony, Integrating the Environment into the European Union: The History of the Controversial Carbon Tax. In JORDAN Andrew (Ed.), Environmental Policy in the European Union: Actors, Institutions and Processes, London, Earthscan Publications, 2002, pp.245-6.

⁹⁵⁷ Lavrysen, *ibid.*, p.434.

constantly adjustable and relatively easily administered system of environmental incentives.⁹⁵⁸ Also, in terms of adequate use of economic instruments to meet the goals that have been set in the environmental field, particularly in relation to the control of greenhouse gas emissions.⁹⁵⁹ Initially, it did not seem very realistic to expect that the necessary consensus for the introduction of taxes or charges in the area of waste prevention⁹⁶⁰ or on environment matters would be reached soon. This regulatory energy tax initiated to promote energy- saving behaviour by households soon became an important driver of green electricity. The exemption of green electricity from the tax turned out to be a rather effective policy strategy to support the concept.⁹⁶¹ This, because the political sensitivity of administrations in Member States, political agencies, public opinion and numerous other interests against a transfer of the classical prerogative of a nation state to raise taxes to the supranational Community could be easily glossed over, and discussions on subsidiarity and new nationalism, demonstrate the reluctance against Euro-taxes or charges, even where they are destined for the protection of the environment of the European continent.⁹⁶²

The EU energy tax directive was however, adopted in 2004,⁹⁶³ replacing the Mineral Oil Tax Directives. This Directive does not introduce a new tax, but rather provides a framework of rules to restructure and harmonise national tax systems⁹⁶⁴ within the context of the single market,⁹⁶⁵ establishing general arrangements for the taxation of energy products and electricity. In line with the EU's objectives and the KP, it encourages more efficient use of energy so as to reduce dependence on imported energy

⁹⁵⁸ Zito, Anthony, *ibid.*, p.242.

⁹⁵⁹ Weale, *ibid.*, p.203.

⁹⁶⁰ The EC's legal framework for waste management includes two approaches: general regulation, and specific measures, focused on particular types of wastes, or on methods of disposal. The general regulations are found in Directive 91/689, December 20, 1991, 1991 O.J. (L 377), complemented by Regulation 259/93, February 1, 1993, 1993 O.J. (L 30). See KISS Alexandre and SHELTON Dinah, *Guide to International Environmental Law*, Leiden, Martinus Nijhoff Publishers, 2007, p.234.

⁹⁶¹ HOFMAN Peter S., *Becoming a First Mover in Green Electricity Supply: Corporate Change Driven By Liberalisation and Climate Change*. In BEGG Kathryn; van der WOERD Frans and LEVY David (Eds.), *The Business of Climate Change: Corporate Responses to Kyoto*, Sheffield, Greenleaf Publishing, 2005, p.214.

⁹⁶² KRÄMER Ludwig, *Economic, Fiscal and Other Financial measures to Contribute to Waste Prevention*. In WIGGERS-RUST L.F. et al (Eds.), *Waste Prevention in the EEC: Report of the Conference of the 'Working Party Waste' of the European Environmental Law Association, Held in Amsterdam on June 4th, 1993 Under the Responsibility of the Dutch Environmental Law Association*, W.E.J. Tjeen Willink Zwolle, 1994, p.169.

⁹⁶³ See Directive 2003/96/EC. See also, DEKETELAERE Kurt and PEETERS Marjan, *Key Challenges of EU Climate Change Policy: Competences, Measures and Compliance*. In PEETERS Marjan and DEKETELAERE Kurt (Eds.), *EU Climate Change Policy: The Challenge of New Regulatory Initiatives*, Cheltenham, Edward Elgar Publishing, 2006, p.16.

⁹⁶⁴ There is prohibition of discriminatory taxation in Article 90 EC Treaty, which prescribes Member States from imposing directly or indirectly, on the products of other Member States any internal taxation of any kind in excess of that imposed directly or indirectly on similar domestic products. Further that, no Member State shall impose on the products of other Member States any internal taxation of such a nature as to afford indirect protection to other products. See Lavrysen, *ibid.*, p.432.

⁹⁶⁵ Rosenstock, *ibid.*, p.242.

products and limit GHG emissions.⁹⁶⁶ The Directive merely seeks to provide an internal energy market and promote the reduction of environmental damage caused by energy production and consumption.⁹⁶⁷ The EU carbon energy tax would reduce coal output by over 40 per cent between 1990 and 2050, which would result in perceived political and economic costs to Germany, but remains good sense economically. Germany is a major coal producing country, with coal satisfying about one-third of its primary energy requirements in 1990, but coal as the dirtiest fossil fuel, was the first target for removal in an effort to achieve reductions in CO₂ emissions.⁹⁶⁸ If Germany would take this sacrifice, it cannot be too much for the US or any other nation for that matter to find alternative to coal energy until sufficient technology is adopted to derive cleaner energy from coal.

The EU wishes to fully integrate its Member States' energy markets by 2014 so as to provide consumers and businesses with more and better products and services, increased competition and more secure supplies, towards enhancing efficiency, the Commission is aiming at measures focusing on public transport and building for potential savings.⁹⁶⁹ It is observed that decrease in fossil fuels energy would have positive side-effects on human health and the environment, because of reduced air pollution by harmful substances.⁹⁷⁰ In the same vein has the continent's use of nuclear energy been going down, as in other parts of the world especially with the Fukushima disaster in Japan 2011, which led to great disaster. As of the start of 2014, 426⁹⁷¹ nuclear reactors were in operation out of the total of 436⁹⁷² the world has. These have a total combined power generation capacity of roughly 386 million Kilowatts. In 2009, nuclear energy accounts for about 15 per cent of world's electricity, with just about 30 nations then accounting for this figure.⁹⁷³ In 2013, three new reactors came on line, two in China and one in India, while six were shut down, two in Japan and four in the US. Germany has decided to phase out nuclear power, while 81 reactors are currently under construction with more than 60 per cent being built in Asia, China alone accounting for 31 of these. China is thus looking to have 71 new nuclear reactors with a power generation capacity of around 74.82 million Kilowatts, bringing it to surpass Japan and France, and second only to the US in terms of nuclear power

⁹⁶⁶ Europa, Community Framework for the Taxation of Energy Products and Electricity, EUROPA > Summaries of EU legislation > Energy > Internal energy market, 2010. Available at http://Europa.eu/legislation_summaries/energy/internal_energy_market/127019_en.htm. Site visited 20-10-2013.

⁹⁶⁷ Soares, *ibid.*, p.261.

⁹⁶⁸ ROWLANDS Ian H., *The Politics of Global Atmospheric Change*, Manchester, Manchester University Press, 1995, p.131.

⁹⁶⁹ European Union, Energy, European External Action Service (EEAS). Available at

http://eeas.europa.eu/delegations/Nigeria/key_eu_policies/energy/index_en.htm. Site visited 30-05-2013.

⁹⁷⁰ PRETTENHALER Franz and STEINER Daniel, Domestic Kyoto Implementation or Cheap Certificates? A Decision Support Tool for Policy Makers When Designing Climate Protection Strategies Considering Potential Co-Benefits. In RODI Michael (Ed.), *The Paradigm Shift Towards Energy Sustainability: Climate Change, Innovation and the Optimal Instrument Mix*, Berlin, Lexion Publishing, 2010, p.69.

⁹⁷¹ HATANO Toru and NISHIOKA Takashi, Nuclear Reactors on the Rise in Asia, *Nikkei Asian Review Online*, 14 April, 2014. Available at <http://www.asia.nikkei.com/Business/Trends/Nuclear-reactors-on-the-rise-in-Asia>. Site visited 22-04-2014.

⁹⁷² Greenpeace, Fukushima Nuclear Disaster, Greenpeace International. Available at <http://www.greenpeace.org/international/en/campaigns/Fukushima-disaster/>. Site visited 23-04-2014.

⁹⁷³ Financial Times Features, Split on the Atom, *Businessday Newspapers*, 15 September, 2009, p.33.

generation by the end of the 2020s. Five countries including South Korea and China began construction of a total of eight reactors in 2013.⁹⁷⁴ Nuclear power accounts for approximately 20 per cent of the US electricity production, from more than 100 nuclear generating units in operation in the US.⁹⁷⁵

Nuclear reactors release GHGs into the atmosphere as they use diesel generators as a means for back-up electric power in case of emergencies. The gases consist of carbon monoxide, nitrous oxides and sulfur dioxides. The exhaust gases from buildings containing radioactive processes is radioactive in nature, their air ejector exhaust is also radioactive, which pass through delay pipes, storage tanks and hydrogen recombines before being released into the environment. Radioactive exhaust from nuclear power plants is known to be medically harmful to the skin, nuclear plants wastes are generally radioactive wastes.⁹⁷⁶ Waste heat produced due to the intrinsic inefficiency of energy conversion, as a by-product of power generation is much the same whether coal or uranium is the primary fuel.⁹⁷⁷ Waste water generated from uranium mining operations and rainwater runoff do contaminate groundwater and surface water resources with heavy metals and traces of radioactive uranium. Likewise, heavy metals and salts build up in the water used in all power plant systems including nuclear ones, having higher temperature discharged from the power plant, which negatively affect water quality and aquatic life. These can have serious adverse health impacts on human and animal health.⁹⁷⁸ Environmental contamination may result in cosmic radiation and as well caesium-137, with a 30-year half-life consequence.⁹⁷⁹ Two of the world's most devastating nuclear tragedies include the Chernobyl nuclear disaster of April 1986, which caused 31 deaths and 64 as of 2008, with 350,400 people resettled. And the Fukushima nuclear disaster of March 2011, which caused huge damage. 15,884 people died due to the earthquake and tsunami which triggered the nuclear meltdown and as of August 2013, approximately 1,600 deaths related to the evacuation conditions like living in temporary houses and hospital closure, which are direct effects of the nuclear disaster.⁹⁸⁰ The Chernobyl heavily contaminated 2,600Km², 16 cities, towns and villages permanently dead, and a total

⁹⁷⁴ HATANO Toru op cit.

⁹⁷⁵ US Department of Energy, Energy Information Administration, Energy in Brief, 22 April, 2011. See also, US EPA, Nuclear Energy, 22 October 2013. Available at <http://www.epa.gov/cleanenergy/energy-and-you/affect/nuclear.html> . Site visited 22-04-2014.

⁹⁷⁶ JAFFER Misam, Impact of Nuclear Power Plants, Stanford University, 26 March, 2011. Available at <http://www.large.stanford.edu/courses/2011/ph241/jaffer2/> . Site visited 22-04-2014.

⁹⁷⁷ World Nuclear Association, Environment and Health in Electricity Generation, November 2013. Available at <http://www.world-nuclear.org/info/Energy-and-Environment/Environment-and-Health-in-Electricity-Generation/> . Site visited 22-04-2014.

⁹⁷⁸ US Department of Energy, Energy Information Administration, Energy in Brief, 22 April, 2011. See also, US EPA, Nuclear Energy, 22 October 2013. Available at <http://www.epa.gov/cleanenergy/energy-and-you/affect/nuclear.html> . Site visited 22-04-2014.

⁹⁷⁹ World Nuclear Association, op cit.

⁹⁸⁰ Wikipedia, Fukushima Daiichi Nuclear Disaster, 19 April, 2014. Available at http://en.wikipedia.org/wiki/Fukushima_Daiichi_nuclear_disaster . Site visited 26-04-2014.

of 1.3 million Km² of land contaminated to varying degrees of radioactive caesium.⁹⁸¹ All of Japan's 48 reactors have been offline since September 2013, yet the country has produced the equivalent energy capacity of seven large reactors- 6,800 megawatts, since July 2013 through 400,000 small household solar PV installations.⁹⁸² Solar power surged in 2013, as Japan invested the most money in solar power of any country in 2013.⁹⁸³ Nuclear power is also susceptible to serious risks in relation to nuclear proliferation, terrorism and management of wastes.⁹⁸⁴ The more countries acquire enrichment, much the more the world becomes dangerous, as then would there be more potential nuclear weapons states.⁹⁸⁵ Nuclear power plants when built to be as safe as possible and still affordable are cleaner and more economical than conventional fossil fuel power plants, even though, their operation requires extensive technological knowledge, discipline and an enormous sense of responsibility.⁹⁸⁶

The Council adopted the SAVE programme by a Decision,⁹⁸⁷ which is aimed at promoting energy efficiency in the EU. Energy issues became so decisive suffering from a split of competence, as aspects of energy pertaining to trade and services register as an EU competence, while all other economic activities relating to the energy sector fall within Member States remit.⁹⁸⁸ In the post-Lisbon era, the EU has an express provision on energy, as a specific chapter on energy more clearly than what obtains earlier, notwithstanding that it has always exercised jurisdiction on energy beforehand.⁹⁸⁹ This

⁹⁸¹ ULRICH Kendra, The Chernobyl Nuclear Disaster: 28 Years Ago Today, Greenpeace International, 26 April, 2014. Available at <http://www.greenpeace.org/international/en/news/Blogs/nuclear-reaction/the-chernobyl-nuclear-disaster-28-years-ago-t/blog/49057> . Site visited 26-04-2014.

⁹⁸² NAIDOO Kumi, Japan Should Not Be a Nuclear Playground, Greenpeace International, 24 March, 2014. Available at <http://www.greenpeace.org/international/en/Blogs/nuclear-reaction/Fukushima-Japan/blog/48639/> . Site visited 26-04-2014.

⁹⁸³ GUAY Justin and MYLLYVIRTA Lauri, How Japan Replaced Half Its Nuclear Capacity With Conservation and Efficiency, The Energy Collective, 10 April, 2014. Available at <http://www.theenergycollective.com/guayjguay/366271/how-japan-replaced-half-its-nuclear-apacity-efficiency> . Site visited 18-04-2014.

⁹⁸⁴ FOWLER Robert, The Role of Marine 'Forests' and Soils as Carbon Sinks: Enhanced Bio-Sequestration as a Mitigation Strategy to Help Avoid Dangerous Climate Change, in RICHARDSON Benjamin J. et al, Climate Law and Developing Countries: Legal and Policy Challenges for the World Economy, Cheltenham, Edward Elgar Publishing, 2009, p.190. See also, KRÄMER Ludwig, EC Environmental Law (Sixth Ed.), London, Sweet and Maxwell Publishing, 2007, p.306.

⁹⁸⁵ Financial Times Features, Split on the Atom, *Businessday Newspapers*, 15 September, 2009, p.33.

⁹⁸⁶ MVM Paks Nuclear Power Plant, Nuclear Power Plants and Environmental Protection. Available at <http://www.paksnuclearpowerplant.com/npps-and-environmental-protection> . Site visited 22-04-2014.

⁹⁸⁷ See Decision 91/565/EEC.

⁹⁸⁸ HADFIELD Amelia, The Role of Energy Policy in Sustainable Development: Greening the Environment and Securing Energy Supply. In PALLEMAERTS Marc and AZMANOVA Alben (Eds.), *The European Union and Sustainable Development: Internal and External Dimensions*, Brussels, Brussels University Press, 2006, p.219.

⁹⁸⁹ See Directive 2009/72/EC of 13 July, 2009 Concerning Common Rules for the Internal Market in Electricity and Repealing Directive 2003/54/EC; also, Directive 2009/73/EC of 13 July, 2009 Concerning Common Rules for the Internal Market in Natural Gas and Repealing Directive 2003/55/EC; also, Regulation (EC) No.713/2009 of 13 July, 2009 Establishing an Agency for the Cooperation of Energy Regulators; also, Regulation (EC) No. 714/2009 of 13 July, 2009 on Conditions for Access to the Network for Cross-Border Exchanges in Electricity and Repealing Regulation (EC) No. 1228/2003; and Regulation (EC) No. 715/2009 of 13 July, 2009 on Conditions for Access to the Natural Gas Transmission Networks and Repealing Regulation (EC) No. 1775/2005. See also, European Commission, Energy. Available at

provision states the four main aims of the EU energy policy as to ensure the functioning of the energy market; to ensure the security of supply in the Union; to promote energy efficiency and energy saving, and develop new and renewable forms of energy; and to promote the interconnection of energy networks.⁹⁹⁰ This comes under an EU shared competence with the Member States,⁹⁹¹ Thus the European major climate change policy instrument is the Greenhouse Gas Emissions Trading Directive (the ET Directive), which constitutes an EU-wide market for greenhouse gas allowances.⁹⁹² The EU is itself in fact, disabled as there is no coherent framework of competences to address the complex climate change problem, nonetheless, it has adopted a complex regulatory package, internal discord challenging efforts to develop and dispatch coordinated European policy.⁹⁹³ The EU environmental policy remains isolated in a class of its own, as it is a field that seldom reaches the highest political spheres in the EU, notably the European Council.⁹⁹⁴ It has a distinctive character in terms of such dimensions as legitimacy of EU policy competence, the policy instruments available to achieve policy goals and implementation or enforcement problems associated with the achievement of those goals. It is also less well-entrenched policy sector than most others. Council adopts resolutions concerning the energy policy objectives, usually for a period of 10 years,⁹⁹⁵ which however, has to define itself in line with single market policy objectives.⁹⁹⁶ Howsoever it may be observed, the bulk of the activities carried out by the Community in the area of environment has been of a legislative or regulatory nature, aimed at a more preventive approach to environment policy, which approach has received greater emphasis in recent years notwithstanding the reticence expressed by certain Member States.⁹⁹⁷ The SEA⁹⁹⁸ stipulates that environmental protection requirements shall be a component of the Community's other principles.⁹⁹⁹ Summarily, the EU's environmental policies or principles can be summed up under these short items viz: that, Community action should aim at a high level of protection; that preventive action

http://ec.europa.eu/energy/gas_electricity/legislation/legislation_en.htm . See further, ARINAITWE Patson Wilbroad, Treaty of Lisbon: Advancing European Union's Energy Security Through External Energy Policy, Academia.edu, January 2013. Available at

http://www.academia.edu/2562205/TREATY_OF_LISBON_ADVANCING_EUROPEAN_UNIONS_ENERGY_EXTERNAL_ENERGY . Site visited 29-09-2013.

⁹⁹⁰ See Article 194 TFEU. See also, BRAUN Jan Frederik, EU Energy Policy Under the Treaty of Lisbon Rules: Between a New Policy and Business as usual, European Policy Institutes Network Working Paper, No. 31, February 2011.

⁹⁹¹ See Campana Oil Ltd. & Others v Minister for Industry and Energy & Others [1984] ECR 2727.

⁹⁹² Deketelaere, *ibid.*, p.5.

⁹⁹³ Deketelaere, p.19. Also, Carlarne, *ibid.*, p.270.

⁹⁹⁴ LIEFFERINK Duncan, *Environment and the Nation State: The Netherlands, the European Union and Acid Rain*, Manchester, Manchester University Press, 1996, p.200.

⁹⁹⁵ Dhondt, *ibid.*, p.390.

⁹⁹⁶ See Rewe-Zentral AG v. Bundesmonopolverwaltung für Branntwein [1979] Case 120/78 ECR 649, a.k.a Cassis de Dijon. See also, Walter Rau Lebensmittelwerke v. de Smeldt PVBA [1982] Case 261/81 ECR 3961.

⁹⁹⁷ JOHNSON Stanley P. and CORCELLE Guy, *The Environmental Policy of the European Communities* (2nd Ed.), London, Kluwer Law International, 1995, pp.4-5.

⁹⁹⁸ See Article 132r (2), now Art. 191 TFEU.

⁹⁹⁹ Grant, *ibid.*, p.13.

should be taken, as necessary and appropriate; that, environmental damage should be rectified at source; that, the polluter should pay.¹⁰⁰⁰

4.2.1 The EU and the Kyoto Protocol

The role of the EU in the process of negotiating the Kyoto Protocol remains formidable and impressive, with the EU Member States coordinating their negotiating from a common position thereby causing the emergence of a climate change strategy.¹⁰⁰¹ The EU played a decisive successful role in midwiving the results of the Kyoto negotiations. Its main priority being to secure the participation of other industrialized nations in a legally-binding agreement with specific targets for each country, with the exception of the US and Australia.¹⁰⁰² The EU's perspective has been focused on the need to broaden (seek ways to increase the engagement of developing countries) and deepen (further develop mechanisms under the UNFCCC) the climate change regime.¹⁰⁰³ The EU¹⁰⁰⁴ shares a common commitment with some other nations like the US, Canada, New Zealand and Switzerland, on designing a strong and effective compliance system characterized by an enforcement function, though its approach to the Kyoto presumes a less mechanical view of enforcement. Its position presents the need for domestic action, as demonstrated by the prevalent use of Directives, in the implementation of its environmental policies above other instruments, and sought to cap the extent to which any one party could rely on emissions reductions generated outside its jurisdiction to meet its target.¹⁰⁰⁵ The common environmental policy goals of the EU appear to have been stimulated by the emergence of the issue of acidification, which played a major role in the recognition of the truly international character of environmental problems. A basic motivation for the internationalization of European environmental policy stems from the fact that environmental problems themselves cannot be solved at the national level, because of their transboundary character. Also, it is to avoid the negative economic consequences that would result from environmental policies being followed only at the national level, resulting in barriers to international trade caused by national product norms or costs

¹⁰⁰⁰ HUNTER Rod and MUYLLE Koen J., European Community Deskbook, Washington D.C., 1999, p.22.

¹⁰⁰¹ Streck, *ibid.*, p.94.

¹⁰⁰² PAVESE Carolina B. and TORNEY Diarmuid, The Contribution of the European Union to Global Climate Change Governance: Explaining the Conditions for EU Actorness, *Revista Brasileira De Politica Internacional*, Vol.55, No. spe Brasilia, 2012, p.133. Available at http://scielo.br/scielo.php?pid=s003473292012000300008&script=sci_arttext. Site visited 13-04-2013.

¹⁰⁰³ GUPTA Joyeeta, Good Governance and Climate Change: Recommendations From a North-South Perspective. In PEETERS Marjan and DEKETEELAEER Kurt (Eds.), *EU Climate Change Policy: The Challenge of New Regulatory Initiatives*, Cheltenham, Edward Elgar Publishing, 2006, p.300.

¹⁰⁰⁴ The EU approved the UNFCCC on 15 December, 1993 and the Kyoto Protocol on 25 April, 2002. See Council Decision 94/69 1993 O.J. (L 033) (EC) (concerning the conclusion of the UNFCCC). And, Council Decision 2002/358, 2002 O.J. (L130) (EC). Available at <http://Europa.eu.int/scadplus/leg/en/lvb/128060.htm> (concerning the approval on behalf of the European Community, of the Kyoto Protocol to the United Nations' Framework Convention Climate Change and the joint fulfilment of commitments thereunder).

¹⁰⁰⁵ WERKSMAN Jacob, The Negotiation of a Kyoto Compliance System. In STOKKE Olav Schram; HOVI Jon and ULFSTEIN Geir (Eds.), *Implementing the Climate Regime: International Compliance*, London, Earthscan, 2005, p.24.

incurred by environmental requirements that would endanger the competitiveness of national industries.¹⁰⁰⁶

Collateral with the principle of subsidiarity as discussed above is the principle of solidarity, or EU loyalty, as prescribed in Article 4 TFEU, which requires Member States to take all appropriate measures to ensure fulfilment of the obligations arising out of the EC Treaty, or resulting from action taken by the EU institutions. It also requires them to facilitate the achievement of the EU's objectives, and to abstain from any measures that could jeopardize the attainment of the objectives of the Treaty.¹⁰⁰⁷ This greatly enhanced the EU's efforts in achieving the attainment of its targets under the KP, alongside Council's agreement with the Member States under a Burden Sharing Agreement, which adjusted the national targets under the KP within a common European "bubble." The EU was firmly committed to implementing strategies and policies to achieve its Kyoto targets, notwithstanding the non-committal and withdrawal of the US, which was the largest emitter from all international processes related to the mitigation of global climate change. The US decision to withdraw from the protocol in 2001, widened the window of opportunity for the EU at the international level, and also had a catalytic impact on its internal cohesion, as it ushered in a significant boost in the external opportunity structure.¹⁰⁰⁸ EU's commitment and decision to go forward with the implementation of the Protocol, even before the treaty entered into force sent a powerful message to the rest of the world.¹⁰⁰⁹ Within the "bubble," the EU is to reduce its greenhouse gas emissions to 8 per cent below 1990 levels, this reductions divided among EU Member States according to historical contribution to greenhouse gas emissions, with each individual EU country being responsible for meeting its EU greenhouse gas emission reduction targets and for establishing national climate change policies¹⁰¹⁰ at the United Nations Copenhagen Climate Conference 2009, the EU committed itself to a 20 per cent GHG emissions cut by 2020, compared with 1990.¹⁰¹¹

¹⁰⁰⁶ Liefferink, *ibid.*, pp.12-13.

¹⁰⁰⁷ DHONDT Nele, *Integration of Environmental Protection into other EC Policies: Legal Theories and Practice*, Groningen, Europa Law Publishing, 2003, p.35.

¹⁰⁰⁸ PAVESE Carolina B. and TORNEY Diarmuid, *The Contribution of the European Union to Global Climate Change Governance: Explaining the Conditions for EU Actorness*, *Revista Brasileira De Politica Internacional*, Vol.55, No. spe Brasilia, 2012, p.134. Available at http://scielo.br/scielo.php?pid=s003473292012000300008&script=sci_arttext. Site visited 13-04-2013

¹⁰⁰⁹ Streck, *ibid.*, p.96.

¹⁰¹⁰ KRUGER Joseph A. and PIZER William A., *Greenhouse Gas Trading in Europe: The New Grand Policy Experiment*, 46 *ENV'T 8* (2004). Also, Carlarne, Cinnamon Piñon, *Climate Change Policies an Ocean Apart: EU and US Climate Change Policies Compared*, *Pennsylvania State Environmental Law Review*, Spring 2006, Vol.14, No.3, pp.125-6.

¹⁰¹¹ GARDNER Stephen, *Analysis: Carbon Regulation- Europe Stands Alone*, *Ethical Corporation's Magazine and Business Intelligence Resources*, 27 March, 2012. Available at <http://www.ethicalcorp.com/environment/analysis-carbon-regulation-europe-stands-alone/>. Site visited 10 September, 2012.

The EU has been particularly mindful of its policies on climate change such as would not affect its trade performance and economic interests,¹⁰¹² and such as would not adversely affect the performance of its industries in the emerging global markets. This is because the standard of product acceptability for international consumers would be increasingly set by the country with the most stringent pollution control standards, so that the future of the post-industrial economy would depend on its ability to produce high value, high quality products meeting high environmental standards.¹⁰¹³ To this end therefore, its position on the use of trade measures for environmental protection can be described as schizophrenic or self-protection.¹⁰¹⁴ This is understandable considering the disposition of American corporations' disposition to climate change issues, and of course, economic competitiveness concerns, which has for long been a perennial feature of EU environmental policy making.¹⁰¹⁵ Despite this, the EU has made combating climate change the first priority of the 6th Environmental Action Programme.¹⁰¹⁶ And as in other parts of the world, an increasing sensitivity to global economic competition and budgetary constraints has made European governments wary of any form of regulation which might threaten economic growth, foreign investment, export markets and employment creation.¹⁰¹⁷ It is also imperative to appreciate this from the point that the European Council meeting in Paris in 1972, acknowledged that economic expansion should be accompanied by environmental protection so as to achieve a genuine improvement in the quality of life,¹⁰¹⁸ hence the disposition of the EU, so its action be not at variance with its purpose. It is pertinent to appreciate it that, the environment and the economy go hand-in-hand.¹⁰¹⁹ The EU will participate with the World Trade Organization (WTO), on issues of trade and environment with the aim of sustainable development towards promoting a balanced approach, giving preference to multilateral solutions to problems emanating from trade and environment and promoting transparency with a view to implementing environmental measures including new instruments of environmental policy.¹⁰²⁰ It is a party to a number of Multilateral Environmental Agreements and a strong proponent of international environmental action and cooperation, which has paid off handsomely in the EU's relations with many

¹⁰¹² CARLARNE, Cinnamon Piñon, op cit., p. 279.

¹⁰¹³ WEALE Albert, *Environmental Rules and Rule-Making in the European Union*. In Jordan, Andrew (Ed.), *Environmental Policy in the European Union: Actors, Institutions and Processes*, London, Earthscan Publications, 2002, p.204.

¹⁰¹⁴ Grant, *ibid.*, p.114.

¹⁰¹⁵ Grant, p.116.

¹⁰¹⁶ CARLARNE Cinnamon Piñon, *Climate Change Law and Policy: EU and US Approaches*, Oxford, Oxford University Press, 2010, p.186.

¹⁰¹⁷ Grant, p.115.

¹⁰¹⁸ Liefferink, *ibid.*, p.5. See also, Weale, *ibid.*, p.204.

¹⁰¹⁹ POTOČNIK Janez, *Living Well Within the Limits of the Planet*, Europa Press Releases Rapid, December 2012. Available at http://europa.eu/rapid/press-release_SPEECH-12-900_en.htm. Site visited 13-04-2013.

¹⁰²⁰ DEKETELAERE Kurt et al, *Future European Environmental Policy*. In BLAUPAIN Roger; COLUCCI Michele and DEKETELAERE Kurt (Eds.), *International Encyclopedia for Environmental Law*, Alphen aan den Rijn, Kluwer Law International Publishing, 1998, p.309.

other nations, especially the developing nations with whom climate change constitutes a key component of its relations.¹⁰²¹

The European Union and its Member States have ratified and/or approved both the UNFCCC and the Kyoto Protocol and thus are bound to meet specific international climate change obligations.¹⁰²² The EU Treaty¹⁰²³ confers on the EU the powers to enter into international agreements on environment. This is amply supported by Article 130r (1), which enunciates the aim of the environmental policy as one promoting measures at international level to deal with regional or worldwide environmental problems.¹⁰²⁴ Analysis of the EU's current climate change policies reveals that the EU has a multifaceted programme designed with the ambitious goal of exceeding its Kyoto Protocol obligations.¹⁰²⁵ The EU experienced a 48 per cent increase in gross domestic product (GDP), since 1990, but has coincidentally succeeded in reducing its emissions by 18 per cent between 1990 and 2010, the trend continuing in 2011, according to the European Commission's annual report released on 24 October, 2012. Data for 2011 show that EU15 GHG emissions dropped by 3.6 per cent and EU27 emissions by 2.7 per cent compared with 2010. It specifies further that EU15 emissions fell to 14 per cent below the base year level in 2011 and EU27 emissions to roughly 18 per cent below 1990 levels. This shows that although the economy has expanded significantly, emissions have declined, positing that it is possible to decouple economic growth from emissions.¹⁰²⁶ Other countries' emissions have increased over the same period- most significantly, that of China, whose share of global emissions has grown from 11 per cent in 1990 to almost 29 per cent in 2011.¹⁰²⁷

There is the need for a durable global regime that addresses both current and future impacts of climate change. It may be argued that a global regime is not possible for obvious reasons that the US and some notable countries are not participating in KP, and the KP itself has expired with no immediate successor to it. Since we cannot avoid current impacts or prove that they are caused by climate change, we should then focus on limiting the damage in the future through the development

¹⁰²¹ European Union, Climate, European External Action Service (EEAS). Available at

http://eeas.europa.eu/delegations/Nigeria/key_eu_policies/climate/index_en.htm. Site visited 30-05-2013.

¹⁰²² Council Decision 2002/358. 2002 O.J. (L 130) (EC), available at <http://Europa.eu.int/scadlpus/leg/en/lvb/128060.htm>. See also UNFCCC, KYOTO PROTOCOL STATUS OF RATIFICATION,

http://unfccc.int/files/essential_background/Kyoto_protocol/application/pdf/kpstats.pdf. See also Carlarne, *ibid.*, p.266.

¹⁰²³ See Article 130r (4), now Article 191 TFEU.

¹⁰²⁴ DUHOT Stibbe, *ibid.* See also London, Caroline, *ibid.*, p.17.

¹⁰²⁵ CARLARNE Cinnamon Piñon, Climate Change Policies an Ocean Apart: EU and US Climate Change Policies Compared, *Pennsylvania State Environmental Law Review*, Spring 2006, Vol.14, No.3, p.126.

¹⁰²⁶ ECKSTEIN Ann, Kyoto Targets: EU Succeeding, Monday 29 October, 2012. Available at <http://www.europolitics.info/Kyoto-targets-eu-succeeding-art344580.html>. Site visited 13-04-2013.

¹⁰²⁷ Pavese, *ibid.*, p.138.

of bilateral, regional, sectoral, public, private and voluntary agreements.¹⁰²⁸ The EU has engaged different regions and countries of the world in dialogue and negotiations on the KP and others; with many of its policy proposals having an explicit and direct link to non-member countries.¹⁰²⁹ It adopted a Strategy on Environmental Integration in External Policies whose aim was to define how best to pursue EU international environmental policy in the day-to-day conduct of external relations, which yielded in a much beneficial result in the Green Diplomacy Network.¹⁰³⁰ It is financing a project aimed at sourcing cleaner energy from coal with the lowest affordable emission in China.¹⁰³¹ It is noteworthy that China, the world's largest emitter of GHGs since 2006 and largest energy user since 2010, the world's second largest economy deserves no less, if all the efforts and sacrifices of other nations and regions at checking the scourge of climate change would not be a futility.¹⁰³² EU's influence as China's largest trading partner¹⁰³³ and EU's second largest trading partner after the US¹⁰³⁴ should be instrumental in getting China to look into its climate change issues. No nation wants to lose its largest trading partner easily, not even with the economic drive of China presently. About 2.5 billion tons of coal is burned annually in China's 541 coal-fired power plants, to produce 554,420 megawatts of electricity. Despite the above, the EU bilateral partnerships and dialogues around specific topics such as environment, climate and energy with China were initiated in recent years, but suffice it to say that the EU's preferences and positions seem hardly compatible with those of China, and the US, who have both long been and currently still remain primarily interested in the protection of their short-term economic interests.¹⁰³⁵

Coal consumption has grown rapidly in China and it is estimated that China opens one large coal-fired power plant a week on average to generate enough electricity to service its 1.3 billion population and

¹⁰²⁸ GUPTA Joyeeta, Good Governance and Climate Change: Recommendations From a North-South Perspective. In Peeters, Marjan and Deketelaere, Kurt (Eds.), *EU Climate Change Policy: The Challenge of New Regulatory Initiatives*, Cheltenham, Edward Elgar Publishing, 2006, p.297.

¹⁰²⁹ BAULER Tom, The Commission's Impact Assessment Process: Handling the External Dimensions of Sustainability. In PALLEMAERTS Marc and AZMANOVA Albena (Eds.), *The European Union and Sustainable Development: Internal and External Dimensions*, Brussels, Brussels University Press, 2006, p.284.

¹⁰³⁰ European Union, Climate, European External Action Service (EEAS). Available at http://eeas.europa.eu/delegations/Nigeria/key_eu_policies/climate/index_en.htm. Site visited 30-05-2013.

¹⁰³¹ China's primary energy consumption consists of coal 68.4%, renewables 0.7%, oil 18.6% and natural gas 5%. This is in the face of IEA's prediction that China's energy dependence would increase to 60-70% of total energy consumption by 2015. See BELIS David, *Redefining EU-China Relations: Energy, Economics and Geopolitics*, 2013. Being an excerpt from a Paper presented at the IKEM Summer Academy 2013, 17 September, 2013, Brussels, p.15.

¹⁰³² BELIS David, *ibid.*, p.9. See also, the Netherlands Environmental Assessment Agency Report, 2007.

¹⁰³³ EU and China trade over €1 billion per day constituting the second largest economic cooperation in the world. See, LEFEVERE Jürgen, Keynote Intervention, a Paper presented at the International Seminar on A Pivotal Turn in Global Climate Governance? Evidence From EU-China and EU-Vietnam Climate Relations, Brussels, 24 October, 2013.

¹⁰³⁴ BELIS David, *ibid.*, p.14.

¹⁰³⁵ BELIS David and SCHUNZ Simon, *China, the European Union and Global Environmental Governance: the Case of Climate Change*, in BRUYNINCKX Hans et al (Eds.), *The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies*, Cheltenham, Edward Elgar Publishing, 2013, p.61.

fuel industries that manufacture cheap goods for the US and Europe,¹⁰³⁶ thus burning half of all the coal consumed in the world.¹⁰³⁷ The consequence of this to the immediate environment is the air pollution reported in Harbin and perhaps some other parts of the country, specifically in its cities like Beijing, Chongqing among others, where the situation is most prevalent. The situation is serious as to warrant closing down of schools and causing traffic gridlocks, cancellation of flights in and out of the cities, causing the withdrawal of some athletes from the Olympic Games hosted in one of the cities.¹⁰³⁸ Though, it has accelerated China's economic growth, lifting more than 600 million people out of poverty, yet its health implications could be more consequential to the population, the environment and the atmosphere at large, which transcends the Chinese borders,¹⁰³⁹ considering the enormous carbon dioxide emissions involved. The result is an economy that is growing too fast¹⁰⁴⁰ and atmospheric challenges that are too multifaceted for even the smartest planners to tame.¹⁰⁴¹ Chinese cities reportedly suffer from some of the worst air pollution in the world, with outdoor pollution having accounted for 1.2 million premature deaths in China in 2010.¹⁰⁴² China could follow the footsteps of Japan, which in the wake of the Fukushima nuclear disaster¹⁰⁴³ has commenced building of windmills on its waters on the sea, which is expected to go into operation in November 2013, with a modest power generation enough to power 1,700 homes, but whose power is to rise 536 gigawatts in

¹⁰³⁶ BIELLO David, Can Coal and Clean Air Coexist in China?, Scientific American August 2008. Available at <http://www.scientificamerican.com/article.cfm?id=can-coal-and-clean-air-coexist-in-china>. Site visited 28-10-2013.

¹⁰³⁷ WONG Edward, China's Plan to Curb Air Pollution Sets Limits on Coal Use and Vehicles, The New York Times Online, September 12, 2013. Available at <http://www.nytimes.com/2013/09/13/world/asia/china-releases-plan-to-reduce-air-pollution.html>. Site visited 28-10-2013.

¹⁰³⁸ NIELSEN Chris P. and HO Mun S., Clearing the Air in China, The New York Times Online, October 25, 2013. Available at <http://www.nytimes.com/2013/10/26/opinion/international/clearing-the-air-in-china.html>. Site visited 28-10-2013. See also, BIELLO David, *ibid*.

¹⁰³⁹ Its effects are felt as far as the Western US within weeks. See, BIELLO David, *ibid*.

¹⁰⁴⁰ China rose to become the world's largest manufacturer beating the US and others in manufacturing; in 2007, china's output was 62% of the US level, by 2011 it was 123% of the US level, 235% of Japan's and 346% of Germany's. No other country's industrial production now even approaches China's industrial output. Calculations based on estimates in the CIA's World Factbook indicate that in 2012, the value of China's industrial production was US\$ 3.7 trillion compared to \$2.9 trillion for the US. That is, between July 2007 and July 2013, China's production increased by 97% while US industrial output declined by 1%. See, ROSS John, China's New Industrial Revolution, China.org.cn, 27 August, 2013. Available at http://www.china.org.cn/opinion/2013-08/27/content_29838533.htm. Site visited 06-03-2014. Also, China Has Overtaken the US to Become the World's Largest Industrial Producer, 02 September, 2013. Available at <http://ablog.typepad.com/keytrendsinglobalisation/2013/09/china-has-overtaken-the-us.html>. Site visited 06-03-2014. See further, JIE Liu, Official Data Confirm China as World's Biggest Auto Producer, Consumer, Challenges Remain, Embassy of the People's Republic of China in the United States of America. Available at <http://www.china-embassy.org/eng/gvzg/t650880.htm>. Site visited 06-03-2014.

¹⁰⁴¹ NIELSEN Chris P and HO Mun S., *ibid*.

¹⁰⁴² See 2010 Global Burden of Disease Study, Published December 2012. See also, WONG Edward, China's Plan to Curb Air Pollution Sets Limits on Coal Use and Vehicles, The New York Times Online, September 12, 2013. Available at <http://www.nytimes.com/2013/09/13/world/asia/china-releases-plan-to-reduce-air-pollution.html>. Site visited 28-10-2013.

¹⁰⁴³ The Fukushima incident in 2011 presents a good picture of the catastrophic impact an extreme weather event can have on a nuclear power station. See, VERSCHUUREN Jonathan, Climate Change Adaptation and Environmental and Pollution Control Law, in VERSCHUUREN Jonathan (Ed.), Research Handbook on Climate Change Adaptation Law, Cheltenham, Edward Elgar Publishing, 2013, p.385.

the next five years, placing it among the world's highest. Japan's coastline is reputed to be far longer than the US', in same manner as China's. this is furtherance of the Japanese government's push to make renewable energy a pillar of its economic growth programme.¹⁰⁴⁴ Prior to this time, as at 2011, Japan has less than three per cent of its electricity generated from renewable energy sources. It is reputed the country could generate as much as 1,570gigawatts of electricity, which almost eight times the current capacity of all its power companies combined.¹⁰⁴⁵

It is engaged in different funding pacts with African-Caribbean Pacific States, among others. It is involved in the Africa-EU Renewable Energy Cooperation Programme (RECP), which has been progressing since 2011, with its first advisory policy activity launched together with the Economic Community of West African States (ECOWAS), Centre for Renewable Energy and Energy Efficiency (ECREEE), in October 2011.¹⁰⁴⁶ It has a comprehensive relationship with ECOWAS involving political dialogue, development cooperation and trade based on its own experience. It gives strong support to regional integration as a tool for development fostering sustainable growth, and smooth and gradual integration in the world economy. ECOWAS and the EU meet once a year at Ministerial level and twice a year at Senior Official level on issues of common interest. This is backed up with financial allocation in millions of Euros yearly, to enhance regional integration, improve competitiveness, consolidate good governance and regional stability.¹⁰⁴⁷ There is also the Africa-EU Energy Partnership (AEEP), which was launched in Lisbon, Portugal, in December 2007, during the Second Africa-EU Summit. The AEEP is one of eight strategic partnerships that emerged from the Africa-EU Joint Strategy and Action Plan, currently focused on three key areas: energy access; energy security; and renewable energy.¹⁰⁴⁸ It is really up to its global leadership position in environmental matters. Its influence in swaying over the US on the KP is much expected, considering that, it remains the highest trading partner of the US, both between them accounting for about 54 per cent of the world's GDP.¹⁰⁴⁹ They are allies in different other aspects of life.

¹⁰⁴⁴ TABUCHI Hiroko and UENO Hisako, To Expand Offshore Power, Japan Builds Floating Windmills, The New York Times Online, October 24, 2014. Available at <http://www.nytimes.com/2013/10/25/business/international/to-expand-offshore-power-japan-builds-floating-windmills.html>. Site visited 28-10-2013.

¹⁰⁴⁵ TABUCHI Hiroko, *ibid.*

¹⁰⁴⁶ STELTER Ingmar, The EU Energy Initiative Partnership Dialogue Facility Newsletter, Newsletter No. 08, June 2012, p.8.

¹⁰⁴⁷ European Union, ECOWAS and EU, European External Action Service (EEAS). Available at http://eeas.europa.eu/delegations/Nigeria/eu_ecowas/index_en.htm. Site visited 30-05-2013.

¹⁰⁴⁸ IISD Reporting Services, Summary of the ECOWAS-GFSE-GEF-UNIDO High Level Energy Forum Towards Sustainable Energy for all in West Africa: "Paving the Way for Sustainable Energy for all in West Africa Through Renewable Energy and Energy Efficiency," Published by the International Institute for Sustainable Development (IISD), Vol. 187, No.13, 3 November, 2012. Available at <http://www.iisd.ca/download/pdf/sd/crsvol187num13e.pdf>. Site visited 01-06-2013.

¹⁰⁴⁹ HAMILTON Daniel S. and QUINLAN Joseph P., The Transatlantic Economy 2011: Annual Survey of Jobs, Trade and Investment Between the United States and Europe, Washington, DC, Center for Transatlantic Relations, 2011. Available at http://www.transatlantic.sais-jhu.edu/publications/books/Transatlantic_Economy_2011.pdf. Site visited 22-05-2013.

The EU's place and global leadership position in climate change¹⁰⁵⁰ and generally, environmental issues are not out of place, neither accidental, considering that its institutions, infrastructures and decision-making procedures were conceived, constructed and further developed in order to integrate sovereign states into an ever closer union.¹⁰⁵¹ This makes policy formulation, implementation and adaptation much easier than where the structures are not in place or are not as strong enough to carry such through. In addition, the EU approach creates the regulatory foundation for building an effective climate change regime and offers the beginnings of a roadmap in climate policy successes and failures.¹⁰⁵² Having ratified the KP, the EU and its Member States have agreed to be legally bound by it, and have set ambitious climate goals, adopting a wide range of policy instruments, which are being vigorously pursued, with compliance systems in place to ensure compliance by all states and multinationals alike.¹⁰⁵³ Sequence to this, the EU compels Member States to meet their respective regional obligations. It takes proceedings against erring Member States which fail to provide important information required as part of the EU's efforts to combat climate region.¹⁰⁵⁴ The EC has without doubt, assumed leadership role at the international level in climate change negotiations, especially for the KP to the UNFCCC. Following negotiation of the UNFCCC, the EU began formulating regional initiatives to address climate change and advance international goals, with Germany volunteering to host the first meeting of the UNFCCC COP.¹⁰⁵⁵ The EU has continued to play a leading role internationally in promoting the ratification of the KP and in implementing the commitments made at the 2002 World Summit on Sustainable Development (WSSD), by launching the Energy Initiative¹⁰⁵⁶ and the Renewable Energy Coalition.¹⁰⁵⁷ The EU's generally positive approach was determined by the fact that the European Commission and the Member States were normally represented by officials from environmental, instead of trade or foreign policy departments,¹⁰⁵⁸ hence are highly technical representations rather than political. In monitoring climate change, the Commission has adopted a clear managerial approach, in the emission trading context, a much more enforcement-oriented approach is in the pipeline, with financial penalty at a rate of €40 per excess

¹⁰⁵⁰ The EU's position came on the heels of US President G. W. Bush's categorical clarification that the US had no intention of ratifying the KP, thus creating an opening for the EU to more effectively exercise its role as global climate change leader. See, CARLARNE Cinnamon Piñon, *Climate Change Law and Policy: EU and US Approaches*, Oxford, Oxford University Press, 2010, pp. 7 and 9.

¹⁰⁵¹ KRÄMER Ludwig, *Regional Economic Integration Organisations: The European Union as an Example*. In BODANSKY Daniel; BRUNNÉE Jutta and HEY Ellen (Eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2010, p.870.

¹⁰⁵² CARLARNE Cinnamon Piñon, *op cit*, p.16.

¹⁰⁵³ Skjærseth, *op cit.*, p.200.

¹⁰⁵⁴ CARLARNE Cinnamon Piñon, *Climate Change Law and Policy: EU and US Approaches*, Oxford, Oxford University Press, 2010, p.186.

¹⁰⁵⁵ Carlarne, *ibid.*, p.239.

¹⁰⁵⁶ See http://europa.eu.int/comm/environment/wssd/documents/energy_initiative.pdf

¹⁰⁵⁷ See http://europa.eu.int/comm/environment/jrec/index_en.htm. See also BERNHEIM Thomas, *The EU Sustainable Development Strategy: Its Implementation and Ongoing Review*. In PALLEMAERTS Marc and AZMANOVA Alben (Eds.), *The European Union and Sustainable Development: Internal and External Dimensions*, Brussels, VUBPRESS, 2006, p.82.

¹⁰⁵⁸ Krämer, *ibid.*, p.871.

tonne of CO₂ emitted in the Kyoto period, and a penalty of €100 during the KP's first commitment period.¹⁰⁵⁹

The EU could be seen as an actor that demonstrates how much progress can be achieved in environmental law and policy as long as the solutions are not looked for at the global level, but instead, where attention is more focused on the regional aspect. The EU has succeeded thus far in proving with environmental policy and law all its imperfections, can try to make environmental protection a daily reality, an applied system of law. EU leaders successfully overcame very real divisions in Member States opinions to negotiate in December 2008, and subsequently adopted in April 2009, the final legal texts of an energy and climate change package of legislation intended to achieve the previously agreed to 20/20/20 goals.¹⁰⁶⁰ It is thus more of actor on the regional than on the international scene, by its impressive result in effectively protecting, preserving and improving the European environment.¹⁰⁶¹ It has despite all odds in the form of internal discords, differences among its Member States and between the Council and the Commission,¹⁰⁶² lack of internal coordination and preparedness during the key negotiations over the Kyoto Protocol flexibility mechanisms in 1997, Member States inability to find agreed upon solutions, among others, succeeded in providing global leadership in efforts to push forward climate negotiations.¹⁰⁶³ The EC Dublin Declaration of 1990 states that the EU must use its position of moral, economic and political authority more effectively in advancing international efforts to promote sustainable development,¹⁰⁶⁴ which has as a matter of policy been the focus of the EU. It has thus adopted internationalizing standards that are already in place within the Union, as a strategy to consistently pursuing its environmental relations with third parties.¹⁰⁶⁵

The EU through the Lisbon Treaty, which entered into force on 1 December, 2009 brought significant changes to its institutional setting, creating the European External Action Service (EEAS), and the office of a Vice-President of the Commission, who performs the role of High Representative of the Union for Foreign Affairs and Security. The Lisbon Treaty in its Article 17, establishes that “with the exception of the common foreign and security policy, and other cases provided for in the Treaties, it

¹⁰⁵⁹ WETTESTAD Jørgen, Enhancing Climate Compliance- What Are the Lessons to Learn From Environmental Regimes and the EU? In STOKKE, Olav Schram; HOVI Jon and ULFSTEIN Geir (Eds.), *Implementing the Climate Regime: International Compliance*, London, Earthscan, 2005, p.221.

¹⁰⁶⁰ Carlarne, *ibid.*, p.187. See also EIZENSTAT Stuart, *What Europe Needs to Know About Obama's Climate Change Options*. In MERRITT Giles (Ed. In chief), *Europe's World*, Brussels, EW Publishers, 2009, p.119. Available at

<http://www.europesworld.org>.

¹⁰⁶¹ Krämer, *ibid.*, p.875.

¹⁰⁶² The combined energy and carbon tax proposal split Member States and failed to garner Council support, temporarily stalling the development of EU climate policy, which threatened regional efforts at developing a coordinated strategy, before it was eventually adopted later. See Carlarne, p.270. See also, Grant, p.123.

¹⁰⁶³ Carlarne, *ibid.*, p.270.

¹⁰⁶⁴ Grant, *ibid.*, p.117.

¹⁰⁶⁵ Grant, p.116.

(the European Commission) shall ensure the Union’s representation.” Which thus underscores the legal basis for the Commission to exert a leading role in EU external representation in multilateral climate negotiations.¹⁰⁶⁶ These have greatly enhanced the Union’s outreach to other regions and countries on climate change and environmental matters generally. The EU has adopted different means and norms to reach its present stage as the number one world actor on climate change, such as number of compromises and cultural differences that are consistent with differences in political, economic and social ideologies with the US principally, and others like Russia, Canada and Japan, in forging a truce in the Kyoto negotiations.¹⁰⁶⁷

4.3 THE ECONOMIC COMMUNITY OF WEST AFRICAN STATES (ECOWAS)

The sub-Saharan Africa (SSA), is a region of over 800 million people, with 49 countries,¹⁰⁶⁸ which are particularly dependent on agriculture for food, income and employment, almost all of it rain fed.¹⁰⁶⁹ Economic regional groupings have had some serious issues here before it eventually started taking root of late. Some of these include, but not limited to, the East African Community (EAC); the Common Market for Eastern and Southern Africa (COMESA); the South African Development Community (SADC); the Economic Community of Central African States (ECCAS); the Economic Community of West African States (ECOWAS), among others.

¹⁰⁶⁶ PAVESE Carolina B. and Torney, Diarmuid, The Contribution of the European Union to Global Climate Change Governance: Explaining the Conditions for EU Actorness, *Revista Brasileira De Politica Internacional*, Vol.55, No. Brasilia, 2012, pp.131-2. Available at http://www.scielo.br/scielo.php?pid=s003473292012000300008&script=sci_arttext . Site visited 13-04-2013

¹⁰⁶⁷ BRETT Jeanne M., *Negotiating Globally*, (2nd Ed.), San Francisco, John Wiley & Sons Publishing, 2007, pp.230, 236.

¹⁰⁶⁸ The SSA comprise: Angola, Benin, Botswana, Burkina-Faso, Burundi, Cameroon, Cape-Verde, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Republic of Congo, Côte d’Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mayotte, Mozambique, Namibia, Niger, Nigeria, Réunion, Rwanda, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Togo, Uganda, Western Sahara, Zambia, and Zimbabwe. See PASQUALI Valentina, *The Poorest Countries in the World*, *Global Finance Magazine*, 2014. Available at <http://www.gfmag.com/global-data/economic-data/the-poorest-countries-in-the-world> . Site visited 15-07-2014. See also, Fulbright, *Sub-Saharan Africa*, Fulbright U.S. Student Program, sine die. Available at <http://www.usfulbrightonline.org/countries/selectedregion/23> . Site visited 15-07-2014. See further, The Library of Congress, *List of Sub-Saharan African Countries*, *Africana Collections*, 15 November, 2010. Available at <http://www.loc.gov/rr/amed/guide/afri-countrylist.html> . Site visited 15-07-2014. See as well, The World Bank, *Sub-Saharan Africa (Developing Only)*, 2014. Available at <http://www.worldbank.org/region/sub-saharan-africa> . Site visited 15-07-2014. See also, Freedom House, *Sub-Saharan Africa*, sine die. Available at <http://www.freedomhouse.org/regions/sub-saharan-africa#.U8U18EBKDR8> . Site visited 15-07-2014. See equally, International Finance Corporation (IFC), *Sub-Saharan Africa*, IFC World Bank Group, 2014. Available at http://www.ifc.org/wps/wcm/connect/region_ext_content/regions/sub-saharan+africa . Site visited 15-07-2014.

¹⁰⁶⁹ SCHELLNHUER Hans Joachim et al, *Turn Down the Heat: Climate Extremes Regional Impacts, and the Case for Resilience- Full Report*, Washington D.C., June 2013, p.xviii. Available at http://www.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/06/14/000445729_20130614145941/Rendered/PDF/784240WP0Full00D0CONF0toJune19090L . Site visited 02-11-2013.

The Economic Community of West African States (ECOWAS) was formed in 1975, comprising fifteen countries of West Africa,¹⁰⁷⁰ former colonies of Britain, France and Portugal, most of which became independent between the late 1950s and early 1970s. It is one of the numerous economic regional groupings in the sub-Saharan Africa (SSA). It was formed after the trend in Europe, by 15 nations, later joined in 1976 by Cape Verde, as the sixteenth Member State, to foster a closer economic relationship among the Member States. The principal objective was finding a formula for accelerated economic growth within the sub region. It was formed in pursuit of the overriding need to accelerate, foster and encourage the economic and social developments of the Member States in order to improve the living standards of their peoples.¹⁰⁷¹ West Africa constitutes all the countries west of Cameroon and Chad, and south of Latitude 19°North. Prior to the formation of ECOWAS, there was no economic community representing a broad interest in West Africa that survived the test of time, even though there had been such bodies as the Organisation Commune d'Afrique et de Malagache (OCAM), the Communauté Economique d'Afrique Occidentale (CEAO), the Council of the Entente, and the Lagos Conference on Industrial Coordination in West Africa, held in November 1963, which would have been a prelude to an economic community, but which also led to nothing further than the meeting. The Economic Commission of Africa was able eventually to midwife a meeting in Niamey, attended by fourteen West African countries, which formed the basis on which the ECOWAS was formed. The meeting was significant in that it was the first such to be attended by all the West African States, Francophone and Anglophone alike, for the common purpose of integrating economically, though it produced nothing significant. This was later followed by the Accra, Ghana meeting which came up with an Article of Association, which stipulates the aims of the Community to be: the promotion of economic cooperation for coordinated and equitable development; free trade among Member States; and economic development of the continent of Africa as a whole. It also created an interim Council of Ministers with Accra as its temporary Secretariat.

There were prolonged efforts at getting started the ECOWAS because of the commitment of many of the States to various other such organisations, most especially, the Francophone countries. This problem of overlapping membership of multiple regional arrangements has been the bane of the majority of members of the ECOWAS, and really took its toll on the coming to being of the Community. There exist bilateral, trilateral and quadrilateral internal arrangements among countries, disadvantageous in that, a country may be a member of regional groupings with conflicting means to achieve sometimes similar objectives. An example is the large number of ECOWAS Member States

¹⁰⁷⁰ The Member States include Benin (formerly Dahomey), Burkina Faso (formerly Upper Volta), Cape Verde, Cote d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo. Mauritania has however withdrawn from the Community in 2000. See Kufuor, Kofi Oteng, *The Framework for Capital Movements Within the Economic Community of West African States*. In *African Yearbook of International Law*, Vol.3, The Hague, Kluwer Law International, 1996, p.239.

¹⁰⁷¹ ARYEETEY Ernest and ODURO Abena D., *Regional Integration Efforts in Africa: An Overview*. In *Regionalism and the Global Economy: The Case of Africa*, FONDAD, The Hague, 1996, p.11.

also belonging to the francophone West African Monetary Union (UEMOA)¹⁰⁷². This latter was formed to pose a challenge to ECOWAS in view of the cohesive nature of the former as an organisation originally intended to counter Nigeria's domination of ECOWAS, and also in view of the convertibility of its currency in a sub-region of highly inconvertible currencies.¹⁰⁷³ As regards cooperation among Member States with other bodies, individual Member States were guaranteed to take both within and outside the Community, measures of economic cooperation without the agreement of Member States, so long such measures do not prejudice the aims of the Community. This provision helped to protect the rights of the Francophone States who were already committed to many economic arrangements with France, and also encouraged and preserved such other functional organisations as the Senegal River States, the River Niger Commission, the Lake Chad Basin Commission and many other bilateral economic arrangements to which some Anglophone States belonged.

After much ado, the Community was eventually born in Lagos on 28th May, 1975 with the adoption and ratification by the Conference of Heads of State and Government, of a draft Treaty. The signed Treaty was to enter into force without the accompanying recommended Protocols, which were to be subject to separate ratification at a later date. The Treaty entered into force on 1 March, 1977.¹⁰⁷⁴ Article 62 of the Treaty provides that, "This Treaty shall enter into force provisionally upon signature by Heads of State and Government. This Treaty and the protocols which shall be annexed and which shall form an integral part of the Treaty shall respectively enter into force upon ratification by at least seven signatory states in accordance with the constitutional procedure applicable for each signatory state."¹⁰⁷⁵ The communiqué issued on the occasion expressed the signatories' determination to make ECOWAS "a pragmatic, dynamic and effective institution which will take into account the realities prevailing in the Member States." It created five institutions viz: the Authority of Heads of state and Government, which is the principal governing institution (Article 5); the Council of Ministers, representing Member States governments; the Defence Council; the Executive Secretariat; the Tribunal of the Community; and Four Technical and Specialized Commissions, each of which originates proposals relating to its functional areas. The fifth was added in May 1981, which was the Defence Commission. The others are:

- (i) Trade, customs, immigration , monetary and payments commission (TCIMPC);
- (ii) Industry, agriculture and natural resources commission (IANRC);
- (iii) Transport, telecommunications and energy commission (TTEC); and
- (iv) Social and cultural affairs commission (SCAC).

¹⁰⁷² Its membership comprises Benin, Burkina Faso, Côte d'Voire, Mali, Niger, Senegal and Togo, who all share a common central bank, the BCEAO.

¹⁰⁷³ Aryeetey, *ibid.*, p.28.

¹⁰⁷⁴ GOWON Yakubu, *The Economic Community of West African States: A Study in Political and Economic Integration*, PhD Thesis, University of Warwick, 1984, p.456. Available at <http://webcat.warwick.ac.uk/record=b1462317~S15> Site visited 21-05-2013.

¹⁰⁷⁵ GOWON Yakubu, *ibid.*, p.374..

The Treaty bears 65 Articles which though is elaborate, but is less fuzzy on central issues of economic integration, silent on critical issues of sustainable development and climate change, which are in- league with industrialization and common market. It also did not provide for a legislative assembly, which is an indication of its unwillingness to integrate politically. It created a Fund- the ECOWAS Fund for Cooperation, Compensation, and Development (EFCCD), which in 2001 was renamed the ECOWAS Bank for Investment and Development (EBID). It has since 1991 added another institution- the Community Court of Justice,¹⁰⁷⁶ previously, known as Tribunal, which officially started operations when the 1991 Protocol establishing it came into force in November 1996. It has jurisdiction among others, to rule on fundamental human rights breaches.¹⁰⁷⁷ The Treaty was revised in July 1993, which brought about some changes and modifications to the institution. Aside from changing the Fund to a Bank and the Tribunal to a Court, it introduced a political dimension by establishing a Community Parliament, an indirect representative assembly with 115 membership.¹⁰⁷⁸ It also increased the numbers of Deputy Executive Secretaries from two to four, while introducing the Environment into the programme of the Community. And the ECOWAS Secretariat in Abuja became the Community Commission in 2006, by a transformation of the Community embarked upon by the Heads of State and Government. The Commission has enhanced powers, with Commissioners in charge of smaller and clearly defined sectors, more impact and greater visibility in Member States. It is headed by a President, assisted by a Vice President, asides the Commissioners.¹⁰⁷⁹

Most of the policy objectives of the Community are yet to materialize today due to a number of critical problems the Community started with and is still grappling with. Most obvious of these are external influence and the bane of multiplicity of membership of organisations, as stated above. External influence in that, after independence, the Francophone West African States went into bilateral cooperation agreements with France, which secured for the latter a privileged position in economic and political dealings with the former leading to substantial flow of military, technical and capital aids to the former colonies from France, as well as the Yaoundé I and II Conventions with the EEC under the influence of France, under which a preferential trade zone was established between the former colonies and the EEC, whereby the States benefitted from the funds for economic set up by the EEC. Until after ten years these countries received independence that these traditional links began to decline that the regional initiatives taken aimed at building integration started taking shape. Also there is the difficulty and problem of inadequate infrastructure, roads, railway, telecommunications, and such

¹⁰⁷⁶ See Articles 6 and 15, Revised Treaty of the Community. The Court is composed of 7 independent Judges appointed by the Authority of Heads of State and Government, from nationals of Member States for a four year tenure, upon the recommendation of the Community Judicial Council. It is headed by a President, assisted by a Vice President, appointed from among the Judges. It has a Chief Registrar assisted by Court Registrars. See Community Court of Justice- ECOWAS, 10th Anniversary, 2001-2011. Available at http://www.courtecowas.org/site2012/index.php?option=com_content&view=article&id=2&Itemid=5. Site visited 29-05-2013.

¹⁰⁷⁷ See Article s 9, 10 and 76 Revised Treaty.

¹⁰⁷⁸ The ECOWAS Parliament consists of membership of the national parliaments of each Member State Viz: Benin, Cape Verde, the Gambia, Guinea-Bissau, Guinea-Conakry, Liberia, Sierra Leone, and Togo have 5 Representatives each; Burkina Faso, Mali, Niger, and Senegal have 6 Representatives each; Cote d'Ivoire has 7; Ghana has 8; while Nigeria has 35. See Institute for Security Studies, Profile: Economic Community of West African States (ECOWAS). Available at http://www.iss.org.za/AF/RegOrg/unity_to_union/ecowasprof.htm. Site visited 05-05-2013.

¹⁰⁷⁹ See The ECOWAS Commission. Available at <http://www.comm.ecowas.int> Site visited 05-05-2013.

other vital links for free movement of goods and persons, which is the main aim of the Community.¹⁰⁸⁰ Irrespective of the above and other shortcomings implicitly manifesting ECOWAS, it has been described as probably the most complete and for a time, the most successful example of regional integration anywhere in the third world.¹⁰⁸¹

ECOWAS started without a programme or policy on the environment and climate change despite that consciousness on the environment was already on the burner at that time, as it was after the Stockholm Conference of 1972, hence it was not expected to be completely blinded to the issue of the environment as manifested from the communiqué issued at the end of the signing ceremony of the formation of ECOWAS, it was explicitly stated that, “The Heads of State and Government and Plenipotentiaries affirmed, as their basic aim, the promotion of cooperation and development in all fields of economic activity. In particular, they emphasised the need for cooperation in the field of industry, transport, telecommunications, energy, agriculture, natural resources, commerce, monetary and financial matters and in social and cultural matters...”¹⁰⁸² This makes it all too glaring that, though the idea of the Community was borrowing a leaf from the EEC, it was not doing so with all painstakingness, as the by this time, the EEC was already beginning to figure out issues on the environment, which was expected to be on ECOWAS agenda from the scratch or inception. It however introduced the environment into its core programme as one of its Technical Commissions in its revised Treaty of 1993, and created a Directorate on Environment in 2007, whose main responsibilities include defining an environmental policy; developing action plan/programmes for the policy’s implementation; and collaborating with relevant departments, regional, international stakeholders in its operations.¹⁰⁸³

4.3.1 ECOWAS Climate Change: Legal and Institutional Policies and Framework

Changing climate has been known to West Africa for long, as much of those parts now desert lands have been landscape of lakes, savannah and open woodlands in the past, but have become drier overtime due to monsoon collapse. The sub-region, and indeed the entire African continent, has been described as one of the most vulnerable regions to climate change in the world.¹⁰⁸⁴ The last century (20th), was one of considerable

¹⁰⁸⁰ UDOGU E. Ike, Economic Community of West African States: From an Economic Union to a Peacekeeping Mission?, The Review of Black Political Economy, March 1999. available at <http://www.accessmylibrary.com/article-1G1-63091149/economic-community-west-african.html>. Site visited 24-05-2013.

¹⁰⁸¹ GOWON Yakubu, The Economic Community of West African States: A Study in Political and Economic Integration, PhD Thesis, University of Warwick, 1984, p.21. Available at <http://webcat.warwick.ac.uk/record=b1462317~S15>. Site visited 21-05-2013.

¹⁰⁸² Gowon, *ibid.*, p.384.

¹⁰⁸³ BOANUH Johnson, Advancing Africa’s Sustainable Development Agenda in ECOWAS Region. Text of a Paper presented at the Workshop on Institutional and Strategic Framework for Sustainable Development in Africa, UNECA, Addis Ababa, 7-9 March, 2011.

¹⁰⁸⁴ NIASSE Madiodio; AFOUDA Abel and AMANI Abou (Eds.), Reducing West Africa’s Vulnerability to Climate Impacts on Water Resources, Wetlands and Desertification: Elements for a Regional Strategy for Preparedness and Adaptation, IUCN, Gland, Switzerland and Cambridge, UK, IUCN Publications, 2004. See also, JOST Stéphane; SIDIBÉ Brahim and MAGHA Mohamadou, Climate Change in West Africa: Sahelian Adaptation Strategies, Sahel and West Africa Club/OECD, High Level Conference on World Food Security: The Challenges of Climate Change and Bioenergy, Rome, 3-5 June, 2008.

climate variability, with unusually high rainfall in the period between the 1930s and 1950s, which incidentally, was succeeded by an extended period of drought which lasted for much of the latter half of the century,¹⁰⁸⁵ characterized by a rise in temperatures up to about 1°C, and rainfall drop by as much as 30 per cent.¹⁰⁸⁶ In its latest report, the IPCC confirmed that in the 21st century, global warming would be more intense in Africa than in the rest of the world.¹⁰⁸⁷ Since the beginning of the century really, a sizeable portion of the continent has been experiencing intense drought, described as the worst in the past sixty years.¹⁰⁸⁸ In other parts, inland flooding has reached a worrisome level, resulting in loss of lives and destruction of properties worth several billions of Dollars, which are the result of global warming. The case of the Niger Delta area, and some other flash points, of Nigeria in 2012 are instant examples, where abnormal excessive rainfall has caused grave damage.¹⁰⁸⁹ Whereas on the contrary, the IPCC's scenario indicate that the cropping season in the Sahel and Sudano-Sahelian zones could be reduced by over 20 per cent by 2050, being among the most vulnerable areas in West Africa.¹⁰⁹⁰ In many areas of West Africa, the challenges of living in an increasingly unpredictable climate are further exacerbated by such other factors as lack of infrastructure, lack of education, instability and conflict, and chronic poverty.¹⁰⁹¹

The Authority of Heads of State and Government in its December 2008 Meeting in Abuja, Nigeria adopted a policy on the environment,¹⁰⁹² with a call on Member States and the Commission to effectively implement it in

¹⁰⁸⁵ Drought has adversely affected the Lake Chad, described by the UN Food and Agricultural Organisation (FAO), as once Africa's largest water reservoir in the Sahel, and once the third-largest source of freshwater in Africa, as one of the most important heritage sites in the world, providing a lifeline to nearly 30 million people in four countries- Cameroon, Chad, Niger and Nigeria. It describes its recession and drying up as an "ecological disaster." It's about one-twentieth of the size it was 35 years ago, from 25,000Km² of surface area in 1963 to 1, 350Km² in 2001. See Africa Renewal, Africa's Vanishing Lake Chad: Action Needed to Counter an "Ecological Disaster", Africa Renewal, April 2012, p.24, United Nations Africa Renewal, 2013. Available at <http://www.un.org/africarenewal/magazine/april-2012/africa's-vanishing-lake-chad> . Site visited 24-05-2013. See also COE Michael T. and FOLEY Jonathan A., Human and Natural Implications on the Water Resources of the Lake Chad, Center for Sustainability and the Global Environment, Institute for Environmental Studies, University of Wisconsin, Madison, Journal of Geophysical Research, Vol.106, No.D4, pp.3349-3356, February 27, 2001.

¹⁰⁸⁶ KISS Alexandre and Shelton, Dinah, Guide to International Environmental Law, Leiden, Martinus Nijhoff Publishing, 2007, p.236.

¹⁰⁸⁷ JOST Stéphane, *ibid*.

¹⁰⁸⁸ In the horn of Africa and parts of East Africa towards the Sahara, the drought has reached crisis level, resulting in food crisis in those areas, and that coupled with internal crises in some of the nations in the areas affected.

¹⁰⁸⁹ The Nigerian Federal government statistics revealed that the 2012 floods affected 7 million people, displace 2.3 million people, killing over 363 persons, and damaged about 597, 476 houses, while in the last two years, according the Federal Ministry of the Environment, the floods have resulted in losses totaling about 2.6 trillion Naira. See, ABUTU Alex, Nigeria: FG Gives Out Casualty Figures of 2012 Flood, Daily Trust Online, Thursday 30th May, 2013. Available at <http://allafrica.com/stories/201305300904.html> . Site visited 01-06-2013.

¹⁰⁹⁰ JOST Stéphane, *ibid*.

¹⁰⁹¹ ROBISON Rosie and BROOKS Ruth Findlay, West Africa: The Climate of Change: Climate Change Impacts, Awareness and Preparedness Across West Africa, University of Cambridge Programme for Sustainability Leadership, November 2010, pp.5, 7.

¹⁰⁹² See Supplementary Act A/SA.4/12/08, as approved by the Ordinary Summit of the Heads of State and Government in Abuja. See also ECOWAS, ECOWAS Environmental Policy. Available at http://www.comm.ecowas.int/dept/d/d2/en/d_d2_activities.pdf . Site visited 05-05-2013.

synergy with other sectoral policies.¹⁰⁹³ It identifies environmental problems in the sub-region as: climate; Air Pollution; Deforestation; Conservation of Biological Diversity; Desertification; Coastal Erosion and Waste. It envisages to address the following concerns in the light of the above: Stabilize the environment; Reverse the heavy tendencies of degradation; Reduction of dependence on natural resources; Rehabilitate and maintain healthy environment. It hopes to accomplish these by Promoting knowledge and capacities; Contributing to the sustainable management of natural resources for the fight against poverty and food insecurity; Ensuring the maintenance or sustainable restoration of an healthy environment; Promote eco-citizenship for more responsibility on environment; Promote partnership for the improvement of the environment.¹⁰⁹⁴ In furtherance to these came the adoption of a strategic sub-regional programme to reduce vulnerability and adaptation to climate change in West Africa in March 2010, in Accra, which seek to strengthen the scientific and technical capacity of the sub-region to reduce vulnerability to climate change; to promote the integration of climate change aspects into development at policies, strategies, programmes and projects at sub-regional and national levels, and to develop and implement sub-regional and national programmes and projects on adaptation to climate change.¹⁰⁹⁵

The Environmental Policy also seeks to strengthen environmental governance and building capacities to that effect by setting up a regional mechanism; promote sustainable management of resources for the improvement of the sub-regional economy in an environment-friendly manner; prevent environmental pollution and nuisance, urban waste and the control of transboundary movement of hazardous waste/products; and promote environmental information, education and communication for a healthy environment within the sub-region. The overall objective of the Policy is to “reverse environmental degradation and depletion of natural resources, ameliorate the quality of the living environment, conserve biological diversity, with a view to ensuring a healthy and productive environment, thereby improving the wellbeing of the ecosystem and the sub-region.”¹⁰⁹⁶ It has an Environmental Action Plan in place, developed to guide the implementation of the Environmental Policy. It has taken measures towards ensuring that Member states implement the Nationally Appropriate Mitigation Actions (NAMAs), emphasising the need for them to develop and implement NAMAs in the shortest possible time. Series of workshops on NAMAs are being organised for countries in the region to present and discuss their priority action plans and chart a common front towards meeting the global climate change phenomenon. Another concept alongside this is Measurement, Reporting and Verification (MRV), which can help nations to develop effective policies.¹⁰⁹⁷ The Community has gone

¹⁰⁹³ See the Final Communiqué of the 35th Ordinary Session of the Authority of Heads of State and Government, 19 December, 2008. Available at http://www.ecowas.int/publications/en/communiqué_final/35eme/comfinal.pdf. Site visited 30-05-2013.

¹⁰⁹⁴ AJAERO Christopher Uchay, Session 6: Economic Community of West African States Programme on Environment Statistics, Yaounde, December 2011. Available at [http://www.unstatus.un.org/unsd/environment/envpdf/UNSD_Yaoundde_Workshop/Session06-1ECOWASProgramme\(UNSDfor ECOWAS\).pdf](http://www.unstatus.un.org/unsd/environment/envpdf/UNSD_Yaoundde_Workshop/Session06-1ECOWASProgramme(UNSDfor ECOWAS).pdf). Site visited 30-05-2013.

¹⁰⁹⁵ DJERI-ALASSANI Bougonou K., Climate Change Concerns Management and Perspectives in ECOWAS Commission, Abuja, ECOWAS Commission.

¹⁰⁹⁶ See ECOWAS Environmental Policy. Available at http://www.comm.ecowas.int/dept/d/d2/en/d_d2_activities.pdf. Site visited 05-05-2013.

¹⁰⁹⁷ IJIOMA Ezra, ECOWAS to Mitigate Impact of Climate Change, Leadership Newspapers online, 2 September, 2011. Available at http://leadership.ng/nga/articles/4654/2011/09/02/ecowas_mitigate_climate_change.html?quicktabs_2=1. Site visited 20 January, 2012.

ahead to organise a workshop on capacity building on NAMAs for Member States with the technical support of the African Climate Policy Centre (ACPC), and has developed a coordination mechanism on climate change initiatives with national, sub-regional, regional and international actors.¹⁰⁹⁸

On climate change, the Community had a Conference on the Reduction of Vulnerability to Climate Change in Ouagadougou, Burkina Faso in January 2007, and a Ministerial Dialogue on Climate Change in Cotonou, Benin Republic in November 2008, where some recommendations were made. It commissioned a study that reviewed the state of vulnerability and impacts in the sub-region, which confirmed the 4th IPCC Report that, temperatures in the West African sub-region have increased steadily over the years from 0.2 to 0.8 degrees, particularly since 1978; that, rainfall has decreased sharply, particularly in the Sahel region, revealing a southward movement of the rainfall isohyets to about 200 kilometers in the Sahel from 1960 to 1990, thus resulting in severe droughts, with adverse impacts on water availability for agriculture, livestock, forests and other sectors like energy, health, eco-tourism, trade and transport, and worsening the region's poverty situation.¹⁰⁹⁹ An Action Programme for Adaptation to Climate Change Vulnerability in West Africa was subsequently developed, with three specific objectives: to strengthen the scientific and technical capacity of the sub-region to reduce vulnerability to climate change; to promote integration of climate change aspects into development policies, strategies, programmes and projects at sub-regional and national levels; and to develop and implement programme and projects on adaptation to climate change at sub-regional and national levels.¹¹⁰⁰

In October 2011, the Regional Renewable Energy Policy for West Africa was launched by ECOWAS, which was expected to be validated by its Member States under a programme— ECOWAS Observatory for Renewable Energy and Energy Efficiency (ECREEE). This programme is assisting the fifteen Member States in the development, adoption and implementation of national renewable energy and energy efficiency policies and targets, regulatory frameworks, standards (as for appliances, generation equipment and building codes) among others.¹¹⁰¹ The draft policy document was expected to be validated by the ECOWAS Member States prior to its formal adoption by the Community's Energy Minister in 2012. The policy was expected to set attainable minimum renewable energy targets at regional level harmonised with national targets and will propose a portfolio of policy measures, laws, regulations and incentives to be implemented on national and regional ECOWAS levels with both short-term and long-term views.¹¹⁰² On this, laudable programme, progress have been achieved in some Member States like Ghana, Cape Verde and Senegal, which have made tremendous progress in formulating and implementing policies, laws, standards and incentive schemes, while the Gambia and Guinea-Bissau are following suit in similar vein.¹¹⁰³ Cape Verde has already attained 25 per cent renewable

¹⁰⁹⁸ Djeri-Alassani, *ibid.*

¹⁰⁹⁹ See ECOWAS Environmental Policy. Available at http://www.comm.ecowas.int/dept/d/d2/en/d_d2_activities.pdf. Site visited 05-05-2013.

¹¹⁰⁰ *Ibid.*

¹¹⁰¹ See ECOWAS Centre for Renewable Energy and Energy Efficiency. Available at <http://www.ecreee.org/page/policy-development>. Site visited 05-05-2013.

¹¹⁰² See ECOWAS Centre for Renewable Energy and Energy Efficiency Newsletter, Vol.4, 2012, p.10. Available at <http://www.uncsd2012.org/content/documents/163NewsletterECREEEWeb.pdf>. Site visited 01-06-2013.

¹¹⁰³ ECOWAS Centre for Renewable Energy, *ibid.*

energy generation status by 2011, and aims to achieve 50 per cent by the year 2020.¹¹⁰⁴ The Island completed the installation of a 25.5 MW wind park, thus increasing the installed capacity of renewable energy installation in the country to 33MW. With this project, it has already attained half of its target of 50 per cent renewable energy penetration by 2015, as adopted in its 2010 renewable energy policy.¹¹⁰⁵ This renewable energy resource is expected to cover solar, wind and bioenergy crops, and ECREEE is receiving aid from the United States Agency for International Development (USAID), UNIDO, the EU, Austria and Spain, as well as support-logistic and otherwise from bodies such as the International Renewable Energy Agency (IRENA), among others.¹¹⁰⁶ The wind and solar resources being supported by the USAID is being executed in two phases, the first phase is ongoing, which consists of mapping of the resources, development of tools to analyse the data and development of a database for further analysis.¹¹⁰⁷ This brings ECOWAS into the realm of sustainable energy goal, in line with the UN's initiative, Sustainable Energy for All (SE4ALL), programme meant to ensure the diversion from fossil energy sources to renewable energy resources.

Many Member States of the ECOWAS are already launching a national version of the programme in the sub-region. ECOWAS Renewable Energy aims to contribute to the achievement of universal access to sustainable energy services in the ECOWAS region by 2030, targeting specifically grid-connected renewable energy; decentralized renewable energy solutions; domestic applications and regional manufacture of renewable energy equipment. These are expected to be achieved by implementing frameworks to develop consistency between regional and national renewable energy policies; national renewable energy policies, implementation strategies action plans and budgetary allocations; measures to attract renewable energy power and hardware production investors and entrepreneurs; capacity development for national officials and technicians to design, implement and operate renewable energy applications; awareness and knowledge management through the ECREEE Observatory; and the ECOWAS action plan on renewable energy policy.¹¹⁰⁸

The ECREEE model has been so successful that it has become a model for other African sub regions like the Southern Africa Development Community (SADC) and the Eastern African Community (EAC).¹¹⁰⁹ Across the African continent there is observable growing interest in renewable energy, which manifest in the International Conference on Renewable Energy in Africa, held in Senegal in April 2008. This was followed by a Ministerial Meeting held in Maputo, which produced the Maputo Declaration on Energy Security and Sustainability in Africa, whose principles include: an increased access to modern energy services; better utility of Africa's rich energy resources; increase financial flows to match Africa's energy investment needs; and to promote a better

¹¹⁰⁴ ECREEE Newsletter, 2012, *ibid.*, p.5.

¹¹⁰⁵ Cape Verde Attains 25% Renewable Energy Penetration, ECREEE Newsletter, Vol. 2012, p.14.

¹¹⁰⁶ ECOWAS Centre for Renewable Energy and Energy Efficiency Newsletter, Vol.6, 6 March, 2013, pp.7, 8. Available at http://www.ecreee.org/sites/default/files/master_ecreee_6_newsletter.pdf. Site visited 03-06-2013.

¹¹⁰⁷ ECREEE Newsletter, 2012, *ibid.*, p.10.

¹¹⁰⁸ IISD, Summary of the Economic Community of West African States (ECOWAS)- Global Forum for Sustainable Energy (GFSE)- Global Environment Facility (GEF)- UN Industrial Development Organisation (UNIDO), High Level Energy Forum, IISD Reporting Services, Vol.187 No.13, November 2012. Available at <http://www.iisd.ca/energy/renewable/hlfreee/html/crsvol187num13e.html>. Site visited 29-10-2013.

¹¹⁰⁹ IISD Reporting Services, Summary of the ECOWAS-GFSE-GEF-UNIDO High Level Energy Forum Towards Sustainable Energy for all in West Africa: "Paving the Way for Sustainable Energy for all in West Africa Through Renewable Energy and Energy Efficiency," Published by the International Institute for Sustainable Development (IISD), Vol. 187, No.13, 3 November, 2012. Available at <http://www.iisd.ca/download/pdf/sd/crsvol187num13e.pdf>. Site visited 01-06-2013.

mix of energy supply options.¹¹¹⁰ The ECOWAS has a Resolution to raise energy efficiency in the region to international levels by freeing up 2,000 megawatts of power generation capacity by 2020; aims to phase-out inefficient , incandescent lamps by 2020, reduce average losses in electricity distribution from the current levels of 15-40 per cent to below 10 per cent by 2020; achieve universal access to safe, clean, affordable, efficient and sustainable cooking for the entire ECOWAS population by 2030, adopt region-wide standards and labels for major energy equipment by the end of 2014, and create instruments for financing sustainable energy including carbon finance by the end of 2013. It relies on implementation of the five ECOWAS initiatives at the Forum on efficient lighting; distribution of electricity; safe, sustainable and affordable cooking; standards and labeling; and financing sustainable energy. It was noted that the key to ECREEEs success and the success of ECOWAS policies is to consolidate political will for their effective implementation.¹¹¹¹

Other aspect of this initiative is the ECOWAS Small-Scale Hydro Power (SSHP), programme which is projected to promote the development and construction of a pipeline of SSHP projects, with over 400 sites already identified, in cooperation with national focal institutions.¹¹¹² Africa generally has a good number of rivers, most of which are international rivers which have the potential of supporting more hydropower generation if properly harnessed, like the Nile River, the Congo River, the Niger River, the Zambezi River among others. But in many African countries, hydro electricity generation is low, while in some few others like the Democratic Republic of Congo, Ethiopia, Mozambique and Zambia, it is generally high. Even with these, Africa remains the world's region which has failed to fully exploit its hydropower potential- less than 7 per cent of its feasible hydropower potential.¹¹¹³ Whereas hydropower can compete favourably with other greener sources of power, the only danger with hydro energy is that it is weather- conditional, in that it can be adversely affected by drought which is a serious course in the African continent, as many parts of the continent has suffered a prevalence of drought in the last decades. ECOWAS is rich in underutilized gas reserves. Natural gas is reputed the most environmentally friendly fossil fuel, emitting 47 per cent less greenhouse gas than coal, while being only half the price of diesel.¹¹¹⁴ There is also the ECOWAS Initiative on Energy Efficiency Standards and Labeling, which aims to double energy efficiency in West Africa to levels comparable to those in developed countries, which will require ECOWAS countries to realise energy savings of 4 per cent annually by 2020. Energy labeling would provide a powerful tool for market transformation by allowing consumers to make sound choices.¹¹¹⁵

As a result of endemic poverty in the continent, the average income per head is lower now than 30 years ago. Sub-Saharan is the only region where the annual growth of GDP per capita has been negative, at 1.0 per cent between 1975 and 1999, compared with 6.0 per cent for East Asia and the Pacific, and 2.3 per cent for South

¹¹¹⁰ GUARNACCI Ugo, Facing Climate Change: Transition to Renewable Energy in Africa, Monde Diplomatique, October 2010. Available at <http://www.cartografareilpresente.org/article648.html> . Site visited 22-01-2012.

¹¹¹¹ IISD, Summary of the Economic Community of West African States (ECOWAS)- Global Forum for Sustainable Energy (GFSE)- Global Environment Facility (GEF)- UN Industrial Development Organisation (UNIDO), High Level Energy Forum, IISD Reporting Services, Vol.187 No.13, November 2012. Available at <http://www.iisd.ca/energy/renewable/hlfreee/html/crsvol187num13e.html> . Site visited 29-10-2013.

¹¹¹² IISD Reporting, *ibid*.

¹¹¹³ Guarnacci *ibid*.

¹¹¹⁴ IISD, Summary of the ECOWAS, *ibid*.

¹¹¹⁵ IISD, Summary of the ECOWAS, *ibid*.

Asia.¹¹¹⁶ The region has the highest rates of biomass fuel use in the world.¹¹¹⁷ About 68 per cent still use local biomass (wood) for cooking,¹¹¹⁸ more than 75 per cent in most of the countries there use biomass for their primary source of household energy,¹¹¹⁹ while about 70 per cent of sub-Saharan Africans still lack access to basic energy services, hence every available efficient and climate-friendly source of energy would be of interest to the policy makers. The energy efficiency policy will complement the existing array of ECOWAS policies by addressing the challenge of making the most efficient use of the region's energy resources. This in addition with the policies on energy access and renewable energy will constitute a comprehensive ECOWAS policy framework for achieving Sustainable Energy for All (SE4ALL), aiming for universal access by 2030.¹¹²⁰ Geothermal energy is another budding source in the continent, particularly in the East Africa and the Rift Valley region, which once fully tapped, is sustainable, affordable and not dependent on weather conditions.¹¹²¹ The tendency however, of having an impressive geothermal energy source in West Africa is not rife, as the region is on the Atlantic belt where volcanic activities are not well known, unlike the Pacific region, where we have the East Africa. The recent closest incidence to volcanic activity in the West African region was in 1986, when the Lake Nyos¹¹²² of Cameroon released lethal gases, causing a casualty of about 1, 200 people, and all living things within 15 Mile (25Km) radius of the lake. There has since not been a repeat occurrence of the incidence, even though the area is said to still be highly contaminated.¹¹²³

The initiative on Energy Efficiency aims to leverage best practices and use an integrated approach to make lighting activities sustainable through policy measures, capacity building, awareness raising and financing. It also has the advantage of reducing the negative environmental externalities, in the form of GHG emissions, air, soil and water pollution, land degradation arising from use of energy.¹¹²⁴ Novel as this initiative is, it may be threatened by highlighted problems in the form of problems caused by product and architectural designs which contradict energy efficiency principles; the role of carbon credits; the use of solar lanterns; adoption of decrees

¹¹¹⁶ OSMAN-ELASHA Balgis, Multiple Stresses and Vulnerability to Food Systems in Africa: A Case Study From Sudan. Text of a Paper delivered in International Conference: Food Security and Environmental change, University of Oxford, UK 2-4 April, 2008.

¹¹¹⁷ STARKE Linda (Ed.), State of the World 2011: Innovations that Nourish the Planet, The World watch Institute, w.w. Norton Publishing, 2011, p.82.

¹¹¹⁸ LEFEVERE Jürgen, Keynote Intervention, a Paper presented at the International Seminar on A Pivotal Turn in Global Climate Governance? Evidence From EU-China and EU-Vietnam Climate Relations, Brussels, 24 October, 2013.

¹¹¹⁹ STARKE Linda, op cit., p.82.

¹¹²⁰ ECOWAS Energy Efficiency Policy (EEEP), ECOWAs Centre for Renewable Energy and Energy Efficiency (ECREEE). Available at <http://www.ecreee.org/page/ecowas-energy-efficiency-policy-eeep>. Site Visited 05-05-2013.

¹¹²¹ DUARTE, Mafalda, Full Stream Ahead? Geothermal Energy Can be Africa's Game Changer, Business Day Live, Financial Mail Newspaper Online, Thursday 4th March, 2013. Available at <http://www.bdlive.co.za/indepth/AfricanPerspective/2013/03/04/full-stream-ahead-geothermal-energy-can-be-africas-game-changer;jsessionid=4013F229C20FF865DC5785C315922C02.present1.bdfm>. Site visited 06-06-2013.

¹¹²² Lake Nyos is a crater lake in the Oku volcanic field, about 320 Km northwest of Yaounde, the Cameroonian capital. With the neighbouring Lake Monoun (95Km southeast of Nyos, also in Cameroon), these are reputed to be the only two volcanic lakes in the world, as Lake Kivu, another African lake in the borders between D.R. Congo and Rwanda, that contain large amounts of CO₂ dissolved at depths. See The Lake Nyos Disaster, August 1986- lake kills 1,700. Available at http://www.geo.arizona.edu/geo5xx/geo577/projects/kayzar/html/lake_nyos_disaster.html. Site visited 06-06-2013.

¹¹²³ BBC On This Day, 1986: Hundreds Gassed in Cameroon Lake Disaster. Available at http://news.bbc.co.uk/onthisday/hi/dates/stories/august/21/newsid_3380000/3380803.stm. Site visited 06-06-2013.

¹¹²⁴ ECOWAS Energy Efficiency Policy (EEEP), ECOWAs Centre for Renewable Energy and Energy Efficiency (ECREEE). Available at <http://www.ecreee.org/page/ecowas-energy-efficiency-policy-eeep>. Site Visited 05-05-2013.

banning the use of inefficient lamps. There is also those of monitoring and enforcement, lack of recycling capacities, properly disposing of compact fluorescent bulbs containing mercury, the need for product labeling, lack of interest from energy producers to encourage energy efficiency, and the need for solutions for dealing with old incandescent lamps.¹¹²⁵ More than these is the non-challant attitude of the sub-region's leaders, who merely placate their people and the world to be committed while the opposite is the case, and of course, the populace themselves who have become indifferent to their situation and may not respond easily to apparent changes. This may however be for a multiple of reasons among which are poverty and economic factors. Coupled with these is the likely effect of the multiplicity of initiatives in this policy, which could threaten or outrightly jeopardize its success, unless there is proper monitoring to avoid overlap and/or conflict of interests. The renewable energy and energy efficiency directives of the EU have shown that regional integration can be an effective tool to catalyse necessary actions at national level.¹¹²⁶

However, pollution of the environment is still on the upscale in the Community with scale oil exploration activities in Nigeria, and with Ghana, a prominent Member State launching into the fray of oil producing and exporting countries. The situation in Ghana is not expected to be a far cry from Nigeria's, as it is almost on the same level of technological development and social parity with Nigeria, and would also rely so much on revenue from oil, hence not likely to be able to hold it out against the oil multinationals, whose practices in the developing nations leaves much to be desired, vis-à-vis their practices in their countries of origin and the developed nations. This brings to the fore the key issue of sustainable development. ECOWAS is participating in the African Monitoring of the Environment for Sustainable Development (AMESD), whose aim is to improve decision making process in the fields of environmental risk management, with the expectation of increasing information management capacity of African regional and national institutions in charge of environmental matters; and facilitating access to Earth Observation (EO) technologies. It is one of the five sub-Saharan Africa Regional Economic Communities participating in the project.¹¹²⁷

4.4 Comparison with, and Inspiration from the EU Position

The European Union has been much at civilization and development far before and beyond the Economic Community of West African States. The former also started a process of integration for development and political unification when even most of the latter were still colonies under the former. If for these and many more reasons, there might actually be no basis for a comparison between the two. But for whatever it takes, the two are identical in purpose, their major goal being for regional economic integration and economic development. They both also started their process of integration without a policy on the environment until circumstances arising from the cause of industrialization and development made them realise the need for a purposeful environmental programme, failing which the realisation of their ultimate goals might be a futility after all. One genuine cause of identity between both is maintaining the peace in their regions, which both

¹¹²⁵ IISD Reporting, *ibid*.

¹¹²⁶ ECOWAS Centre for Renewable Energy and Energy Efficiency, ECOWAS Renewable Energy Policy (EREP). Available at <http://www.ecreee.org/page/ecowas-renewable-energy-policy-erep>. Site visited 05-05-2013.

¹¹²⁷ ECOWAS, ECOWAS Environmental Policy. Available at http://www.comm.ecowas.int/dept/d/d2/en/d_d2_activities.pdf. Site visited 05-05-2013.

have done practically well. Just as the EU was created at the very onset after the World War II to forestall any repeat of such bizarre experience in the Region, and to maintain a lasting peace, so is ECOWAS striving to achieve peace in the sub-region. However, it suffices to state that this cause is taking too much toll of the resources of ECOWAS, as much of the resources that should have been invested in economic development has overtime been diverted to the cause of ensuring peace in the sub-region, contrary to the EU whose situation in this regards has been much fairer,¹¹²⁸ but for a few cases of crises in parts of the region. The Union runs military, political or civilian missions to help build and secure the peace in a number of countries in Europe, Africa and beyond, such as in Afghanistan.¹¹²⁹

The real issues of confronting climate change in West Africa to start with, concerns real structures in the form of institutions, which are still not in place, like we have in the EU, such as a strong Community parliament, which is representative of the people; a Commission with functional paraphernalia including experts in the relevant fields of its activities, and one which can hold out against any Member State through the apparatus of strong policies, body of rules strictly enforceable by the appropriate authorities; the Commission must of vital necessity start a functional climate change directorate in the Commission, such a sensitive issue as climate change cannot be left under a shrouded environmental directorate; then the activities of Non-Governmental Organisations (NGOs), in the area of climate change must be enhanced. No doubt there are strong NGOs are coming up, but their strength to influence national governments and Community policies and activities as in the EU is not yet strongly felt, unlike in the EU where they are able to have their ways through the institutions-be it the Council, the Parliament, or the Commission, thereby influencing the outcome of decisions based on public opinions on key issues like the environment and climate change. The jurisdiction of the Community Court must needs be enhanced to the status of a watch dog of the other institutions. The rules and legal dictates of the Community must be strengthened, without which not a little would be achieved. The political and economic objectives of the European Steel and Coal Community (ECSC), were realised through the expression of a legal instrument. Law serves to realise political and economic aspirations.¹¹³⁰ Above all, Member States must be willing to concede spheres of authority and influence to the ECOWAS like the individual Member States have done in the evolution of the EU up till this point where it becomes an enviable body. The need for African countries to set a minimum quality standard on different environmental issues cannot be over emphasised.¹¹³¹ A long way still to go in realising these objectives, however, it is not insurmountable if the Member States are willing to do it within a common resolve. ECOWAS unlike the EU does not have concrete institutions and region-wide policies and instruments of implementation to match the EU's facilities, which might takes several years, if not decades to put in place, for a proper regional approach to climate change. These are basic necessities.

¹¹²⁸ The EU supports the social and economic development of its partners, and with its Member States are the world's largest donor of development and humanitarian aid, contributing more 60% of the world's official development assistance. See European Union, What We Do, European External Action Service (EEAS). Available at http://eeas.europa.eu/delegations/Nigeria/what_eu/what_we_do/index_en.htm. Site visited 30-05-2013.

¹¹²⁹ European Union, What We Do, European External Action Service (EEAS). Available at http://eeas.europa.eu/delegations/Nigeria/what_eu/what_we_do/index_en.htm. Site visited 30-05-2013.

¹¹³⁰ WEATHERHILL Stephen, Law and Integration in the European Union, Oxford, Oxford University Press, 1995, p.9.

¹¹³¹ BACKES Chris and BETLEM Gerrit, Integrated Pollution Prevention and Control, The Hague, Kluwer Law International Publishing, 1999, p.106.

4.5 Conclusion

The efforts of the ECOWAS sub-region is commendable as it concerns its awareness and concentration on renewable energy and energy efficiency, which if sufficient resources could be committed to it, and consistently followed through could bring the region's contribution to global warming to almost zero. It needs to be emphasised however, that this would hardly be realizable considering what it is committing to its Peace-Keeping Mission outfit- the Economic Community of West African States Monitoring Group (ECOMOG). This is a necessary outfit by all standards and the Community could do no less, going by the amount and enormity of internal political and inter- state crises rocking the various Member States of the Community,¹¹³² which if not promptly and adequately attended to by neutral forces, could engulf the entire region, as well as discourage and scare away foreign direct investment (FDI), from the economic Community. Without FDI, there can be no economic lifeline of sort in the Area. Peace is sine qua non to economic growth and development. However, there needs to be a much stronger commitment to its environmental issues, especially as it concerns climate change, as the Area has been described as one of the most vulnerable even in the most vulnerable continent itself. Notwithstanding the understanding of all the Member States on environmental issues, which has often been the constraint on taking appropriate decisions, it should be realised that the practice of states as enshrined in the Rio Declaration is that, once there is a risk of threat to the environment, lack of concurrence in evidence should not be a barrier to prompt action through cooperation.¹¹³³ It is imperative to point out that regional environmental action programmes under the auspices of the UN could contribute to ensure better regional cooperation,¹¹³⁴ and enhancing a more widely acceptable understanding of the issues involved in environmental concerns and help improve significantly, the development of the law and implementation of same under international standards.

The European Union is a good example of the way forward and out of the global climate change problem, which if other regional groupings could follow after its example, promises to bring about a reversal of the present threatening trend the world is drifting. No individual nation could isolate itself from the collective attention and efforts at salvaging this only life- supporting planet Earth. The EU would have an onerous task of showcasing its admirable though, rigorous efforts at reaching this stage on climate change and environmental issues generally, to other parts of the world, using its economic, diplomatic, political and every other means it could muster to convince and carry the rest of the world along, else all its efforts and sacrifices would amount to an abysmal effort in futility, if there is no change in the dangerous drift the world is edging. Emerging economies like China, India, Mexico, South Africa, Indonesia, and the world giant the United States of America need to be convinced by every means possible to reason and save the world from self-destruction, not only for the coming generations, but for this present generation as well.

¹¹³² Some cases in point include the Liberian civil war in the early 1990s, also, the Sierra Leonean civil war, the political succession crisis in Cote d'Ivoire, the Malian crisis, among others.

¹¹³³ SMITH Imran O., Sustainable Development and Environmental Diplomacy: Reconciling Economic Growth With Environmental Protection by the Year 2000 and Beyond, in SIMPSON Struan and FAGBOHUN Olanrewaju (Eds.), Environmental Law and Policy, Lagos, Lagos Law Centre, Faculty of Law, Lagos State University, 1998, p.278.

¹¹³⁴ KRÄMER Ludwig, Regional Economic Integration Organizations: The European Union as an Example, in BODANSKY Daniel; BRUNNÉE Jutta and HEY, Ellen (Eds.), The Oxford Handbook of International Environmental Law, Oxford, Oxford University Press, 2007, p.875.

CHAPTER FIVE

International Climate Change Negotiations

5.0 Introduction

The world coming to terms with global warming and its consequences as one of the greatest challenges facing humanity since the last century, had no choice but to fashion ways to circumvent this imminent threat to humanity by coming together in round table conferences and dialogues. Ever since the first conference in Berlin in 1995,¹¹³⁵ which came to set the ball rolling, there has been quite a number of such and on different aspects of the subject of climate change, almost on yearly basis, in different parts of the globe. Before the coming into being of the United Nations Framework Convention on Climate Change (UNFCCC), the World Meteorological Organisation had convened the World Climate Conference in 1979, which was to provide the groundwork for the unfolding concerns about the changing climate in the years to come.¹¹³⁶ These have been able to deal scientifically exhaustively on the issue, with enormous resources going into it as well. It has been one issue that has attracted the greatest assemblage of humanity and the highest concentration of the best in knowledge. It deserves no less considering the enormity of the consequences involved. This chapter will attempt a simple bird's-eye view of some of these conferences and how they have shaped the image of this threat and the resilience of humanity towards it. These efforts have helped in small measure in shaping the course of attention to climate change, thus bringing it to somewhat control, howsoever it may be viewed.

5.1 A Review of the Outcome of Some of the Major Conferences on Climate Change

Climate change is about the single issue that has drawn the concern and attention of the whole world, such that it has taken the center stage of human attraction since the last quarter of the last century,

¹¹³⁵ United Nations Convention on Climate Change COP1, Berlin, Germany.

¹¹³⁶ ZILLMAN John W., A History of Climate Activities, World Meteorological Organisation Bulletin Vol. 58, No.3, July 2009, pp.141-150. See also, United Nations Framework Convention on Climate Change (UNFCCC), The International Response to Climate Change, 2014. Available at https://www.unfccc.int/essential_background/background_publications_htmlpdf/climate_change_information_kit/items/300.php. Site visited 08-07-2014.

when the Intergovernmental Panel on climate change was set up in 1988.¹¹³⁷ Ever since, it has become an annual event in different dimension and under different issues ranging from global warming, sustainable development, desertification, conservation, marine, forestry, and many more. No single nation in the entire can single out or isolate itself from the entire phenomenon as wide ranging as it is. It is therefore apposite to take a closer look at some of the issues that have come under closer scrutiny in the course of time, as presented in a number of conferences held so far. It is so much now, that it would be unthinkable to want to attempt a review of every single conference on climate change as there are numerous such going on at one point in time or the other in one single year. However, this aspect would be devoted to some of these which are more strategic and relevant to the sub-Saharan Africa.

5.1.1 The United Nations conference on environment and development (UNCED), Rio earth summit 1992.

Coming twenty years after the first global meeting on climate change, the first of which took place in Berlin in 1995, and after the first United Nations Conference on the Human Environment, Stockholm 1972, a predecessor to the Rio Earth Summit was borne out of the need for serious attention to the environment while sustaining development economic development should not warrant the damage or destruction of the environment, as both are inter-related. The need for the integration of environment and development issues became so obvious that it was of necessity to reconcile the two, hence the essence of the UN Conference on Environment and Development, which took place in Rio de Janeiro, Brazil between 3-14 June, 1992. One of the outcomes of the Conference was the Agenda 21 which laid out the principles and guidelines for development in a manner that would not endanger the environment nor constitute a threat to the resources. The core message of the Summit was the recognition that the global ecological crisis had to be solved in an equitable way, through partnership, hence the birth of the concept of common but differentiated responsibilities (CBDR). A principle which places the despoliation of the global environment, both historically and in the present, at the door step of the North, and places a greater responsibility in resolving the environmental problems arising thereof also on the North.¹¹³⁸

The high point of the UNCED is first and foremost that it succeeded in bringing the concept of sustainable development to the knowledge and consciousness of all globally, making it a household phrase,¹¹³⁹ even if the world finds it difficult to adhere to its dictates. It also brought about the commitment to the move towards human beings as the centre of concerns for sustainable

¹¹³⁷ Editor, Gore 'Deeply Honoured' By Nobel Prize, ABC News Online, 12 October, 2007. Available at <http://www.abc.net.au/news/2007-10-12/gore-deeply-honoured-by-nobel-prize/697162> . Site visited 25-06-2014.

¹¹³⁸ KHOR Martin, Effects of Globalisation on Sustainable Development After UNCED, third World Network (TWN), sine die.

¹¹³⁹ DODDS Felix; SCHNEEBERGER Kirsty and ULLAH Farouk, Sustainable Development in the 21st Century (SD21), Review of Implementation of Agenda 21 and the Rio Principles, January 2012 United Nations Department of Economic and Social Affairs, Division of Sustainable Development, p.5.

development, which goes on to become the key phrase that would dominate environmental discussions from that time onward.¹¹⁴⁰ The UNCED was a landmark for catalyzing the development of citizen movement, with thousands of Non-Governmental Organisations (NGOs), participating, and providing a ground for interaction between the citizens' groups and the governments on the most pressing global problems confronting the earth.¹¹⁴¹ It seeks to present sustainable development in two perspectives, each balancing the other viz: as environmental protection and meeting the basic human needs of present and future generations, and one warranting a change and consumption patterns in an equitable manner whereby resources which are currently being wasted are saved and re-channeled to meeting the needs of everyone today as well as the need of future generations.¹¹⁴² Besides these, other distinctive features of the UNCED includes the Agenda 21, which is the blueprint for attaining sustainability, as laid out in the outcome of the Conference Declarations; the Forest Principles; and the Rio Declaration. It succeeded in securing new and additional financial resources to meet convention goals; promotion of transfer of technology to developing countries; as well as, an institutional mechanism to enable the international community to manage the climate change problem over the long term in consonance with the IPCC.¹¹⁴³ The outcome of the Conference has been discussed in some details in the previous chapter under the issue of sustainable development. However, it suffices to state that the UNCED has a number of limitations among which will be briefly highlighted herein. It is imperative to point out that both the Agenda 21 and the Rio Declaration made explicit the intractable connection between climate change and sustainable development. Climate change was presented as a major environmental challenge facing development.¹¹⁴⁴ The disparity between the two is being closed for a balanced attention, for instance, the 2002 World Summit on Sustainable Development brought renewed attention to the climate-development nexus.¹¹⁴⁵ But despite these whole gamut of efforts at streamlining climate and development, we find that most government agencies in developing and least developed countries (LDCs), and most local-level development groups, still do not adequately incorporate climate change into their development activities,¹¹⁴⁶ an indication that the Rio message is not yet fully taken in.

¹¹⁴⁰ TURNER Stephen J., *A Substantive Environmental Right: An Examination of the Legal Obligations of Decision-Makers Towards the Environment*, Alphen aan den Rijn, Kluwer Law International, 2009, p.8.

¹¹⁴¹ KHOR Martin op cit.

¹¹⁴² KHOR Martin, *ibid.*

¹¹⁴³ MEAKIN Stephaine, *The Rio Earth Summit: Summary of the United Nations Conference on Environment and Development*, Science and Technology Division, UNCED, November 1992. Available at <http://www.publications.ga.ca/Collection-R/LoPBdP/BP/bp317-e.htm>. Site visited 20-05-2013.

¹¹⁴⁴ HUQ Saleemul; REID Hannah and MURRAY Laurel A., *Climate Change and Development Links*, Gatekeepers 123 Series, International Institute for Environment and Development, London, 2006, p.8.

¹¹⁴⁵ HUQ Saleemul *ibid.*, p.9.

¹¹⁴⁶ HUQ Saleemul, *ibid.*, p.10.

The Rio Declaration significantly, was the first international instrument specifically to incorporate the Common But Differentiated Responsibility principle,¹¹⁴⁷ in keeping with the principle of equity which was a contentious matter in the Conference, between the North and the South. It also produced international instruments that dealt with specific sectoral issues like the United Nations Framework Convention on Climate Change (UNFCCC), the UN Commission on Sustainable Development (UNCSD), the UN Convention to Combat Desertification (UNCCD), the Forest Principles, the Straddling Fish Stocks Agreement,¹¹⁴⁸ among others. The Earth Summit did reaffirm the centrality of equity in its Agenda 21 and the Rio Declaration.¹¹⁴⁹ Viewed critically, this principle might be a negation or an exception to the principles of sovereign equality and reciprocity,¹¹⁵⁰ which might have been why the US in the succeeding years, insisted that developing countries must take binding obligations for it to ratify the Kyoto Protocol. The US Congress passed the Byrd-Haggle Resolution in 1997, which tied US acceptance of binding emission reduction targets to the imposition of similar targets for developing countries.¹¹⁵¹ It was to mediate some new shared understanding between the highly industrialized countries of the North and the newly industrializing nations of the South. The nations of the North were to concede their responsibility for polluting their own backyards, and everyone else's, while the countries of the South were to strike a fresh bargain with the North not to repeat all of the North's industrial missteps.¹¹⁵²

The Rio Summit was read as being about environment and development, or "translating economic wealth into genuinely better living conditions over the next generation." Even though the US has purported to be "pro-environment" to all of its domestic and foreign audiences, the George H.W. Bush administration persistently maintained throughout the proceedings leading to the Rio Summit that, "the American lifestyle is not up for negotiations,"¹¹⁵³ which effectively negative whatever positive posture it may want to put up. The long and short of this is that the US was not interested in showing any understanding about the plight of the concerns of the rest of the world, as long as its own interests are taken care of. It has to be stressed that environmental inequities already exist in all societies, much more between the rich North and the poor South, which the US fail to take due cognizance of, or seem not to want to care about the consequences of it as felt by the other people,

¹¹⁴⁷ See Principle 7. See also, the principle as discussed supra. Likewise, ATAPATTU Sumudu, Climate Change, Differentiated Responsibilities and State Responsibility: Devising Novel Legal Strategies For Damage Caused by Climate Change. In RICHARDSON Benjamin J; Le BOUTHILLIER Yves; MCLEOD-KILMURRAY Heather and WOOD Stepan (Eds.), Climate Law and Developing Countries: Legal and Policy challenges For the World Economy, Cheltenham, Edward Elgar Publishing, 2011, p.40.

¹¹⁴⁸ DODDS Felix, supra, p.5

¹¹⁴⁹ BEDER Sharon, Costing the Earth: Equity, Sustainable Development and Environmental Economics, New Zealand Journal of Environmental Law, 4, 2000, pp.227-243.

¹¹⁵⁰ ATAPATTU Sumudu, op cit., p.40.

¹¹⁵¹ ATAPATTU Sumudu, ibid., p.42.

¹¹⁵² LUKE Timothy W., A Rough Road Out to Rio: The Right Wing Reaction in the United States Against Global Environmentalism. Available at <http://www.cddc.vt.edu/tim/tims/Tim599.htm> . Site visited 25-05-2012.

¹¹⁵³ LUKE Timothy ibid.

and the negative consequences this has had on efforts at combating climate change so far. Despite this, the US is not reneging on its hardline stance held over the years, while China, India, Brazil and the other emerging economies also stuck to their own grounds leaving the rest of the world to bear the brunt of their intransigence.¹¹⁵⁴ Poorer people tend to suffer the burden of environmental problems more than others do. Much more than that, it could result in intergenerational inequity. Vulnerable non-State actors such as indigenous people often are paying a disproportionate price as a result of climate change, so that any discussion of equity in relation to climate change must accommodate the interests of such groups.¹¹⁵⁵ Sustainable development as earlier said is about the ability of future generations to meet their needs, notwithstanding that although future generations might benefit from present economic progress, but if care is not taken, such benefits might be more than offset by environmental deterioration.¹¹⁵⁶ It suffices to realise that, many environmental problems such as global warming and chemical contamination are the result of affluence rather than poverty.¹¹⁵⁷

The intransigence and reluctance of the US among others led the way to Rio's near-failure, nevertheless, the Rio Declaration although unanimously accepted as non-legally binding, has been regarded as one of the most important areas of work as far as efforts on climate change and development are concerned.¹¹⁵⁸ According to Maurice Strong, the multimillionaire architect and Secretary General of both the 1972 United Nations Conference on Human Environment and the 1992 Rio Summit, (UNCED), estimated US\$6 or \$7 billion was pledged by the assembled nations to aid the poor countries of the South, yet, the US essentially balked at a binding pledge to give only 0.7 per cent of its Gross National Product (GNP), to pay for sustainable development in the third world.¹¹⁵⁹ The failure of the UNCED to prescribe a definite regulation of the activities of business, financial institutions and transnational corporations (TNCs), in Agenda 21, who are mainly responsible for generating the greatest percentage of pollution and resource extraction in the world, constitutes a major flaw of the Conference. It would appear as a rather loose ends provision its provision for plans for business and industry to be involved in working towards sustainable development.¹¹⁶⁰ This grossly

¹¹⁵⁴ CARLARNE, Cinnamon Piñon, *Climate Change Law and Policy: EU and US Approaches*, Oxford, Oxford University Press, 2010, p.307.

¹¹⁵⁵ ATAPATU Sumudu, *Climate Change, Differentiated Responsibilities and State Responsibility: Devising Novel Legal Strategies for Damage Caused by Climate Change*, in RICHARDSON Benjamin J; Le BOUTHILIER Yves; MCLEOD-KILMURRAY Heather and WOOD Stepan (Eds.), *Climate Law and Developing countries: Legal and Policy Challenges for the World Economy*, Cheltenham, Edward Elgar Publishing, 2011, p.38.

¹¹⁵⁶ BEDER Sharon op cit.

¹¹⁵⁷ BEDER Sharon ibid.

¹¹⁵⁸ LING Chee Yoke, *The Rio Declaration and Development: An Assessment*, Third World Network (TWN), Penang, Third World Network Publishing, 2012, p.9

¹¹⁵⁹ LUKE Timothy, ibid.

¹¹⁶⁰ UNCED Final Texts, 3-14 June, 1992, Rio de Janeiro, Brazil, UN Sales No. E.93.1.11 (1993). See also, TURNER Stephen J., *A Substantive Environmental Right: An Examination of the Legal Obligations of Decision-Makers Towards the Environment*, Alphen aan den Rijn, Kluwer Law International, 2009, p.122.

threatens whatever gains might have been recorded on sustainable development.¹¹⁶¹ The hide-and-seek game the US and the emerging economies under the leadership of China and India, have been playing with the disastrous climate change catastrophe is only a ticking time-bomb that is waiting for a time to blow up, and then unfortunately, it is the hapless poor developing nations that would suffer the most in its aftermath, having no technology to counter the consequences. Besides, the US' stance is a negation of the Principle 8 of the Declaration of the UNCED which states that “[t]o achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.”¹¹⁶²

5.1.1.1 Agenda 21

This is a non-legally binding agreement embodying an action plan for a global partnership and worldwide implementation of sustainable development,¹¹⁶³ arising out of the Rio Conference 1992. It is a set of international norms and expectations meant to influence government policy contains, 39 Agenda and 21 Chapters.¹¹⁶⁴ It represents a step towards compatibility of economic growth and environmental protection.¹¹⁶⁵ It was devised to deal with some of the fundamental problems of resource degradation; also aid and assistance to the developing world in focus. It further aims to address such issues as global sustainability and seeks to ensure that development proceeds in a sustainable manner.¹¹⁶⁶ It is significant in that it reflects a consensus on principles, practices and rules that might contribute to the development of new rules of conventional and customary law. The Rio Declaration and Agenda 21 include important elements which reflect and are contributing to the development of customary international law. The former boasts of being the single most significant negotiations of the climate change and Biodiversity Conventions, considering its contribution to the development of international environmental rules and jurisprudence, as well as its being frequently

¹¹⁶¹ KHOR Martin, Globalisation and the Crisis of Sustainable Development, Asia-Pacific Research Network (APRN), Journal and Policy Papers, Vol.4, June 2001. Available at <http://www.aprnet.org/journals-a-policy.papers/volume-4-june2001/254-globalization-and-the-crisi-of-unsustainable-development>. Site visited 25-05-2013.

¹¹⁶² Rio Declaration on Environment and Development (UN Doc. A/CONF. 151/5/Rev. 1, 1992.) See also, TURNER Stephen J., A, *ibid.*, p.122,

¹¹⁶³ IISD Reporting Services, Summary of the ECOWAS-GFSE-GEF-UNIDO High Level Energy Forum Towards Sustainable Energy for all in West Africa: “Paving the Way for Sustainable Energy for all in West Africa Through Renewable Energy and Energy Efficiency,” Published by the International Institute for Sustainable Development (IISD), Vol. 187, No.13, 3 November, 2012. Available at <http://www.iisd.ca/download/pdf/sd/crsvol187num13e.pdf> . Site visited 01-06-2013. See also, BALDWIN W.A., ‘Agenda 21,’ in Encyclopedia of Environment and Society, Thousand Oaks, Sage Publishing, 2010. Available at <http://www.uk.sagepub.com/booksProdDesc.nav?level1=W00currTree=SubjectsprodId=Books228938> .

¹¹⁶⁴ BALDWIN, W.A. *ibid.* See also, DODDS Felix; SCHNEEBERGER Kirsty and ULLAH Farouk, Sustainable Development in the 21st Century (SD21), Review of Implementation of Agenda 21 and the Rio Principles, January 2012 United Nations Department of Economic and Social Affairs, Division of Sustainable Development, p.5.

¹¹⁶⁵ BALDWIN W. A. *ibid.*

¹¹⁶⁶ MEAKIN Stephanie, The Rio Earth Summit: Summary of the United Nations Conference on Environment and Development, Science and Technology Division, UNCED, 1992. Available at <http://www.publications.ga.ca/Collection-R/LoPBdP/BP/bp317-e.htm> . Site visited 20-05-2013.

invoked and referred to by international courts and tribunals.¹¹⁶⁷ It also committed countries to promoting environmental sustainability through education, providing that, “Education is crucial for promoting sustainable development and improving the capacity of the people to address environment and development issues...”¹¹⁶⁸ Agenda 21 sets forth for the first time a worldwide framework for sustainability goals, which international, national, regional, and local governments should transform on the governmental level into policy at the various policy levels.¹¹⁶⁹ A prime target of Agenda 21 is to eliminate poverty throughout the world by ensuring a more judicious management of energy and natural resources, acknowledging that no uniform solution could be found for global application, but rather country-specific programmes with supporting international efforts,¹¹⁷⁰ with an average annual implementation cost estimated at US\$600 billion between 1993-2000.¹¹⁷¹ It aims at improving the quality of life through provision of shelter, clean water as well as sewage and solid waste management and treatment, which are all sure indices of poverty.¹¹⁷² This goal of poverty eradication has most unfortunately been far-fetched in that the level of poverty in Africa, especially in the SSA¹¹⁷³ is worsening than it used to be in the past decades. The continent’s resources are being exploited and siphoned at a much alarming rate with more international business organisations getting involved in this, and that with utter disregard for the environment. These have been the root cause of the majority of internal crises in most of the countries on the continent.¹¹⁷⁴ Agenda 21 reflects a global consensus and political commitment at the highest level towards the implementation of national strategies, plans, policies and processes to be supported and supplemented by international cooperation.

¹¹⁶⁷ See for example, ITLOS Seabed Disputes Chamber, Advisory Opinion on Responsibilities and Obligations (2011), at pars. 125-7, 135; the Iron Rhine Arbitration Award (2005), at par. 59. See also, SANDS Philippe; PEEL Jacqueline; FABRA Adriana and MACKENZIE Ruth, *Principles of International Environmental Law* (3rd Ed.), Cambridge, Cambridge University Press, 2012, pp.45, 110-111.

¹¹⁶⁸ See Chapter 36, UNCED 1992.

¹¹⁶⁹ SCHLÖR Holger; FISCHER Wolfgang and HAKE Jürgen-Freidrich, *The Meaning of Energy Systems for the Genesis of the Concept of Sustainable Development*, *Journal of Applied Energy*, Vol.97, 2012, pp.192-200.

¹¹⁷⁰ See Chapter three, Agenda 21.

¹¹⁷¹ SANDS Philippe, *ibid.*, p.44.

¹¹⁷² Based on OECD/DAC guidelines on Poverty Reduction, poverty is defined as the lack of opportunity to live what is considered a decent life on the basis of their own judgment and standpoint. It may thus be interpreted as an extreme deprivation of wellbeing or the deprivation of basic capabilities. See, ERIKSEN Siri E. H. et al, *Climate Change Adaptation and Poverty Reduction: Key Interpretations and Critical Measures*, Report Prepared for the Norwegian Agency for Development Cooperation (NORDA), *Global Environmental Change and Human Security (GECHS)*, Report 2007:1, p.14. Available at <http://www.sei-international.org/mediamanager/documents/Publications?Climate/climatechangeadaptationpovertyreduction.pdf>. Site visited 30-06-2014.

¹¹⁷³ SSA has 48.5% poverty headcount ratio at US\$1.25 a day (PPP) (% of population) in 2010 as against 2.4% in Middle East and North African Region, 0.7% in Europe and Central Asian Region, and 5.5% in Latin America and Caribbean Region. SSA has 69.9% poverty headcount ratio at US\$2 a day (PPP) (% of population) in 2010 as against 12.0% in the Middle East and North African Region, 2.4% in Europe and Central Asian Region, and 10.4% in Latin America and Caribbean Region. See *Data, Poverty*, The World Bank 2013. Available at <http://data.worldbank.org/topic/poverty>. Site visited 25-09-2013.

¹¹⁷⁴ The Congolese conflict, the Ugandan, the Sierra-Leonean, the Liberian, the Sudanese, the Nigerian (Niger Delta) and some more have been reference points of internal crises bordering on resources management in the countries concerned.

Sad enough, the rate of the resources exploitation is not commensurate with development in the continent. The continent remains the least developed in the world, and the most exploited! The continent has the highest number of the poorest nations of the world. Across the sub-Saharan African countries, median GDP per capita purchasing power parity (PPP), increased from US\$1,315 in 2007 to US\$1,610 in 2010 that is, from 22% in 2007 to 36% in 2010; yet the median percentage of 16%, who reported getting by on present income in 2010 is nearly half of what it was in 2007. Median of 36% found it “very difficult” to live on household income in 2010.¹¹⁷⁵ The relationship between TNCs and the developing nations becomes especially important to consider, because of the continuing state of poverty of many of these countries. The imbalance of these countries’ gross national products (GNPs), versus the annual sales of many of the largest TNCs creates a vast power imbalance in the TNCs favour. The development strategies of many governments in the developing world see the TNCs as a potential engine for economic growth as well as an avenue for sustainable development paths through the transfer of cleaner production processes,¹¹⁷⁶ which has never been achieved. The TNCs have this trait in common, to exploit and degrade their areas of operation without affecting such positively, because of their international spread and financial clout which such communities or countries could not match.¹¹⁷⁷ Money being one of the most significant levers with which one actor is able to influence another, it may well then be that states have lost their power to the market and players in the market.¹¹⁷⁸

TNCs are known to act on behalf of the environment in countries where they are intensely regulated, mainly in industrialized countries,¹¹⁷⁹ whereas in developing and least developed countries (LDCs), they treat the nations and the people with disdain forcing down their throats treatments they dare not practice in their home countries and in the industrialized countries. Most of these developing and LDCs have been reluctant to put in place rules which have the potential to impose significant constraints on the conduct of potentially hazardous activities, as well as being aware of the significant costs to the public sector,¹¹⁸⁰ for reason of their dependence solely on the resource as revenue earner. The TNCs have a reputation of impoverishing their host nations more than they met them, constituting a catastrophe to their environment as well. This contravenes one of the ultimate goals of Agenda 21 which is to eliminate poverty throughout the world through better management of energy

¹¹⁷⁵ TORTORA Bob, Sub-Saharan Africans Struggle Financially Even as GDP Grows, Gallup World, January 2011. Available at <http://www.gallup.com/poll/145787/sub-saharan-africans-struggle-financially-even-gdpgrows.aspx#> . Site visited 13-08-2013.

¹¹⁷⁶ ROBBINS Peter, TNCs and Global Environmental Change: A Review of the UN Benchmark Corporate Environmental Survey, Global Environmental Change, Vol.6, No.3, 1996, pp. 235-244.

¹¹⁷⁷ The revenues of 350 largest TNCs amount to one-third of the industrialized world’s Gross National Product (GNP), and far exceed by several hundred billion dollars that of the developing world. See Robbins, *ibid*.

¹¹⁷⁸ ROBBINS Peter, *ibid*.

¹¹⁷⁹ ROBBINS Peter, *ibid*.

¹¹⁸⁰ SANDS Phillipe, Principles of International Environmental Law (2nd Ed.), Cambridge, Cambridge University Press, 2003, p.938. See also, TURNER Stephen J., A Substantive Environmental Right: An Examination of the Legal Obligations of Decision Makers Towards the Environment, Alphen aan den Rijn, Kluwer Law International, 2009, p.123.

and natural resources, and ensuring access to shelter and clean water, sewage and solid waste treatment.¹¹⁸¹ The TNCs have through the International Chamber of Commerce (ICC), stridently sought behind the myth of self-regulation a naked attempt to control the global environmental debate before public pressure forces them to face governmental regulations. The ICC on its own has allied itself with governments resisting the Climate Convention and Biodiversity Protocol Treaties and lobbying those that made efforts to address global environmental problems, successfully lobbying for the adoption of business-friendly “solutions” to global warming, preventing the weakening of intellectual property rights granted to corporations under the World Trade Organisation (WTO) Trade-Related Aspects of Intellectual Property Rights (TRIPs) Agreement.¹¹⁸² Agenda 21 as well as the Rio Declaration and the Stockholm Declaration emphasised the effect that business and industry can have on the environment,¹¹⁸³ which thus calls for a clear-cut responsibility on climate change and environment for these TNCs.

The implementation of Agenda 21 is the responsibility of governments,¹¹⁸⁴ with key roles to be played by the UN system, other international, regional and sub-regional organisations, and with broad public participation and the active involvement of non-governmental organisations.¹¹⁸⁵ To the extent that its implementation remains the responsibility of governments, Agenda 21 requires of local authorities in every country to undertake a consultative process with their populations and achieve a consensus on Local Agenda 21 for their communities.¹¹⁸⁶ There is the Local Agenda 21 Planning Guide prepared by the International Council for Local Environmental Initiatives (ICLEI), which introduces an approach such as a planning framework for sustainable development at the local level. The Guide documents a process for developing action plans to address complex problems inherent to modern urbanized societies. It presents a framework for engaging local authorities with residents and local organisations in the design and provision of services to the community, while simultaneously protecting local, regional and global ecosystems.¹¹⁸⁷ Towards achieving this, Nigeria launched the National Economic Empowerment and Development Strategy (NEEDS) in 2004 with the States of the federation and the Local Councils following suit with their version of the programme- the State Economic Empowerment

¹¹⁸¹ MEAKIN Stephanie, *ibid.*

¹¹⁸² KARLINER Joshua, *The ICC and the Environment*, ICC Fact Sheet No.3, 1999, Corporate Europe Observatory, (CEO), Amsterdam. Available at http://archive.corporateeurope.org/icc/icc_environment.html . Site visited 09-08-2013.

¹¹⁸³ TURNER Stephen J., *ibid.*, p.121.

¹¹⁸⁴ See “Local Authorities” Initiatives in Support of Agenda 21 (chapter 28 of Agenda 21). Available at <http://www.un.org/esa/sustdev/documents/agenda21/English/agenda21chapter28.htm> Site visited 21-06-2013.

¹¹⁸⁵ SANDS Phillipe *ibid.*, p.44. See also, LIN Jolene, *Supporting Adaptation in Developing Countries at the National and Global Levels*. In RICHARDSON Benjamin J. et al (Eds.), *Climate Law and Developing Countries: Legal and Policy Challenges for the World Economy*, Cheltenham, Edward Elgar Publishing, 2009, p.140.

¹¹⁸⁶ STRONG Maurice, *The Local Agenda 21 Planning Guide: An Introduction to Sustainable Development Planning*, International Council for Local Environmental Initiatives (ICLEI), Local Agenda 21 Initiative, Toronto, and UNEP Department of Information and Public Affairs, Nairobi, 1996. Available at <http://www.idr.ca/openebooks/448-2/>. Site visited 12-07-2013.

¹¹⁸⁷ DOWDESWELL Elizabeth, in *International Council for Local Environmental Initiatives (ICLEI), The Local Agenda 21 Planning Guide: An Introduction to Sustainable Development Planning*, Toronto, ICLEI Publications, 1996, p.III.

and Development Strategy (SEEDS) and the Local Economic Empowerment and Development Strategy (LEEDS). At the Rio Earth Summit 1992, it was agreed that the best starting point for the achievement of sustainable development is at the local level, that is, each local authority has to raw up its own Agenda 21, in the form of the UNCED Agenda 21, because Local Agenda 21 regards sustainable development as a community issue involving all sections of society including community groups, businesses and ethnic minorities. Local Agenda 21 entails ensuring a better quality of life for everyone both now and in the future, with focus on economic, social and environmental agenda by providing solutions to problems through more efficient practices.¹¹⁸⁸ In 2002, the UN held the World Summit on Sustainable Development (Rio+10), in Johannesburg, South Africa, to review the implementation strategy. The Summit underlined the importance of local governments as the main component of sustainable development and emphasised the need for citizens education on the issue.¹¹⁸⁹

Beautiful as the idea and initiative behind the Agenda 21 might be, yet it has its obvious flaws too, which constitute considerable setback to the nobility of the idea. Some of its weaknesses include but not limited to: The aftermath of the Rio Conference marked a significant drop in aids flowing to the developing nations of the south from the advanced north and OECD countries, as against their pledges of aids increase at Rio. It reportedly fell from US\$61 billion in 1992 to US\$56 billion in 1993, and has since then been worsening. The US Congress of particular note has been pressuring for a much reduced role for aid and the withholding of its obligatory funds to the United Nations. It must be pointed out that, to some developing nations, funds from aids remain their livewire, hence to withhold it would impact on their viable existence. It should be realised that globally, consumption and production patterns remain largely unsustainable, in that, over the last 25 years globally we are using around 50 per cent more natural resources than we were over the same, which are not equitably distributed. North American per capita consumption is around 90kg of resources per day, around 45kg per day for Europeans and around 10kg per day for Africans.¹¹⁹⁰

The seeming inability of Agenda 21 to curb the patterns of consumption, which are becoming more unsustainable and what more, presenting very little in terms of national policies and strategies to encourage changes in unsustainable consumption patterns, as it were is no mean flaw.¹¹⁹¹ The consequence of which is widening inequality between the North and the South. The lopsidedness of the consumption patterns becomes more painful considering the fact that, the world's richest people, who are enjoying the greater percentage of the world's resources at the expense of the larger

¹¹⁸⁸ Sustainable Development. Available at http://www.sustainable-environment.org.uk/Action/Local_Agenda_21.php. Site visited 12-07-2013.

¹¹⁸⁹ SKANAVIS Constantina; ZACHARAKI Polytimi; GIANNOULIS Christos and PETRENITI Vasiliki, Education on Sustainable Development Based on Local Agenda 21, *Journal of Environmental Protection*, 2011, Vol. 2, pp.371-378.

¹¹⁹⁰ DODDS Felix; SCHNEEBERGER Kirsty and ULLAH Farouk, Sustainable Development in the 21st Century (SD21), Review of Implementation of Agenda 21 and the Rio Principles, January 2012 United Nations Department of Economic and Social Affairs, Division of Sustainable Development, p.6.

¹¹⁹¹ Dodds, supra, p.7.

majority who are left with the smaller fraction, produce half of the world's emissions of carbon dioxide, the primary gas behind climate change, the greatest consequences of which the larger less privileged suffer. The three billion people who live in poverty emit just 7 per cent of carbon dioxide emissions. Although Americans represent only 5 per cent of the world population, they consume 25 per cent of the world's energy, according to the UN Food and Agriculture Organisation (UN FAO).¹¹⁹² US buildings consume more energy than entire countries like Russia and India.¹¹⁹³ Agenda 21 did not provide a means or a formula for paying for all of the work that needed to be carried out and the investment that needed to be made, on the heels that sustainable development in the UNCED's perspective required massive investment.¹¹⁹⁴ It also lacked substantial financial support making its sustainability flawed.¹¹⁹⁵

Some select nations have not been forthcoming on agreeing to disciplines on resource depletion in a bid to step up their industrialization. This has constituted a shortcoming to Agenda 21 in no small measure, coupled with the intransigence of a couple of developed nations who are harping on the posture of the emerging nations to obstruct global efforts on climate change from fruition. As much as the developed nations are not willing to assist needy developing nations financially as before, despite their trade restrictions, discriminations and unfavourable trade relations with these developing nations, it suffices to say that, genuine transfer of technology to these nations to expedite their industrial growth would have been of immense benefit to them, but the reverse is also the case in this instance, harping on intellectual property rights. Three Chapters- Chapter 4 on Changing Consumption Patterns; Chapter 7 on promoting Sustainable Human Settlement Development, and Chapter 9 on Protection of the Atmosphere were rated as having made no progress, or witnessed a regression.¹¹⁹⁶ The dire implications of these very important aspects of the Agenda 21 can be seen in the life of the developing nations where the larger percentage of the population are underfed, in most cases malnourished while the fewer percentage in the developed world are having more than a fair share of the world's resources at the expense of the former.

¹¹⁹² PEDRAZA-NAFZIGER Patricia, Overpopulation and Environmental Concerns, Bella Online, The Voice of Women, September 2013. Available at <http://www.bellaonline.com/articles/art53102.asp> . Site visited 22-09-2013.

¹¹⁹³ BENFIELD Kaid, Ten Large US Cities Join Initiative to Reduce Carbon Pollution From Buildings, SustainableCitiesCollective, 22 February, 2014. Available at http://www.sustainablecitiescollective.com/kaidbenfield/227241/ten-large-us-cities-join-major-new-initiative-reduce-carbon-pollution-buildings?utm_source=scc_newsletter&utm_medium=email&utm_campaign=newsletter&inf_contact_key=e486f1ab7068e3a95ec80db97e0f814ee73aed71339377cb40f7dea924b668a6 . Site visited 28-02-2014.

¹¹⁹⁴ It was estimated that about US\$600 billion would be needed to carry out its recommended measures in the developing countries alone, and about US\$3.5 billion per year for its biodiversity conservation measures, among others. See, TURNER Stephen, *infra*, p.65.

¹¹⁹⁵ TURNER Stephen, *A Substantive Environmental Right: An Examination of the Legal Obligations of Decision-Makers Towards the Environment*, Alphen aan den Rijn, Kluwer Law International Publishing, 2009, p.65.

¹¹⁹⁶ DODDS Felix, *ibid.*, p.5.

Urbanisation in the developing nations is burgeoning at the rate it is turning many of the cities to slums, with acute problems of transportation, waste management, inadequate housing and several other associated problems of urbanisation. Cities are the world's major drivers of economic growth accounting for 70 per cent of GHG emissions, usually from traffic congestion with a growing rate of private motorised transport, also associated with higher rate of traffic deaths, thus necessitating transport demand management (TDM), that calls for increased biking and walking.¹¹⁹⁷ From 1950 to 1960, 60 per cent of the growth of megacities was in the developing world (which today is the developed world). Between 2000 and 2010, the developing world accounted for 90 per cent out of the 28 biggest cities on Earth, only six are in the developed world. The fastest growing megacities in over the past decade are in the developing world, with Karachi, Pakistan leading the pack with an astounding 80% expansion in its population from 2000 to 2010. Lagos, Nigeria saw its population swell by over 48% and is expected to reach 25 million residents by 2015, and is projected to be the world's third largest megacity by 2015, according to the United Nations Department of Economic and Social Affairs (UNDESA) trailing after Tokyo and Bombay. Census figures show that the population of Kano in northern Nigeria has grown fourteen fold in forty-five years.¹¹⁹⁸ Bangkok, Thailand and Dhaka, Bangladesh both grew some 45%; while the world's second-largest megacity, Jakarta, Indonesia expanded 34% to almost 27 million.¹¹⁹⁹ More than 70 per cent of the world's population is projected to live in cities by 2050.¹²⁰⁰ The United Nations Department of Economic and Social Affairs (UNDESA) 2014 said that, world's urban population grew rapidly from 746 million in 1959 to 3.9 billion in 2014, 54 per cent of which live in urban areas. In 1990, there were 10 megacities with 10 million inhabitants, which were home to 153 million people and slightly less than 7 per cent of the global urban population at that time. But in 2013, there were 28 megacities worldwide accommodating 453 million people, which is expected to increase to 41 by 2030. The top 10 world's largest cities include Tokyo with 38 million inhabitants, Delhi with 25 million people, Shanghai with 23 million people, Mexico City, Mumbai and Sao Paulo with 21 million people each, Osaka with 20 million people, New York/Newark area and Cairo with 18.5 million people each.¹²⁰¹ Population growth in Africa is on the

¹¹⁹⁷ EMBARQ, Lessons From the C40 Mayors Summit: Scaling Up Solutions for Resilient Livable Cities, SustainableCitiesCollective, 21 February, 2014. Available at http://www.sustainablecitiescollective.com/embarq/226631/lessons-c40-mayors-summit-scaling-solutions-resilient-livable-cities?utm_source=scc_newsletter&utm_medium=email&utm_campaign=newsletter&inf_contact_key=6a30a9ccfe093c1c5d8d89f509503c2041ee90d38b70a6093d13b805e6af471e. Site visited 28-02-2014. See also, RIVES Karin, Transforming Transportation in Our Polluted, Congested Cities, The World Bank Group (US), 14 January, 2014. Available at <https://blogs.worldbank.org/climatechange/transforming-transportation-our-polluted-congested-cities>. Site visited 28-02-2014.

¹¹⁹⁸ SAYNE Aaron, Climate Change Adaptation and Conflict in Nigeria, United States Institute of Peace (USIP), Special Report 274, June 2011. Available at http://www.usip.org/sites/default/files/Climate_Change_Nigeria.pdf. Site visited 05-06-2014.

¹¹⁹⁹ KOTKIN Joel and COX Wendell, The World's Fastest-Growing Megacities

¹²⁰⁰ EMBARQ, op cit.

¹²⁰¹ News Agency of Nigeria (NAN), Nigeria, India, China to Witness Urban Growth- UN, 11 July 2014. Available at <http://www.punchng.com/news/nigeria-india-china-to-witness-urban-growth-un/>. Site visited 14-07-2014.

rise,¹²⁰² its fertility rate among the highest in the world, much higher than in many other continents of the world. By the end of century, Africa's population is expected to be larger than that of China, India and the whole of Asia combined. Africa has the world's youngest population, which constitutes both a source of instability but also an attraction for global investors seeking low-wage workers. This helps explain why financial flows into the continent have risen fourfold since 2000, reaching a record US\$200 billion in 2013, according to an African Development Bank (AfDB) report released recently. Economic growth in Africa now exceeds that in Latin America and is close to that of Southeast Asia. Yet, nearly half of Africans live in pronounced poverty, especially in the Sahel region that runs through northeast Nigeria.¹²⁰³ Today's ongoing pattern of urban sprawl puts humanity at severe risk due to environmental problems, because cities place tremendous strains on natural resources and the environment, with such issues as vehicular traffic congestion, which not only wastes fuel and causes pollution but resulted in man-hour time waste. People wasted an estimated 4.2 billion hours in slow vehicular traffic in the US alone in 2005, resulting in an economic loss of about \$4 billion a year. The way cities have grown since World War II is neither socially nor environmentally sustainable and the environmental cost of ongoing urban sprawl is too great to contain. Climate change would be expected to multiply the pressures of rapid urbanisation affecting the food supply.¹²⁰⁴

As long as development remains lopsided between the developed and the developing nations alike, it may be almost impossible to expect any meaningful outcome of such a noble idea that brought about Agenda 21. Where commercial interests and national economic competitiveness continue to take precedence over the environment, it may be absolutely impossible to prevent emissions from going beyond the 2°C before the turn of the century, the consequences of which may be overwhelming. The

¹²⁰² According to the International Planned Parenthood Federation, Africa's population growth rate was 4.8% in 2013 as against 3.4% in 2011. See, ARIBISALA Femi, Population Growth and Control in Africa, Nigeria Development and Finance Forum (NDFF), 11 October, 2013. Available at <http://www.stratfor.com/the-hub/polpulation-growth-and-control-africa>. Site visited 20-05-2014.

¹²⁰³ Monitor's Editorial Board, Africa's Best Response to Boko Haram, The Christian Science Monitor, 19 May, 2014. Available at <http://www.news.yahoo.com/africas-best-response-boko-haram-195100850--politics.htm>. Site visited 20-05-2014. See also, LAZUTA Jennifer, Africa to Record Largest Population Growth Over Next 40 Years, Voice of America Online, 12 September, 2013. Available at <http://www.voanews.com/content/africa-to-record-largest-population-growth-over-next-40-years/1748380.html>. Site visited 20-05-2014. See further, ARIBISALA Femi, Population Growth and Control in Africa, Nigeria Development and Finance Forum (NDFF), 11 October, 2013. Available at <http://www.stratfor.com/the-hub/polpulation-growth-and-control-africa>. Site visited 20-05-2014. See again, BBC News, Africa Population Tops a Billion, BBC News Channel, 18 November, 2009. Available at <http://news.bbc.co.uk/1/hi/8366591.stm>. Site visited 25-11-2011. See likewise, World Population Review, Africa Population 2014, 14 March, 2014. Available at <http://www.worldpopulationreview.com/continents/africa-population/>. Site visited 20-05-2014. See, PFLANZ Mike, Africa's Population to Double to 2.4 Billion by 2050, The Telegraph Online, 12 September, 2013. Available at <http://www.telegraph.co.uk/news/worldnews/africaandindianocean/10305000/Africas-population-to-double-to-2.4-billion-by-2050.html>. Site 21-12-2013. See also, Population Reference Bureau (PRB), World Population Data Sheet 2013, 2013. Available at <http://www.prb.org/Publications/Datasheets/2013/2013-world-population-data-sheet/data-sheet.aspx>. Site visited 20-05-2014.

¹²⁰⁴ BURGER Andrew, Sustainable Cities: Meeting the Challenges of Rapid Urbanisation the Focus of "Planet Under Pressure 2012", Triple Pundit, 28 March, 2012. Available at <http://www.triplepundit.com/2012/03/sustainable-cities-meeting-challenge-rapid-urbanisation-focus-planet-pressure-2012/>. Site visited 20-06-2014. See also, SAYNE Aaron, op cit.

present trend betrays the assertion of Livio DeSimone, that a paradigm shift took place in the 1992 Rio Summit, in his comments as the Chairman of the then World Business Council for Sustainable development (WBCSD).¹²⁰⁵ Agenda 21 has by no mean achieved substantial results, but needs to be enhanced for better results, especially in the developing and least developed nations of the world.

5.1.2 The Kyoto protocol (COP3), 1997

The Kyoto Conference was the result of years of intense negotiations among nations, leading to the drafting of the Kyoto Protocol.¹²⁰⁶ It was held sequel to the United Nations Framework Convention on Climate Change (UNFCCC), which opened for signature in 1992 and entered into force in 1994, as an important first step in international climate policy.¹²⁰⁷ The resultant Kyoto Protocol¹²⁰⁸ is a protocol to the UNFCCC,¹²⁰⁹ which constitutes the first legally binding treaty aimed at cutting emissions of the main greenhouse gases believed to contribute to global warming.¹²¹⁰ In its third annual meeting in 1997 at Kyoto Japan, the Conference of Parties (COP3) of the United Nation Framework Convention on Climate Change reached a historic agreement for reducing greenhouse gas emission known as Kyoto protocol under which most industrialized nations also known as the Annex I countries agreed to a legally binding reduction of GHG emissions by at least 5.2 % of their respective 1990 level for the first commitment period 2008-2012.¹²¹¹ The current emissions projection is for 2°C or 1.5°C by 2020.¹²¹² The Emissions Gap Report 2013 of the United

¹²⁰⁵ NAJAM Adil, World Business Council for Sustainable Development: The Greening of Business or a Greenwash? In BERGESEN Helge Ole; PARMANN Georg and THOMMESEN Øysten B. (Eds.), Yearbook of International Cooperation on Environment and Development 1999/2000, London, Earthscan Publications, 2003, pp. 65-75.

¹²⁰⁶ HODAS David R., Sustainable Development and the Marrakech Accords. In BRADBROOK Adrian J. et al (Eds.), The Law of Energy for Sustainable Development, IUCN Academy for Environmental Law Research Studies, Cambridge, Cambridge University Press, 2005, p.63.

¹²⁰⁷ HARVEY Fiona, The Kyoto Protocol is not Quite Dead, The Guardian Online, Monday, 26 November, 2012. Available at <http://www.theguardian.com/environment/2012/nov/26/Kyoto-protocol-not-dead/> . Site visited 07-10-2013.

¹²⁰⁸ The Kyoto Protocol was adopted in Kyoto, Japan on 11 December, 1997 and entered into force on 16 February, 2005.

¹²⁰⁹ UNFCCC stated that the ultimate objective of the Convention was to achieve, in accordance with the relevant provisions, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. See SCHNEIDER Stephen H., "Dangerous" Climate Change: Key Vulnerabilities. In ZEDILLO Ernesto (Ed.), Global Warming: Looking Beyond Kyoto, Washington, D.C., Brookings Publishing, 2008, p.58. See also, Article 2 of the Convention. See further, UNFCCC, Kyoto Protocol: Reference Manual: On Accounting of Emissions and Assigned Amount, United Nations Framework Convention on Climate Change (UNFCCC), 2008. Available at http://www.unfccc.int/resource/docs/publications/08_unfccc_kp_ref_manual.pdf . Site visited 07-10-2013.

¹²¹⁰ PEARCE Fred, The Politics of Climate Change Explained, November 2008. Available at http://www.earthorganization.org/articles/Library/THE_POLITICS_OF_CLIMATE_CHANGE_EXPLAINED/default.aspx . Site visited 04-10-2013. See also, NORDHAUS William D., Economic Analyses of the Kyoto Protocol: Is There Life After Kyoto? In ZEDILLO Ernesto (Ed.), Global Warming: Looking Beyond Kyoto, Washington D.C., Brookings Institution Press, 2008, p.91.

¹²¹¹ PATIR Mukesh, Additional Activities Under Article 3.4 of Kyoto Protocol Current State of Agreements Among Parties, March 2009. Available at <http://snrecmitigation.wordpress.com/2009/03/11/additional-activities-under-article-34-of-kyoto-protocol-current-state-of-agreement-among-parties/> . Site visited 03-11-2013.

¹²¹² den ELZEN Michel et al, The Emissions Gap Report: Are the Copenhagen Accord Pledges Sufficient to Limit Global Warming to 2°C or 1,5°C? A Preliminary Report, United Nations Environment Programme UNEP Full Report, November 2010, p.35. Available at

Nations Environment Programme (UNEP) concludes that the world is currently on track for warming of 3-4°C.¹²¹³ It seeks to ensure the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The Convention provided an objective, basic principles and obligations for the Kyoto Protocol, the outcome of the Kyoto Summit 1997, which was expected to be achieved within “a time frame sufficient to allow ecosystems to adapt to climate change...” The Kyoto Protocol facilitates the development and deployment of technologies that can help increase resilience to the impacts of climate change.¹²¹⁴ It also delineated the future playing field and defined the basic rules of the future game.¹²¹⁵ The main industrialised nations (later 41 nations),¹²¹⁶ tagged Annex I nations under the KP, while the others mainly developing nations were tagged non-Annex I nations, which were not allotted any emissions reduction targets. The aim of this is to achieve a reduction in GHG emissions of 5.2 per cent taking as reference the level of 1990 for countries of Annex B in the commitment period 2008-2012.¹²¹⁷ Of this category are some advanced developing countries- the BRICS, particularly China, the second largest economy in the world and now the largest emitter in the world, Brazil, India, Russia and South Africa; all of which are among the top ten largest economies in the world, except for South Africa only which is not.¹²¹⁸ Some industrialised nations had their emissions level increased from the 1990 level, which was the base year. This was done on the basis of a principle known as the common but differentiated responsibilities (CBDR),¹²¹⁹ in view of the fact that it was recognised that developed nations were

http://www.unep.org/publications/ebooks/emissionsgapreport/pdfs/GAP_REPORT_SUNDAY_SINGLES_LOWRES.pdf . Site visited 26-06-2014.

¹²¹³ European Commission, Increasing Pre-2020 Emission Reductions, European Commission Climate Action, 20 June, 2014. Available at http://www.ec.europa.eu/clima/policies/international/negotiations/initiatives/index_en.htm . Site visited 26-06-2014.

¹²¹⁴ UNFCCC, Kyoto Protocol, United Nations Framework Convention on Climate Change, 2013. Available at http://unfccc.int/Kyoto_protocol/items/2830.php . Site visited 25-09-2013.

¹²¹⁵ OBETHÜR Sebastian and OTT Hermann E., The Kyoto Protocol: International Climate Policy for the 21st Century, Berlin, Springer Publishers, 1999, p.33.

¹²¹⁶ The Annex 1 nations include Australia, Belarus, Canada, the EU (and its 28 Member States), Iceland, Japan, Kazakhstan, Liechtenstein, New Zealand, Norway, Switzerland, Ukraine and the US (which refused to ratify the KP). It is important to note that each Annex I Party chose the target it felt able to commit to, in the face of varying degrees of pressure from other parties. See also, UNFCCC, List of Annex I Parties to the Convention. Available at,

http://unfccc.int/parties_and_observers/annex_i/ . See further, HODAS David R., Sustainable Development and the Marrakech Accords. In BRADBROOK Adrian J; LYSTER Rosemary; OTTINGER Richard L. and XI Wang (Eds.), The Law of Energy for Sustainable Development, Cambridge, Cambridge University Press, 2005, p.63. See further, DEPLEDGE Joanna, From Negotiation to Implementation: The UN Framework Convention on Climate Change and its Kyoto Protocol, in OWEN Anthony D. and HANLEY Nick (Eds.), The Economics of Climate Change, London, Routledge Publishing, 2004, p.49.

¹²¹⁷ EL-SAYED Abeer and RUBIO Santiago J., Sharing R&D Investments in Cleaner Technologies to Mitigate Climate Change, FEEM Working Paper No.41, 2014.

¹²¹⁸ Economy Watch, The World’s Largest Economies, 30 June, 2010. Available at <http://www.economywatch.com/economies-in-top> . Site visited 05-10-2013. See also, The Richest, The World’s Largest Economies 2012, The Richest/Google + In World Rich List Online, 2012. Available at <http://www.therichest.com/rich-list/world/worlds-largest-economies/> . Site visited 05-10-2013. Also, BERGMANN Andrew, World’s Largest Economies 2013, CNN Money Online, 2013. Available at http://money.cnn.com/news/economy/world_economies_gdp/ . Site visited 05-10-2013.

¹²¹⁹ See Article 3 of the

principally responsible for the current high levels of GHG emissions in the atmosphere, from more than 150 years of industrial activities.¹²²⁰

The Annex I countries has the EU and all industrialised countries existing in 1992, which involves the 24 Organisation for Economic Co-operation and Development (OECD), and countries with economies in transition (CEITs), which involves mostly countries emerging as successor States to the former Soviet Republics, and the countries of the central and Eastern Europe. They were subject to special reporting obligations under the soft obligation to reduce their GHG emissions to the 1990 levels by the year 2000.¹²²¹ One notable exception to this is the US which refused to ratify the Protocol as its President refused to submit it to the US Congress for ratification. This was to be an almost death-blow to the KP, but it has since been weathering the effects of this negative action of the US, which has since not changed its stance on it.¹²²² Nonetheless, the KP more than any existing multilateral environmental agreement, impacts local and national economies, lifestyle choices, political beliefs and ethical perspectives. It is on these bases that Canada which was supposed to cut its GHG emissions by 6 per cent, exited the KP citing the reasons that the emissions standards do not cover the world's two biggest emitters- China and the US. And that, the demands of the KP are causing Canada to lose its economic competitiveness. Its GHG emissions are however rising, with something like 30 per cent above the target,¹²²³ which is expected to more than double by 2030 with exploitation of tar sands in the country. It is presumed that its pull-out might be because it's so far from meeting its goals and would hence have to pay high penalties.¹²²⁴ Solutions to global climate change have not been so easily forthcoming for the reasons of the intimate connection with economic growth, which has international agreement in this area especially hard to achieve, while emerging economies also similarly being reluctant to engage in international agreements so it might not compromise their economic performance, reflecting their sense of where historical culpability lies.¹²²⁵

The Kyoto Protocol was adopted in 1997 and entered into force in February 2005, while the detailed rules of its implementation were adopted at the Conference of the Parties COP 7 in Marrakesh,

¹²²⁰ United Nations Framework on Climate Change (UNFCCC), Kyoto Protocol. Available at http://unfccc.int/Kyoto_protocol/items/2830.php. Site visited 25-09-2013.

¹²²¹ Oberthür, *ibid.*, p.35.

¹²²² WEST Larry, What is the Kyoto Protocol? About.com environmental Issues, 2013. Available at <http://www.environment.about.com/od/kyotoprotocol/i/kyotoprotocol.htm>. Site visited 03-10-2013.

¹²²³ DILLOW Clay, Canada Pulls Out of Kyoto Protocol, Making it the First Country to Legally Opt Out, Popular Science Online, December 13, 2011. Available at <http://www.popsci.com/science/article/2011-12/Canada-pulls-out-kyoto-protocol-making-it-first-country-legally-opt-out>. Site visited 04-10-2013.

¹²²⁴ LASKOW Sarah, Why Canada is Withdrawing from Kyoto? Two Words: Tar Sands, Grist Online, 13 December 2011. Available at <http://www.grist.org/list/2011-12-13-why-is-canada-withdrawing-from-kyoto-two-words-tar-sands>. Site visited 04 -10-2013.

¹²²⁵ BIRNIE Patricia; BOYLE Alan and REDGWELL Catherine, *International Law and the Environment* (3rd Ed.), Oxford, Oxford University Press, 2009, pp.335-336.

Morocco in 2001, with a first commitment period starting in 2008 through 2012,¹²²⁶ stipulating only short term targets, limited to the first budget period, 2008-2012, but the goals are targeted at addressing long term challenge.¹²²⁷ Countries that ratify the KP agreed to reduce emissions of six greenhouse gases (GHGs), otherwise called the “six-gas basket,” that contribute to global warming: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).¹²²⁸ These are some of the very harmful compounds to humans which are toxic in content, and mostly responsible for global warming. They might be very slow in breaking down in the environment and are often characterized as persistent.¹²²⁹ The goal of the KP is to reduce worldwide GHG emissions to 5.2 per cent below 1990 levels between 2008 and 2012.¹²³⁰ It establishes a very complex and ambitious regime, in architecture if not stringency,¹²³¹ through innovative mechanisms established for parties to facilitate compliance with the commitment.¹²³² The Kyoto mechanisms (discussed infra) enhance the flexibility of Annex 1 Parties to meet their emission reduction or limitation commitments, by allowing them to take advantage of lower-cost emission reductions outside their territories. The mechanisms include Emissions trading (ET), Clean Development Mechanism (CDM), and Joint Implementation (JI).¹²³³ The Convention allows the Annex 1 parties to adopt national policies suitable to enhance their limitation of their GHG emissions to 1990 levels, and to adopt national policies and take corresponding measures on the mitigation of climate change, by limiting anthropogenic emissions of GHGs and protecting as well as enhancing its greenhouse gas sinks and reservoir.¹²³⁴ In addition to the flexibility

¹²²⁶ United Nations Framework on Climate Change (UNFCCC), Kyoto Protocol. Available at http://unfccc.int/Kyoto_protocol/items/2830.php. Site visited 25-09-2013.

¹²²⁷ ZEDILLO Ernesto, Introduction, in ZEDILLO Ernesto (Ed.), *Global Warming: Looking Beyond Kyoto*, Washington D.C., Brookings Institution Press, 2008, p.2.

¹²²⁸ See Art.3. Protocol.

¹²²⁹ Though the potency of each of these greenhouse gases varies, yet they could be harmful in a way. CO₂ for instance, sticks around for about a century, while CH₄, the second most important greenhouse gas, could generally last in the atmosphere for about a decade, but it's much more potent while it is there, hence could be lot more harmful while it lasts, and its consequences should not be undermined or compared with the others. See PEARCE Fred, *The Politics of Climate Change Explained*, November 2008. Available at

http://www.earthorganization.org/articles/LibraryTHE_POLITICS_OF_CLIMATE_CHANGE_EXPLAINED/default.aspx. Site visited 04-10-2013. See also, DEPLEDGE Joanna, *From Negotiation to Implementation: The UN Framework Convention on Climate Change and its Kyoto Protocol*. In OWEN Anthony D. and HANLEY Nick (Eds.), *The Economics of Climate Change*, London, Routledge Publishing, 2004, p.50

¹²³⁰ WEST Larry, *ibid*.

¹²³¹ BODANSKY Daniel, “Whither the Kyoto Protocol? Durban and Beyond”, Harvard Project on Climate Agreements, August 2011. Available at http://www.belfercenter.ksg.harvard.edu/publication/21314/whither_the_kyoto_protocol_durban_and_beyond.html Site visited 28-10-2013.

¹²³² United Nations Framework on Climate Change (UNFCCC), Kyoto Protocol. Available at http://unfccc.int/Kyoto_protocol/items/2830.php. Site visited 25-09-2013, p.12.

¹²³³ United Nations Framework on Climate Change (UNFCCC), Kyoto Protocol, p.15.

¹²³⁴ See Article 4.2 UNFCCC. See also, CARLARNE, Cinnamon Piñon, *Climate Change Law and Policy: EU and US Approaches*, Oxford, Oxford University Press, 2010, p.6.

mechanism are accompanying credibility mechanisms whose purpose is to secure environmental integrity.¹²³⁵

The Kyoto Protocol is generally seen as an important step towards a truly global emission reduction regime that will stabilize GHG emissions, and can provide the architecture for the future international agreement on climate change.¹²³⁶ The emissions targets if properly implemented promises to represent a historic reversal of the persistent upward trend in emissions in most of the industrialised world,¹²³⁷ and possibly persuade the developing countries to adopt emissions reduction targets. The KP, with all its imperfections, has succeeded in supplementing the UNFCCC in creating an important first step regulatory backbone of the still-evolving international climate change regime, with successes in different regions and countries around the world at the end of the first phase. The EU met its target of an 8 per cent cut,¹²³⁸ Japan reduced its carbon, though interrupted by the closure of nuclear plants (following the Fukushima disaster), the US, though not part of Kyoto, has seen its emissions fall to levels not seen since 1992 (though with marked increase in its oil exploration activities has begun to climb again in emission by flaring gas). In the past few years, it has been emissions from developing countries- especially China, not covered by the agreement that have been the main contribution to the greenhouse gas rise.¹²³⁹ But the non-provision for mechanisms for transparent implementation of concrete policies and measures within the framework of the Protocol will have a significant effect on their effectiveness. This is coupled with the non-provision of concrete rules for the mechanisms, which makes the KP looks like an “unfinished business.”¹²⁴⁰ Other confrontations against the KP include opposition from strategic forces like the Organisation for Petroleum Exporting Countries

¹²³⁵ See Articles 5, 7 and 8, of the Protocol. See also, DEPLEDGE Joanna, From Negotiation to Implementation: The UN Framework Convention on Climate Change and its Kyoto Protocol. In OWEN Anthony D. and HANLEY Nick (Eds.), The Economics of Climate Change, London, Routledge Publishing, 2004, p.51.

¹²³⁶ Protocol. Available at http://unfccc.int/Kyoto_protocol/items/2830.php. Site visited 25-09-2013, p.12.

United Nations Framework on Climate Change (UNFCCC), Kyoto.

¹²³⁷ DEPLEDGE Joanna, *ibid*, p.49.

¹²³⁸ In 2011, the latest year for which comprehensive data are available, EU-15, (the 15 countries which were Member States when the KP was agreed in 1997), emissions stood at 14.9% below their base-year level. Based on estimates for 2012 by the European Environment Agency, EU-15 emissions averaged 12.2% below base-year levels during the 2008-2012 period, meaning the EU-15 over-achieved its first Kyoto target by a wide margin. See European Commission, Climate Action, EU Greenhouse Gas Emissions and Targets, 31-10-2013. Available at <http://ec.europa.eu/clima/policies/g-gas/>. Site visited 04-11-2013.

¹²³⁹ CARLARNE Cinnamon Piñon, *Climate Change Law and Policy: EU and US Approaches*, Oxford, Oxford University Press, 2010, p.9. See also, HARVEY Fiona The Kyoto Protocol is not Quite Dead, *The Guardian Online*, 26 November, 2012. Available at <http://www.theguardian.com/environment/2012/nov/26/Kyoto-protocol-not-dead>. Site visited 04-11-2013. See further, ALDY Joseph E., *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World*, ZEW Wirtschaftsforum 2008, Mannheim, 27 June, 2008.

¹²⁴⁰ OBERTHÜR Sebastian and OTT Hermann, *The Kyoto Protocol: International Climate Policy for the 21st Century*, Berlin, Springer Publishing, 1999, p.96.

(OPEC) joined with the Global Climate Coalition, The Climate Council and Russia,¹²⁴¹ which later after intense lobbying from the EU ratified the Protocol.

From the inception it was obvious that the KP was meant to be an exclusive affair of the developed nations, by focusing exclusively on the developed countries emissions reductions,¹²⁴² but for the Clean Development Mechanism that ruled out this assertion completely. Yet, it is equally obvious that change in the Earth's climate and its adverse effects are a common concern of mankind and that all countries, particularly developing countries including the least developed ones, face increased risks of negative impacts of climate change.¹²⁴³ The implication of the seeming differentiation and exemption of the developing nations in the KP scheme informs the stance some nations have on climate change, such as China, India, South Africa and Brazil (the BASIC countries), most of which ought to have legally binding emissions, being large emitters of pollutants.¹²⁴⁴ Some of the basic operational guidelines of the KP monitoring and implementation oust the developing, which seem to present to them as a license to continue pollute. It is gratifying to note that notwithstanding the afore-mentioned, the KP includes a series of review mechanisms to ensure that its commitments can be tightened in the future and expanded to a wider group of countries.¹²⁴⁵ From available statistics, it is most obvious that rise in CO₂ emissions cut across both the advanced and developing nations. Indeed, the world's fastest-growing economies have turned out to be the biggest polluters, with China leading the fray, having 2,395 million tons and accommodating a whopping 16 out of the world's 20 most polluted cities. Followed by the US with 1,403 million tons; India placed third with 596 million tons; Russia placed fourth with 449 million tons, with over 200 cities exceeding pollution limits due to increase in automobiles. Japan occupies the fifth position with emissions at 336 million tons due to heavy industrialization and pollutants from neighbouring China, which are increasingly deteriorating the quality of air in Japan; Germany comes next in the sixth position with 200 million tons; then, Iran with 159 million tons. Air pollution has been a major issue in Iran, where an average of 27 people die each

¹²⁴¹ OBERTHÜR Sebastian, *ibid.*, p.52.

¹²⁴² BODANSKY Daniel, *Whither the Kyoto Protocol? Durban and Beyond*, Policy Brief, Harvard Project on Climate Agreements, Belfer Center for Science and International Affairs, Harvard Kennedy School, August 2011. Available at http://belfercenter.ksg.harvard.edu/publication/21314/whither_the_kyoto_protocol_durban_and_beyond.html Site visited 07-10-2013. See also, DEPLEDGE Joanna, *From Negotiation to Implementation: The United Nations Framework on Climate Change and its Kyoto Protocol*, in OWEN Anthony D. and HANLEY Nick, *The Economics of Climate Change*, London, Routledge Publishing, 2004, p.48. See further, Van ASSELT Harro; MEHLING Michael and SIEBERT Clarisse Kehler, *The Changing Architecture of International Climate Change Law*, in Van CALSTER G; VANDENBERGHE W. and SIEBERT Clarisse Kehler, *Research Handbook on Climate Change Mitigation Law*, Cheltenham, Edward Elgar Publishing, 2014. Available at <http://www.ecocidealert.com/wp-content/uploads/2014/SSRN-id2402770.pdf>. 23-05-2014. See as well, NORDHAUS William D., *op cit.*, p.92.

¹²⁴³ KISS Alexandre, *Public Lectures on International Environmental Law*, in BRADBROOK Adrian J; LYSTER Rosemary; OTTINGER Richard L. and XI Wang (Eds.), *The Law of Energy for Sustainable Development*, Cambridge, Cambridge University Press, 2005, p.21.

¹²⁴⁴ See Art.4 of the Convention.

¹²⁴⁵ DEPLEDGE Joanna, *From Negotiation to Implementation: The United Nations Framework on Climate Change and its Kyoto Protocol*, in OWEN Anthony D. and HANLEY Nick, *The Economics of Climate Change*, London, Routledge Publishing, 2004, p.51.

day in its capital city- Tehran, from pollution-related diseases. South Korea occupies the eighth position with 157 million tons, though having a much smaller population, yet these constitute the ninth largest consumers of chlorofluorocarbons (CFCs). On the ninth position is Indonesia, whose emissions stand at 146 million tons owing to deforestation and large-scale forest fires, depleting its natural forests. And, following closely is Canada with 144 million tons, owing to industrial and vehicular emissions, agriculture, construction, wood burning and energy production; while Saudi Arabia takes the eleventh position, with 133 million tons, it's the world's largest exporter of petroleum, having one-fifths of the world's oil reserves.¹²⁴⁶

Most of these countries have no legal emission reduction targets under the KP's first period, yet they constitute a group of worst polluters, aside from having enormous deposits of carbon-emission resources to produce much higher quantity and for much longer than could be envisaged, as they either have large deposits of coal or oil and gas; which is an indication that the fight against climate change is far from being judiciously confronted, or over. The two largest polluters- China and the US, among themselves contribute nearly half the planet's carbon dioxide emissions,¹²⁴⁷ both of which are not participating in Kyoto, and are the two largest industrialised countries in the world.¹²⁴⁸ Climate change poses a severe risk to global economic stability, clearly known to both countries, but because they would not compromise their lifestyles for the safety of the world. A world Bank study reveals that if Brazil, China, India, Mexico and the US, plus the EU would in transportation policy alone shift more travel to public transport, moved more freight traffic off of roads to rail and sea, and improved fuel efficiency, they could save about 20,000 lives a year, avert hundreds of millions of dollars in crop losses, save early US\$300 billion in energy, reduce climate changing emissions by more than four gigatons.¹²⁴⁹ If this trend persists, unprecedented heat extremes are projected over an increasing percentage of land area if warming goes from 2°C to 4°C, resulting in significant changes in vegetative cover and species extinction. Many regions, especially, the SSA will also suffer severe losses in livestock and associated impacts on rural communities.¹²⁵⁰ Other low points of the KP includes the treaty's market-based mechanisms which were classified as ineffective and unfair; its mechanisms to promote compliance criticized for not providing sufficient incentives to remain within the treaty giving

¹²⁴⁶ Rediff Business, Most Polluting Countries in the World, India Ranks 3, August 08, 2013. Available at <http://www.rediff.com/business/slide-show/slide-show-1-special-most-polluting-countries-in-the-world-india-ranks-3/20130808.htm>. Site visited 04-11-2013.

¹²⁴⁷ GALLUCCI Maria and HORN Paul, For U.S. and China, World's Biggest Climate Polluters, it's Still Business as Usual, InsideClimate News, February 4, 2013. Available at <http://insideclimatenews.org/news/20130129/united-states-china>- Site visited 29-06-2014.

¹²⁴⁸ ALDY Joseph E, op cit. See also, Van ASSELT Harro; MEHLING Michael and SIEBERT Clarisse Kehler, op cit.

¹²⁴⁹ Feature, New Study Adds Up the Benefits of Climate-Smart Development in Lives, Jobs and GDP, The World Bank, 23 June, 2014. Available at <http://www.worldbank.org/en/news/feature/2014/06/23/study-adds-up-benefits-climate-smart-development-lives-jobs-gdp>. Site visited 29-06-2014.

¹²⁵⁰ SCHELLNHUBER Hans Joachim et al, Turn Down the Heat: Climate Extremes, Regional Impacts and the Case for Resilience- Full Report, World Bank, Washington D.C., June 2013, p.xviii. Available at http://www.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/06/14/000445729_20130614145941/Rendered/PDF/784240WP0Full00D0CONF0toJune19090L.pdf. Site visited 02-11-2013.

room for withdrawals, like in Canada's withdrawal; then, it made it inherently difficult to find consensus among an international community of more than 190 countries on a range of contested issues.¹²⁵¹

5.1.3 The United Nations Convention to Combat Desertification (UNCCD)

The UNCCD defines desertification as land degradation in arid, semi-arid and sub-humid areas resulting from various factors including climatic variations and human activities.¹²⁵² Deserts¹²⁵³ (hot or cold) are landscapes that receive little precipitation, usually less than ten inches of precipitation a year, and generally a higher level of evaporation.¹²⁵⁴ They cover about one-fifth area of the globe. Desertification is the encroachment of the desert on land that was once fertile,¹²⁵⁵ resulting from a consistent destruction of its vegetation cover, or deforestation. Global deforestation is at an alarming rate of 13 million hectares of forests annually, (the size of Portugal).¹²⁵⁶ Desertification is a dynamic process that is observed in dry and fragile ecosystems, resulting from a consistent and conscious deforestation of an area. It affects terrestrial areas (topsoil, earth, groundwater reserves, surface runoffs), animal and plant populations, as well as human settlements and their amenities.¹²⁵⁷ The UNCCD unlike such other Pacts, adopts a "bottom-up" approach,¹²⁵⁸ requiring country parties to promote its objectives through cooperation and coordination at the national, sub-regional, regional and international levels.¹²⁵⁹ It employs the principles of participation, partnership and decentralization for good governance and

¹²⁵¹ Van ASSELT Harro; MEHLING Michael and SIEBERT Clarisse Kehler, op cit.

¹²⁵² See Art. 1a UNCCD. See also, Constantinos, B.T., African Union: Land Degradation and Desertification in Africa: Reversing the Trend, 2003. Available at <http://www.constantinos.net/UNCCD-AnnexIII-SRAP-AFRICA.pdf> . Site visited 24-11-2013. See further, BIRNIE Patricia; BOYLE Alan; and REDGWELL Catherine, International Law and the Environment (3rd ed.), Oxford, Oxford University Press, 2009, p.693.

¹²⁵³ Some of the largest deserts include Antarctic, Arctic, Sahara, Arabian, Gobi, Patagonian, Rub'al Khali, Great Victoria, Kalahari, Namib, Great Basin, Syrian, Chihuahuan, Thar, Great Sandy, Kara Kum, Colorado, Sonoran, Kyzyl Kum, Taklamakan, Iranain, Simpson/Sturt, Atacama, and Mohave. See, AUBUCHON Vaughn, World's Largest Deserts, 2005. Available at <http://www.vaughns-1-pagers.com/geography/largest-deserts.htm> Site visited 31-03-2014. See also, Geology.com, The World's Largest Deserts, 2005. Available at <http://www.geology.com/records/largest-desert.html> Site visited 31-03-2014.

¹²⁵⁴ Maps of World, Deserts of the World Map, September 2012. Available at <http://www.mapsofworld.com/world-desert-map.htm> Site visited 27-03-2014. See also, Fact Monster, Principal Deserts of the World, 2007. Available at <http://www.factmonster.com/ipka/A0778851.html> Site visited 27-03-2014.

¹²⁵⁵ BALARABE Ladidi Yakubu, Nigeria: Tackling Deforestation Problems, June 2011

¹²⁵⁶ United Nations Environment Programme (UNEP), About Forests. Available at <http://www.unep.org/forests/AboutForests/tabid/29845/Default.aspx> . Site visited 19-02-2014.

¹²⁵⁷ UNESCO, What is Desertification? Available at <http://www.unesco.org/mab/doc/ekocd/chapter1.html> . Site visited 11-11-2013.

¹²⁵⁸ DANISH K. W., International Environmental Law and the "Bottom-up" Approach: A Review of the Desertification Convention, 1995, 3 Ind. J. Global Legal Stud., 1. See also, RAYFUSE Rosemary, Biological Resources, in BODANSKY Daniel; BRUNNÉE Jutta and HEY Ellen, The Oxford Handbook of International Environmental Law, Oxford, Oxford University Press, 2007, p.383. See further, Earth Summit+5, The United Nations Convention to Combat Desertification: A New Response to an Age-Old Problem, UNCCD, 1997. Available at <http://www.un.org/ecosocdev/geninfo/sustdev/desert.htm> . Site visited 12-07-2011.

¹²⁵⁹ See Art. 3(b), CCD. See also, CONSTANTINOS B. T., African Union: Land Degradation and Desertification in Africa: Reversing the Trend, 2003. Available at <http://www.constantinos.net/UNCCD-AnnexIII-SRAP-AFRICA.pdf> . Site visited 24-11-2013.

sustainable development.¹²⁶⁰ By this approach, the Convention emphasises the protection, promotion and use of relevant traditional and local technology, knowledge, know-how and practices.¹²⁶¹ More than 110 countries have drylands that are potentially at risk, and globally, 24 billion tonnes of fertile soil disappear yearly due to soil erosion and other factors, and 12 million hectares (ha) are lost to drought and desertification, which otherwise could produce 20 million tonnes of grains.¹²⁶² In Africa, a billion hectares or 73 per cent of its drylands are affected by desertification, with another 1.4 billion hectares affected in Asia. Two-thirds of the African continent is desert or drylands and almost three-quarters of agricultural land is degraded to some degree.¹²⁶³ Desertification is common to all continents in the world, which is why it should be of a major concern to all, more so that it is the link between dryland degradation and a decline in food production.¹²⁶⁴ Desertification and drought affect approximately 1 billion people and some 25 per cent of the Earth's total land surface, in a world where 2.6 billion people's lives depend directly on agriculture which gets impacted as 52 per cent of agricultural land is degraded in varying degrees. Over the next 25 years, some 925 million people are projected to go hungry due to an increase of up to 30 per cent in food prices resulting from a forecast 12 per cent dip in food production over the period.¹²⁶⁵ It is a direct link to poverty, along with climate change and the loss of biodiversity, identified as the greatest challenges to sustainable development during the 1992 Rio Earth Summit.¹²⁶⁶ Global warming is already drying out large parts of the planet, threatening every inch to get much, much worse as the single most consequential climate impact, with nearly a third of the world's land facing drying from rising GHGs including two of the world's greatest agricultural centers, the US Great Plains¹²⁶⁷ and a swath of southeastern China.¹²⁶⁸

¹²⁶⁰ Wikipedia, United Nations Convention to Combat Desertification. Available at

http://en.wikipedia.org/wiki/United_Nations_Convention_to_Combat_Desertification/ . Site visited 20-11-2013.

¹²⁶¹ Earth Summit+5, The United Nations Convention to Combat Desertification: A New Response to an Age-Old Problem, UNCCD, 1997. Available at <http://www.un.org/ecosocdev/geninfo/sustdev/dsesrt.htm> . Site visited 12-07-2011.

¹²⁶² Drylands ecosystems cover over one-third of the Earth's land surface, which are critical for global food security, as they support over half of the world's livestock and cover about 44% of all cultivated areas, harbouring more than one-third of global population. See, UNCCD, UNCCD and IUCN Sign Action Plan to Boost Visibility of Threatened Dryland Ecosystems, July 2013. Available at <http://www.unccd.int/en/mediacenter/MediaNews/Pages/highlightdetail.aspx?HighlightID=219>. Site visited 02-11-2013. See also, JENA Manipadma, Preventing Desertification Better Than Cure, IPS Online, 16 October, 2011. Available at <http://ipsnews.net/news.asp?idnews=105477> . Site visited 25-10-2011.

¹²⁶³ NEPAD, Combating Drought and Desertification, NEPAD, African Ministerial Council on Science and Technology. Available at <http://www.nepadst.org/platforms/drought.shtml> . Site visited 11-11-2013.

¹²⁶⁴ UNESCO, *ibid.* see also, BRADY Fran, Combating Desertification, Development Education Department, Concern Worldwide, Dublin 2.

¹²⁶⁵ BRADY Fran, *ibid.* See also, JENA Manipadma, Preventing Desertification Better Than Cure, IPS Online, 16 October, 2011. Available at <http://ipsnews.net/news.asp?idnews=105477> . Site visited 25-10-2011.

¹²⁶⁶ UNCCD, About the Convention, United Nations Convention to Combat Desertification, 2012. Available at <http://www.unccd.int/en/about-the-convention/Pages/About-the-Convention.aspx> . S23-10-2013. Site visited 23-10-2013.

¹²⁶⁷ A study by James Hansen, a US leading climatologist, warned in 2012 that the Great Plains, one of America's breadbaskets, was at risk of semipermanent drought, while it was warned in an earlier Met Office's Hadley Centre for Climate Prediction and Research, that one third of the planet will be desert by the year 2100 due to the effects of global warming. See ROMM Joseph, Climate Change Drying Out South West Now, With Worse to Come for a Third of the Planet, The Energy Collective Online, 17 April, 2014. Available at

In 1991, some 15 per cent of the earth's total land area was degraded, and by 2011, this figure had spiraled to 28 per cent.¹²⁶⁹ The world loses US\$2.3 trillion yearly to land degradation, cutting across both the rich and the poor countries, temperate and tropical regions. The figure was arrived at using the total economic value (TEV) method. Africa accounts for about 25 per cent of land degradation in the world and contributes only 2 per cent to global GDP.¹²⁷⁰ A majority of African countries are contracting parties to the United Nations Convention to Combat Desertification (UNCCD). By being parties to the UNCCD,¹²⁷¹ the countries have committed themselves to mobilizing and securing action to arrest expansion of deserts and arrest land degradation. The need to invest in measures to combat drought and desertification is also emphasised in the New Partnership for Africa's Development (NEPAD) framework document. Paragraph 138 of the framework identifies such measures as rehabilitation of degraded lands as crucial. Several NEPAD programmes have projects dedicated to issues of land rehabilitation, soil erosion, water management and biodiversity conservation. In Africa, there is the measure to contain the Sahara Desert¹²⁷² dubbed the Great Green Wall Initiative (GGW), by planting trees on a strip of land of 15 km (9miles) wide and 7, 100 km (4,400miles) long from Dakar in West Africa to Djibouti in East Africa.¹²⁷³ This brought about a regional cooperation in 2010 by numerous countries involving Burkina Faso, Chad, Djibouti, Eritrea, Ethiopia, Mali, Mauritania, Niger, Nigeria, Senegal and Sudan to create the Great Green Wall.¹²⁷⁴ NEPAD's measure is consonance with Chapter 12 of Agenda 21¹²⁷⁵ which requires "Managing Fragile Ecosystems: Combating Desertification and Drought," anticipating six programme areas Viz:

<http://www.theenergycollective.com/josephromm/367566/climate-change-drying-out-southwest-now-worse-come-third-planet>. Site visited 04-05-2014.

¹²⁶⁸ ROMM Joseph, Climate Change Drying Out Southwest Now, With Worse to Come For a Third of the Planet, The Energy Collective Online, 17 April, 2014. Available at <http://theenergycollective.com/josephromm/367566/climate-change-drying-out-southwest-now-worse-come-third-planet/>. Site visited 18-04-2014.

¹²⁶⁹ UNCCD COP11, Namibia Signs Agreement on Hosting of UNCCD COP 11, July 2013. Available at <http://www.unccdop11.com/#!26-july-2013-press-release/cia8>. Site visited 11-11-2013.

¹²⁷⁰ Editor, World Loses \$2.3tr Yearly to Land Degradation, The Guardian Newspapers Online, 9 June, 2014. Available at <http://www.nguardiannews.com/news/national-news/165229-world-loses-2-3tr-yearly-to-land-degradation>. Site visited 09-06-2014.

¹²⁷¹ The UNCCD has 195 Signatory Parties.

¹²⁷² The Sahara Desert is the world's hottest desert and the world's third largest, covering over 9,400,000 Km², stretching from the Red Sea to the Atlantic Sea, extending to some parts of the Mediterranean Sea. It covers most of the North Africa, making it almost as large as China or the USA. See, News.nom.co, Saharan Africa. Available at <http://www.news.nom.co/fao-opens-africa-conference-8459938-news/> Site visited 31-02-2014. See also, Maps of World, Deserts of the World Map, September 2012. Available at <http://www.mapsofworld.com/world-desert-map.htm> Site visited 27-03-2014.

¹²⁷³ See Declaration 137 VIII, 2007 of the African Union, Decision on the Implementation of the Green Wall for the Sahara Initiative. See also, Global Environment Facility (GEF), The Great Green Wall Initiative, 2013. Available at <http://www.thegef.org/gef/great-green-wall>. Site visited 18-02-2014.

¹²⁷⁴ GEF., ibid.

¹²⁷⁵ See A/CONF.151/PC/100Add.17.

- (i) Strengthening the knowledge base and developing information and monitoring systems for regions prone to desertification and drought, including the economic and social aspects of these social systems;
- (ii) Combating land degradation through, inter alia, intensified soil conservation, afforestation and reforestation activities;
- (iii) Developing and strengthening integrated development programmes for the eradication of poverty and promotion of alternative livelihood systems in areas prone to desertification;
- (iv) Developing comprehensive anti-desertification programmes and integrating them into national development plans and national environmental planning;
- (v) Developing comprehensive drought preparedness and drought-relief schemes, including self-help arrangements for drought-prone areas and designing programmes to cope with environmental refugees; and
- (vi) Encouraging and promoting popular participation and environmental education, focusing on desertification control and management of the effects of drought.¹²⁷⁶

Many African countries are affected by the effects of desertification, causing widespread land degradation and poverty, such as Niger which ranks 176th out of 177 countries in the UNDP's human development index (HDI) 2004. Deforestation¹²⁷⁷ is very high here, where exploitation of wood has proved more lucrative than traditional agricultural activities, with firewood being fetched as far as 200 kilometers to be sold elsewhere in Niger.¹²⁷⁸ Desertification borders on the often extensive use of dry lands, and because dry lands suffer from water stress and competition for scarce water resources, it results in loss of soil quality and biodiversity, and eventually leads to such lands being degraded for deterioration in the quality of the land.¹²⁷⁹ The consequences of desertification are many and varied viz: reduce water quality and sedimentation in rivers and lakes, health hazards, dust storm and air

¹²⁷⁶ IISD, Desertification and the UN System, IISD Earth Negotiations Bulletin. Available at <http://www.iisd.ca/vol04/0401018e.html> . Site visited 12-07-2011.

¹²⁷⁷ Deforestation in the words of the Marrakesh Accords 2001 is the direct human-induced conversion of forested land to non-forested land. A forest it defines as a minimum area of land of 0.05- 1.0 hectares with tree crown cover (or equivalent stocking level) of more than 10- 30 per cent with trees with the potential to reach a minimum height of 2- 5 metres at maturity in situ. A forest may consist either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest.... See, United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its seventh Session, Held at Marrakesh From 29 October to 10 November, 2001, Vol.I. Available at <http://www.unfccc.int/resource/docs/cop7/13a01.pdf#page=54>. Site visited 28-05-2014. See also, IEHARA Toshiro, Basic Knowledge Needed for REDD-Plus Implementation, in HIRATA Y. et al (Eds.), REDD-Plus Cookbook, REDD Research and Development Center, Forestry and Forest Products Research Institute, Japan, June 2013, p.32.

¹²⁷⁸ BRADY Fran Ibid.

¹²⁷⁹ CIVIT Barbara Maria et al, Assessing Potential Desertification Environmental Impact in life Cycle Assessment. Part 2: Agricultural Case Study in Spain and Argentina, The International Journal of Life Cycle Assessment, Berlin, Springer-Verlag, June 2013. See also FAGBOHUN Olanrewaju, Environmental Law, Legislation and Policy Making in Sub-Saharan Africa, in KOLA-OLUSANYA Antony; OMOTAYO Ayo and FAGBOHUN Olanrewaju (Eds.), Environment and Sustainability: Issues Policies and Contentions, Ibadan, University Press, 2011, p. 103.

pollution, food shortage and population displacement of dwellers.¹²⁸⁰ Desertification threatens about two-thirds of the world's grasslands, accelerating climate change and causing traditional societies to descend into chaos.¹²⁸¹ Desertification is a major threat not only to global sustainability but also to global peace and security, as it robs people of their livelihoods and nations of their wealth, causing inter-communal strifes and crises among displaced people migrating away from the scourge of encroaching desertification.¹²⁸² This has caused loss of several lives; a case in point is the incessant communal clashes by the nomadic Fulani herdsmen of Northern Nigeria with several farming communities in the Middle Belt of the country,¹²⁸³ which has led to needless loss of many lives, properties and indeed settlements, and is still continuing most particularly, in the Jos area and its environs in Plateau state. Not only these, droughts are a common phenomenon in African countries and often impact the supply of hydroelectricity by limiting generation capacity, just as floods cause damage to electricity grid infrastructure. Employment and development of green energy technologies that improve resilience of hydro power to droughts and floods can in small measure contribute to improving energy security in the continent.¹²⁸⁴ Utilization of wood for fuel is one of the primary causes of deforestation in most African nations, with crucial implications for climate change as well. For instance, sub-Saharan Africa is home to the world's second largest rain forest, in West Africa, and should be remarkable as one of the world's most important carbon sinks.¹²⁸⁵ Then, conversion of forests to small holding agricultural farms. Growth of sugar cane for ethanol, soya beans for livestock, and palm oil for food, drug products, and biofuels in tropical areas has increased substantially, often

¹²⁸⁰ KOLA-OLUSANYA Anthony, *ibid.*, p.156.

¹²⁸¹ SAVORY Allan, How to Fight Desertification and Reverse Climate Change, TED Online, February 2013. Available at http://www.ted.com/talks/allan_savory_how_to_green_the_world_s_deserts_and_reverse_climate_change.html Site visited 14-11-2013.

¹²⁸² UNCCD, UNCCD and IUCN Sign Action Plan to Boost Visibility of Threatened Dryland Ecosystems, July 2013. Available at <http://www.unccd.int/en/media-center/MediaNews/Pages/highlightdetail.aspx?HighlightID=219>. Site visited 02-11-2013.

¹²⁸³ See DUR Peter, Nigeria: 36 Feared Killed as Fulani Herdsmen Strike in Benue, Vanguard Newspaper Online, 10 November 2013. Available at <http://allafrica.com/stories/201311100069.html>. Site visited 20-02-2014. See also, FOLAMI Olakunle Michael, Climate Change and Inter-Ethnic Conflicts Between Fulani Herdsmen and Host Communities in Nigeria. Being a Paper presented at a Climate Change Conference in Norway in 2010. Available at [http://climsec.prio.no/papers/Final_draft_climate_change_paper_kunle2\[2\].pdf](http://climsec.prio.no/papers/Final_draft_climate_change_paper_kunle2[2].pdf). Site visited 20-02-2014. See further, EJEMBI Rose, 2 Soldiers, 18 Others Killed in Tiv/Fulani Renewed Clash, The Sun Newspaper Online, 22 June, 2011. Available at <http://www.sunnewsonline.com/webpages/news/natioal/2011/june/22/national-22-06-2011-005.html>. Site visited 20-02-2014. Also, IRIN, Nigeria: Nomad-Farmer Clashes Increase as Pasture Shrinks, IRIN News Online, 2009. Available at <http://www.irinnews.org/fr/report/84761/nigeria-nomad-farmer-clashes-as-pasture-shrinks>. Site visited 20-02-2014.

¹²⁸⁴ African Development Bank (AfDB), Technology Transfer for Green Growth in Africa, African Development Report 2012, June 2013. Available at <http://www.greengrowthknowledge.org/resource/african-development-report-2012-towards-green-growth-africa.html>. Also, <http://www.afdb.org/en/knowledge/publications/african-development-report/>. Sites visited 11-04-2014.

¹²⁸⁵ GUARNACCI Ugo, Facing Climate Change: Transition to Renewable Energy in Africa, 12 October, Mapping the World, 2010. Available at <http://www.cartografareilpresente.org/article648.html>. Site visited 18-05-2012.

leading to the displacement of primary forests, just as demand for animal products is increasing as affluence rises and drives forest clearance in some places.¹²⁸⁶

Desertification along with climate change and the loss of biodiversity were identified as the greatest challenges to sustainable development during the world, based on submissions from countries to the UN, which is a marked increase the last analysis in the mid-1990s estimated then at about 110 countries at risk.¹²⁸⁷ Boosting agricultural production, massive urbanisation and industrial development are some of the greatest causes of deforestation¹²⁸⁸ leading to global greenhouse gas emissions. Besides these are weak governments and lack of annual rains because of climate change are driving desertification in parts of Africa like Somalia, Eritrea, Kenya, Ethiopia and Djibouti.¹²⁸⁹ A way out of some of these is for the third world to be updated on modern agricultural techniques as is applicable in the developed world, where output per acreage has greatly improved over the years, leading to sufficiency if not surplus in food production. Developed country parties also have the obligation to support affected countries through the provision of additional financial resources, aside from facilitating access to technology, knowledge and know how.¹²⁹⁰ This will help to promote sustainable land use across vulnerable dryland nations,¹²⁹¹ for which Africa is predominantly noted. This will further enhance land use and management in the developing world. Neglecting to do this is to risk the alarming rate of reduction of the planet's store of natural carbon sinks.¹²⁹² The Bali Action Plan required that policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries be launched.¹²⁹³ Also, drought-resistant trees and grass should be provided for planting in these areas in view of the persistent drought weather here. This might warrant the introduction of genetically modified species in the zones to help them sustain drought.

The UNCCD in 2007 adopted a 10-Year Strategy (2008-2018), in which the Parties specified their goals “to forge a global partnership to reverse and prevent desertification /land degradation and to mitigate

¹²⁸⁶ HAINES Andy et al, From the Earth Summit to Rio+20: Integration of Health and Sustainable Development, The Lancet, Vol.379, Iss.9832, June 2012, pp.2189-2197.

¹²⁸⁷ KING Ed, Desertification Crisis Affecting 168 Countries Worldwide, Study Shows, The Guardian Online, Wednesday 17 April, 2013. Available at <http://www.theguardian.com/environment/2013/apr/17/desertification-crisis-affecting-168-countries-worldwide-study-shows.html>. Site visited 14-11-2013.

¹²⁸⁸ CASSESE Antonio, International Law, Oxford, Oxford University Press, 2001, p.379.

¹²⁸⁹ KING Ed, *ibid*.

¹²⁹⁰ See Articles 6 and 20 of the Convention. See also, BIRNIE Patricia; BOYLE Allan and REDGWELL Catherine, International Law and the Environment (3rd Ed.), Oxford, Oxford University Press, 2009, p.694.

¹²⁹¹ The World Bank News, New Push for Africa's Great Green Wall Initiative: A New Innovation Hub to Share Knowledge and Strengthen Institutional Capacity, The World Bank Press Release, October 15, 2013. Available at <http://www.worldbank.org/en/news/press-release/2013/10/15/africa-green-wall-initiative-innovation-hub-knowledge-institutional-capacity>. Site visited 02-11-2013.

¹²⁹² KING Ed, *ibid*.

¹²⁹³ United Nations, Report of the Conference of the Parties on its thirteenth Session , UNFCCC, Bali, 3-15 December, 2007

the effects of drought in affected areas in order to support poverty reduction environmental sustainability.”¹²⁹⁴ In furtherance to the Convention’s key implementation instrument is its national, sub-regional and regional action programmes,¹²⁹⁵ under which guise the World Bank provided a US\$ 4.6 million grant to establish a regional innovation hub for the World Bank Sahel and West Africa Programme (SAWAP), that is meant to provide support for the Great Green wall- an African initiative aimed at promoting sustainable land use practices in its vulnerable dryland countries. The project dubbed BRICKS- Building Resilience Through Innovation, Communication and Knowledge Services, will provide operational, technical and knowledge services to 12 countries that are implementing or preparing large-scale investment operations. These include Benin, Burkina Faso, Chad, Ethiopia, Ghana, Mali, Mauritania, Niger, Nigeria, Senegal, Sudan and Togo. The BRICKS project is a strategic effort designed to boost resilience in the Sahel and help countries and communities adapt to the challenges posed by a changing and rapidly degrading natural base. These Sahelian countries face a complex set of development challenges, some of which include flat economic growth, rising population, and rapid natural resources degradation, which are aggravating the effects of climate change.¹²⁹⁶ The most apparent beauty of the CCD is that it adopts a “bottom-up approach” treating desertification as a local resource management issue that must be addressed locally, with specifics on the principles of participation, partnership and decentralization. All African countries are Parties to the UNCCD, and to facilitate cooperation on issues related to land degradation, African countries have created five sub-regional Action Programmes (SRAPs). African RAP compose of six thematic programme networks (TPNs) bordering on integrated water management, agro-forestry and soil conservation, rangelands, ecological monitoring and early warning systems, new and renewable energy sources and technologies, and sustainable agricultural farming systems.¹²⁹⁷ It is doubtful if half of the most-affected countries in the continent would have committed enough resources as to warrant any level of meaningful success on these goals, primarily because of their poverty levels and also corruption.

The UNCCD’s strategies are based on rigorous scientific knowledge underscoring the effectiveness and coordination of international cooperation. Its substantive articles as they are may however be too weak on positive commitment.¹²⁹⁸ Considering that of all the continents, Africa has the largest area of desert, with two-thirds of its land area covered by the Sahara desert or dry lands,¹²⁹⁹ which is

¹²⁹⁴ UNCCD, About the Convention, UNCCD Official Documents, 2013. Available at <http://www.unccd.int/en/about-the-convention/Pages/About-the-Convention/>. Site visited 23-10-2013.

¹²⁹⁵ BIRNIE Patricia, *ibid.*, p.693.

¹²⁹⁶ The World Bank News, New Push for Africa’s Great Green Wall Initiative: A New Innovation Hub to Share Knowledge and Strengthen Institutional Capacity, The World Bank Press Release, October 15, 2013. Available at <http://www.worldbank.org/en/news/press-release/2013/10/15/africa-green-wall-initiative-innovation-hub-knowledge-institutional-capacity>. Site visited 02-11-2013.

¹²⁹⁷ UNCCD , Addressing Desertification, Land Degradation and Drought in Africa, UNCCD 2012. Available at <http://www.unccd.int/en/regional-access/Africa/Pages/alltext.aspx>. Site visited 22-11-2013.

¹²⁹⁸ BIRNIE Patricia, *ibid.*, p.693.

¹²⁹⁹ UNCCD, Addressing Desertification, Land Degradation and Drought in Africa, UNCCD 2012. Available at <http://www.unccd.int/en/regional-access/Africa/Pages/alltext.aspx>. Site visited 22-11-2013.

expanding at an alarming rate, almost engulfing the entire Sahel region,¹³⁰⁰ making the continent the most vulnerable in terms of agricultural and food production, climatic variability and land degradation,¹³⁰¹ the UNCCD would do well to increase its activities in the continent, and help assuage the populations in the Sahelian Africa, who are among the poorest and most vulnerable, mostly nomadic sake of their climatic environment. The impacts of the Convention is not significantly visibly felt as it is ought to be, because the public is not sufficiently educated on the menace of desert to their lives; they are not taught how to nurture the tree seedlings;¹³⁰² the programme in most cases does not include economic trees, hence does not usually attract the necessary motivation and interest of the local people, and at the end of the annual “rituals” of tree planting, one finds a lot of tree seedlings thrown away along the streets in the villages, while the ones that got planted eventually are not looked after, resulting in very low survival rate.¹³⁰³ Not much could be sustained in efforts at curbing desertification especially in highly vulnerable and extremely poor communities like in Africa, either north or south of the Equator, if substantial and sustained investments are not committed to reducing the level of poverty of the people, and cheap modern sources of energy provided, to prevent the people from depending on biomass for energy for their daily living. Much also needs to be done on the issue bringing land use under modern technology, the UNCCD provides for an effective management and coordination in this regards. This necessarily calls for technical expertise, which brings forth the issues of transfer of technology and development of models of partnership and cooperation, with a view to strengthening capacity building in the fields of scientific research and development.¹³⁰⁴

5.1.4 The Bali Conference 2007

¹³⁰⁰ It is estimated that annually, there is about 6% rate of forest exploitation in some forest reserves in the south western part of Nigeria, which consists of tropical hard wood species. That, the rate of annual clearance of tropical broad-leaved closed-forest of Southern Nigeria ranges between 3-5%, while regeneration lags behind exploitation by as much as 90% in this region. It is further observed that, the 6% annual exploitation is consistent with earlier observation, and is even now increasing. See, Ogunjemite, B.G., Afolayan, T.A., and Agbelusi, E.A., Exploitation and Regeneration Rate in Commercially-Logged Forest Reserve: Ise Forest Reserve, Ekiti State, Nigeria. In KOLAWOLE Deboye O. (Editor-in-chief), Environmental Management Journal, Vol.2, September 2005, p.72, Institute of Ecology and Environmental Studies, Obafemi Awolowo University, Ile-Ife, Nigeria.

¹³⁰¹ Global Environment Facility (GEF), The Great Green Wall Initiative, 2013. Available at <http://www.thegef.org/gef/great-green-wall> . Site visited 18-02-2014.

¹³⁰² Over 10 million seedlings were raised annually between 1978 and 1984, about 150 kilometers of shelterbelts, 3,680 hectares of woodlots, 24 boreholes, 70 tree nurseries, and Forestry Vocational Schools were established in Nigeria alone. See, Fight Against Desert Encroachment (FADE), Our Story, Desert Facts, FADE July 2012. Available at <http://www.fadeafrica.org/pages/post/18>. Site visited 03-07-2012.

¹³⁰³ FADE, *ibid*.

¹³⁰⁴ See Articles 16 and 17 of the Convention. See also, UNCCD, Text of the Convention Including all Annexes- Table of Contents, UNCCD 2012. Available at <http://www.unccd.int/en/about-the-convention/Pages/Text-Annex-I.aspx>. Site visited 22-11-2013.

The Bali Conference COP 13, was held in December 2007, with the theme “Forests for Carbon,”¹³⁰⁵ with the goal of charting a “roadmap” to negotiate a new agreement to take effect after Kyoto in 2012.¹³⁰⁶ The Conference produced the “Bali Road Map,” which includes the Bali Action Plan,¹³⁰⁷ which prioritised enhanced action leading up to the negotiation of a post-Kyoto agreement.¹³⁰⁸ It launched a “new comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012”, with the aim of reaching an agreed outcome and adopting a decision in Copenhagen,¹³⁰⁹ thus charting the course for a new negotiation process under the UNFCCC, with the aim of completing this by 2009.¹³¹⁰ The Bali Action Plan is centered on four main building blocks- mitigation of climate change, adaptation to impacts of climate change, technology development and transfer, and financial assistance issues- as well as land use, land use change and forestry.¹³¹¹ Deforestation and forest degradation occupy a focal point on its agenda, charging the Supplementary Bodies for Science and Technology (SBSTA), to undertake a programme of work on these and to report back at COP 14.¹³¹² It is important to point out that despite the high profile given to deforestation, little has been done to control this problem internationally, because the instruments adopted so far are generally weak,¹³¹³ until the Bali Action Plan. Be that as it may, attempts at negotiating in Rio an International Convention on Conservation and Development of Forests as proposed by the UN in 1990 failed, no thanks to the irreconcilable interests of developed and developing states led by Brazil and Malaysia.¹³¹⁴ These and more were to whittle down the gains of Bali. It was acknowledged then that climate change is unequivocal and that there is

¹³⁰⁵ GRANICH Sarah and KELLY Mick, The Bali Roadmap, Tiempo Climate Newswatch, 2013. Available at <http://www.tiempocyberclimate.org/newswatch/report071227.htm> Site visited 16-11-2013.

¹³⁰⁶ RICHARDSON Benjamin J.; Le BOUTHILLIER Yves; McLEOD-KILMURRAY Heather and WOOD Stepan (Eds.), Introduction: Climate Law and Developing Countries, Cheltenham, Edward Elgar Publishing, 2009, p.15.

¹³⁰⁷ Adopted as Decision 1/CP.13.

¹³⁰⁸ CARLARNE Cinnamon Piñon, Climate Change Law and Policy: EU and US Approaches, Oxford, Oxford University Press, 2010, p.306.

¹³⁰⁹ UNFCCC, Bali Climate Change Conference- December 2007, United Nations Framework Convention on Climate Change, UNFCCC, December 2007. Available at http://unfccc.int/meetings/bali_dec_2007/meeting/6319.php. Site visited 04-02-2014.

¹³¹⁰ CARPENTER Chad, The Bali Action Plan: Key Issues in the Climate Negotiations: Summary for Policy Makers, in BUTTROSE Rebecca and SCHOFIELD Amy, The Bali Road Map: Key Issues Under Negotiation, United Nations Development Programme, UNDP, September 2008, p.7. Available at http://www.undp.org/content/dam/undp/library/Environment_and_Energy/Climate_Change/Bali_Road_Map_Key_Issues_Under_Negotiation.pdf Site visited 05-02-2014.

¹³¹¹ Eldis, The Bali Action Plan: Key Issues in the Climate Negotiations. Summary for Policy Makers, Institute of Development Studies, Irish Aid, 31 August, 2008. Available at <http://www.eldis.org/home&id=40437&type=Document#UvI5QFPXvR> . Site visited 05-02-2014.

¹³¹² See Decision 2/CP 13. See also, BIRNIE Patricia; BOYLE Alan and REDGWELL Catherine, International Law and the Environment (3rd Ed), Oxford, Oxford University Press, 2009, p.375

¹³¹³ BIRNIE Patricia; BOYLE Alan and REDGWELL Catherine, International Law and the Environment (3rd Ed), Oxford, Oxford University Press, 2009, p.694.

¹³¹⁴ Birnie, op cit., p.695.

need for cuts in global emissions, however with focus still narrowed on developed nations,¹³¹⁵ a condition that would not augur well with the status quo. It is very likely to be worse-off under the Kyoto second period, or a successor to the KP. The Bali final agreement was tagged the “Bali Roadmap,” which included a decision to launch an Adaptation Fund, and further decisions on technology transfer, as well as reducing emissions from deforestation.¹³¹⁶ The Bali Action Plan, is divided into five main categories: shared vision, mitigation, adaptation, technology and financing. The shared vision refers to a long-term vision for action on climate change, including a long-term goal for emission reductions. The AWG-LCA subsequently split the work streams into components under those five parts.¹³¹⁷ It is also an enhanced national/international action on mitigation of climate change.

The Bali Road Map, which includes the “Bali Action Plan,” in an effort to enhance the implementation of the UNFCCC, sets up Ad Hoc Working Groups which included, the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP), and the Ad Hoc Working Group on Long Term Cooperative Action (AWG-LCA).¹³¹⁸ The former has the responsibility to focus on the analysis of means to reach emission reduction targets and the identification of ways to enhance the effectiveness of the implementation; including flexible mechanisms, land use, land-use change and forestry; a basket of greenhouse gases (GHGs), among others. Generally, the broader Bali Action Plan was to consider how to significantly upscale all climate policy issues, including nationally appropriate mitigation actions (NAMAs) and national adaptation programmes (NAPs) in developing countries.¹³¹⁹ These were to complete their work in 2009, but the AWG-LCA continued till 2012.¹³²⁰ It also launched the Adaptation Fund,¹³²¹ which was established in 2001, to be financed from the share of proceeds on the Clean Development Mechanism CDM, activities and other sources of funding¹³²² It originally comprised two main funds- the Administrative Trust Fund and the Adaptation Trust Fund,¹³²³ whose aim is to finance projects and programmes towards helping developing countries to adapt to the

¹³¹⁵ NLERUM Francisca E., Climate Change, Ethics, Policy and Development. In KOLA-OLUSANYA Antony; OMOTAYO Ayo and FAGBOHUN Olanrewaju (Eds.), Environment and Sustainability: Issues Policies and Contentions, Ibadan, University Press, 2011, p.141.

¹³¹⁶ SHAH Anup, COP 13- Bali Climate Conference, January 2008. Available at

<http://www.globalissues.org/article/751/cop13-bali-climate-conference>. Site visited 16-11-2013

¹³¹⁷ United Nations Framework Convention on Climate change, Now, Up To and Beyond 2012: The Bali Roadmap, UNFCCC 2013. Available at http://unfccc.int/key_steps/bali_road_map/items/6072.php. Site visited 28-11-2013.

¹³¹⁸ CARLARNE Cinnamon Piñon, *ibid.*, p.357.

¹³¹⁹ UNDP, Bali Road Map, UNDP Climate Community, 2013. Available at <http://www.undpcc.org/en/climate-negotiations/bali-road-map>. Site visited 16-11-2013.

¹³²⁰ FIELD, COP 13/CMP 3, Bali, Indonesia, December 2007, Foundation for International Environmental Law and Development. Available at <http://www.field.org.uk/guides/guide-for-redd-plus-negotiations-august-2013/cop-13cmp-3-bali-indonesia-december-2007>. Site visited 05-02-2014.

¹³²¹ Wikipedia, The Adaptation Fund. Available at http://en.wikipedia.org/wiki/The_Adaptation_Fund. Site visited 24-11-2013. See also, Climate Funds Update, Adaptation Fund, Heinrich Böll Stiftung. Available at <http://www.climatefundsupdate.org/listing/adaptation-fund>. Site visited 22-11-2013

¹³²² UNFCCC, Adaptation Fund, United Nations Framework Convention on Climate Change, UNFCCC. Available at http://unfccc.int/copertion_and_support/financial_mechanism/adaptation_fund/items/3659.php Site visited 07-02-2014.

¹³²³ Climate Funds Update, Adaptation Fund, Heinrich Böll Stiftung, Available at <http://www.climatefundsupdate.org/listing/adaptation-fund>. Site visited 22-11-2013.

harmful effects of climate change.¹³²⁴ However, the Administrative Trust Fund was closed down in June 30, 2010, for administrative reasons. Furthermore, it adopted policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries (REDD+),¹³²⁵ with a commitment to “early action” ahead of the successor to the KP that should come into force after 2012.¹³²⁶ This opened the door to discussions for incentives for developing countries to reduce and avoid deforestation.¹³²⁷

The REDD mechanism was to give an opportunity cost to developing countries when they decide to preserve their forests rather than convert them to other land uses, with the aim of providing benefits to them for reducing deforestation and conserving forests.¹³²⁸ It established the possibility of developing an incentive mechanism for reducing emissions from deforestation and forest degradation. The scheme proposes to compensate land owners and users for measurable reductions in the rate of deforestation and forest degradation, thereby lowering carbon emissions and potentially increasing carbon storage. It also seeks to maintain vital ecosystem services, support livelihoods and preserve globally significant biodiversity. It reduces poverty by providing benefits for the local and indigenous communities upon meeting certain number of conditions.¹³²⁹ The “Bali Road Map” consists of a number of forward-looking decisions that represent the various tracks that are essential to reaching a secure climate future. These include: climate change mitigation negotiations, with an emphasis on options for developing countries. This seeks to explore what developing countries might do on mitigation; national policies and their linkages to negotiations over a future international climate change agreement. This requires developing countries policy makers to consider the national policy instruments they will contribute to; adaptation to climate change as a new development challenge in the developing world; negotiations on additional investment and financial flows to address climate change in developing countries. For future long-term cooperation to address climate change, developing country parties will need considerable financial

¹³²⁴ Wikipedia, The Adaptation Fund. Available at http://en.wikipedia.org/wiki/The_Adaptation_Fund . Site visited 24-11-2013.

¹³²⁵ The REDD+ is an embellished version of the REDD which emerged in COP 11, 2005 as a mitigation strategy for rainforest nations to encourage developing nations to reduce national forests degradation. It entails restoring degraded forest landscapes, creating sustainable agricultural practices through agro-forestry, and investing in reforestation and afforestation to enhance forest carbon stocks. It also embraces the role of conservation, and sustainable management of forests. See SPRATT Stephen and CRAWFORD Guy, Researching Forest Taxation and REDD+ in Sub-Saharan Africa: A Concept Note and Call for Research Partners, International Centre for Tax and Development (ICTD), June 2013. Available at <http://www.ictd.ac/sites/default/files/Files/Forest-Taxation%20and%20REDD%2Bin-sub-Saharan-Africa.pdf> Site visited 12-01-2014. See also, de PRÉNEUF Flore and BISSET Robert, Forests and Forestry, The World Bank, April 2011. Available at <http://go.worldbank.org/UYUDHIBJ10>. Site visited 25-10-2011. See also, SAVARESI Annalisa, The Role of REDD in the Harmonisation of Overlapping International Obligations, in HOLLO Erkki J.; KULOVESI Kati and MEHLING Michael (Eds.), Climate Change and the Law, Dordrecht, Springer Publishing, 2013, p.394.

¹³²⁶ GRANICH Sarah and KELLY Mick, The Bali Roadmap, Tiempo Climate Newswatch, 2013. Available at <http://www.tiemposyberclimate.org/newswatch/report071227.htm> Site visited 16-11-2013.

¹³²⁷ FLETCHER Susan R. and PARKER Larry, Climate Change: The Kyoto Protocol, Bali “Action Plan,” and International Actions, Congressional Research service (CRS) Report for Congress, January 2008, p.11. Available at http://www.house.gov/sites/members/nc04_price/issues/uploadedfiles/climate5.pdf . Site visited 15-02-2014.

¹³²⁸ KARSENTY Alain and ONGOLO Symphorien, Can Fragile States Decide to Reduce Their Deforestation? The Inappropriate Use of the Theory of Incentives With Respect to the REDD Mechanism, Forest Policy and Economics, Elsevier, 18 (2012), 38-45.

¹³²⁹ AFOLABI Abiodun Tajudeen, Sustainable Forest Management, in KOLA-OLUSANYA Anthony et al (Eds.), Environment and Sustainability: Issues, Policies and Contentions, Ibadan, University Press, 2011, p.86.

assistance for mitigation, adaptation and technology cooperation; and, the technology challenge, national government policy makers need to address the major technological challenges in reducing GHG emissions to levels that will prevent dangerous anthropogenic interference with the climate system.¹³³⁰

Notwithstanding its shortfalls, the Bali Road Map was able to raise climate change to the highest political level; advance the negotiations on the infrastructure needed for well-functioning, global climate change cooperation; it agreed to kick-start a strategic programme to scale up investment in the transfer of both the mitigation and adaptation technologies needed by developing countries. The astounding success of the Bali Climate Conference is that it brought the US to fully engage in the negotiation process and got the major emerging economies to accept for the first time in the history of climate negotiation, to take measurable, reportable and verifiable mitigation actions.¹³³¹ Though the Bali Road Map was not adopted by all governments,¹³³² as the COP was unable to reach consensus on almost any of the core issues identified,¹³³³ yet it succeeded in laying the groundwork for the Copenhagen Accord, advancing a number of key issues. It also brought about a commitment by developed countries to a US\$30 billion fast-start finance (FSF), between 2010 and 2012, and an agreement to mobilize US\$100 billion per year in new and additional finance from public and private sources to support developing countries to respond to climate change,¹³³⁴ on adaptation and mitigation measures in developing countries, with special emphasis on the least developed ones. The BAP thus succeeded in strengthening the institutional framework for climate finance under the UNFCCC.¹³³⁵

There were two options set to drift away from previous familiar position, one, that rich countries have to act as first movers by agreeing to emission reduction targets of at least 30 per cent by 2020; and two, that, developed country governments need to create economically enabling environments for developing countries to produce lower emissions without compromising poverty reduction goals.¹³³⁶ The British economist- Nicholas Stern, was also of the opinion that, rich countries need to provide funding for three more key elements: first, an international programme to combat deforestation, which

¹³³⁰ Eldis, The Bali Action Plan: Key Issues in the Climate Negotiations. Summary for Policy Makers, Institute for Development Studies, Irish Aid, 31 August, 2008. Available at http://www.eldis.org/go/home&id=40437&type=Document#_UvI5QFPXvR- Site visited 05-02-2014.

¹³³¹ UKEssays, The Process of Negotiations From Bali to Copenhagen Politics Essay, UKEssays.com, 2014. Available at <http://www.ukessays.com/essays/politics/the-process-of-negotiations-from-bali-to-copenhagen-politics-essay.php>. Site visited 30-06-2014.

¹³³² The EU had favoured an explicit goal of a 25% to 40% reduction in emissions below the 1990 levels by the year 2020, but this was strenuously opposed by the US with Japan, Russia and Canada in tow; the EU also favoured strengthening the carbon market and boosting funding to help poor countries adapt, thus further marking the region's leadership role in climate change issues. See, GRANICH Sarah and KELLY Mick, The Bali Roadmap, Tiempo Climate Newswatch, 2013. Available at <http://www.tiempocyberclimate.org/newswatch/report071227.htm> Site visited 16-11-2013.

¹³³³ CARLARNE Cinnamon Piñon, *ibid.*, p.358.

¹³³⁴ NAKHOODA Smita, ODI, More Than Meetings: The Way Forward on Climate Finance, Climate Funds Update/ Heinrich Böll Stiftung, December 20, 2013. Available at <http://blog.climatefundsupdate.org/2013/12/20/more-than-meetings-the-way-forward-on-climate-finance/> . Site visited 12-02-2014.

¹³³⁵ YAMINEVA Yulia and KULOVESI Kati, The New Framework for Climate Finance Under the United Nations Framework Convention on Climate Change: A Breakthrough or an Empty Promise?, in HOLLO Erkki J.; KULOVESI Kati and MEHLING Michael (Eds.), *Climate Change and the Law*, Dordrecht, Springer Publishing, 2013, p.221.

¹³³⁶ WATKINS Kevin, Bali's Double Standards, The Guardian Online, Friday 14 December, 2007. Available at <http://www.theguardian.com/commentisfree/2007/dec/14/comment.bali>. Site visited 04-02-2014.

contributes 15-20 per cent of emissions; second, the need to promote rapid technological advance to mitigate the effects of climate change and methods found to promote their sharing, emphasizing on the urgency of Carbon Capture and Storage for coal; and, third, that rich countries should honour their commitment to 0.7 per cent of GDP in aid by 2015, for increase in flows to developing countries to cushion their extra costs on climate change.¹³³⁷ The Bali Action Plan brought about a two-track approach to future international action by harmonizing both negotiations under the UNFCCC and the negotiations under the KP.¹³³⁸ The high point of the Bali Action Plan is the adoption of Decision 2/CP.13 on “reducing emissions from deforestation in developing countries (REDD+): approaches to stimulate action,” wherein it encouraged able Parties to support capacity-building, provide technical assistance and facilitate technology transfer by means of demonstration activities to address drivers of deforestation.¹³³⁹ Deforestation is an endemic problem in many African countries, in fact, it could be described as a rapid and unsustainable¹³⁴⁰ situation in sub-Saharan Africa. Cameroon, Africa’s biggest exporter of tropical timber has an annual deforestation rate of 0.4 to 1 per cent out of a 22.5 million hectares of forest, of which 17.5 is exploitable. About 80 per cent of its sawn timber is sold to the EU, while China receives 60 per cent of its log shipment.¹³⁴¹

The situation is not any different in Nigeria, where the tropical forest is becoming increasingly fragmented and less accessible to the extent it is said to have the world’s highest deforestation rate in 2000 to 2005, at 11.1 per cent annual deforestation rate of natural forests, when Africa suffers the second largest net loss in forests with 4.0 million hectares loss per year. Nigeria’s case was so pathetic because, there is no federal or state legislation or technical support to establish longer-term sustainable forests management concessions. This has resulted in the serious depression of the forests and reduced its high forests cover to less than 5 per cent of its area.¹³⁴² The Central African sub-region lost approximately 91,000 km² to deforestation between 1990 and 2000, out of its forest estimates of 2,403,000 km² in 2000.¹³⁴³ The threat is the demand for timber by some Asian and European-owned

¹³³⁷ STERN Nicholas, Bali: Now the Rich Must Pay, The Guardian Online, Friday 30 November, 2007. Available at <http://www.theguardian.com/commentisfree/2007/nov/30/comment/climatechange>. Site visited 04-02-2014.

¹³³⁸ CARPENTER Chad, The Bali Action Plan: Key Issues in the Climate Negotiations: Summary for Policy Makers, in BUTTROSE Rebecca and SCHOFIELD Amy, The Bali Road Map: Key Issues Under Negotiation, United Nations Development Programme, UNDP, September 2008, p.3. Available at http://www.undp.org/content/dam/undp/library/Environment_and_Energy/Climate_Change/Bali_Road_Map_Key_Issues_Under_Negotiation.pdf Site visited 05-02-2014

¹³³⁹ FIELD, COP 13/CMP 3, Bali, Indonesia, December 2007, Foundation for International Environmental Law and Development. Available at <http://www.field.org.uk/guides/guide-for-redd-plus-negotiations-august-2013/cop-13cmp-3-bali-indonesia-december-2007>. Site visited 05-02-2014.

¹³⁴⁰ SPRATT Stephen and CRAWFORD Guy, Researching Forest Taxation and REDD+ in Sub-Saharan Africa: A Concept Note and Call for Research Partners, International Centre for Tax and Development (ICTD), June 2013. Available at <http://www.ictd.ac/sites/default/files/Files/Forest-Taxation%20and%20REDD%2Bin-sub-Saharan-Africa.pdf> Site visited 12-01-2014.

¹³⁴¹ LUKONG Pius, Cameroon Government Will Certify Hardwood Export to Curb Illegal Logging, Bloomberg News Online, 5 July, 2010. Available at <http://www.bloomberg.com/news/2010-05-07/cameroon-government-will-certify-hardwood-exports-to-curb-illegal-logging.html> . Site visited 26-02-2014.

¹³⁴² BUTLER Rhett A., World Deforestation Rates and Forest Cover Statistics, 2000-2005. Available at <http://www.news.mongabay.com/2005/1115-forests.html> . Site visited 27-02-2014. See also, MOLINOS Vincente, Re-Energizing Nigeria’s Forests and Wood Products Sectors, ITTO Tropical Forests Update, 2012. Available at http://www.itto.int/direct/topics/topics_pdf_downloads/topics_id%3D3762%26no%3D1. Site visited 27-02-2014.

¹³⁴³ United Nations Environment Programme, Global Environment Outlook (UNEP GEO), Forests: Africa, UNEP, 2002. Available at <http://www.unep.org/GEO/geo3/english/185.htm> . Site visited 28-02-2014. See also, TURNER N.C.,

trans-national logging companies, which take advantage of weak forest legislation and law enforcement.¹³⁴⁴ The Central African sub-region lost approximately 91,000km².¹³⁴⁵ The IPCC WG III notes that reducing and/or preventing deforestation is the mitigation option with the largest and most immediate carbon stock impact in the short term per hectare and per year globally as the release of carbon emissions into the atmospheres is prevented.¹³⁴⁶ Yet about 13 million hectares of forests are lost every year globally.¹³⁴⁷ Deforestation is a natural or anthropogenic process that converts forest land to non-forest land.¹³⁴⁸ The Marrakech Accords defined deforestation as the direct human-induced conversion of forest land to non-forest land,¹³⁴⁹ and a forest is a minimum of land of 0.05- 1 hectare with tree crown cover (or equivalent stocking level) of more than 10- 30 per cent with trees with the potential to reach a minimum height of 2-5 metres at maturity in situ.¹³⁵⁰ It constitutes significant environmental risks increasing erosion and degradation of natural conditions, and can trigger landslides and flooding which induce landscape changes in the affected areas, and in the overall can accelerate aridity. The UN designated the year 2011 as the International Year of Forests, with the theme “Forests for People.”

Most visible indications of climate change in Africa are changes in rainfall and river regimes. Excessive Niger Delta, floods forced 1.3 million people from their homes and claimed 431 lives, according to the Nigeria’s National Emergency Management Agency (NEMA) in October 2012.¹³⁵¹ This has been described as the country’s worst flooding in 50 years. According to the Food and Agricultural Organisation (FAO), forests cover in Africa was estimated at 650 million hectares, that is, 17 per cent of

Deforestation in the Green Heart of Africa, WWF Global. Available at http://wwf.panda.org/what_we_do/where_we_work/congo_basin_forests/problems/deforestation/logging/ . Site visited 26-02-2014.

¹³⁴⁴ GUNTHER Michel, Logging in the Green Heart of Africa, World Wide Fund (WWF). Available at http://www.wwf.panda.org/what_we_do/where_we_work/congo_basin_forests/problems/deforestation/logging/ . Site visited 26-02-2014.

¹³⁴⁵ United Nations Environment Programme, Global Environment Outlook (UNEP, GEO), Forests: Africa, UNEP, 2002.

Available at <http://www.unep.org/GEO/geo3/english/185.htm> . Site visited 28-02-2014. See also, TURNER, N. C.,

Deforestation in the Green Heart of Africa, WWF Global. Available at

http://wwf.panda.org/what_we_do/where_we_work/congo_basin_forests/problems/deforestation/logging/ . Site visited 26-02-2014.

¹³⁴⁶ UN FCCC, Methodological Guidance into the Activities Relating to Reducing Emissions From Deforestation and Forest Degradation and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries (SBSTA). Available at http://unfccc.int/methods/redd/methodological_guidance/items/4123.php . Site visited 12-02-2014.

¹³⁴⁷ de PRÉNEUF Flore and BISSET Robert, Forests and Forestry, The World Bank, April 2011. Available at

<http://go.worldbank.org/UYUDHIBJ10> . Site visited 25-10-2011.

¹³⁴⁸ Intergovernmental Panel on Climate Change (IPCC), Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability, Glossary A-D, IPCC Fourth Assessment Report: Climate Change 2007. Available at

http://www.ipcc.ch/publications_and_data/ar4/wg2/en/annexessglossary-a-d.html . Site visited 12-02-2014.

¹³⁴⁹ See, Decision 16/CMP.1, Land Use, Land-use Change and Forestry, UN Doc. FCCC/KP/CMP/8/Add.3, 30 March, 2006, annex, para. 1(d). See also, SAVARESI Annalisa, The Role of REDD in the Harmonisation of Overlapping International Obligations, in HOLLO Erkki J.; KULOVESI Kati and MEHLING Michael (Eds.), Climate Change and the Law, Dordrecht, Springer Publishing, 2013, p.392.

¹³⁵⁰ KAROUSAKIS Katia, Initial Review of Policies and Incentives to Reduce GHG Emissions From Deforestation, OECD, October 2006, p.6. Available at <http://www.oecd.org/env/cc/37672485.pdf> . Site visited 04-03-2014.

¹³⁵¹ SCOTT Michon, Flooding in Nigeria, NASA Earth Observatory, 16 October, 2012. Available at

<http://earthobservatory.nasa.gov/IOTD/view.php?id=79404> . Site visited 27-02-2014.

the world's forests. Between 1990 and 2000, there was a loss of more than 5 million hectares per year in the whole of Africa, while in Nigeria, deforestation of riparian forests and savannahs for agricultural purposes representing more than 470,000 hectares per year, and for Africa, 60 per cent of tropical forests cleared between the same period was converted to permanent agricultural small holdings. A major resultant effect of these being loss of biodiversity, with oil and gas exploitation activities in Cameroon indiscriminately affecting nearly 30 species of animals and plants.¹³⁵² This can be devastating. The International Monetary Fund (IMF), Managing Director Christine Lagarde, warned of the consequences of convulsions of climate in Africa that harbours the world's most vulnerable people that should have been the greatest beneficiary of the Bali Action Plan. She rightly observed that estimates suggest that 40 per cent of the land now used to grow maize in sub-Saharan Africa will no longer be able to support that crop by the 2030s¹³⁵³ because of the convulsions of climate, which is terribly battering different parts of the continent by way of protracted droughts and such other adverse weather situations. Speaking further, she warned of the planet's perilous closeness to climate change tipping point, which to her, requires the urgent cooperation between countries, cities and business.

Climate change financing

It is succinct to observe that the UN has a string of new and additional funding facilities for climate change in the developing nations, to enable them meet their obligations under the treaties and adapt to the adverse effects of climate change.¹³⁵⁴ However, notwithstanding the grave conditions of the developing nations, the larger percentage of these facilities are targeted at the advancing world, in other words, the so-called emerging economies, which are almost at par with the largest economies in the world. The UN established the Special Climate Change Fund (SCCF),¹³⁵⁵ in 2001 to complement other funding mechanisms for the implementation of its Conventions and to finance projects relating to adaptation, technology transfer and capacity building, energy, transport, industry, agriculture, forestry and waste management, and economic diversification. This Fund was to be operated by the Global Environmental Facility (GEF).¹³⁵⁶ The GEF¹³⁵⁷ is responsible for providing grants and concessional funding for developing countries to assist them with incremental costs of preparation of national communications to the UNFCCC. It also operates the financial mechanism for other multilateral environmental agreements (MEAs), such as the Convention on Biological Diversity, the Stockholm

¹³⁵² TCHINDJANG Mesmin; AMOUGOU Joseph Armathée; ABOSSOLO Samuel Aimé and BELL Stanilas Bessoh, Challenges of Climate Change, Landscape Dynamics and Environmental Risks in Cameroon. In RUNGE Jürgen, Landscape Evolution, Neotectonics and Quarternary Environmental Change in Southern Cameroon, Leiden, CRC Press, 2012, pp. 238-246.

¹³⁵³ KING Ed, IMF Chief Warns of "Merciless" Climate Change, Responding to Climate Change RTCC, February 2014. Available at <http://www.rtcc.org/2014/02/05/imf-chief-lagarde-warns-of-merciless-climate-change/>. Site visited 07-02-2014

¹³⁵⁴ Center for Climate and Energy Solutions, COP 6 BIS. Available at <http://www.c2es.org/international/negotiations/cop-6-bis>. Site visited 04-03-2014.

¹³⁵⁵ See Decision 7/CP.7, COP 6 Bonn. See, NAJAM Adil; HUQ Saleemul and SOKONA Youba, Climate Negotiations Beyond Kyoto: Developing Countries Concerns and Interests, Elsevier, Climate Policy 3 (2003) 221-231, 225.

¹³⁵⁶ See GEF/C.24/12.

¹³⁵⁷ The GEF has financed approximately US\$4.04 billion in mitigation activities, leveraging an additional US\$27.2 billion as well. It has also financed about US\$750 million in concrete adaptation actions via more than 176 projects, of which 103 are NAPA implementation projects. It finances climate change initiatives that complement efforts of other climate financing mechanisms. See, DIXON Robert K., Global Environment Facility and Climate Change Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) 6 June, 2013. Available at http://www.unfccc.int/files/meetings/bonn_jun_2013/in-session/application/pdf/adp2-2_briefing_global_environment_facility_06062013.pdf. Site visited 30-04-2014.

Convention on Persistent Organic Pollutants and the United Nations Convention to Combat Desertification.¹³⁵⁸ Some other sources of funding include the Least Developed Countries Fund (LDCF),¹³⁵⁹ the Adaptation Fund (AF),¹³⁶⁰ established during UNFCCC COP7 2001, but operating under the KP,¹³⁶¹ to finance concrete adaptation projects and programmes in developing country parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change,¹³⁶² as well as some specific adaptation activities that are not limited to developing countries.¹³⁶³ The AF operates under the UN as the primary finance provider for adaptation projects around the world.¹³⁶⁴ Then, the Green Climate Fund (GCF),¹³⁶⁵ established as an operating entity of the financial mechanism of the Convention under Article 11, to support projects, programmes, policies and other activities in developing country parties.¹³⁶⁶ A rough estimate shows that the total amount of funding from all climate funds worldwide is less than US\$6 billion a year, while the UNFCCC estimates that the investment in the range of US\$104-143 billion is needed each year for climate change mitigation and adaptation in developing countries.¹³⁶⁷

Countries which themselves should be financing climate change mitigation and adaptation projects in the poorer countries, have contrarily been drawing the greatest share of the scarce and inadequate funds squeezed out of the purse of the developed nations, which have been more increasingly reluctant at releasing funds for climate change projects in the LDCs. This has been the grouse of the LDCs and the Small Island States, who are asking where has all the money provided gone? This agitation has caused the operationalisation of the SCCF to suffer from tensions among developing countries on such issues as full-cost funding and scope of activities to be funded.¹³⁶⁸ They demanded that a new UN institution be set up to oversee compensation for loss and damage to the poor countries to respond to

¹³⁵⁸ YAMINEVA Yulia and KULOVESI Kati, The New Framework for Climate Finance Under the United Nations Framework Convention on Climate Change: A Breakthrough or an Empty Promise?, in HOLLO Erkki J.; KULOVESI Kati and MEHLING Michael (Eds.), *Climate Change and the Law*, Dordrecht, Springer Publishing, 2013, p.199.

¹³⁵⁹ This has assisted 45 countries complete the preparation of their National Adaptation Programme of Action, out of 48 countries funded by it for same; it has thus shifted its focus from NAPA support to NAPA implementation. See, YAMINEVA Yulia, *ibid.*, p.203.

¹³⁶⁰ See, Decision 10/CP.7, also, Article 12.8 Kyoto Protocol, which requires COP/MOP to ensure that 2% of the proceeds from CDM project activities are used to assist developing countries that are particularly vulnerable to the adverse impacts of climate change to meet the costs of adaptation. See also, YAMINEVA Yulia, *ibid.*, p.203.

¹³⁶¹ VERSCHUUREN Jonathan, Legal Aspects of Climate Change Adaptation, in HOLLO Erkki J.; KULOVESI Kati and MEHLING Michael (Eds.), *Climate Change and the Law*, Dordrecht, Springer Publishing, 2013, p.272.

¹³⁶² United Nations, Adaptation Fund, United Nations Framework Convention on Climate Change. Available at https://unfccc.int/cooperation_and_support/financial_mechanism/adaptation_fund/items/3659.php . Site visited 11-02-2014.

¹³⁶³ VERSCHUUREN Jonathan, *op cit.*, p.272.

¹³⁶⁴ YEO Sophie, Climate Adaptation Faces Funding Crisis Warn UN Officials, 21 March, 2014. available at <http://www.rtcc.org/2014/03/20/climate-adaptation-facing-funding-crisis-warn-un-officials/> Site visited 28-03-2014.

¹³⁶⁵ See Decision 1/CP.16. See also, United Nations, Adaptation, Gateway to the United Nations Systems Work on Climate Change, 2012. Available at <https://www.un.org/wcm/content/site/climatechange/pages/gateway/adaptation> . Site visited 10-02-2014.

¹³⁶⁶ United Nations, Green Climate Fund, United Nations Framework Convention on Climate Change. Available at http://unfccc.int/cooperation_and_support/financial_mechanism/green_climate_fund/items/5869.php . Site visited 07-02-2014.

¹³⁶⁷¹³⁶⁷ RONG Fang, Understanding Developing Country Stances on Post-2012 Climate Change Negotiations: Comparative Analysis of Brazil, China India, Mexico and South Africa, *Energy Policy*, Vol.38 2010, pp.4582-4591.

¹³⁶⁸ YAMINEVA Yulia, *op cit.*, p.202.

and cope with climate impacts that are difficult or impossible to adapt to.¹³⁶⁹ Between 2010 and 2012 \$35 billion in climate aid were provided by some wealthy nations, notably Germany, Japan, Norway, Britain and the US, to help poorer countries adjust to climate change as promised at Copenhagen, but the vast majority of that aid- \$27 billion went toward clean energy, efficiency, and other mitigation projects around the world. For Instance, Norway gave Brazil \$1 billion to help prevent deforestation, and to Mexico \$53 million for energy-efficient lighting, the US gave the Congo Basin \$15.7 million to preserve rain forest diversity, Japan gave Egypt \$338 million loan for wind power, the UK gave Nigeria \$30.6 million for electricity management advice, the US gave Indonesia \$332 million for environmentally sustainable growth, and France gave China \$248.9 million for low-carbon housing and green financing and so on.¹³⁷⁰ GEF grants channeled through the World Bank Group have helped China grow global markets for renewable energy and plan climate-smart cities. In Shanghai, one WBG-GEF project is helping design a low-carbon district that would retrofit buildings to pilot green energy and zero-emissions buildings.¹³⁷¹ The project's \$4.3 million GEF grant is bolstered by a \$100 million loan from the World Bank. It is apposite to note that the EU set up the Global Energy Efficiency and Renewable Energy Fund (GEEREF), a global public-private partnership, to offer risk-sharing and co-funding options for investors in clean energy in developing countries. Then, there is also, the Earth Fund of the Global Environmental Facility set up to leverage funding and expertise from the private sector, multilateral agencies, foundations and non-governmental organisations (NGOs) to promote technologies and business models that contribute to the protection of the global environment.¹³⁷² Besides the afore mentioned, there is the Climate Investment Funds, established in 2008 as key multilateral source for financing climate issues.¹³⁷³

The point here is that the funds disbursements have been lopsided in favour of some richer countries hiding under the umbrella of the developing countries. South Korea, equally a developing country, was the only country which gave the Green Climate Fund the lone \$40 million to start with at the launch of its headquarters in December 2012, while other rich countries would not bulge, because they are reluctant to stress their "fragile" economies, and thus refused to pay up their contributions to the \$100 billion pledged for the Fund to operate.¹³⁷⁴ This seeming apathy by the rich countries to keep their promises has led to developing nations to push for a detailed plan to scale up funds, with a proposal for

¹³⁶⁹ VIDAL John, Poor Countries Walk Out of UN Climate Talks as Compensation Row Rumbles on, The Guardian Online, 20 November, 2013. Available at <http://www.theguardian.com/global-development/2013/nov/20/climate-talks-walk-out-compensation-un-warsaw> . Site visited 10-02-2014.

¹³⁷⁰ PLUMER Brad, Wealthy Nations Pledged Billions to Help the Poor Adapt to Climate Change. Where Did it All Go? November 18, 2013. Available at <http://www.washingtonpost.com/blogs/wonkblog/wp/2013/11/18/wealthy-nations-promised-billions-to-help-the-poor-adapt-to-climate-change-where-did-it-go/> . Site visited 07-02-2014

¹³⁷¹ Feature, GEF Countries Meet With a Strong Mandate for Environmental Action, The World Bank News, 25 May, 2014. Available at <http://www.worldbank.org/en/news/feature/2014/05/25/gef-assembly-strong-mandate-for-environmental-action>. Site visited 29-06-2014.

¹³⁷² Global Leadership for Climate Action, Enhancing Private Investment in Clean Energy in Developing Countries, GLCA Finance Roundtable Discussion Paper, 21 September, 2009.

¹³⁷³ YAMINEVA Yulia and KULOVESI Kati, The New Framework for Climate Finance Under the United Nations Framework Convention on Climate Change: A Breakthrough or an Empty Promise?, in HOLLO Erkki J.; KULOVESI Kati and MEHLING Michael (Eds.), Climate Change and the Law, Dordrecht, Springer Publishing, 2013, p.192.

¹³⁷⁴ REKLEV Stian, YOO Choonsik and Visser Nick, UN Launches Green Fund With Little of Money Promised by Rich Nations, Reuters, April 12, 2013. Available at http://www.huffingtonpost.com/2013/12/04/green-climate-fund-un_n_4381999.html . Site visited 07-02-2014. See also, RASTOGI Namrata Patodia Common Metrics: Comparing Countries' Climate Pledges, Pew Center on Global Climate Change, September 2011.

a target of \$70 billion in 2016.¹³⁷⁵ The poorer nations are pressing for more aid to help them adapt, moreso that they face greater risks but are less responsible for the carbon-dioxide emissions currently in the atmosphere, whereas, the wealthier nations say that the sum of money expected by the poorer countries are not going to materialize, claiming not just the recent financial crisis, but also structural adjustments, as a result of obligations from their ageing populations, infrastructure, education, health care and the likes.¹³⁷⁶

The point, as summarized by the Delhi-based Centre for Science and Environment, is that the rich countries have emitted greenhouse gases far in excess of what the Earth can withstand, because they could emit without limits or quotas and were thus “free-riding” on the financial debt of the South. This same attitude exhibited by the North is virtually being repeated all over again by those countries of the emerging economies, especially China and India which constitute the world’s largest manufacturing hub, whose GHGs emissions are rising exponentially as a result of their rapid industrialisation over the years.¹³⁷⁷ For instance, China is increasing its coal capacity by 860 million tonnes over a period of 2011-2015,¹³⁷⁸ which is more than the annual output of India. It has approved the construction of 15 new large-scale coal mines with 101.3 million tonnes of annual capacity in 2013 to cap its coal production of 3.66 billion tonnes in 2012, which is already almost half the entire global total.¹³⁷⁹ A medical report from the US reveals the devastating impacts of coal pollution on the human body and major organ systems, stressing that coal contributes to four of the top five causes of mortality in the US and is responsible for increasing the incidence of major diseases already affecting large portions of the US populace,¹³⁸⁰ similar to the situation in China. If China so continues and a number of others join the fray, global efforts at containing the scourge of climate change will soon fly in the face of it, becoming a mirage. China is merely repeating what the West did when nobody cared about the environment, for which the whole world is paying a great price now, meaning in essence that in the next couple of

¹³⁷⁵ Reklef, op cit.

¹³⁷⁶ PLUMER Brad, ibid.

¹³⁷⁷ ATAPATTU Sumudu, Climate Change, Differentiated Responsibilities and State Responsibility: Devising Novel Legal Strategies For Damage Caused by Climate Change, in RICHARDSON Benjamin J. et al (Eds.), Climate Law and Developing Countries: Legal and Policy Challenges For the World Economy, Cheltenham, Edward Elgar Publishing, 2009, p.57.

¹³⁷⁸ Globally as of 2007, liquid and solid fuels accounted for 76.3% of the emissions from fossil fuels burning and cement production. See, BODEN T. A.; MARLAND G.; and ANDRES R. J., Global Fossil-Fuel CO₂ Emissions, Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, Tennessee, 2010. Available at http://cdiac.ornl.gov/trends/emis/tre_glob.html . Site visited 27-09-2013.

¹³⁷⁹ Fossil fuels account for 87% of China’s present energy, coal the most carbon-intensive of the fossil fuels accounting for 70% of these, constituting three quarters of its electricity generation. From 2005 through 2009 china added the equivalent of the entire US fleet of coal-fired power plants, or 510 new 600-megawatt coal plants. From 2010 through 2013, it added roughly half the coal generation of the entire US to this, meaning China added roughly two 600-megawatt coal plants a week, for 7 straight years. China burns more than 4 billion tonnes of coal each year in power plants, homes and factories. If therefore, the bulk of all the CDM projects invested in China are not directed at CO₂ capture and storage technologies, then such are at best misdirected. See, LARSON Eric, China’s Growing Coal Use is World’s Growing Problem, Climate Central, 27 January, 2014. Available at <http://www.climatecentral.org/blogs/chinas-growing-coal-use-is-worlds-growing-problem> . Site visited 07-02-2014. STANWAY David, China Approves Massive New Coal Capacity Despite Pollution Fears, Reuters Online, 7 January, 2014. Available at <http://www.reuters.com/article/2014/01/07/china-coal-id-USL3N0K90720140107> . Site visited 11-02-2014.

¹³⁸⁰ WILLIAMS Jean, Obama Administration Takes Major Step to Limit Dirty Coal Carbon Emissions, PrairieDogPress Online, 20 September, 2013. Available at <http://www.allvoices.com/contributed-news/15588720-obama-administration-takes-major-step-to-limit-dirty-coal-carbon-emissions/> . Site visited 23-09-2013.

decades, the whole world, whatever is left of it then, would be left to lick its wounds more grievously, sake of the consequences of the present day actions of the likes of China, India and others. The irony of these is that China is so proficient in indirect coal-to-liquids (ICTL) fuel, which is environmentally friendly, even more than the liquid fossil fuels.

The ICTL was first invented in Germany, but which since the 1980s, China has boosted its development and accelerated industrialisation, bringing it to an unprecedented breakthrough in many areas that have advanced ICTL technologies.¹³⁸¹ Yet, with this China is still the world's largest direct consumer of coal. Since China has comparative advantage in ICTL, it would have been well appreciated if China makes the best of this advantage by its advanced technology on this than burning it directly, polluting the world large-scale and even killing its own very people in their millions yearly in related diseases, all in the guise of rapid industrialisation. China could harness more renewable sources of energy than increasing its coal consumption to the detriment of other parts of the earth suffering from the effects of its aggressive industrialisation, with its advanced technological, capital and human resources. Climate change caused by carbon pollution is one of the most significant public health threats of our time,¹³⁸² and needs be emphasised that what coal plants are to the US and China, gas flaring stacks from oil exploration fields represent to Nigeria and other large flarers across the world, like Russia and Iran, constituting unnecessary and avoidable risk to our planet and the human life therein. Every strident effort at getting China to reduce its energy use should be taken, particularly of energy generated by fossil fuels, as this may have positive side effects on human health and the environment, effects which primarily result from reduced air pollution by harmful substances.¹³⁸³

China and global climate change equation

China has the second highest global GDP after the US¹³⁸⁴ out of 214 economies, and is fast on its way ahead of the US. It was reported that the world is dangerously dependent on China, which is responsible for nearly half of the global GDP growth.¹³⁸⁵ China is a rich country, rich enough to be a creditor like many other countries, rich and poor alike, hence does not deserve to draw the lion's share of UN climate change funds to the detriment of the poorer countries, which are too poor to help themselves if the world has not come to their aid. A major consequence of China's action is that the year 2013 has been reported to be among top ten warmest years since modern records began in 1850, because of failure to curb emissions of carbon-dioxide and other heat-trapping

¹³⁸¹ LI Weng; YIFENG Bu; and ZHUOWU Men, The Momentum of Chinese Developed Indirect Coal-to-Liquids Technologies, Cornerstone Online, 11 October, 2011. Available at <http://www.cornerstonemag.net/the-momentum-of-chinese-developed-indirect-coal-to-liquids-technologies/>. Site visited 31-03-2014.

¹³⁸² WILLIAMS Jean, *ibid*.

¹³⁸³ PRETTENTHALER Franz and STEINER Daniel, Domestic Kyoto Implementation or Cheap Certificates? A Decision Support Tool for Policy Makers When Designing Climate Protection Strategies Considering Potential Co-Benefits, in RODI Michael, (Ed.), *The Paradigm Shift Towards Energy Sustainability: Climate Change, Innovation and the Optimal Instrument Mix*, Berlin, Lexion Verlagsgesellschaft Publishing, 2010, p.69.

¹³⁸⁴ See, The World Bank, GDP Ranking, 17 December, 2013. Available at <http://data.worldbank.org/data-catalog/GDP-ranking-table>. Site visited 11-02-2014.

¹³⁸⁵ The Economist, World GDP, December 21, 2013. Available at <http://www.economist.com/news/economic-and-financial-indicators/21591902-world-gdp>. Site visited 11-02-2014.

gases, which means that global temperatures will continue to rise for generations to come.¹³⁸⁶ Not at this stage when tackling climate change is becoming more urgent with every passing day than ever before should a country, or a group of countries take the whole world hostage in order to free itself or themselves and their people from the shackles of poverty. It is good to break off from the scourge of poverty, but should not be at great costs to the rest of the world, as the West did in the first instance, which brunt the whole world is still confronted with now. The already known and predicted consequences of not acting are becoming more tangible enough and the window for taking effective action around the world is closing fast.¹³⁸⁷ A grave situation as this will have far reaching consequences on parts of Africa especially the Sahelian belt, where previous outrageous temperature occurrences have aggravated the expansion of the Sahara Desert than it would otherwise have been. For instance, Nigeria's desertification was brought about by a temperature increase of 1.10° C over a period between 1901 and 2005, compared to global mean temperature of 0.74° C. This was coupled with a consistent decrease in the amount of rainfall by 81mm over the same period. These were also exacerbated by extremely high level of deforestation, which accounts for 87 per cent of the total carbon emission in the country.¹³⁸⁸ The cost of developing drought-resistant crops, providing early-warning systems for floods, droughts and fires, and building seawalls, dykes, and wave breaks will be vast, says the UN Environment Programme's (UNEP). It will cost Africa approximately \$350bn a year to adapt its farming and infrastructure to climate change if governments fail to hold temperatures to less than 2° C and allow them to rise to about 4° C.¹³⁸⁹

It is important to observe that the Chinese government acknowledges that China's environmental problem is an immediate "here and now" crisis, and that the rapid growth of China's economy has been at the great cost of even faster damage to its resources and environment. The root of China's environmental problem is its distorted development outlook. According to SEPA statistics, China's energy consumption per unit output value is seven times that of Japan, six times that of America, and 2.8 times that of India.¹³⁹⁰ As a developing country ambitiously industrializing and urbanizing, China requires a highly substantial amount of energy to run its industrial plants, factories and power plants, in consequence of which it is now the world's largest consumer of coal and the leading producer of GHG in the world, such that every year, its emissions rise 10 per cent. China depends on coal, the dirtiest energy source for 70 per cent of its energy.¹³⁹¹ One-third of the land in China has been polluted by acid rain,¹³⁹² water in 40 per cent of the water systems is rated poor Grade 5; more than 300

¹³⁸⁶ NULLIS Clare, WMO: 2013 Among Top Ten Warmest on Record, World Meteorological Organisation (WMO), 5 February, 2014. Available at <http://www.un.org/climatechange/blog/2014/02/05/wmo-2013-among-top-ten-warmest-on-record/> . Site visited 10-02-2014

¹³⁸⁷ Friends of the Earth Europe, Why Europe Needs Binding Targets for 2030- for Greenhouse Gas Emissions Reductions, Renewables Energy and Energy Savings, 2013. Available at <http://www.foeeurope.org/2030-climate-plan> . Site visited 08-02-2014.

¹³⁸⁸ BALARABE Ladidi Yakubu, Nigeria: Tackling Deforestation Problems, Daily Trust Online, 3 June, 2011. Available at <http://www.allafrica.com/stories/201106031011.html> . Site visited 21-10-2012.

¹³⁸⁹ VIDAL John, Cost of Climate Change Adaptation Could Destabilise African Countries, UN Warns, The Guardian Online, 20 November, 2013. Available at <http://www.theguardian.com/global-development/2013/nov/20/talks-walk-out-compensation-un-warsaw20/climate-change-adaptation-cost-destabilise-african-countries> . Site visited 28-11-2013.

¹³⁹⁰ YONGCHEN Wang, Green Action in China, Beijing, Foreign Languages Press, 2006, p.100

¹³⁹¹ JAKUBOSKI Samantha, The Impact of Asian Air Pollution on the World's Weather, Scitable Online, 23 January, 2014. Available at http://www.nature.com/scitable/blog/green-science/the_impact_of_asian_air . Site visited 03-03-2014

¹³⁹² In the first half of 2013, 38% of China's 456 cities experienced acid rain, while almost 30% of the groundwater and 60% of the country's surface water was ranked either poor or very poor quality in its own government report in 2012, and a recent study shows air pollution has caused 1.2 million premature deaths, a situation that has been so severe as to warrant

million people in rural areas do not have safe drinking water. 60 per cent of the underground water in China is too polluted to drink directly. Water quality measured in 203 cities across the country in 2013 rated “very poor” or “relatively poor” in an annual survey released by the Ministry of Land and Resources, which means such water cannot be used as a source of drinking water. The proportion of water not suitable for direct drinking rose from 57.4 per cent in 2012.¹³⁹³ Over 400 million urban residents breathe in seriously polluted air,¹³⁹⁴ causing 15 million people to suffer from bronchitis or respiratory system cancer and an estimated 8,572 premature deaths in Beijing, Shanghai, Guangzhou and Xi’an in 2012, and more than 2 million deaths worldwide each year being the direct result of human-caused outdoor air pollution, rising to as high as 7 million globally in 2012.¹³⁹⁵ Not only that large areas of China are now having rains as acid as they used to be in Europe during the 1970s, but Chinese emissions are bringing acid deposition to South Korea and Japan. Pollutants have transboundary effects, huge amounts of aerosols from Asia go as far as six miles up in the atmosphere, having an unmistakable impact on cloud formations and weather systems worldwide.¹³⁹⁶

Asia’s pollution has become so bad researchers warn that, it is affecting global air circulation in such a way that it could be intensifying storms¹³⁹⁷ including those beyond the continent itself.¹³⁹⁸ Acid rains are now being also

The Financialist Online, 10 January, 2014. Available at <http://www.thefinancialist.com/chinas-green-awakening/> . S 25-02-2014.

¹³⁹³ Agence France Presse, 60% of China’s Underground Water Polluted: Report, NewsDaily Online, 23 April, 2014. Available at <http://www.newsdaily.com/article/2d37ce351963f9a5fb8b45cef0e4924a/60-of-china-underground-water-polluted-report> . Site visited 23-04-2014.

¹³⁹⁴ Several recent scientific studies have revealed the toll that China’s outdoor pollution is taking on humans. New data released the 2010 Global Burden of Disease Study revealed that such pollution contributed to 1.2 million premature deaths in 2010, or nearly 40% of the global total. See, WONG Edward, Pollution Leads to Drop in Life Span in Northern China, Research Finds, The New York Times Online, 8 July, 2013. Available at <http://www.nytimes.com/2013/07/09/world/asia/pollution-leads-to-drop-in-life-span-in-northern-china-study-finds.html>. Site visited 03-07-2014.

¹³⁹⁵ GOOSSENS Ehren, China to Fight Air Pollution With \$1.65 Billion Fund, Bloomberg News Online, February 12, 2014. Available at <http://www.bloomberg.com/news/2014-02-12/china-to-fight-air-pollution-with-1-65-billion-fund.html> . Site visited 17-02-2014. 22-02-2014. See also, SILVA Raquel A. et al., Global Premature Mortality Due to Anthropogenic Outdoor Air Pollution and the Contribution of Past Climate Change, Environmental Research Letters, Vol.8 (2013), 034005. Available at http://www.iopscience.iop.org/1748-9326/8/3/034005/pdf/1748-9326_8_3_034005.pdf . Site visited 23-04-2014. See further, BRIGGS Helen, Air Pollution Linked to Seven Million Deaths Globally, BBC News Health Online, 25 March, 2014. Available at <http://www.bbc.com/news/health-26730178> . Site visited 23-04-2014.

¹³⁹⁶ RANDALL Keith, Asian Air Pollution Affecting World’s Weather, Tamu Times Online, 21 January, 2014. Available at [http://www.tamutimes.tamu.edu/2014/01/21/asian-air-pollution-affecting-world-weather/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+tamuNewsFull+\(TAMU+News+Articles\)#.UxRQ5VPXvR9](http://www.tamutimes.tamu.edu/2014/01/21/asian-air-pollution-affecting-world-weather/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+tamuNewsFull+(TAMU+News+Articles)#.UxRQ5VPXvR9) . Site visited 03-03-2014. See also, WANG Yuan et al., Assessing the Effects of Anthropogenic Aerosols on Pacific Storm Track Using a Multiscale global climate Model, Proceedings of the National Academy of Sciences of the United States of America (PNAS), 11 March, 2014. Available at <http://www.pnas.org/content/early/2014/04/09/1403364111.full.pdf+html> . Site visited 23-04-2014.

¹³⁹⁷ Some of the most devastating incidents in the recent times include: Bangladesh, May 1965- 48,047 deaths; Fiji, Honduras, 1974- 8,000-10,000 deaths; Super Typhoon Nina China, August 1975- 171,000 deaths; Devi Taluk, SE India, November 1977- 14, 204 deaths; Urir Bangladesh, May 1985- 15,000 deaths; Cyclone 02B, Bangladesh, May 1991- 138,866 deaths; Cyclone Nargis, Myanmar, May 2008- 138,366 deaths; Hurricane Camille, 1969- 256 deaths; Hurricane Agnes, 1972- 122 deaths ; Hurricane Alicia, 1983- 21 deaths; Hurricane Gilbert, 1988- 318 deaths; Hurricane Hugo, 1989- 61 deaths; Hurricane Great Galvestone, 1990- 8,00-12,000 deaths; Hurricane Andrew, 1992- 65 deaths; Tropical Storm Alberto, 1994- 31 deaths; Hurricane Ivan, 2004- 92 deaths; Hurricane Dennis, 2005- 42 deaths; Hurricane Katrina, 2005- 1,833 deaths; Hurricane Emily, 2005- 64 deaths; Hurricane Rita, 2005- 71 deaths; Hurricane Stan, 2005- 3,219 deaths; Hurricane Dean,

recorded in northern India.¹³⁹⁹ At the current rate of pollution, assuming a two-fold growth in the total volume of economy, in 15 years time, the pollution load will be more than four times higher than now.¹⁴⁰⁰ China makes a fifth of all the goods manufactured worldwide.¹⁴⁰¹ China has thus been spewing emissions like this since the past three decades, and seems not in a hurry to stop it, just as Russia and Nigeria the two largest gas flaring nations. What the Chinese coal represents to the atmosphere, these countries gas flaring equally represents.¹⁴⁰² The country seems however poised to tackle its air pollution portfolio by launching a 10 billion Yuan (US\$1.65 billion) fund to reduce air pollution in the country's four largest cities. Chinese Premier Li Keqiang, announced the government's concern and resolve to resolutely combat pollution in the same manner it combats poverty, to avert discontent that could compromise stability. The government had earlier promised to commit 2 trillion yuan (US\$330 billion), to an action plan to tackle pollution, by way of reforms in energy pricing to boost non-fossil fuel power and cutting capacity in the steel and cement sectors which constitute the source of much air pollution.¹⁴⁰³ It cannot be over emphasised that, China's economic growth has resulted in serious environmental

2007-45 deaths; Hurricane Felix, 2007- 130 deaths; Hurricane Gustav, 2008- 153 deaths. See, Wunderground. Com, Deadliest Tropical Cyclones in History. Available at <http://www.wunderground.com/hurricane/deadlyworld.asp?MR=1> . Site visited 03-03-2014. See also, Historic Hurricanes. Available at <http://hurricaneville.com/historic.html> . Site visited 03-03-2014. See further, National Hurricane Center, 30 May, 2012. Available at <http://www.nha.noaa.gov/outreach/history> . Site visited 03-03-2014.

¹³⁹⁸ KEMSLEY Tamara, Asia's Pollution Affecting Global Air Circulation, Nature World News Online, 21 January, 2014. Available at <http://www.natureworldnews.com/articles/5730/20140121/asias-pollution-affecting-global-air-circulation.html> . Site visited 03-03-2014.

¹³⁹⁹ AELVOET Magda, Acid Rain. In BARRY John and FRANKLAND Gene E. (Eds.), International Encyclopedia of Environmental Politics, New York, Routledge Publishing, 2002, p.2.

¹⁴⁰⁰ China overshot the prolonged dominance of the US in manufacturing in 2010 just marginally, but has since been widening the gap alarmingly, with a 20% lead in 2011. In 2007, China's total industrial production was only 62% of the US, but by 2011 it was 123% of the US' level. In six years between 2007 and 2013, China's industrial production increased 97% as against the US' decline of 1%, 9% production drop in the EU and 17% in Japan. In 2011, China's industrial output was 235% of Japan's and 346% of Germany's. Between 2007 and 2011, China's industrial production rose by US\$1,465 billion compared to the US' \$88 billion. See ROSS John, China Has Overtaken the US to Become the World's Largest Industrial Producer, Chinadaily Forum Online, 11 September, 2013. Available at <http://blog.chinadaily.com.cn/blog-1114111-12506.html> . Site visited 06-03-2014. See also, HENNIGAN Michael, China Becomes World's Top Goods –Trading Nation in 2013, Finfacts Ireland, 10 January, 2014. Available at http://www.finfacts.ie/irishfinancenews/articles_1027079.shtml . Site visited 06-03-2014. See further, JIE Liu, Official Data Confirm China as World's Biggest Auto Producer, Consumer, Challenges Remain, Embassy of the People's Republic of China in the United States of America. Available at <http://www.china-embassy.org/eng/gyzg/t650880.htm> , Site visited 06-03-2014. See as well, SIMPSON Stephen D., A Deeper Look at China's Commodity Industry, Commodity HQ Online, 2 November 2012. Available at <http://www.commodityhq.com/2012/a-deeper-look-at-china-s-commodity-industry/> . Site visited 06-03-2014.

¹⁴⁰¹ THOMPSON Paul, China to Become World's Top Manufacturer, Ending America's 110-Year Reign, The Mail Online, 22 June, 2010. Available at <http://www.dailymail.co.uk/news/article-1288497/China-worlds-manufacturer-ending-Americas-110-yearreign.html> . Site visited 07-03-2014.

¹⁴⁰² The World Bank, Igniting Solutions to Gas Flaring in Russia, 12 November, 2013. Available at <http://www.worldbank.org/en/feature/2013/11/12/igniting-solutions-to-gas-flaring-in-russia>. Site visited 16-07-2014. See also, HAMSO Bjorn, Global Gas Flaring Reduction Partnership, 9 October, 2013.

¹⁴⁰³ MARTINA Michael; HUI Li and STANWAY David, China to 'Declare War' on Pollution, Premier Says, Reuters Online, 5 March, 2014. Available at http://www.hufingtonpost.com/2014/03/05/china-pollution-declare-war_n_4900129.html . Site visited 06-03-2014. See also, WEE Sui-Lee and STANWAY David, China Set to Elevate Environment Over Development in New Law, Reuters Online, 14 April, 2014. Available at <http://www.reuters.com/article/2014/04/15/us-china-environment-idUSBREA3E02H20140415> . Site visited 19-06-2014. See again, BAUDU Lysiane, China Set to Elevate Environment Over Development in New Law, EU Nations Said to Set Next Carbon Market Overhaul Talks in June, John Lothian News Online, 15

degradation, affecting both local and global biospheres, while its increasing political clout and economic weight coupled with India's is already causing a structural change in the world's political economy, yet China is very sensitive to issues that potentially infringe upon its sovereignty,¹⁴⁰⁴ while taking the environmental health of the world for a ride.

China is home to 16 of the 20 most polluted cities on the planet. It has become the primary determiner of the price of virtually every major commodity, thus its government can be decisive in allocating resources in a way that other governments in its level of per capita income cannot.¹⁴⁰⁵ China's situation is this grim because like Nigeria, its systems for monitoring compliance are inadequate, and the fines (penalty) for breaking the rules are often too low to be a compelling deterrent, while its environmental agency is a little more than a mere toothless bulldog, that lacks the power of enforcement of the regulations.¹⁴⁰⁶ Where there is no regard for policy and legal regulations, there would definitely be a conspicuous lacuna, as institutions and individuals alike would take advantage of this gap, which on the long run renders to nought the otherwise meaningful and effective policy regime. This could have chain-effects on other aspects of life of the nation concerned and the international community on a wider scale. The Fund is to aid in efforts to cut fossil-fuel use and control of coal.¹⁴⁰⁷ For instance, the 1970 amendments to the Clean Air Act (CAA) were a drastic remedy to what was perceived as a serious and otherwise unchecked problem of air pollution. The Act was expressly designed to force regulated sources to develop pollution control devices that might at the same time appear to be economically or technologically infeasible. The Act establishes a clear duty to protect public health from air pollution. Simply because conduct was authorized and useful, as in burning oil and coal to produce needed electricity did not sanction poisoning the air that everyone must breathe. Congress required the Environmental Protection Agency (EPA) to study and promulgate a national ambient air quality standard, requisite to protect the public health "allowing an adequate margin of safety,"¹⁴⁰⁸ unlike in China where for rapid industrialisation regulatory measures were discarded to the extent air pollution gets to the magnitude it is killing hundreds of thousands yearly and smog affecting major operations and international activities. It is important to note that with the present look of the climate change funds disbursement, there may be a very long way to go before a wholistic solution involving the developing countries and LDCs could be come about, as funds ideally meant for their purpose are being channeled to more comfortable nations¹⁴⁰⁹ who have the means- financial and technological,

April, 2014. Available at <http://www.johnlothiannews.com/2014/04/china-set-elevate-environment-development-new-law-eu-nations-said-set-next-carbon-market-overhaul-talksjune/#.U6LY51NKDR8> . Site visited 19-06-2014.

¹⁴⁰⁴ BELIS David and BRUYNINCKX Hans, The Governance of Climate Relations Between Europe and Asia in the 'Pivotal Decade' (2010-2020): Evidence From China and Vietnam, in BRUYNINCKX Hans et al (Eds.), The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies, Cheltenham, Edward Elgar Publishing, 2013, p.282.

¹⁴⁰⁵ BARBOZA David, China Passes Japan as Second Largest Economy, The New York Times Online, 15 August, 2010. Available at http://www.nytimes.com/2010/08/16/business/global/16yuan.html?pagewanted=all&_r=1& . Site visited 25-02-2014.

¹⁴⁰⁶ KINDERGAN Ashley, op cit.

¹⁴⁰⁷ GOOSSENS Ehren, op cit.

¹⁴⁰⁸ ROBINSON Nicholas, United States of America, in KOTZÉ Louis J. and PATERSON Alexander R. (Eds.), The Role of the Judiciary in Environmental Governance: Comparative Perspectives, Alphen aan den Rijn, Kluwer Law International Publishing, 2009, p.199.

¹⁴⁰⁹ The funding channelled through the CDM should assist developing countries in reaching some of their economic, social environmental and sustainable development objectives such as cleaner air and water, improved land use, with social benefits such as rural development, employment and poverty alleviation as well as reduced dependence on imported fossil

to conveniently care for their climate change issues, but chose to channel such to rapid industrialisation at the expense of global good, all these while the “rich nations” have decided to look away from the needs of the most affected, which bear the greatest consequences of the “rich nations” cause. The consequence of this was to be the walking out of the climate change negotiations in Warsaw 2013 by the representatives of the developing countries, a 132-bloc of countries, in protest to the posture of the industrialised countries.¹⁴¹⁰ This is an unfortunate disservice to the gains of the Bali Action Plan, which promises to define the route to a proper and meaningful solution to the climate change conundrum, from both developed and the developing world’s perspectives.

Bali Action Plan cannot be said to be a success if deforestation continues unabated and inadequately curtailed in sub-Saharan Africa and Brazil which both have the highest percentages of deforestation in the world. Facilitating an effective forest tax system in the SSA becomes of the essence, but still far-fetched. Forest tax systems tend to be characterised by very low levels of revenue collection, widespread corruption and endemic illegal logging, the greatest percentage of which finds its way to the developed countries. Until an effective taxing system is formulated in their countries mostly concerned- Nigeria and the Democratic Republic of Congo, and properly funded as speculates in the Kyoto Protocol Rules, forests acting as carbon sinks, this very vital source of carbon absorption (sequestration), might be completely lost. This issue constituted one of the most contentious ones in the negotiations over KP Rule.¹⁴¹¹ The strategic role forests play in alleviating the effects of global warming, acting as carbon sinks cannot be overemphasised, yet the rate of forests replenishment is not commensurate with its depletion and degradation worldwide. The total area of industrial, fast-growing forest plantations worldwide in 2012 was 54.3 million hectares (ha). The countries with the largest areas- all with more than 5 million ha- were the United States of America, China and Brazil. India and Indonesia were the next-largest growers of industrial forest plantations, with over 2.5 million ha each. Among the regions, Asia had the largest total area, followed by North America and Latin America. Africa, Oceania and Europe also had considerable areas of industrial forest plantations.¹⁴¹² This account portrays Africa as the most backward in forestry programme, which itself incidentally is losing the larger percentage of its forests to supply tropical hardwood to the industrialised world’s ever-growing market, coupled with its high percentage land area of desert cover. Major reasons for this are not far-fetched, some of which includes poverty.

Forestry can be capital-intensive and not instant profit yielding, whereas the vast forest areas in the continent are being converted to crop lands for instant crops. In some, if not many countries in Africa, ownership of trees is denied the populace, just as land ownership is denied the people. Policies that bar people from owning trees and

fuels. See, OLAWUYI Damilola S., Beautifying Africa for the Clean Development Mechanism: Legal and Institutional Issues Considered, in RICHARDSON Benjamin J. et al (Eds.), *Climate Law and Developing Countries: Legal Policy Challenges for the World Economy*, Cheltenham, Edward Elgar Publishing, 2009, p.265.

¹⁴¹⁰ VIDAL John, Poor Countries Walk Out of UN Climate Talks as Compensation Row Rumbles on, *The Guardian Online*, 20 November, 2013. Available at <http://www.theguardian.com/global-development/2013/nov/20/climate-talks-walk-out-compensation-un-warsaw> . Site visited 10-02-2014.

¹⁴¹¹ FLETCHER Susan R. and PARKER Larry, *Climate Change: The Kyoto Protocol, Bali “Action Plan,” and International Actions*, Congressional Research service (CRS) Report for Congress, January 2008, p.6. Available at http://www.house.gov/sites/members/nc04_price/issues/uploadedfiles/climate5.pdf . Site visited 15-02-2014.

¹⁴¹² BARUA Sepul K. and LEHTONEN Petri, *The Great Plantation Expansion*, Forest Stewardship Council and The World Bank, 2013.

land holding rights¹⁴¹³ common in many sub-Saharan African countries are detrimental to proper forestry programme in Africa, and must be discouraged by the governments of the countries in the region. Mostly, Africans only have the legal rights to use forests, not to own them.¹⁴¹⁴ Deforestation and population have gradually increased together, with the heaviest forest losses coming in areas where wood is needed for fuel, or where forest land is needed for growing crops, or both. Combined with this is also, large-scale acquisitions by foreign investors which of late is accelerating deforestation in many parts of the continent¹⁴¹⁵ Another major reason is the failure of the world's market economy to accord any value to the intrinsic environmental assets of the rainforests.¹⁴¹⁶ A higher percentage of deforestation in Africa is going into agriculture and food production, understandably because of the continent's high fertility and to assuage the unfavourable conditionalities attached to food importation from the West. The unpredictable weather conditions in the continent is another factor, as farming still to a very large extent in there depend on natural factors, such as a s rain, which may not be forthcoming because of drought which is prevalent in many parts of the continent now.

It is a world where economic output has more than doubled in the last 20 years since the Rio Earth Summit, but this growth has been achieved at the expense of natural resources, including forests. This impacts nature's way of capturing solar energy and storing carbon- which is very vital for the survival and prosperity of planet earth.¹⁴¹⁷ The Bali Action Plan (BAP) seemed specifically targeted at assisting the poor countries to access finance for appropriate technologies and attain a level of protection from the extremely devastating effects of climate change, many of which they could not have overcome on their own, but this appears to be far-fetched with the picture of funds disbursement from the various sources. This means almost total failure of the mitigation focus of the BAP and a failure of the anticipated gains, if the poorer countries would not have access to the finance appropriated for those purposes.¹⁴¹⁸ A most conscionable approach to this issue as far as African countries are concerned, is to develop national and common regional policies on forestry and its management, as well as effective legislation against its abuse, as obtains in the EU.

5.2 Kyoto Protocol Flexible Mechanisms

Developed countries and countries in transition to a market economy (Annex I countries), under the Kyoto Protocol (KP), have commitments to reduce their greenhouse gas emissions by certain

¹⁴¹³ The Land Use Act in Nigeria is typical example of this. See also, PHAKATHI Mantoe, The Man Who Stopped the Desert, IPS News Online, 19 October, 2011. Available at <http://www.ipsnews.net/news.asp?idnews=105529> . Site visited 25-10-2011.

¹⁴¹⁴ OBIAGO- MBANEFO Sandra, Current Forest Practices, Heritage of Colonial Rule: A Shameful Legacy, World Wide Fund (WWF). Available at <http://www.bing.com/search?q=EU%27+20-2020+Climate+Change+Policy&src=IE-SearchBox&FORM=IE8SRC> .Site visited 26-02-2014.

¹⁴¹⁵ MARTIN R. M., State of the World's Forests, Food and Agriculture Organisation (UN FAO) 2012. Available at <http://www.fao.org/docrep/016/i3010e.pdf> . Site visited 27-02-2014.

¹⁴¹⁶ Oneworld Guides, The Importance of Tropical Forests, 17 October, 2011. Available at <http://uk.oneworld.net/guides/forests?gelid=COvikKu176sCFedl3godGWV17w> . Site visited 17-10-2011.

¹⁴¹⁷ MARTIN R. M., *ibid*.

¹⁴¹⁸ UNEP, Climate Change. Available at <http://www.unep.org/roa/Programmes/ClimateChange/tabid/7173/Default.aspx> . Site visited 19-02-2014.

percentage to a base year, usually 1990, by national measures as they deem fit. This means that each nation, or the EU as a bloc, would be allowed to develop its own mix of implementation policies,¹⁴¹⁹ but in Mechanisms which they might want to adopt. These were also meant to lower the overall costs of achieving their emissions targets.¹⁴²⁰ The Kyoto Protocol established emission targets and introduced three market-based flexibility mechanisms¹⁴²¹ - the Clean Development Mechanism (CDM),¹⁴²² International Emissions Trading¹⁴²³ (IET), or Emission Trading Scheme (ETS) and Joint Implementation (JI).¹⁴²⁴ These are the only existing international emissions accounting framework, but applicable only to developed countries with specific commitments, save for the CDM which allows for developing countries participation.¹⁴²⁵ To participate in the Kyoto mechanisms, parties must meet some eligibility criteria: must have ratified the KP; must have taken emission reduction targets, that is limited Annex B countries; must have in place a national system for estimating emissions and removals of GHGs within their territory; must have calculated their assigned amount in terms of tonnes of CO₂-equivalent emissions; must have in place a national registry to record and track the creation and movement by the means of either of these accounting units of the assigned amount of ERUs,¹⁴²⁶ CERs,¹⁴²⁷ AAUs¹⁴²⁸ and RMUs,¹⁴²⁹ and must annually report such information to the secretariat.¹⁴³⁰

¹⁴¹⁹ HODAS David R., Sustainable Development and the Marrakech Accords. In BRADBROOK Adrian J. et al (Eds.), *The Law of Energy for Sustainable Development*, IUCN Academy for Environmental Law Research Studies, Cambridge, Cambridge University Press, 2005, p.64.

¹⁴²⁰ UNFCCC, *Kyoto Mechanisms- Background*,

¹⁴²¹ MCCLELLAN Karen, *JI and CDM Projects- Finance in Practice*, in de JONG Cyriel and WALET Kasper (Eds.), *A Guide to Emissions Trading: Risk Management and Business Implications*, London, Inclusive Financial Publishing, 2004, p.139. See also, Van AASELT Harro; MEHLING Michael and SIEBERT Clarisse Kehler, *The Changing Architecture of International Climate Change Law*, in Van CALSTER G; VANDENBERGHE W and REINS L., *Research Handbook on Climate Change Mitigation Law*, Cheltenham, Edward Elgar Publishing, 2014. Available at <http://www.ecocidealert.com/wp-content/uploads/2014/SSRN-id24002270.pdf>. Site visited 23-05-2014.

¹⁴²² See Article 12 KP 1997. See also, MCCLELLAN Karen, *ibid.* p.139.

¹⁴²³ See Article 17 KP 1997.

¹⁴²⁴ See Article 6 KP 1997. See also, UNFCCC, *Fact Sheet: The Kyoto Protocol*, February 2011. See further, Van AASELT Harro; MEHLING Michael and SIEBERT Clarisse Kehler, *op cit.* See equally, MCCLELLAN Karen, *op cit.*, p.139.

¹⁴²⁵ OECD, *Climate Change, Greenhouse Gas Emissions Trading and Accounting*, See also, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, *Kyoto Mechanisms*. Available at <http://www.bmu.de/en/topics/limite-energy/climate/international-climate-policy> . Site visited 21-11-2013.

¹⁴²⁶ Emission Reduction Unit- a unit which is assigned pursuant to Article 6 of the KP and is equivalent to one tonne of carbon dioxide, or an assigned amount of another GHG expressed in equivalents of carbon dioxide. See, Translation and Terminology Centre, *On Participation of the Republic of Latvia in the Flexible Mechanisms of the Kyoto Protocol*, 2008.

¹⁴²⁷ Certified Emission Reduction- a unit which is assigned pursuant to Article 12 of the KP and is equivalent to one tonne of carbon dioxide, or an assigned amount of another GHG expressed in equivalents of carbon dioxide. See, Translation and Terminology Centre, *ibid.*

¹⁴²⁸ Assigned Amount Unit- a greenhouse gas emission unit assigned to a member state of the KP, calculated pursuant to the commitments in relation to the reduction or restriction of GHG emissions. See, Translation and Terminology Centre, *ibid.*

¹⁴²⁹ Removal Unit- a unit which is assigned pursuant to Article 6 of the KP for activities related to the use of land, the change of the use of land and forestry and which is equivalent to one tonne of carbon dioxide. See, Translation and Terminology Centre, *ibid.*

previous chapter, while joint implementation would be briefly explained here, as these may not be of particular concern to this study being exclusive to the Annex I countries, exclusive of the developing countries. It involves carbon emission credits trading within nations.¹⁴³¹ Joint implementation similar to the clean development mechanism, is where developed countries invest in emission-reducing activities in other industrialised countries to gain reduction units.¹⁴³² Emissions trading, is perhaps the most important flexible mechanism built in the KP,¹⁴³³ which enables developed countries Parties to buy carbon credits from other developed countries Parties with spare capacity to help meet their commitments.¹⁴³⁴ It operates by cap-and-trade systems which establish a price for carbon by setting an absolute quantitative limit for GHG emissions. The allowance cap determines the carbon price and the instrument's environmental effectiveness.¹⁴³⁵ ETS is a powerful policy instrument for managing industrial GHG emissions, which puts a price on carbon through emissions markets.¹⁴³⁶ Joint implementation is a type of international trading involving a bilateral deal, or a multilateral one in which countries with high costs of pollution abatement, or environmental conservation invest in abatement or conservation in a country with lower costs and receive credits for the resulting reduction in emissions, or increase in conservation. It serves to reduce the global costs of mitigating internationally agreed emission targets.¹⁴³⁷ It is emission reductions carried through by agents of one country in another country, termed activities implemented jointly (AIJ),¹⁴³⁸ or joint projects, leading to emission reductions units (ERUs) achieved abroad, but credited towards the national emissions target

¹⁴³⁰ United Nations Framework Convention on Climate Change (UNFCCC), The Mechanisms Under the Kyoto Protocol: Emissions Trading, the Clean Development Mechanism and Joint Implementation. Available at http://www.unfccc.int/kyoto_protocol/mechanisms/items/1673.php. Site visited 21-11-2013. See also, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Kyoto Mechanisms. Available at <http://www.bmu.de/en/topics/imate-energy/climate/international-climate-policy>. Site visited 21-11-2013.

¹⁴³¹ SHAH Anup, Climate Change Flexibility Mechanisms, April 2012. Available at <http://www.globalissues.org/article/232/flexibility-mechanisms>. Site visited 21-11-2013.

¹⁴³² SHAH Anup, *ibid*.

¹⁴³³ HACKL Franz and PRUCKNER Gerald J., The Economics of the Kyoto Protocol, in WELFENS Paul J. J., (Ed.), Internationalization of the Economy and Environmental Policy Options, Berlin, Springer-Verlag Publishing, 2001, p.208.

¹⁴³⁴ PAGE Edward, Climate Change, Justice and Future Generations, Cheltenham, Edward Elgar Publishing, 2006, p.174.

¹⁴³⁵ BRUNNER Steffen et al., Emission Trading Systems: An Overview, Potsdam Institute for Climate Impact Research, Discussion Paper, p.2.

¹⁴³⁶ HAN Guoyi et al., China's Carbon Emission Trading: An Overview of Current Development, Forum for Reforms, Entrepreneurship and Sustainability (FORES), 2012. Available at <http://www.sei-international.org/mediamanager/documents/Publications/china-cluster/SEI-FORES-2012-China-Carbon-Emissions.pdf>. Site visited 30-04-2014. See also, International Emissions Trading Association (IETA), 2013. Available at <http://www.ieta.org/emissions-trading>. Site visited 30-04-2014. See also, PHILLIPS Gareth, Monitoring, Verification and Accounting of Emissions, in de JONG Cyriel and WALET Kasper (Eds.), A Guide to Emissions Trading: Risk Management and Business Implications, London, Inclusive Financial Publishing, 2004, p.99.

¹⁴³⁷ PEARCE David, Joint Implementation: A General Overview, in JEPMA Catrinus J. (Ed.), The Feasibility of Joint Implementation, Dordrecht, Kluwer Academic Publishers, 1995, p.15.

¹⁴³⁸ Used in reference to empirical data from pilot phase projects. See, WOERDMAN Edwin, Implementing the Kyoto Protocol: Why JI and CDM Show More Promise Than International Emissions Trading, Journal of Energy Policy, 2000, Vol. 28, pp.29-38. See also, YAMIN Farhana, Joint Implementation, Journal of Global Environmental Change, 2000, Vol.10, pp.87-91.

of the investing country.¹⁴³⁹ It thus involves climate change mitigation projects implemented between two Annex B countries.¹⁴⁴⁰ It can be applied to any international deal in which one or more of the parties has emission targets, or to any international agreement in which the parties have obligations to achieve some environmental goal.¹⁴⁴¹ It connotes sharing the costs of implementing an emissions reducing project in the country where costs were lowest.¹⁴⁴²

The JI was instituted as a means of obtaining least-cost solutions through joint projects between countries at different technological levels and with different resources and economies.¹⁴⁴³ The KP defines JI as that allowing transfers of emission reduction units resulting from emission reduction or removal projects among the Annex I countries, whose objective is to reduce total costs of fulfilling Annex I countries' commitments under KP as to ensure the targets of emission reduction.¹⁴⁴⁴ Each JI project has the approval of the investor's country, host country and a panel of the Convention. The investors provide some combination of capital, know-how and technology, while the host country provides a situation that qualifies as a JI project and possibly, plant and equipment, labour and other resources.¹⁴⁴⁵ Thus, investors and hosts of JI projects companies as well as countries have the same interests.¹⁴⁴⁶ Many countries still express some reservations concerning JI on the grounds that its design does not prevent fraud and spurious emission reductions, notwithstanding that the different actors under the JI must be led to publish credible estimations of emission reductions before a project starts and receive credits only to the extent the project really reduces emissions.¹⁴⁴⁷ In JI and CDM projects, emission reductions are measured bottom-up from a baseline, which attempts to estimate future emissions at the project site in the absence of the project. The emission reduction is calculated on the basis of the difference between the baseline emissions and the (lower) actual emissions at a certain point in time, whereas in the IET system, emission reduction is measured top-down from the

¹⁴³⁹ MICHAELOWA Axel, Incentive Aspects of Joint Implementation of Green House Gas Reduction, *Journal of Mitigation and Adaptation Strategies for Global Change*, 1996, Vol.1, Iss.1, pp.95-108.

¹⁴⁴⁰ ILLUM Klaus and MEYER Niels, Joint Implementation: Methodology and Policy Considerations, *Journal of Energy Policy*, Vol.32, 2004, pp.1013-1023. See also, United Nations Framework Convention on Climate Change (UNFCCC), The Mechanisms Under the Kyoto Protocol: Emissions Trading, the Clean Development Mechanism and Joint Implementation. Available at http://www.unfccc.int/kyoto_protocol/mechanisms/items/1673.php . Site visited 21-11-2013.

¹⁴⁴¹ PEARCE David, op cit., p.16.

¹⁴⁴² DIXON Robert K. and MINTZER Irving, Introduction to the FCCC Activities Implemented Jointly Pilot, in DIXON Robert K. (Ed.), *The U.N. Framework Convention on Climate Change Activities Implemented Jointly: Experiences and Lessons Learned*, Dordrecht, 1999, p.3. See also, YAMIN Farhana, op cit.

¹⁴⁴³ ILLUM Klaus and MEYER Niels, op cit.

¹⁴⁴⁴ PAN Haoran, *The Economics of Kyoto Flexible Mechanisms: A Survey*, Working Paper Series No. 2001-11, Katholieke Universiteit Leuven.

¹⁴⁴⁵ LEE Russell et al, *Understanding Concerns About Joint Implementation*, Joint Institute for Energy and Environment, October 1997. Available at <http://web.utk.edu/~isse2006/pdf/jieepubs/russj.pdf> . Site visited 30-04-2014.

¹⁴⁴⁶ MICHAELOWA Axel, Joint Implementation- the Baseline Issue: Economic and Political Aspects, *Journal of Global Environmental Change*, 1998, Vol.8, No.1, pp.81-92.

¹⁴⁴⁷ MICHAELOWA Axel, *ibid.*, n.1383.

national commitment, the assigned amount, which then functions as an emission ceiling.¹⁴⁴⁸ The amount of emission reductions generated JI crucially depends on the baseline,¹⁴⁴⁹ hence the indispensability of the baseline, and why the developing countries are exempted from participating in the JI. Laudable as the JI would have or has actually been in terms of capacity development, technology transfer and eradication of poverty by virtue of capital transfer to less privileged countries, its limitation to the Annex B countries is its undoing, being a limit to its sphere of influence and limitation of result, as its supposed benefits could not reach the category of nations that would need it the most.

5.2.1 The Clean development mechanism (CDM)

The Clean Development Mechanism (CDM),¹⁴⁵⁰ is a model innovative channel to facilitate climate mitigation in developing countries,¹⁴⁵¹ a modified form of joint implementation,¹⁴⁵² which allows Annex I nations to invest in a fund that would finance emission reduction projects in developing nations and receive credit for certified emission reductions (CERs) accruing from the project, in order to attain their emission targets.¹⁴⁵³ In other words, it allows the Annex I country to invest in projects that reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries.¹⁴⁵⁴ It thus enables Annex I parties to establish project-based activities that reduce anthropogenic emissions in non-Annex I parties. It is to allow emission reduction or removal projects in developing countries to earn Certified Emission Reductions which can

¹⁴⁴⁸ WOERDMAN Edwin, Implementing the Kyoto Protocol: Why JI and CDM Show More Promise Than International Emissions Trading, *Journal of Energy Policy*, 2000, Vol. 28, pp.29-38.

¹⁴⁴⁹ ARMENTEROS Mercedes Fernández and MICHAELOWA Axel, Joint Implementation and EU Accession Countries, *Journal of Global Environmental Change*, 2003, Vol.13, pp.269-275.

¹⁴⁵⁰ See Article 12, KP. See also, NIELSEN Laura; PADH Peter and RØNNE Anita (Eds.), *Climate Change Negotiations Written Assignment for the Copenhagen Competition: "The Copenhagen Protocol to the UNFCCC,"* in *The Copenhagen Protocol on Climate Change- An International Negotiation Competition*, Copenhagen, DJØF Publishing, 2009, p.13.

¹⁴⁵¹ MATSUO Naoki, *CDM in the Kyoto Negotiations: How CDM Has Worked as a Bridge Between Developed and Developing Worlds*, Kluwer Academic Publishers, 2003. Available at http://www.climate-experts.info/CDM_Negotiations_Matsuo.pdf. Site visited 16-03-2014.

¹⁴⁵² FLETCHER Susan R., *Global Climate Change: The Kyoto Protocol*, CRS Report for Congress, The Library of Congress, 21 July, 2005, p.5.

¹⁴⁵³ HODAS David R. op cit., p.64. See also, BIRNIE Patricia; BOYLE Alan and REDGWELL Catherine, *International Law and the Environment*, Oxford, Oxford University Press, 2009, p.249. See also, OLAWUYI Damilola S., *Beautifying Africa for the Clean Development Mechanism: Legal and Institutional Issues Considered*, in RICHARDSON Benjamin J. et al (Eds.), *Climate Law and Developing Countries: Legal and Policy Challenges for the World Economy*, Cheltenham, Edward Elgar Publishing, 2009, p.262. See also, Thomson Reuters, *Flexible Mechanisms*, 2013. Available at

<http://www.poitcarbon.com/aboutus/productsandprices/1.357944>. Site visited 21-11-2013. See also, HACKL Franz and PRUCKNER Gerald J., *The Economics of the Kyoto Protocol*, in WELFENS Paul J. J. (Ed.), *Internationalization of the Economy and Environmental Policy Options*, Berlin, Springer-Verlag Publishing, 2001, p.208. See as well, ADLER Robert W., *Climate Change Adaptation and Agricultural and Forestry Law*, in VERSCHUUREN Jonathan (Ed.), *Research Handbook on Climate Change Adaptation Law*, Cheltenham, Edward Elgar Publishing, 2013, p.213.

¹⁴⁵⁴ RAJAMOHAN Thiru; SUNDARAVADISELU K; GUNA B. and SIVASUBRAMANIAN Thiru G. (Eds.), *Clean Development Mechanism*, *Envis-Puducherry Newsletter Online*, Vol.4, No.2, April- June 2008. Available at [http://dte.puducherry.gov.in/envisnew/APR-JUN\(2008\)NEWSLETTERFINAL.pdf](http://dte.puducherry.gov.in/envisnew/APR-JUN(2008)NEWSLETTERFINAL.pdf). Site visited 10-03-2014.

be traded in international markets established under the terms of the KP.¹⁴⁵⁵ This serves to assist non-Annex I parties to achieve sustainable development and helps them to contribute to the ultimate objectives of the Convention, while helping the Annex I parties to achieve compliance with their quantified emission limitation and reduction commitments under Article 3 of the KP.¹⁴⁵⁶ The CDM is peculiar being the only mechanism under the KP involving countries that are not subject to the binding GHG emission caps by the Protocol. It has the exclusive prerogative of being the first and only global attempt to address a global environmental public goods problem with a market-based mechanism.¹⁴⁵⁷ It is mandated under Article 12 of the KP and overseas emission reductions in projects carried out in developing nations.¹⁴⁵⁸ The CDM thus has two purposes, first, it aims to help Kyoto-participating countries reach their commitments by providing the flexibility to purchase relatively inexpensive carbon offsets, and secondly, it aims to aid countries not participating in Kyoto develop sustainability through technology transfer and development,¹⁴⁵⁹ this notwithstanding that the CDM has no explicit technology transfer mandate, it only facilitates it by financing GHG emissions reduction projects that use technologies currently not available in the host countries,¹⁴⁶⁰ which the likes of China, India, Brazil and other emerging economies especially in Asia have due advantage of to turn their economies around. The CDM can thus be seen as an example of the implementation of the principle of common but differentiated responsibilities in that it enables both the developed and developing countries participate in climate change regime.¹⁴⁶¹ As a condition for efficiency, CDM projects must be additional, otherwise, if it is not additional, it then cannot lead to a net reduction of CO₂ emission from global environmental point of view.¹⁴⁶² It also serves as a source of finance

¹⁴⁵⁵ THOMAS Sebastian et al, Why Are There so Few Afforestation and Reforestation Clean Development Mechanism Projects? *Journal of Land Use Policy*, Vol.27 (2010), pp.808-887, at 880. See also, United Nations, Kyoto Protocol Clean Development Mechanism Reaches Milestone at 3,000 Projects, United Nations Press Release, 2011.

¹⁴⁵⁶ See Article 12.2 KP. See also, BIRNIE Patricia, *ibid.*, p.364. See also, ENI-IBUKUN Tomilola, *Climate Justice: The Clean Development Mechanism as a Case Study*. In HOLLO Erkki J.; KULOVESI Kati and MEHLING Michael (Eds.), *Climate Change and the Law*, Dordrecht, Springer Publishing, 2013, p.225. See also, SUTTER Christoph and PARREÑO Carlos, Does the Current Clean development Mechanism (CDM) Deliver its Sustainable Development Claim? An Analysis of Officially Registered CDM Projects, *Climatic Change*, (2007), 84, 75-90, Springer Science Journal Online. Available at http://download.springer.com/static/pdf/323/art%253A10.1007%2ite%20visited52Fs10584-007-9269-9pdf?auth66=1394645402_a9e851357ed4ee6548af96c27abda9f7&ext=.pdf . Site visited 10-03-2014. See further, ROWLANDS Ian H., *Atmosphere and Outer Space*, in BODANSKY Daniel et al (Eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2010, p.331. See likewise, CARLARNE, Cinnamon Piñon, *Climate Change Law and Policy: EU and US Approaches*, Oxford, Oxford University Press, 2010, p.10.

¹⁴⁵⁷ BELIS David et al, *Introduction: Governing Climate Relations Between Europe and Asia in a Restructuring World Order*, in BRUYNINCK Hans et al (Eds.), *The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies*, Cheltenham, Edward Elgar Publishing, 2013, p.4.

¹⁴⁵⁸ Thomson Reuters, *Flexible Mechanisms*, 2013. Available at <http://www.poitcarbon.com/aboutus/productsandprices/1.357944> . Site visited 21-11-2013.

¹⁴⁵⁹ SIIKAMÄKI Juha et al, *Kyoto Flexibility Mechanisms: Clean Development Mechanism and Joint Implementation*, Backgrounder, November 2012, Washington DC, p.2. See also, ALDY Joseph E. and STAVINS Roberts N., *Introduction: International Policy Architecture for Global Climate Change*, in ALDY Joseph E. and STAVINS Roberts N. (Eds.), *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World*, Cambridge, Cambridge University Press, 2007, p.9.

¹⁴⁶⁰ LEAL-ARCAS Rafael, *Climate Change and International Trade*, Cheltenham, Edward Elgar Publishing, 2013, p.231.

¹⁴⁶¹ ENI-IBUKUN Tomilola, *ibid.*, p.228.

¹⁴⁶² PAN Haoran, *The Economics of Kyoto Flexible Mechanisms: A Survey*, Katholieke Universiteit, Leuven Working Paper Series, May 2001.

for adaptation projects,¹⁴⁶³ contributing 2 per cent to the Adaptation Fund.¹⁴⁶⁴ This process is overseen by the CDM Executive Board, which registers and validates projects, issues CERs, after the verification and certification of same by the designated operating entities (DOEs), after such projects must have been approved by the host country.¹⁴⁶⁵ The CDM EB manages a series of panels and working groups.¹⁴⁶⁶ The CDM Executive Board comprises 10 members, 5 from the 5 regional groups, one from a small island state, and 2 from Annex I and non-Annex I countries respectively.¹⁴⁶⁷ The CDM can be a veritable tool to limit climate change effects and to improve the situation in the developing countries through capacity building, infrastructure and technology transfer.¹⁴⁶⁸

Because the investing countries have strong economic position and have invested much in the CDM projects in the host countries, the investing countries stand an advantage as against the host countries, which may eventually suffer a loss, having committed itself to certain emission control targets in the future. This makes it imperative to make the commitments of the investing countries more stringent, or even levying a tax on CDM projects to redistribute the investor's surplus.¹⁴⁶⁹ Once registered, projects are then issued CERs, with each CER unit equal to a reduction of one tonne of CO₂ equivalent, which could be bought and used by the developed countries to meet their Kyoto commitments.¹⁴⁷⁰ The CERs resulting from CDM projects are traded on the global carbon market and can be used by Annex I parties to meet their emission reduction targets under the Kyoto Protocol.¹⁴⁷¹ The CERs are issued to project developers and sold to either investors in the project or to the

¹⁴⁶³ United Nations Framework Convention on Climate Change, Clean Development Mechanism, Executive Board Annual Report, 2013, p.7. Available at http://unfccc.int/resources/docs/publications/pub_cdm_eb_annualreport_2013.pdf . Site visited 10-03-2014.

¹⁴⁶⁴ SATYANARAYANA M., How Forest Producers and Rural Farmers Can Benefit From the Clean Development Mechanism, FAO Corporate Document Repository. Available at <http://www.fao.org/docrep/008/ae537e/ae537e07.htm> . Site visited 18-03-2014.

¹⁴⁶⁵ BODANSKY Daniel, W[h]ither the Kyoto Protocol? Durban and Beyond, Harvard Project on Climate Agreements, August 2011. See also, THORNLEY Ben et al., Clean Development Mechanism (CDM): Impact Investing, a Framework for Policy Design and Analysis, Insight at Pacific Community Ventures and the Initiative for Responsible Investment at Harvard University, January 2011. Available at http://www.pacificcommunityventures.org/uploads/misc/case_studies/05-Clean_Development_Mechanism.pdf . Site visited 16-03-2014.

¹⁴⁶⁶ FLETCHER Susan R. and PARKER Larry, Climate Change: The Kyoto Protocol, Bali "Action Plan," and International Actions, CRS Report for Congress 10 January, 2008. See also, EFEMUAYE Gabriel Aghogho et al, University: University of Ibadan, Republic of Wazobia, in NIELSEN Laura; PAGH Peter and RØNNE Anita (Eds.), The Copenhagen Protocol on Climate Change- An International Negotiation Competition, Copenhagen, DJØF Publishing, 2009, p.212.

¹⁴⁶⁷ See Decision 17/CP.7 Marrakech Accords. See also, HODAS David R., Sustainable Development and the Marrakech Accords, in BRADBROOK Adrian J. et al (Ed), The Law of Energy for Sustainable Development, Cambridge, Cambridge University Press, 2005, p.65.

¹⁴⁶⁸ BLÉVIN Marie, The Clean Development Mechanism and the Poverty Issue, GAL Blevin.Doc 9/8/2011, Vol.41, 777-803, 780. Available at, <http://www.law.lclark.edu/live/files/9429-7tojciblevinpdf> . Site visited 16-03-2014.

¹⁴⁶⁸ PAN Haoran, op cit.

¹⁴⁶⁹ PAN Haoran, ibid.

¹⁴⁷⁰ Sandbag, What is the Clean Development Mechanism (CDM)? The Guardian Online, 26 July, 2011. Available at <http://www.theguardian.co.m/environment/2011/jul/26/clean-development-mechanism> .Site visited 16-03-2014.

¹⁴⁷¹ BELIS David; HUNG Bui Viet; and THUAN Nguyen Bich, The Governance of the CDM in China: Achievements and Deficiencies, in BRUYNINCKX Hans et al (Eds.), The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies, Cheltenham, Edward Elgar Publishing, 2013, p.129. See also, MONIZ Maria da Graca Canto, India's Carbon Governance: The Clean Development Mechanism, Journal on Food, Agriculture and Society, Vol.1, No.1, Summer 2013, p.5.

secondary market.¹⁴⁷² Such projects must incorporate a baseline emissions scenario and reduction monitoring plan, and a proof of additionality demonstrating that the project could not be financed without CDM credits.¹⁴⁷³ CDM projects encompass a wide variety of development activities that reduce emissions, including the capture and incineration of HFC-23 gas; capture and destruction of CH₄ from landfills, livestock, oil fields, coal mines and, of wind and hydrological power projects; and energy efficiency.

As of 2012, the CDM EB had registered 1,651 CDM projects in 91 countries, and issued 973 million CERs. The EU Member States have been responsible for the vast majority of ongoing CDM projects, being responsible as of May 2009, for 58 per cent, Switzerland for 21 per cent and Japan for 11 per cent.¹⁴⁷⁴ Out of these, wind has 28 per cent, hydro 26 per cent, constituting the most popular, accounting for only 20 per cent of issued CERs.¹⁴⁷⁵ As of 2011, China has attracted the lion's share of CDM investments with 48 per cent of the world's projects located in the country,¹⁴⁷⁶ and has 63 per cent of the global annual CERs under this mechanism.¹⁴⁷⁷ This has justified the fear of a concentration of CDM projects in a group of countries.¹⁴⁷⁸ This ostensibly, because of China's fast economic development and open door investment policy among others, it however needs to be pointed out that China's rule severely limits foreign companies' access to CDM development in China, yet China harbours very many such foreign companies to the extent it has become the world's production hub, producing one-fifths of the world's industrial output, with its concomitant effects. China's CDM governance system discriminatory as to its specific eligibility requirements, that is only Chinese companies, or Chinese holding

¹⁴⁷² THORNLEY Ben, et al., Clean Development Mechanism (CDM): Impact Investing, a Framework for Policy Design and Analysis, Insight at Pacific Community Ventures and the Initiative for Responsible Investment at Harvard University, January 2011. Available at http://www.pacificcommunityventures.org/uploads/misc/case_studies/05-Clean_Development_Mechanism.pdf. Site visited 16-03-2014.

¹⁴⁷³ THORNLEY Ben. Ibid

¹⁴⁷⁴ CARLARNE Cinnamon Piñon, Climate Change Law and Policy: EU and US Approaches, Oxford, Oxford University Press, 2010, p.280.

¹⁴⁷⁵ SIIKAMAKI Juha; FERRIS Jeffrey; and MUNNINGS Clayton, Kyoto Protocol Mechanisms: Clean Development Mechanism and Joint Implementation, Backgrounder, November 2012.

¹⁴⁷⁶ Three countries- China, India and Brazil account for nearly 80% of the supply of CDM projects, and eight medium-income countries- Brazil, Chile, China, Egypt, India, Malaysia, Mexico and South Korea issue 98% of all CERs; while the case of Africa is particularly striking, with a total small share of only about 4%. A striking example is a situation where in Nigeria, the GEF had approved only a paltry sum of US\$3.6 million to implement 113 projects in four years. One can imagine the magnitude of such projects, yet Nigeria enjoys the largest slice of international aid coming to the sub-region in Africa. See LECOCQ Franck and AMBROSI Philippe, The Clean Development Mechanism: History, Status and Prospects, Review of Environmental Economics and Policy, Vol.1, issue 1, Winter 2007, pp.134-151, at 142. See also, HARUTYUNYAN Naira, Prospects of Renewables in the CDM Market: Potential, Barriers and Opportunities for Their Diffusion, in RODI Michael, (Ed.), The Paradigm Shift Towards Energy Sustainability: Climate Change, Innovation and the Optimal Instrument Mix, Berlin, Lexion Verlagsgesellschaft Publishing, 2010, p.85. See likewise, ABDULAI Debo, Nigeria Received \$3.6m From GEF to Implement 113 Projects-Coordinator, The Nigerian Tribune Newspaper Online, Wednesday 15 January, 2014, p.10.

¹⁴⁷⁷ HONG Jin et al, Distribution Characteristics and Prospects for CDM Projects in China, in CHAN F; MARINOVA D; and ANDERSEEN R.S. (EDS.), MODSIM2011, 19th International Congress on Modelling and Simulation, December 12-16, 2011, pp.1695-1701, 1695. Available at http://www.espace.library.curtin.edu.au/webclient/StreamGate?folder_id=0&dvs=1395060313638~58&usePid2=true. Site visited 17-03-2014. See also, BELIS David; HUNG Bui Viet; and THUAN Nguyen Bich, The Governance of the CDM in China: Achievements and Deficiencies, in BRUYNINCKX Hans et al (Eds.), The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies, Cheltenham, Edward Elgar Publishing, 2013, p.129.

¹⁴⁷⁸ MAK Kui-Nang (Peter) and SOLTAU Friedrich, Policy Options, in BRADBROOK Adrian J. et al (Ed), The Law of Energy for Sustainable Development, Cambridge, Cambridge University Press, 2005, p.220.

companies are eligible for developing CDM projects in China. In the latter case, it refers to a joint venture in which the Chinese entity controls a minimum of 51 per cent of the shares. The Chinese government equally adopted specific taxes¹⁴⁷⁹ on revenue from selling emission reduction certificates for certain types of projects, in an attempt to encourage investors to concentrate on the priority objectives of the government.¹⁴⁸⁰ It was argued that the transfer of emission-saving technologies to developing countries plays a concrete role in tackling climate change, of which CDM has been a major instrument. China has the highest concentration of CDM projects- harbouring as much as 46 per cent of the world's total,¹⁴⁸¹ yet it has been the world's largest emitter and is increasing its scale. CDM projects have been observed to be concentrated in the largest emerging economies creating an imbalance against African countries and other LDCs which enjoy very poor patronage, largely left out in the CDM market, presumably because of the absence of sound legal frameworks governing CDM investments, low institutional capacity, coupled with high rate of political insecurity and instability in the continent.¹⁴⁸² The geographical distribution of CDM projects, an overwhelming proportion- over 80 per cent, of which originate in China and India calls into question the ability of the CDM to drive broad engagement, with sustainable development across developing countries, aside the almost impossibility fundamental flaw of proof the "additionality" of a project in comparison to a hypothetical baseline.¹⁴⁸³ The "additionality" concept here signifies the assurance that the increased emissions permitted in the developed countries buying the CDM credits as offsets will be balanced by real emissions reductions that would not have occurred in the absence of the transaction in the developing country CDM seller.¹⁴⁸⁴ A CDM project is additional if it brings about

¹⁴⁷⁹ China's Ministry of Finance has reportedly perfected and published plans to tax carbon emissions in a comprehensive document that promises to promote sweeping environmental tax reforms and include CO₂ emissions within its scope. It has also put in place a couple of cap and trade pilot projects. See also, LAYLIN Tafline, China Announces Plans to Tax Carbon Emissions and Clean Up Air Pollution! Inhabitat Online, 21 February, 2013. Available at <http://www.inhabitat.com/china-to-tax-carbon-emissions-and-clean-up-the-sky/>. Site visited 30-05-2014.

¹⁴⁸⁰ BELIS David; HUNG Bui Viet; and THUAN Nguyen Bich, The Governance of the CDM in China: Achievements and Deficiencies, in BRUYNINCKX Hans et al (Eds.), The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies, Cheltenham, Edward Elgar Publishing, 2013, p.132.

¹⁴⁸¹ China's enhanced grandstanding under CDM was a deliberate making of the EU sake of a 2005 EU-China Partnership on climate change and the ensuing 2006 Rolling Working Plan, which focuses on concrete actions to develop, deploy and lower the cost of energy technologies and reinforce China's capacity to benefit from the CDM. See, MARCONI Daniela and SANNA-RANDACCIO Francesca, Global Corporations, Clean Development Mechanism and Technology Transfer to China, PowerPoint presentation at "Foreign Direct Investment and Climate Change: New Research Directions," 7-8 October, 2011, Italy. Available at

http://www.iccgov.org/FilePagineStatiche/Files/EVENTS/Conferences/Conferences_past/FDI_and_climate_change/presentation_marconi_sanna-randaccio.pdf. Site visited 17-03-2014. See also, OLAWUYI Damilola S., p.264. See also, BELIS David and SCHUNZ Simon, China, the European Union and Global Environmental Governance: The Case of Climate Change, in BRUYNINCKX Hans et al (Eds.), The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies, Cheltenham, Edward Elgar Publishing, 2013, p.65.

¹⁴⁸² OLAWUYI Damilola S., op cit, p.263. See also, PUEYO Ana et al, The Role of Technology Transfer for the Development of a Local Wind Component Industry in Chile, Journal of Energy Policy, Vol.39, 2011, pp.4274-4283. See also, LIN Justin Yifu, China and the Global Economy, Excerpts from the Text presented at a Conference on "Asia's Role in the Post-Crisis Global Economy," San Francisco, 29 November, 2011. Available at http://www.siteresources.worldbank.org/DEC/Resources/84797-1104785060319/598886-1104852366603/599473-1223731755312/JustinLin-China_and_the_Global_Economy-SF-Fed-final.pdf. Site visited 10-06-2014.

¹⁴⁸³ Sandbag, op cit.

¹⁴⁸⁴ HELLER Thomas, Climate Change: Designing an Effective Response, in ZEDILLO Ernesto (Ed.), Global Warming: Looking Beyond Kyoto, Washington D.C., Brookings Institution Press, 2008, p.133. See also, HODAS David R., op cit. pp.69-70. See further, MANGUIAT Maria Socorro Z., The Clean Development Mechanism and UNFCCC/Kyoto Protocol Developments, in

anthropogenic GHG emissions reduction below that which would have occurred in the absence of the registered project activity.¹⁴⁸⁵

CDM was conceived to be all-embracing, engaging both the developed and developing countries alike, but the picture as painted shows it is far from that expectation. It was expected to involve private actors participation through the use of private resources as well as public resources in the development of what hitherto was considered an exclusive public financing system.¹⁴⁸⁶ Little wonder it was described as a conceptually tricky surrogate instrument, intended to capture some of the benefits of a comprehensive global market until the economic ideal of universal accession to full participation could be managed.¹⁴⁸⁷ The US and Brazil played key roles in negotiating the CDM, the former incorporating the sustainable “clean” development to the market-driven cost-effectiveness into its proposal, and the latter already as early as 1999, has established a designated national authority to manage the complex process of project approval, registration and monitoring,¹⁴⁸⁸ but China emerges to be the greatest beneficiary of the mechanism, and yet is not making a good manifestation of the essence of the mechanism, which without doubt, is the most effective and best of all the Kyoto mechanisms, being all-embracing. The financial profits generated through CDM projects were indeed used to develop different industries in China such as renewables, and it contributed in a sense to technology transfer and environmental protection in China.¹⁴⁸⁹ The US later withdrew, being not a party to the KP may not be a player in the CDM arena.¹⁴⁹⁰ Because the LDCs, Small Islands Developing States (SIDS) and Africa have a very low initial GHG emissions rate, there is consequently little incentive to invest in CDM projects in these countries. The percentage of projects sourced from Asia nearly doubled, from 22 per cent in 2006 to 39 per cent in 2007, while the percentage of projects sourced from Africa actually decline in market share from 6 per cent to 2 per cent and absolute terms.¹⁴⁹¹ The Nairobi Framework on this logic observed that in Africa, the scope for reducing emissions is correspondingly lower than in other regions. To allow this situation to continue unabated will amount to a systemic barrier to an equal distribution of the CDM project activities. Investors need to be presented with some other incentives to implement CDM projects in these low GHG emitting countries,¹⁴⁹² if the real original intent of the sustainable development objective of the mechanism is to be realized. CDM projects represents a significant capital investment to fast-track climate-smart growth, both as direct capital investments

BRADBROOK Adrian J. et al (Ed), *The Law of Energy for Sustainable Development*, Cambridge, Cambridge University Press, 2005, p.233. See also, EFEMUAYE Gabriel Aghogho et al, University: University of Ibadan, Republic of Wazobia, in NIELSEN Laura; PAGH Peter and RØNNE Anita (Eds.), *The Copenhagen Protocol on Climate Change- An International Negotiation Competition*, Copenhagen, DJØF Publishing, 2009, p.212.

¹⁴⁸⁵ See Article 12(5) KP. Also, 3/CMP.1, Annex, para.43.

¹⁴⁸⁶ DE CHAZDURNES Laurence Boisson, Technical and Financial Assistance, in BODANSKY et al (Eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2010, p.953.

¹⁴⁸⁷ HELLER Thomas, *ibid.*, p.118.

¹⁴⁸⁸ THORNLEY Ben, *op cit.* See also, MATSUO Naoki, *CDM in the Kyoto Negotiations: How CDM Has Worked as a Bridge Between Developed and Developing Worlds?*, Kluwer Academic Publishers, 2003. Available at http://www.climate-experts.info/CDM_Negotiations_Matsuo.pdf . Site visited 16-03-2014.

¹⁴⁸⁹ BELIS David; HUNG Bui Viet; and THUAN Nguyen Bich, *The Governance of the CCDM in China*, in BRUYNINCKX Hans et al (Eds.), *The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies*, Cheltenham, Edward Elgar Publishing, 2013, p.137.

¹⁴⁹⁰ HELLER Thomas, *op cit.*, p.133.

¹⁴⁹¹ *Global Greenhouse Warming. Com, Voluntary Carbon Market*, 2008. Available at <http://www.global-greenhouse-warming.com/voluntary-carbon-market.html> . Site visited 30-03-2011.

¹⁴⁹² BLÉVIN Marie, *op cit.* p.793.

and as leverage for additional capital,¹⁴⁹³ which these impoverished nations which are seriously at climate risks need.

Despite the rhetoric to contradict the assertion that developing nations have yet to create infrastructure that will allow them to adjust their lifestyles to the reality of climate change which makes many communities more impoverished, industrialised countries too have not yet undertaken enough large-scale investments to help poorer nations adapt to climate change. As at 2007, only US\$40 million was being spent annually for adaptation measures in the world's poorest regions.¹⁴⁹⁴ There has been a significant contribution to the development of renewable energies in China by the buying of CERs that can be applied to meet their own GHG emission targets,¹⁴⁹⁵ but it remains to be seen or ascertained by China's incessant and continuous investment in coal energy at the expense of other sources of energy, which goes to seriously negate the above assertion. All the allures of the CDM and others have been channeled to China which in turn is savouring it all to increase its emissions,¹⁴⁹⁶ while heightening its production. It could be rightly summed up therefore that, the CDM is detrimental to sustainable development in China, or that it has modestly contributed to it.¹⁴⁹⁷ The question then is what is the gain of the LDCs, Africa and SIDS in the CDM and other measures of the UNFCCC, the KP and other measures which have not brought any improvement to slowing deforestation,¹⁴⁹⁸ and consecutively stepping up activities on reforestation, and afforestation in the desert zones, to create more carbon sinks? The forestry sector accounts for more than 17 per cent of total global GHG emissions.¹⁴⁹⁹ This implies that the tropical forests that are being indiscriminately degraded and ravaged to feed the insatiable western markets, should be declared "endangered," considering that most of the species are being exhausted and may never be replaced once they so go into extinction, which means a permanent damage to ecology and biodiversity. The consequences of this will be more than a mere permanent species-loss, could affect humans who depend on these forests for livelihood, among others. This, while sustained efforts be ensured to step up provision of sustainable energy provision for the LDCs where the forests serve as their major source of energy supply. The point is this, that afforestation and reforestation projects have the most potential in developing countries due to higher growth rates of tropical forests, the availability of land and synergies with the need for future biomass. But unfortunately, the reverse is the case, in mid-2009 the number of registered projects was whooping 1665, of

¹⁴⁹³ THORNLEY Ben, op cit.

¹⁴⁹⁴ PROUTY Ann E., The Clean Development Mechanism and its Implications for Climate Justice, Columbia Journal of Environmental Law, Vol.34, No.2, 2009, p.516. Available at http://www.columbiaenvironmentallaw.org/assets/pdfs/34.2/9_Prouty_34.2.pdf. Site visited 16-03-2014.

¹⁴⁹⁵ VAN EYNDE Sarah and PEI-FEI Chang, Explaining the Development of China's Renewable Energy Policies: Comparing Wind and Solar Power, in BRUYNINCKX Hans et al (Eds.), The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies, Cheltenham, Edward Elgar Publishing, 2013, p.93.

¹⁴⁹⁶ According to China's Initial National Communication on Climate Change to the UNFCCC in 2004 and its 2007 National Climate Change Programme, total GHG emissions increased from 4060 million tonnes in 1994 to 6100 million tonnes in 2004, while the CO₂ component of total GHG emissions increased from 76% to 83%, and its energy-related CO₂ emissions for 2010 had quickly risen to and reached a total of 8321 million tonnes, meaning that China's emissions clearly exceeds those of any other country. All these because of China's ineffective implementation of its legal and policy instruments. See, BELIS David, op cit., p.131.

¹⁴⁹⁷ BELIS David, ibid., p.137.

¹⁴⁹⁸ FEARNESIDE Philip M., Forests and Global Warming Mitigation in Brazil: Opportunities in Brazilian Forest Sector for Responses to Global Warming Under the "Clean Development Mechanism", Journal of Biomass and Bioenergy, 16 (1999), 171-189, 173.

¹⁴⁹⁹ THOMAS Sebastian, op cit, p.880.

which only four are CDM afforestation and reforestation projects. There were two others alike waiting registration.¹⁵⁰⁰ In the allocation of funds for vulnerability, the criteria for determining vulnerability has yet to be explicitly determined, however, in the Copenhagen text, LDCs were identified to have specific needs and special situations concerning funding transfer and technology. Small Island Developing States (SIDS), and African countries were subsequently included alongside LDCs in the Bali Action Plan as “particularly vulnerable to the adverse effects of climate change.” Then in the Copenhagen Accord, the language distinguishing these groups became even stronger, with the phrase “most vulnerable developing countries.”¹⁵⁰¹ With this categorisation, the share of funds especially from the Adaptation Fund going to the African region on climate mitigation and adaptation remains yet low as compared to that going to the more affluent developing countries who wield the clout to influence issues their own way because they control the larger percentage of world productions.

The CDM was expected to provide developing countries with the essential resources for cleaner economic growth, and reduction in emissions,¹⁵⁰² some of these LDCs are energy-natural resources based, which the developed countries benefit immensely from over the years and their MNCs too. For instance, Nigeria Angola and some other countries in this category are oil-producing entities where gas flaring is the bane of the gain of the business. The developed countries directly or through their MNCs, which are directly engaged in the flaring, because it is cheaper to flare than to convert same to power for the economy to utilize, could invest in channeling the associated or natural gas being flared to profitable use- power generation to the energy-poor countries, whose major cause of poverty and underdevelopment is lack of, or extremely-poor state of energy generation. A little investment in this wise would go a long way in alleviating the poverty condition of the impoverished people and nations which have resources but are living in squalor, for lack of necessary finance and technology to transform their resources to riches. At the same time, global quantities of GHGs would be reduced,¹⁵⁰³ as these countries and their chief- Russia are large flaring nations, burning off billions of dollars worth of valuable gas yearly, while living in avoidable darkness. The case of the sub-Saharan countries are exceptionally pathetic on this,¹⁵⁰⁴ and it is high time these countries did something with the intervention of the international community to get the oil-TNCs operating in their countries to stop the flaring which has been going on for decades, with utter impunity, to the helplessness of these countries and their people. Climate change

¹⁵⁰⁰ THOMAS Sebastian, *ibid.*, p.880, 884.

¹⁵⁰¹ CIPLET David; ROBERTS J. Timmons and KHAN Mizan, *The Politics of International Climate Adaptation Funding: Justice and Divisions in the Greenhouse*, journal of Global Environmental Politics, Vol.3 No.1, February 2013, pp.49-68.

¹⁵⁰² OLAWUYI Damilola S., *op cit.*, p.265. See also, BIRNIE Patricia et al, *International Law and the Environment* (3rd Ed.), Oxford, Oxford University Press, 2009, p.249.

¹⁵⁰³ KRÄMER Ludwig, *EC Environmental Law* (Sixth Ed), London, Sweet and Maxwell Publishing, 2007, p.341.

¹⁵⁰⁴ Deficient power infrastructure is hindering long-term economic growth in the African continent. The entire installed generation capacity of the continent is 124 gigawatts (GW), of which 94 GW is divided between North African countries and South Africa. The rest of the sub-Saharan region relying on an installed capacity of only 30 GW, about the same as Norway, a country with less than one per cent SSA's population. Out of the limited capacity, as much as one-quarter of it is now unavailable due to age and poor maintenance. See, World Bank, *African Energy Minister Conference Proceedings Report, Road to Durban: Promoting Sustainable Energy Access for Africa*, Johannesburg, 15-16 September, 2011. Available at <http://www.ppiaf.org/sites/ppiaf.org/files/publication/African-Energy-Ministers--Conference-Proceedings-Report-Johannesburg-Se-15-16-2011.pdf> . Site visited 12-06-2014. See also, BREW-HAMMOND Brew, *Energy Access in Africa: Challenges Ahead*, Energy Policy, Vol.38, Iss.5, May 2010, pp. 2291-2301. See as well, AKINLO A. E., *Energy Consumption and Economic Growth: Evidence From 11 Sub-Saharan African Countries*, Vol.30, 2008, pp.2391-2400. See further, DEICHMAN Uwe et al, *The Economics of Renewable Energy Expansion in Rural Sub-Saharan Africa*, Energy Policy, Vol.39, Iss.1, January 2011, pp.215-227.

policies related to energy efficiency and renewable energy are often economically beneficial, improve energy security and reduce local pollutant emissions.¹⁵⁰⁵ A couple of projects under the CDM category could go a long way, and the developed countries would also gain emissions credit from it. It was warned that the world will not solve climate change without an ever-increasing commitment to international cooperation, which more than ever before would require the financial sector and business to be given ways and means to help put money and technology where they are most needed, into the developing world, as well as into the developed world.¹⁵⁰⁶

Energy production and consumption are the major sources of atmospheric carbon emissions and the leading causes of global warming,¹⁵⁰⁷ which form the most strategic area of concern for the CDM in the developing countries. This will moreover, give affirmation to the growing recognition of the need to achieve an ecologically more sustainable socioeconomic development as depicted by international debate throughout the past decade,¹⁵⁰⁸ and promises to continue even in the coming future. Energy is so vital and strategic in climate change that energy efficiency projects became listed in the small-scale CDM projects with simplified¹⁵⁰⁹ baseline and monitoring procedures approved under the Kyoto machinery.¹⁵¹⁰ Energy production is the biggest source of emissions, representing about one-third of the world total. And of the fossil fuels, coal is the highest source of emissions, followed by oil and of course, natural gas, while agriculture, forestry and other land use follow in turn, then transport and buildings.¹⁵¹¹ There are positive correlations between the level of CDM and foreign direct investment (FDI),¹⁵¹² as presented in China's case, but which is not being enjoyed by the LDCs and others if investors continue to channel CDM investments to other places with "brighter prospects."¹⁵¹³ The CDM is failing to induce low carbon technology transfer to many of the important sectors, for instance the oil and gas sectors in the African region and transportation, thereby missing out on large opportunities for emissions reduction. It has so far played a very passive role in influencing overall policy changes to support transformation of energy systems in developing countries, preferring concentration within some countries and sectors.¹⁵¹⁴ It is heart-warming to note that The Netherlands vowed not to provide money any longer to new coal projects

¹⁵⁰⁵ IPCC, Fourth Assessment Report: Climate Change 2007, Sustainable Development and Climatic Change Mitigation. Available at http://www.ipcc.ch/publications_and_data/ar4/wg3/en/spmsspm-f.html. Site visited 23-03-2014.

¹⁵⁰⁶ United Nations, Kyoto Protocol Clean Development Mechanism Reaches Milestone 3,000 Projects, UNFCCC Press Release, 5 May, 2011, Bonn.

¹⁵⁰⁷ BRADBROOK Adrian J. and WAHNSCHAFFT Ralph D., International Law and Global Sustainable Energy Production and Consumption, in BRADBROOK Adrian J. et al (Eds.), The Law of Energy for Sustainable Development, Cambridge, Cambridge University Press, 2005, p.195.

¹⁵⁰⁸ BRADBROOK Adrian J. and WAHNSCHAFFT Ralph D., *ibid.*, p.181.

¹⁵⁰⁹ See Annex II (Simplified modalities and procedure for small-scale clean development mechanism project activities), to Decision 21/CP.8, Guidance to the Executive Board of the clean development mechanism, FCCC/CP/2002/7/Add.3.

¹⁵¹⁰ MAK Kui-Nang (Peter) and SOLTAU Friedrich, Policy Options, in BRADBROOK Adrian J et al (Eds.), *ibid.*, p.217. See also, MANGUIAT Maria Socorro Z., The Clean Development Mechanism and UNFCCC/Kyoto Protocol Developments, in BRADBROOK Adrian J. et al (Ed), *ibid.*, p.232.

¹⁵¹¹ RITTER Karl, UN Panel Shows Who's Responsible for CO₂ Emissions, AP Online, 11 April, 2014. Available at <http://www.news.yahoo.com/un-panel-shows-whos-responsible-co2-emissions.141911577.html>. Site visited 11-04-2014.

¹⁵¹² MULLER Adrian, How to Make the Clean Development Mechanism Sustainable- The Potential of Rent Extraction, Elsevier Journal of Energy Policy 35 (2007), 3203- 3212, 3205.

¹⁵¹³ MULLER Adrian, *ibid.*, 3205.

¹⁵¹⁴ BELIS David, *op cit.*, p, 142.

overseas.¹⁵¹⁵ It is joining the US which made a similar decision to impose a ban on US support for new coal-fired power plants around the world, meaning that Obama's administration will no longer contribute to coal projects financed by the World Bank and other international development banks.¹⁵¹⁶ Like the US, the UK also made a similar decision in November 2013, and similarly like the US, recognises that there will be exceptions, taking account of new technologies such as Carbon Capture Storage and the very poorest countries where there are no alternatives.¹⁵¹⁷ The Obama policy announced commitment to mobilise clean energy investments to the developing world and help accelerate their transition to a green, low carbon economy.¹⁵¹⁸

Not only abroad is the Obama administration striving to pursue pragmatic transformation, even domestically, the administration is foisting a national cap and trade system on coal energy plants, forcing them to pay for GHG emissions, by an executive fiat, to avoid the Congress which has over the years been bent on truncating every attempt of the government to bring emissions under control.¹⁵¹⁹ This new pollution regulation promises to be significant and forms the cornerstone of the US regulation and legacy in decades. After successive blockades by the Congress, the Obama administration is relying on the Clean Air Act, a 1970 law that was not intended to regulate gases blamed for global warming. The US uptill now has no national limits to the amount of carbon pollution that plants can pump into air whereas, other similar toxic chemicals were limited. The policy will allow states flexible alternatives like switching from coal to natural gas, enact programmes to reduce demand for electricity, and produce more energy from renewable sources. It will set-up pollution-trading markets similar to that existing in 10 states. The rule will surely bring the US closer to the 17 per cent reduction by 2020 as pledged. US fossil-fueled power plants are responsible for 6 per cent of global CO₂ emissions.¹⁵²⁰ According to the US Energy Information Administration data, the US is moving significantly to add capacity to its renewable energy consumption. It generated a grid-scale solar energy to 22 per cent of new generating capacity in 2013, nearly half of the capacity was in California, the climate change heart-beat of the US. It appears that the Obama

¹⁵¹⁵ YEO Sophie, Netherlands to Stop Funding Overseas Coal Power Plants, 24 March, 2014. Available at <http://www.rtcc.org/2014/03/24/netherlands-to-stop-funding-overseas-coal-power-plants/> Site visited 28-03-2014.

¹⁵¹⁶ Flickr/GOEBEL Greg, US Treasury Ends International Funding for Coal-Fired Power Plants, RTCC Online, October 2013. Available at <http://www.rtcc.org/2013/10/30/us-treasury-ends-international-funding-for-coal-fired-plants/> Site visited 28-03-2014.

¹⁵¹⁷ CHOUDHURY Nilima, UK Pledges to End Financing of Coal Plants, RTCC Online, 20 November, 2013. Available at <http://www.rtcc.org/2013/11/20/uk-pledges-to-end-financing-of-coal-plants/> Site visited 28-03-2014.

¹⁵¹⁸ CHOUDHURY Nilima, *ibid*.

¹⁵¹⁹ AFP, 'Obama Wants to Force Coal Plants to Reduce Emissions,' AFP Online, 29 May, 2014. Available at <http://news.yahoo.com/obama-wants-force-coal-plants-reduce-emissions-145557171.html>. Site visited 30-05-2014. See also, Staff Writers, Obama Wants to Force Coal Plants to Reduce Emissions, NYTimes Online, 29 May, 2014. Available at http://www.energy-daily.com/reports/Obama_wants_to_force_coal_plants_to_reduce_emissions_NYTimes_999.html. Site visited 30-05-2014. See further, MARKS Josh, Cutting Coal Pollution by 20% is Just One Way Obama is Making Climate History, Inhabitat Online, 29 May, 2014. Available at <http://www.inhabitat.com/cutting-coal-pollution-by-20-is-just-way-obama-is-making-climate-history/>. Site visited 30-05-2014. See equally, DAVENPORT Coral, President Said to be Planning to Use Executive Authority on Carbon Rule, The New York Times, 28-May, 2014. <http://www.nytimes.com/2014/05/29/us/politics/obama-to-offer-rules-to-sharply-cut-power-plants-carbon-emissions.html?hpw&rref=science&r=0> . Site visited 30-05-2014.

¹⁵²⁰ CAPPUELO Dina, Obama's Boldest Move on Carbon Comes With Perils, AP Online, 31 May, 2014. Available at http://www.twincities.com/business/ci_25871977/obamas-boldest-move-carbon-comes-perils. Site visited 01-06-2014. See also, SRAKOCIC Keith, Obama's Boldest Move on Carbon Comes With Perils, Associated Press Online, 31 May, 2014. Available at http://www.postbulletin.com/life/health/Obama-s-boldest-move-on-carbon-comes-with-perils/article_e781e3a6-2eb6-5424-bbbd-1e1b2e4cff4f.html . Site visited 01-06-2014.

administration would show some seriousness with the emission reduction by this, as it was reported further that by October nearly three-quarters of new utility-scale capacity in the US was solar power,¹⁵²¹ which is emission-free. And in January 2014, renewables accounted for virtually all of the new utility-scale generating capacity installed in the US, with 287 megawatts of solar, 30 megawatts of geothermal, 4 megawatts of wind, 3 megawatts of biomass, and 1 megawatt of ‘other,’ totaling 325 megawatts installed in the month.¹⁵²² Hitherto, many states and local governments¹⁵²³ in the US have been taking the lead in addressing global climate change,¹⁵²⁴ at the expense of the federal government’s manifest disability, no thanks to the US Congress actions persistently blocking every step of the Federal government, coupled with the reluctance of the populace generally at embracing new sources of energy. President Obama by his action on coal plants has seemingly rectified this anomalous situation. Global climate change falls within the President’s plenary authority over international affairs as applicable under Article I, Section 2 of the United States Constitution, which grants the President power to make treaties with the advice and consent of the Senate.¹⁵²⁵ The states and local governments initiatives being contemplated in the first place, could not have significant effect upon global climate change, but reductions like the California’s standards for GHG emissions from passenger vehicles and many state renewable portfolio standards, which would collectively result in US emissions reductions of approximately 1 to 1.5 per cent below “business-as-usual” by 2015-2020. Under a “business-as-usual scenario, global emissions of GHG emissions are expected to reach 56 gigatonnes carbon dioxide equivalent” (GtCO₂.eq) per year by 2020.¹⁵²⁶ With high levels of warming that result from continued growth in greenhouse gas emissions, risks will be challenging to manage, and even serious, sustained investments in adaptation will face limits, said Chris Field, co-chair of the working group II that produced the report.¹⁵²⁷

Some of the most promising climate change initiatives currently under development are being pursued by states acting as a group, but such are without federal oversight or approval, which makes them lack requisite legal effect and any significance in regional cooperation on environmental matters. Such are contrary to regional

¹⁵²¹ TWEED Katherine, Solar Energy Jumps to 22% of New US Generation Capacity in 2013, The Energy Collective Online, 10 April, 2014. Available at http://www.theenergycollective.com/katherinetweed/365541/solar-jumps-22-new-us-generation-capacity-2013?ref=smt_side_whtats_hot . Site visited 18-07-2014.

¹⁵²² DANKO Pete, Renewable Energy: 100% of New US Generating Capacity in January, Greentechmedia Online, 27 February, 2014. Available at <http://www.greentechmedia.com/articles/read/renewable-energy-100-of-new-u.s.-generating-capacity-in-january> . Site visited 18-07-2014. See also, Office of Energy Projects, Natural Gas Highlights, Energy Infrastructure Update, January 2014. Available at <http://www.ferc.gov/legal/staff-reports/2014/jan-infrastructure.pdf> . Site visited 18-07-2014.

¹⁵²³ California enacted mandatory emissions reduction, and the ten northeastern states Regional GHG Initiative, a cap-and-Trade programme to reduce emissions from power plants. See also, The Center for Climate and Environmental Studies, Climate Change 101: Understanding and Responding to Global Climate Change, January 2011.

¹⁵²⁴ ENGEL Kirsten H., Mitigating Global Climate Change in the United States: A Regional Approach, NYU Environmental Law Journal, Vol.14, 2005, pp.54-85. Available at <http://www.cetesb.sp.gov.br/userfiles/file/mudancasclimaticas/proclima/file/publicacoes/mitigacao/ingles/mitigatingglobalclimatechangeintheusa.pdf>. Site visited 20-08-2012.

¹⁵²⁵ United States v. Curtis-Wright Exp. Corp., 299 U.S. 304, 320 (1936). See also, ENGEL Kirsten H., *ibid*.

¹⁵²⁶ ZAELE Durwood; ANDERSEN Stephen O. and BORGFORN PARNELL Nathan, Strengthening Ambition for Climate Mitigation: The Role of the Montreal Protocol in Reducing Short-Lived Climate Pollutants, Review of European Community and International Environmental Law (RECIEL), Vol.21, Iss.3, November 2012, pp.231-242.

¹⁵²⁷ THORPE David, Mitigate, Adapt or Face Catastrophe: Stark Warning of New IPCC Report, Sustainable Cities Collective Online, 31 March, 2014. Available at <http://sustainablecitiescollective.com/david-thorpe/238976/mitigate-adapt-or-face-catastrophe-stark-warning-new-ipcc-report> . Site visited 29-05-2014.

cooperation usually observed with respect to the use or preservation of natural resources whose location span the boundaries of than one state, or where cooperation is necessary to remediate a pollution problem resulting from regional economic or social patterns. Since states within the US are not completely sovereign entities, their powers to enter into alliances with other states and even foreign nations in pursuit of environmental goals are limited by the framework and doctrines of federalism.¹⁵²⁸ The UK claimed it was ‘completely illogical’ for countries like the UK and the US to work on cleaning up their own energy sector, while paying for coal-fired power plants in the other countries.¹⁵²⁹ The Executive Board (EB) has been accused of not serving the purpose of sustainable development goals by the project design documents (PDD), which are a set of standards¹⁵³⁰ developed by it for projects compliance under the CDM.¹⁵³¹ This because the PDD does not presently require data to be collected to answer questions about the project’s contribution to sustainable development, neither does it require the putting in place of any credible mitigation or compensatory measures where the project impose significant adverse impacts.¹⁵³² Generally acceptable common indicators or international standards have yet been so far accepted for measuring sustainable development benefits, even though host countries often define the contribution of the CDM projects to sustainable development in line with existing national development strategies, these have more often than not been based on economic development rather than sustainability. Host countries however, have been in cases, all too eager to approve CDM projects with little or no added sustainability value. It becomes imperative therefore, to reform the CDM in line with objective international quality criteria for local and global environmental sustainability, social sustainability and development, as well as economic and technological development.¹⁵³³

A tenacious compliance with the aims of the mechanism will help poverty in the developing countries, seeing that poverty reduction is synonymous with sustainable development, as amplified by the UNCED. COP 17 also recognised that social and economic development and poverty eradication are prime-most priorities of developing countries.¹⁵³⁴ The best should be made of the main funding source for CDM activities in this regard, the World Bank Group’s (WBG), BioCarbon Fund, acting on behalf of Annex I governments and corporate buyers (mainly Japan).¹⁵³⁵ To this, the WWF has suggested that a gold standard be set, which among other things, prescribed that projects should pass a sustainable development screen consisting of environmental impact analysis, public participation and a normative sustainability matrix.¹⁵³⁶ It cannot be overemphasised that, for

¹⁵²⁸ ENGEL Kirsten H., *ibid.*

¹⁵²⁹ YEO Sophie, *op cit.*

¹⁵³⁰ The PDD includes a description of the project, an explanation of how the baseline and monitoring methodology will be applied, a discussion of the environmental impacts of the project, a compilation of the stakeholders comments, Letters of Approval from the entity in charge of reviewing CDM projects in their respective governments, that is, the Designated National Authorities (DNAs). See, LECOCQ Franck and AMBROSI Philippe, *The Clean Development Mechanism: History, Status and Prospects*, *Review of Environmental Economics and Policy*, Vol.1, Issue 1, Winter 2007, pp.134-151, at 137.

¹⁵³¹ HODAS David R., *Sustainable Development and the Marrakech Accords*, in BRADBROOK Adrian J. et al (Ed), *The Law of Energy for Sustainable Development*, Cambridge, Cambridge University Press, 2005, pp.67-68.

¹⁵³² HODAS David R., *ibid.*, p.72.

¹⁵³³ VOIGT Christina, *The Deadlock of the Clean Development Mechanism: Caught Between Sustainability, Environmental Integrity and Economic Efficiency*, in RICHARDSON Benjamin J. et al (Eds.), *Climate Law and Developing Countries: Legal and Policy Challenges for the World Economy*, Cheltenham, Edward Elgar Publishing, 2009, pp. 240, 249.

¹⁵³⁴ LYSTER Rosemary, *Adaptation and Climate Justice*, in VERSCHUUREN Jonathan (Ed.), *Research Handbook on Climate Change Adaptation Law*, Cheltenham, Edward Elgar Publishing, 2013, p.39.

¹⁵³⁵ THOMAS Sebastian, *op cit.*, p.881.

¹⁵³⁶ HODAS David R., *ibid.*, p.71

developing countries, the CDM holds much promises, but that only if it carries with it capacity-building to capitalize on the source of investment. It remains the ultimate truth that the CDM so far has been the main international mechanism for mitigation in developing countries,¹⁵³⁷ which China poses as the world's main recipient,¹⁵³⁸ to the detriment of the world's poorest. If there is no solid mitigation, it is doubtful if there would be anything to adapt to. This is why CDM must be felt in the developing countries than it is now. There is no gainsaying the fact that, the mechanism needs to be modified and expanded. Already, the EU and the UN are keen to expand the CDM, although the programme is controversial. The UNFCCC predicts it could generate between \$50 billion and \$100 billion a year by 2030.¹⁵³⁹ The best way to encourage and step up CDM sustainable development in developing countries, especially in the tropical regions therefore, is to encourage CDM afforestation and reforestation projects. The advantages of this are quite enormous, some of which includes, provision of biomass sources of energy, decrease in soil erosion, which has been a grave threat to most land areas in the tropics, improvement in soil health, improvement in water quality, food security, creation of additional and diversified income streams through carbon trading, reduction in poverty through creation of employment for the people of the regions. CDM projects are evaluated in regard to the amount of employment they generate measured in person months during construction and operation of the projects and expressed as person month per 1,000 CERs.¹⁵⁴⁰ Above all, it is the surest means of recovering land encroached or threatened by desert. Climate change contributed to a famine in East Africa that killed between 50,000 and 100,000 people in 2010 and 2011, at least 24 per cent of the cause of a lack of major rains in 2011 can be attributed to man-made GHG.¹⁵⁴¹ It is thus just good to recover as much land as possible from desertification threatening to engulf almost the entire of Africa from the Mediterranean to the Atlantic, through the CDM A/R, while bringing down considerably the effects of man-induced climate change. Research suggests that, there is approximately 750 million hectares (Mha) of land suitable for CDM A/R projects.¹⁵⁴²

5.2.2 Technology Transfer

From the time of the industrialisation of the West, it has taken technological dominance over the other parts of the world, and attempt at diffusing this is what brings about technological transfer. Technology transfer simply defined could mean the movement of hardware and software to the non-developed world, without an intent of fostering technological autonomy in those countries.¹⁵⁴³ The IPCC defines technology transfer as a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate

¹⁵³⁷ Ernst & Young, *The Future of Global Carbon Markets: The Prospect of an International Agreement and its Impact on Business*, 2012.

¹⁵³⁸ DAVID Belis, op cit., p.129.

¹⁵³⁹ YOUNG Rob, *The Copenhagen Battle Over Climate Change Funds*, BBC News Online, 12 December, 2009. Available at <http://news.bbc.co.uk/2/business/8408654.stm>. Site visited 27-04-2014.

¹⁵⁴⁰ SUTTER Christoph and PARREÑO Juan Carlos, *Does the Clean Development Mechanism (CDM) Deliver its Sustainable Development Claim? An Analysis of Officially Registered CDM Projects*, *Climatic Change*, (2007), 84, 75-90, at 79. Springer Science Journal Online. Available at http://download.springer.com/static/pdf/323/art%253A10.1007%2itevisited52Fs10584-007-9269-9pdf?auth66=1394645402_a9e851357ed4ee6548af96c27abda9f7&ext=.pdf. Site visited 10-03-2014.

¹⁵⁴¹ KARUMBA, Tony, See also, KING Ed, *Climate Change Could Devastate Africa Crop Yields*, RTCC Online, 25 March, 2014. Available at <http://www.rtcc.org/2014/03/25/climate-change-could-devastate-africa-crop-yields/> Site visited 28-03-2014.

¹⁵⁴² THOMAS Sebastian, op cit, p.881.

¹⁵⁴³ VALE Peterson Molina, *Sustainable Underdevelopment or Technological Autonomy*, *Journal of Earth and Environmental Science* Vol.6, 2009.

change amongst different stakeholders such as governments, private sector entities, financial institutions, non-governmental organisations (NGOs), and research/education institutions.¹⁵⁴⁴ Eynde and Pei-Fei defined technology transfer as “[t]he transfer of a technology from one geographical location to another of which the flow may take different forms such as through government (for example ODA), or business (for example FDI), channels and may involve physical assets (for example capital investment and products), and information assets (for example technical know-how and knowledge).”¹⁵⁴⁵ While technology is at the root of climate change, it is considered also, as an integral part of its mitigation, whose effectiveness will dictate not only the new directions for technological development, but also an improved dissemination process, which enables swift and efficient global distribution.¹⁵⁴⁶ The transfer of both financial resources and technology have become a central supporting pillar for both mitigation and adaptation in the UNFCCC negotiation process for a new global climate accord.¹⁵⁴⁷

Technology is tacit knowledge that is embedded in a firm’s procedure and personnel, which extended, could mean a firm’s explicit knowledge concerning specific products and their associated production processes and a firm’s capabilities and processes.¹⁵⁴⁸ This could in other words mean technological capability, which refers to the ability to develop, use, invest, produce and implement technology in a firm, supported by an enabling environment.¹⁵⁴⁹ The production and consumption structure in which developed economies create new technologies, retain the benefits of its production’s internal dissemination and then export it to middle-income countries, while the obsolete capital equipment is sent to low-income countries through multinational branches, is already in place for at least half a century, which is intended at making economic structure remain dependent on imported technology.¹⁵⁵⁰ Under the Convention, developed country Parties and other developed Parties included in Annex II are required to take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other parties, particularly to developing countries to enable them to implement the provisions of the Convention.¹⁵⁵¹ The UN Global Compact, a pact between the UN and global business, launched in July 2000, tasked global corporations in the area of environment to support a precautionary approach and to undertake initiatives to promote

¹⁵⁴⁴ DAVIDSON Ogunlade and MERTZ Bert, Methodological and Technological Issues in Technology Transfer, Summary for Policy Makers, IPCC Special Report, 2000, p.3. See also, YANG Zili, An Analysis of Technology Transfers as a Response to Climate Change, Copenhagen Consensus on Climate Assessment Report on Technology transfer.

¹⁵⁴⁵ VAN EYNDE Sarah and PEI-FEI Chang, Explaining the Development of China’s Renewable Energy Policies: Comparing Wind and Solar Power, in BRUYNINCKX Hans et al (Eds.), The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies, Cheltenham, Edward Elgar Publishing, 2013, p.94.

¹⁵⁴⁶ PACHAURI R.K., Climate Change and Technology Transfer, Yale Journal of Environmental Research, 2001. Available at <http://www.environment.research.yale.edu/documents/downloads/o-u/Pachauri.pdf>. Site visited 23-03-2014.

¹⁵⁴⁷ DE SÉPIBUS Joëlle, Reforming the Clean Development Mechanism to accelerate Technology Transfer, NCCR Trade Working Paper, November 2009, p.2.

¹⁵⁴⁸ BREWER Thomas, Technology Transfer and Climate Change: International Flows, Barriers and Frameworks, Brookings Global Economy and Development, June 2008, p.3. Available at

http://www.brookings.edu/~media/events/2008/6/09climatetrade/2008_brewer.pdf . Site visited 23-03-2014

¹⁵⁴⁹ RENNKAMP Britta and BOYD Anya, Technological Capability and Transfer for Achieving South Africa’s Development Goals, Climate Policy, 2013. Available at http://www.crc.uct.ac.za/Research/publications/13-Rennkamp-Boyd-Technological_capability.pdf Site visited 23-03-2014.

¹⁵⁵⁰ VALE Peterson Molina, op cit.

¹⁵⁵¹ See, Article 4.5 of the Convention. See also, United Nations Framework Convention on Climate Change (UNFCCC), Technology, 23 January, 2014. Available at https://unfccc.int/cooperation_and_support/technology/items/1126.php Site visited 27-03-2014.

environmental responsibility, and to develop and diffuse environmentally friendly technologies.¹⁵⁵² Technology transfer serves as a source of export earnings for industrial countries, but there is need to ensure importing countries get a fair price and obtain genuine control over, and freedom to apply imported technology through better guidelines on sale and use.¹⁵⁵³ As observed earlier, non-observance of these provisions remains the greatest bane confronting the realization of their envisioned goals. Technology is essential to enable developing countries to pursue sustainable development and grow their economies in a low-carbon, highly resilient manner,¹⁵⁵⁴ but it is sufficient to state that national resolve to align with international efforts at combating the climate scourge is also as paramount if not more to the realization of the enviable end result, which is not the case with most economies in transition, which are coming past the developed nations in emission statistics.

Transfer of technology is a process involving human interaction, new technology and bureaucratic red-tape, which all constitute sufficient hindrance, leading to significant and effective barrier to successful transfer of technology.¹⁵⁵⁵ Technology transfer can be either horizontal or vertical. It is horizontal where both technology and knowledge are transferred between two geographical locations, while it is vertical when a technology matures.¹⁵⁵⁶ Strong environmental regulation and enforcement are the main incentives for firms to acquire new technologies just as in the other extreme, weak environmental regulation and enforcement are among the main obstacles to successful technology transfer and diffusion.¹⁵⁵⁷ A meticulous appreciation of this presents us with a case of an outright negation of the present situation, whereby China alone accounts for nearly half of all CDM projects globally, and yet has not brought about a change in its climate change status, rather graduating to the leadership position of the large-emitters club, and has been steadily increasing the enormity of its emissions.¹⁵⁵⁸ Today, China consumes slightly more coal than all other countries in the world combined, each ton of coal burnt there produces more than one ton of pollutants, including CO₂, particulate matter, sulfur dioxide and mercury, resulting in serious smog in several of China's cities, acid rain over the entire region, which hurts soil quality and food safety, with heavy fatality in its trail.¹⁵⁵⁹ This mostly because its regulatory enforcement is

¹⁵⁵² CLAPP Jennifer, *Transnational Corporations and Global Environmental Governance*, in DAUVERGNE Peter (Ed.), *Handbook of Global Environmental Politics*, Cheltenham, Edward Elgar Publishing, 2005, p.292.

¹⁵⁵³ Manifesto, UN Declaration: New International Economic Order. Available at <http://steps-centre.org/aneu-manifesto/timeline/un-declaration-new-international-economic-order/#more-868> . Site visited 11-03-2014.

¹⁵⁵⁴ KING Ed, UN Launches New Climate Technology Network, Responding to Climate Change (RTCC), Online, 27 February, 2013. Available at <http://www.rtcc.org/2013/02/26/un-launches-new-climate-technology-network/> Site visited 28-03-2014.

¹⁵⁵⁵ GREINER Michael A. and FRANZA Richard M., Barriers and Bridges for Successful Environmental Technology Transfer, *Journal of Technology Transfer*, 28, 167-177, 2003.

¹⁵⁵⁶ RENNKAMP Britta, op cit.

¹⁵⁵⁷ LESS Cristina Tébar and MCMILLAN Steven, Achieving the Successful Transfer of Environmentally Sound Technologies: Trade-Related Aspects, OECD Trade and Environment Working Paper No. 2005-02, 25 August, 2005, p.4.

¹⁵⁵⁸ China now accounts for one quarter of global emissions sake of its rapidly expanding economy. See RITTER Karl, UN Panel Shows Who's Responsible for CO₂ Emissions, AP Online, 11 April, 2014. Available at <http://www.news.yahoo.com/un-panel-shows-whos-responsible-co2-emissions.141911577.html> . Site visited 11-04-2014.

¹⁵⁵⁹ GARDNER Daniel K., Can China Win the War o Air Pollution? *China Spectator*, 14 April, 2014. Available at <https://www.businessspectator.com.au/article/2014/4/14/china/can-china-win-war-air-pollution/> . Site visited 28-04-2014. See also, Wikinvest, China's Coal Power Pollution, 2012. Available at http://www.wikinvest.com/concept/China's_Coal_Power_Pollution . Site visited 29-04 -2014.

weak, as it has not been able to translate its formal environmental legislation into effective controls.¹⁵⁶⁰ This is in part to lack of improvement on its environmental governance through continued political and bureaucratic system reforms,¹⁵⁶¹ which hampers or threatens the legislative reforms and enforcement. An unenforced rule of law is as good as weak, if not dead. If China wants to enforce its environmental regulations and make them effective to curb emissions, it could, just as it has clamped down heavily on corruption and is tackling it headlong, bringing it low. A contrasting situation is the case of Paolo Scaroni, the Chief Executive Officer (CEO), of the Italian energy giant Eni, who was sentenced to three years imprisonment for being guilty of failing to uphold adequate environmental standards at the Porto Tolle Power Plant when he was the CEO at the Italian utility company. His negligence was responsible for air pollution at the coal plant in violation of Italian law. He also stands banned from holding public office for five years, aside from having his hopes of re-nomination to the high office dashed. This shows a practical and concise example of strict application and enforcement of legal regulations on environmental offences in the EU and its Member States.¹⁵⁶² Similarly, in Union Electric Company v. EPA,¹⁵⁶³ the USA Supreme Court held that the 1970 Clean Air Act establishes a clear public health standard that had to be met, by finding new technology or closing down the polluting activities. The court allowed Missouri, in its implementation plan, to force the company to find or invent the needed new technology, which is termed “technology forcing.” Technology forcing has been used for the rapid elimination of

The world is fast going past the stage where nobody is conscious of the environment, more than sixty countries have climate legislation.¹⁵⁶⁴ A total of 500 climate laws that cover about 90 per cent of emissions investments are beginning to shift, with about US\$1 trillion in renewable energy.¹⁵⁶⁵ In Belgium, the Belgian constitution¹⁵⁶⁶ guarantees the protection of a healthy environment. Effective environmental regulations and policies are put in place necessarily implying that activities which cause environmental nuisance are strictly monitored and

¹⁵⁶⁰ BEYER Stefanie, Environmental Law and Policy in the People’s Republic of China, Chinese Journal of International Law (2006), Vol.5, No.1, pp.185-211, 186. See also, American Manufacturing, A Assessment of Environmental Regulation of the Steel Industry in China, 2013. Available at <http://www.americanmanufacturing.org/publications/assessment-of-environmental-regulation> . Site visited 28-04-2014. See further, GARDNER Daniel K., Can China Win the War on Air Pollution? 14 April, 2014. Available at <https://www.businessspectacular.com.au/article/2014/4/14/china/can-china-win-war-air-pollution> . Site visited 28-04-2014.

¹⁵⁶¹ GANG Chen, Politics of China’s Environmental Protection: Problems and Progress, Environmental Health Perspectives, Vol.118, No.4, April 2010. Available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2854753/> . Site visited 28-04-2014.

¹⁵⁶² Editorial, Examples From Italy, The Nation Online, 8 April, 2014. Available at <http://thenationonline.net/new/examples-italy/> . Site visited 08-04-2014. See also, DINMORE Guy, Eni Chief Paolo Scaroni Found Guilty of Environmental Crimes, The Financial Times (FT) Online, 31 March, 2014. Available at <http://www.ft.com/intl/cms/s/1616e91a-b909-11e3-98c5-00144feabdc0.html> . Site visited 09-04-2014. See further, FCPA Blog New Service, Eni Chief Scaroni Sentenced to Prison for Environmental Crimes, Oil Patch Asia Online, 2 April, 2014. Available at <http://oilpatchasia.com/2014/04/eni-chief-scaroni-sentenced-to-prison-for-environmental-crimes/> . Site visited 09-04-2014.

¹⁵⁶³ 427 US 246 [1976]. See also, Massachusetts v. Environmental Protection Agency [2007] 549 U.S. 497.

¹⁵⁶⁴ Legislative progress has been amply dynamic, a review of 33 countries identified 116 laws, out of 286, related to energy demand, and 156 laws about energy supply, 28 out of 33 countries also had laws related to adaptation. See UNEP, Emissions and Adaptation Gaps: Can We Bridge the Cracks in Climate Policy? UNEP Global Environmental Alert Service (GEAS), February 2014. Available at http://www.na.unep.net/geas/archive/pdfs/GEAS_Feb2014_Emissions_and_Adaptation_Gap.pdf. Site visited 25-06-2014.

¹⁵⁶⁵ BRAHIC Catherine, We’ll Have a Global Climate Treaty in 2015, NewScientist, 22 March 2014. Available at http://slate.com/articles/health_and_science/new_scientist/2014/03/global_climate_treaty_u_n_s_christina_figueres_say_s_we_ll_have_an_agreement.html . Site visited 25-03-2014.

¹⁵⁶⁶ See Article 23 (4), The Belgian Constitution 2012.

regulated, hence the quasi-constitutional freedom of commerce and industry is not unlimited.¹⁵⁶⁷ Environmental regulation might promote innovation, evidence showed that strict vehicles emissions regulations in the US spurred innovations in Japan and Germany, those foreign inventors responding more to the regulations than the US investors.¹⁵⁶⁸ Sustainable development that is worth its essence and true meaning, will require radical technological and related changes in both developed and developing countries alike, not such as is presently being experienced in most of the emerging economies as represented by China and India, which follow the historic greenhouse gas emission trends of developed countries.¹⁵⁶⁹ It becomes paramount to ask why the situation in China is as it presently is, a complete contradiction of the intendment of the whole CDM idea and technology transfer? The UNFCCC envisages that the developed country parties and other developed parties included in Annex II shall take practicable steps to promote, facilitate and finance as appropriate, the transfer of, or access to environmentally sound technologies and know-how to other parties, particularly to developing countries to enable them implement the provisions of the Convention.¹⁵⁷⁰ Successful transfers would however be hinged on the development of good working relationships, within the developing and user organisations, and between the two strong leadership in both organisations. It also occurs when the developmental organisation has sufficient resources to develop and market technologies, and when the developmental organisation has a champion to push the development and transfer of the technology.¹⁵⁷¹

Technology and financial transfers are most predominantly North-South particularly, through bilateral and multilateral official development assistance (ODA). However, there are significant technology transfers among many groups of countries, including from developing countries to developed countries, as well as to other developing countries, and also among developed countries. For instance, China leads the world in green energy technology,¹⁵⁷² clean technologies production such as coal-gasification, compact fluorescent light bulbs, wind power and photovoltaic (PV) technology, with about 27 per cent of the world's production of cells and modules in 2007, which is almost entirely exported to industrialised countries. Three very modern technologies- photovoltaic electricity, electronic load controllers for small-scale hydropower, and laser-guided leveling of irrigated fields have proven to be clean technologies when applied under the right circumstances in poor countries. They are both cost-effective and clear environmental winners.¹⁵⁷³ The EU has been on the demand side of the market, while China has been the most important supplier of renewable energy products.¹⁵⁷⁴ Europe

¹⁵⁶⁷ LAVRYSEN Luc, Belgium, in KOTZÉ and PATERSON Alexander R. (Eds), *The Role of the Judiciary in Environmental Governance: Comparative Perspectives*, Alphen aan den Rijn, Kluwer Law International Publishing, 2009, p.104.

¹⁵⁶⁸ DECHEZLEPRÊTRE Antoine et al, *Invention and Transfer of Climate Change Mitigation Technologies on a Global Scale: A Study Drawing on Patent Data*, Grantham Research Institute on Climate Change and the Environment, Working Paper No. 17, February 2010. Available at <http://www.lse.ac.uk/GranthamInstitute/publications/WorkingPapers/Papers/WPapers10-19/WorkingPaper17.pdf>. Site visited 16-04-2014.

¹⁵⁶⁹ DAVIDSON Ogunlade and MERTZ Bert, *Methodological and Technological Issues in Technology Transfer*, Summary for Policy Makers, IPCC Special Report, 2000, p.3.

¹⁵⁷⁰ United Nations Framework Convention on Climate Change, *Technology*, January 2014. Available at http://unfccc.int/cooperation_and_support/technology/items/1126.php. Site visited 27-03-2014.

¹⁵⁷¹ GREINER Michael A., *ibid*.

¹⁵⁷² LISA Margret, *IFW Recycling Corporation Contends Used Tires Driving a Solution to Pollution*, Examiner.com, 1 July, 2014. Available at http://www.examiner.com/article/ifw-recycling-corporation-contends-used-tires-driving-a-solution-to-pollution-1?cid=rss&utm_medium=referral. Site visited 11-07-2014.

¹⁵⁷³ GOODSTEIN Eban S., *Economics and the Environment* (5th Ed.), Hoboken, John Wiley & Sons Publishing, 2008, p.457.

¹⁵⁷⁴ BELIS David and BRUYNINCKX Hans, *The Governance of Climate Relations Between Europe and Asia in the 'Pivotal Decade' (2010-2020): Evidence From China and Vietnam*, in BRUYNINCKX Hans et al (Eds.), *The Governance of Climate*

has had important and challengers abroad led by China and the US in large-scale green technology deployment worldwide,¹⁵⁷⁵ especially in the light of China's recent massive investment in renewables and green technology, primed mostly for export rather than for its own domestic consumption. Technology flows occur as a result of trade and foreign direct investment (FDI), South Africa in coal-to-synfuels technologies and Mexico in solar hot water heaters.¹⁵⁷⁶ Liquid synfuel is cleaner than conventional petroleum liquid fossil fuel and more energy efficient, it also adds the advantage of one-third less carbon.¹⁵⁷⁷ These represent horizontal transfer rather than a vertical transfer, as envisaged by the UNFCCC when it specified that, under the Convention, the developed country Parties and other developed Parties included in Annex II shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly to developing countries to enable them to implement the provisions of the Convention (Article 4.5). This commitment is similarly echoed in provisions under the KP (Article 10).¹⁵⁷⁸ The TRIPS similarly imposes obligations on developed economies to find means of increasing international technology transfer (ITT) to the LDCs. This may take the form of developed countries governments increasing technical and financial assistance for developing countries to improve their ability to absorb technology and engage in trade.¹⁵⁷⁹

The technology being transferred must effectively fit into the overall cycle, and may fail if the skills and capacity to maintain it at a level that is economically advantageous are expensive or not available.¹⁵⁸⁰ Environmentally sound technologies are those that protect the environment, are less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable

Relations Between Europe and Asia: Evidence From China and Vietnam as key Emerging Economies, Cheltenham, Edward Elgar Publishing, 2013, p.284.

¹⁵⁷⁵ The US holds the largest number of patents for green technology in various sectors, including wind, solar photovoltaic, concentrated solar power, biomass-to-electricity, and carbon capture and storage, while China and India have comparative advantage in the manufacture of green technologies over companies in the US and are able to produce these technologies at much lower costs. See, GUPTA Rishi R., Compulsory Licensing in TRIPS: Chinese and Indian Comparative Advantage in the Manufacture and Exportation of Green Technologies, *Journal of Sustainable Development Law and Policy*, Vol.12, Iss.3,, Rio+20 Article 5, Spring 2012. See also, FERRER Jorge Núñez, Internal and External EU Climate Objectives and the Future of the EU Budget, *European Policy Analysis*, Swedish Institute for European Policy Studies (SIEPS), March Issue, 2010.

¹⁵⁷⁶ Innovation is mostly concentrated in three countries- Japan, Germany and the USA- which account for 60% of total innovations, but the innovation performance of emerging economies is quite appreciable as well, with China and South Korea representing about 15% of total innovations. International transfers mostly occur between developed countries, representing 73% of exported inventions. Exports from developed countries to developing countries are still limited at 22%, of all climate transfers, mostly to China, as against 16% for non-climate transfers. See, DECHEZLEPRÉTRE Antoine et al, op cit. See also, BREWER Thomas, op cit., pp.6, 7.

¹⁵⁷⁷ HORE Andrew and MCIVOR Anne, Synfuel and LNG Technologies- Making Liquid From Gas, *Cleantech Magazine Online*, September/October 2009. Available at, <http://www.cleantechinvestor.com/portal/bioenergy/2932-synfuel-and-lng-technologies.html>. Site visited 31-03-2014.

¹⁵⁷⁸ United Nations Framework Convention on Climate Change (UNFCCC), Technology, 23 January, 2014. Available at http://unfccc.int/cooperation_and_support/technology/items/1126.php. Site visited 26-04-2014. See also, ANDRESEN Steinar and SKJÆRSETH Jon Birger, Science and Technology: From Agenda Setting to Implementation, in BODANSKY Daniel et al (Eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2010, p.198.

¹⁵⁷⁹ HOEKMAN Bernard M; MASKUS Keith E; and SAGGI Kamal, Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options, *Elsevier Journal of World Development*, Vol.33, No.10, 2005, pp.1587-1602, 1596.

¹⁵⁸⁰ PACHAURI R.K. op cit

manner than the technologies for which they are substitutes.¹⁵⁸¹ The UNEP established the Technology Transfer Network (TTN), project in the May 2003 work programme, with the responsibility of increasing the quality and flow of environmentally sound private sector investments. The latest attempt by the UN to boost the deployment renewable energy in developing countries brought about the birth of the Climate Technology Centre and Network (CTCN), hosted by the UNEP. The CTCN was established at the COP 16, Cancun in December 2010, out of the UNFCCC, scheduled to operational by the end of 2013.¹⁵⁸² The CTCN is accountable to and under the guidance of the COP through an advisory board. Its mission is to stimulate technology cooperation and to enhance the development and transfer of technologies and to assist developing country Parties at their request, consistent with their respective capabilities and national circumstances and priorities. It is also to reduce the risks and costs of technology transfer by helping developing countries make better informed decisions about mitigation and adaptation technologies.¹⁵⁸³ It is to catalyse the development and use of technology road maps or action plans at the international, regional and national levels through cooperation between relevant stake holders, particularly governments and relevant organisations or bodies, including the development of best practice guidelines as facilitative tools for action on mitigation and adaptation. It is to consider and recommend actions to promote technology development and transfer, in order to accelerate action on mitigation and adaptation. It is to promote and facilitate collaboration on the development and transfer of technologies for mitigation and adaptation between governments, the private sector, non-profit organisations and academic research communities.¹⁵⁸⁴ These among others, constitute responsibilities borne with the Technology Executive Committee under the auspices of Technology Mechanism.¹⁵⁸⁵ The Bali Action Plan is of enormous importance to technology transfer, as it was therein recognised as one of the pillars of the Plan, creating a lengthy process towards providing more support for technology under the UNFCCC.¹⁵⁸⁶

One writer said no matter how technology is designed, what is important is whether the product is appropriate. An appropriate technology is that which is accessible, affordable, easy to use and maintain, and effective by meeting a real need.¹⁵⁸⁷ There are several barriers to the development and dissemination of low-carbon technologies, and appropriate incentives are required to address these barriers to the development, acquisition, deployment, and diffusion of such technologies.¹⁵⁸⁸ Not only that, if technology transfer is to be successful, there should be a development of local capacity to learn, before the actual flow of any hardware, and

¹⁵⁸¹ LESS Cristina Tébar, op cit., p.4.

¹⁵⁸² United Nations Environmental Programme (UNEP), Climate Technology Centre and Network Launched in Copenhagen, Denmark, UNEP RISØ Centre, 21 June, 2013. Available at, <http://www.uneprioe.org/Feature-Story---CTCN-launched-in-Copenhagen-Denmark>. Site visited 28-03-2014.

¹⁵⁸³ UNEP, Climate Technology Centre and Network Launched in Copenhagen, Denmark, UNEP RISØ Centre, 21 June, 2013. Available at <http://www.uneprioe.org/Feature-Story---CTCN-launched-in-Copenhagen-Denmark> Site visited 28-03-2014.

¹⁵⁸⁴ United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session Held in Cancun from 29 November to 10 December, 2010, FCCC/CP/2010/7/Add.1. See also, Climate Technology Centre and Network (CTCN). Available at http://unfccc.int/ttclear/templates/render cms_page%3FTEM_tcn Site visited 28-03-2014.

¹⁵⁸⁵ RENNKAMP Britta op cit.

¹⁵⁸⁶ RENNKAMP Britta, ibid.

¹⁵⁸⁷ FORTE Dianne; ANDROA Royce Gloria; and BINAGWAHO Marie-Ange, Harnessing the Knowledge and Skills of Women Farmers, in STARKE Linda, State of the World 2011: Innovations That Nourish the Planet, The Worldwatch Institute, Washington DC, W.W. Norton Publishing, 2011, p.132.

¹⁵⁸⁸ PACHAURI R.K., The IPCC: Establishing the Evidence, in ZEDILLO Ernesto (Ed.), Global Warming: Looking Beyond Kyoto, Washington D.C., Brookings Institution Press, 2008, p.19.

investments to apply technologies into local production.¹⁵⁸⁹ Here government action comes in focus to facilitate the development of local capacity, which can transform the conditions under which technology transfer takes place. This is the first step in making technology transfer effective, coupled with an enabling environment and mechanisms for technology transfer. Experience in China, India and Brazil has shown that in addition to a large demand, successful technology transfer was a response to government's strong signals and incentives favouring low-carbon growth. This can come under four kinds of public policy in the global diffusion of clean energy technology: first, domestic manufacturing or industrial policy; second, technology or innovation policy; third, export promotion policy; and fourth, market formation policy.¹⁵⁹⁰ But where the otherwise is the case, where the government does not play well its role to facilitate an enabling environment and put in place the appropriate policies, facilities, human and resources, then meaningful transfer of sound technologies might suffer.¹⁵⁹¹ This places an emphasis on an appropriate institutional environment, which highlights the role that policy in fostering interconnectedness and promoting the components of successful innovation systems like skills development through tertiary education and international links between indigenous companies, universities and overseas technology experts.¹⁵⁹² Many African professionals who should play key roles in facilitating knowledge and skills in bringing about meaningful technology transfer to their countries lack same as a result of training inadequacies and lacunae in climate change, and associated matters, hence the noticeable backwardness of the continent, especially in those areas where the continent should have immensely benefited like the CDM, and others.¹⁵⁹³ Not only this, a lack of awareness of the new environmental technologies presented a barrier for several of the environmental transfer cases.¹⁵⁹⁴ Government policies also border on host developing countries effective infrastructure, transparency, stability in government, and open trade and investment regime, as well as establishment of innovation systems that encourage research and development (R&D), transfer knowledge from universities and public laboratories to domestic firms and promotion of use of cost-saving technologies.¹⁵⁹⁵ ., role of the private sector and MNCs in diffusing new technologies of production and consumption.¹⁵⁹⁶

¹⁵⁸⁹ PACHAURI R.K., op cit. See also, HOEKMAN Bernard M; MASKUS Keith E; and SAGGI Kamal, Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options, Journal of World Development, Vol.33, No.10, 2005, pp.1587-1602, 1589.

¹⁵⁹⁰ GALLAGHER Kelly S. and ZHANG Fang, Climate Technology and Development Case Study: Innovation and Technology Transfer Across Global Value Chains: Evidence From China's PV Industry, July 2013. Available at <http://www.fletcher.tufts.edu/CIERP/~media/Fletcher/Microsites/CIERP/Publications/2013/ClimateTechnologyandDevelopmentCase-KellSimsGallagher.pdf>. Site visited 28-05-2014.

¹⁵⁹¹ OLUDURO Olubayo, Oil Exploration and Human Rights Violations in Nigeria's Oil Producing Communities, Cambridge, Intersentia Publishing, 2014, p.52.

¹⁵⁹² African Development Bank (AfDB), Technology Transfer for Green Growth in Africa, African Development Report 2012, June 2013, pp.112-113. Available at <http://www.greengrowthknowledge.org/resource/african-development-report-2012-towards-green-growth-africa.html> . Also at, <http://www.afdb.org/en/knowledge/publications/african-development-report/> . Sites visited 11-04-2014.

¹⁵⁹³ OLAWUYI Damilola S., Beautifying Africa for the Clean Development Mechanism: Legal and Institutional Issues Considered, in RICHARDSON Benjamin J. et al (Eds.), Climate Law and Developing Countries: Legal and Policy Challenges for the World Economy, Cheltenham, Edward Elgar Publishing, 2009, p.274.

¹⁵⁹⁴ GREINER Michael A. and FRANZA Richard M., Barriers and Bridges for Successful Environmental Technology Transfer, Journal of Technology Transfer, Vol.28, 2003, pp.167-177, at 174.

¹⁵⁹⁵ HOEKMAN Bernard M; MASKUS Keith E; and SAGGI Kamal, Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options, Elsevier Journal of World Development, Vol.33, No.10, 2005, pp.1587-1602, 1590.

¹⁵⁹⁶ GOODSTEIN Eban S., Economics and the Environment (5th Ed.), Hoboken, John Wiley & Sons Publishing, 2008, p.459.

A major constraint to technology transfer has been intellectual property rights and licenses, these need to be protected in such a way it engenders innovations while avoiding misapplication.¹⁵⁹⁷ Intellectual property barrier inhibits financially-strapped developing countries from acquiring the newest and most effective technologies, preventing them from mitigating the environmental consequences of the rapid growth.¹⁵⁹⁸ Embedded in this is a significant scale-up of public and private research and development, programmes as well as enhanced deployment and diffusion of programmes.¹⁵⁹⁹ The role of Intellectual Property Rights is particularly controversial, constituting a spanner in the wheel of progress of technology transfer, hence developing countries have argued for the creation of a different regime for climate-friendly technologies in order to encourage diffusion, whereas industrialised countries claim that the incentives provided by existing IP regimes reinforce diffusion incentives by securing patent holders' benefits.¹⁶⁰⁰ A strict construction of the provisions of Article 16 of the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), would constitute a barrier to effective transfer and acquisition of comprehensive technology necessary for environmental mitigation and adaptation in the developing countries. It is this aspect that seeks to hinder the spread of technology by way of technicality that appeals more to the developed countries, more than the other provision encouraging the spread of it to the developing countries.¹⁶⁰¹ Technology development and transfer must be approached with an innovative and reformist mind, with a more liberal approach towards the mechanisms for its dissemination and transfer. This requires the industrialised nations to assist set up more international cooperation mechanisms suited to the national conditions of various countries,¹⁶⁰² in accordance to the provisions of the COP 2001, requesting the GEF to step up technology transfer and develop a programme to assist the developing countries and update their technology needs assessments (TNAs), and promote investment in technology transfer in order to help developing countries adopt sound technologies.¹⁶⁰³ Sound technologies must be sustainable and such which helps to reduce poverty.¹⁶⁰⁴ It is however worrisome to note that, the EU and other developed countries have not exhibited enough enthusiasm about funding and technology transfer that developing countries particularly, the LDCs held dear. Both have become thorny issues in the negotiations because of the lack of delivery and

¹⁵⁹⁷ See Article 16 TRIPS. See also, KING Ed, op cit. See also, DAVIDSON Ogunlade, op cit.

¹⁵⁹⁸ GUPTA Rishi R., Compulsory Licensing in TRIPS: Chinese and Indian Comparative Advantage in the Manufacture and Exportation of Green Technologies, *Journal of Sustainable Development Law and Policy*, Vol.12, Iss.5, Rio+20 Article 5, Spring 2012, 21, 54-55.

¹⁵⁹⁹ DE SÉPIBUS Joëlle, op cit, p.3.

¹⁶⁰⁰ DECHEZLEPRÊTRE Antoine et al., p.5.

¹⁶⁰¹ TRIPS Article 7 provides that: the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations. This provision is in consonance with the WIPO-UN Article 1 which provides that: the UN recognises the WIPO as a specialised agency and as being responsible for taking appropriate action, in accordance with its basic instrument, treaties and agreements administered by it, inter alia, for promoting creative intellectual activity and for facilitating the transfer of technology related to industrial property and to the developing countries in order to accelerate economic, social and cultural development.

¹⁶⁰² LONGHAI Shen, *Correct Choices for China: Energy Conservation, A Cyclic Economy, and A Conservation-Minded Society*, in ZEDILLO Ernesto (Ed.), *Global Warming: Looking Beyond Kyoto*, Washington D.C., Brookings Institution Press, 2008, p.223.

¹⁶⁰³ DE SÉPIBUS Joëlle, op cit, p.5. See also, United Nations Framework Convention on Climate Change, Technology, January 2014. Available at http://unfccc.int/cooperation_and_support/technology/items/1126.php . Site visited 27-03-2014.

¹⁶⁰⁴ GOODSTEIN Eban S., op cit, 459.

compliance with the terms and agreements set under the UNFCCC and the KP.¹⁶⁰⁵ International technology transfer (ITT), has suffered a great deal because of the incentives of owners not to transfer technology without an adequate return and the problem of monitoring compliance with international regulations, as ITT is predominantly mediated by national policies.¹⁶⁰⁶

A successful environmental technology transfer effort is hinged on a strong external environment, one in which the developed countries take more concrete actions than is presently being done, to provide more assistance to developing nations in terms of technology, funding, and capacity building;¹⁶⁰⁷ the recommendations of third parties, providing test and demonstration facilities to the end-user, and technical competence of the transfer agents involved in the transfer of the environmental technologies.¹⁶⁰⁸ Capacity building initiatives are crucial towards facilitating technology transfer, it requires a continuous adaptation of the people and organisations to new circumstances and to acquire new skills applicable to mitigation and adaptation technologies. It equally applies to both technology suppliers and recipients alike. As specified in Agenda 21, capacity building encompasses the country's human, scientific technological, organizational, institutional and resource capabilities.¹⁶⁰⁹ The providers are to ensure training and capacity building programmes by sponsoring full range of information, financial (including availability and access to rural micro-finance), legal, effective linkages between markets, storage and distribution systems and business consulting, improved networking between research institutions, rural infrastructure providers, the private sector and engineering services that technology transfer requires, coupled with the local conditions under which these may be provided.¹⁶¹⁰ This would entail fostering the processes covering the flows of know-how, experience and equipment, and the capacity of developing countries to understand, utilize and replicate the technology to adapt it to local conditions and integrate it with indigenous technologies.¹⁶¹¹ Like in the EU-China Clean Energy Centre (EC2), established by the European Commission, the National Energy Administration (NEA), and the Chinese Ministry of Commerce, with the support of the Italian Ministry for the Environment, Land and Sea, which organizes workshops, training courses and conferences, and conducts research projects related to renewable energy development in the EU and China.¹⁶¹² This becomes necessary because, technology encompasses both codified and tacit knowledge, the latter being stickier and difficult to transfer without close interaction between user and producer, requiring iterative flows of high intensity and relative long duration, and higher levels of cross-border interaction.¹⁶¹³ To

¹⁶⁰⁵ BRUYNINCKX Hans and YE Qi, The Increasingly Complex Nature of EU-China Climate Relations, in BRUYNINCKX Hans et al (Eds.), *The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies*, Cheltenham, Edward Elgar Publishing, 2013, p.37.

¹⁶⁰⁶ HOEKMAN Bernard M; MASKUS Keith E; and SAGGI Kamal, *Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options*, Elsevier Journal of World Development, Vol.33, No.10, 2005, pp.1587-1602, 1587.

¹⁶⁰⁷ LONGHAI Shen, *ibid.*, p.222.

¹⁶⁰⁸ GREINER Michael A., *ibid.*, p.175.

¹⁶⁰⁹ DE CHAZOURNES Laurence Boisson, *op cit.*, p.949.

¹⁶¹⁰ African Development Bank (AfDB), *Technology Transfer for Green Growth in Africa*, African Development Report 2012, June 2013, pp.112-113. Available at <http://www.greengrowthknowledge.org/resource/african-development-report-2012-towards-green-growth-africa.html> . Also at, <http://www.afdb.org/en/knowledge/publications/african-development-report/> . Sites visited 11-04-2014.

¹⁶¹¹ DE SÉPIBUS Joëlle, *op cit.*, p.4.

¹⁶¹² VAN EYNDE Sarah, *op cit.*, p.94.

¹⁶¹³ LEMA Adrian and LEMA Rasmus, *Technology Transfer in the Clean development Mechanism: Insights From Wind Power*, Elsevier Journal of Global Environmental Change, Vol. 23, 2013, pp. 301-313.

the recipient, the government should build local capacities to gear them up for technology transfer.¹⁶¹⁴ Lack of adequate capacity building will cause failure of technology transfer. Internal efforts are further required to raise the knowledge base prior to investment projects, including knowledge about technical options, sources and modes of acquisition and to engage creatively with technology obtained and knowledge to improve it and apply it in new projects.¹⁶¹⁵

The inequitable distribution of CDM projects in the African region was expected to be addressed through capacity building as prescribed by the Nairobi Framework, to increase the region's participation in climate change issues.¹⁶¹⁶ The CDM was conceived with a multiplicity of agenda than for it not to have an area of good coverage on the entire continent which is noted as the most highly vulnerable to climate change. A number of its agenda which include: global emissions reductions, technology transfers, cost efficiency, sustainable development, equitable distribution of investments, adaptation funding, Market-based flexibility among others.¹⁶¹⁷ It is good to point that out of these, there is not a single of them in which CDM has been fairly represented on the continent. Climate change induced drought is threatening food supply in most parts of the continent, while the little that is produced most of it end up being wasted for lack of adequate storage facilities, because African farmers often have no dedicated storage facilities. Providing farmers good quality grain storage facilities and training of farmers to increase their awareness on the issue will considerably improve grain quality.¹⁶¹⁸ A multiplier consequence of this is the health hazard to the people, as a study found that 96 per cent of stored maize samples were found to contain toxic fumonisins, which result from the growth of mold. A fifth of the samples also contained up to 10 times the government's recommended safe limit of aflatoxins, produced by *Aspergillus* fungi, which inhibit growth in children and livestock, and cause cancer. In several African countries, a shocking 98 per cent of people have aflatoxin in their blood in concentrations sometimes many times higher than those allowed by regulations in the EU and the US, which is caused almost exclusively by consuming moldy food.¹⁶¹⁹

In ideal conditions in rich countries, potatoes can be stored for up to one year, whereas in sub-Saharan Africa as much as 79 per cent of a stored tuber crop can be lost. Training can play a critical role in increasing farm revenues and prevent the waste and degradation of harvested crops.¹⁶²⁰ Several factors may have been responsible for the continent's poor showing in technology transfer and CDM projects, some of which include legislative lacunae in these areas, institutional gaps as most of the countries have no monitoring body or

¹⁶¹⁴ DAVIDSON Ogunlade, op cit.

¹⁶¹⁵ LEMA Adrian and LEMA Rasmus, Technology Transfer in the Clean Development Mechanism: Insights From Wind Power, *Journal of Global Environmental Change*, 2013, Vol.23, pp.301-313.

¹⁶¹⁶ ENI-IBUKUN Tomilola, Climate Justice: The Clean Development Mechanism as a Case Study, in HOLLO Erkki J. et al (Eds.), *Climate Change and the Law*, Dordrecht, Springer Publishing, 2013, p.250.

¹⁶¹⁷ ERIKSEN Anne Kathrine Holme et al, University: University of Copenhagen, Faculty of Law, Yggdrasil, in NIELSEN Laura; PUGH Peter and RØNNE Anita, (Eds.), *The Copenhagen Protocol on Climate Change- An International Negotiation Competition*, Copenhagen, DJØF Publishing, 2009, p.149.

¹⁶¹⁸ STUART Tristram, Post-Harvest Losses: A Neglected Field, in STARKE Linda (Ed.), *State of the World 2011: Innovations That Nourish the Planet*, Washington D.C., W.W. Norton Publishing, 2011, p.103.

¹⁶¹⁹ KANKOLONGO Muimba A; HELL Kerstin; and NAWA Irene N., Assessment for Fungal, Mycotoxin and Insect Spoilage in Maize Stored for Human Consumption in Zambia, *Journal of the Science of Food and Agriculture*, Vol.89, No.8, 2009, pp.1366-1375. See also, STUART Tristram, *ibid.*, p.103.

¹⁶²⁰ STUART Tristram, op cit, p.105.

establishments to handle such, then the apparent state of security in most of the countries, considering that business may only thrive where there is considerable peace. In some of them where there are apparatus to point to, they are either archaic or bedeviled with corruption and bureaucracy. For instance, Nigeria has legislation on technology, but which falls short of adequate standard. The national Office for Technology Acquisition and Promotion (NOTAP),¹⁶²¹ though reviewed in 1994 and 2004, yet still nothing to write home about. It requires the body to coordinate Nigeria's initiatives in technology transfer, evaluation and registration of technology transfer agreements, promotion of innovation, patenting and intellectual property, commercialization of research and development results, research- industry linkage, among others. Its provisions and purpose are too vague in the circumstance.¹⁶²² In efforts at rectifying the situation, some strategic legislation in Nigeria are currently being couched specifically to address these issues. For instance, the Nigerian Oil and Gas Industry Content Development (NOGICD) Act, 2010, was more precise in its provisions on technology transfer,¹⁶²³ capacity building,¹⁶²⁴ research and development¹⁶²⁵ and others. This seems encouraging after all, but the issue is getting the appropriate agencies to facilitate proper enforcement and compliance.¹⁶²⁶ Non-enforcement and implementation has been the bane of Nigerian laws, and where seem to be implemented, is done haphazardly and in a shoddy and bizarre manner and selectively.

To facilitate proper monitoring of environmental technology transfer, the UNFCCC requires the Secretariat to produce a synthesis report, drawing upon information contained in national adaptation programmes of action, technology needs assessments and national capacity self assessment on elements such as needs and gaps, experiences and lessons learned.¹⁶²⁷ The Global Environmental Facility is similarly required to continue to provide financial resources to support the development of the information sources as provided in Par.1 (C) therefore to enact measures, including well-informed regulations, taxes, codes, standards and removal subsidies, to capture the environmental and social costs, assist the replication of environmentally sound technologies (ESTs). Dramatic information flows both between international and domestic actors and among

¹⁶²¹ See, The National Office for Technology Acquisition and Promotion (NOTAP) Act 1979, Cap N62 Laws of the Federation of Nigeria (LFN) 2004.

¹⁶²² OLAWUYI Damilola S., *Beautifying Africa for the Clean Development Mechanism: Legal and Institutional Issues Considered*, in RICHARDSON Benjamin J. et al (Eds.), *Climate Law and Developing Countries: Legal and Policy Challenges for the World Economy*, Cheltenham, Edward Elgar Publishing, 2009, p.273. See also, *Caast Net Plus*, National Office for Technology Acquisition and Promotion (NOTAP), 2012. Available at <http://www.caast-net-plus.org/partner/16>. Site visited 28-04-2014.

¹⁶²³ See, Sections 31, 43-46 NOGICD Act 2010. See also, KPMG, *Nigerian Oil and Gas Industry Content Development Act, 2010, 2010*. Available at <http://www.kpmg.com/NG/en/IssuesAndInsights/ArticlesPublications/Documents/NewsletteronNigerianOilandGasIndustryContentDevelopmentAct-June2010.pdf>.

¹⁶²⁴ See, Sections 30, 31, 34 NOGICD Act, 2010. See also ADEREMI Tolulope, *A Review of the Nigerian Oil and Gas Industry Content Development Act, 2010*, *The Nigerian Business Online*, 21 November, 2012. Available at http://www.thenigeriabusiness.com/index.php?option=com_content&view=article&id=58:fed-govt-plans-11b-euro-bond&catid=47:columnist-weekly. Site visited 29-04-2014.

¹⁶²⁵ See Sections 36-41 NOGICD Act, 2010. See also, KPMG, *op cit*. See further, ADEREMI Tolulope, *ibid*. Likewise, OKETOLA Dayo, *Non-Enforcement, Nigerian Contents Greatest Threat*, *The Punch Online*, 24 April, 2014. Available at <http://www.punchng.com/business/energy/non-enforcement-nigerian-contents-greatest-threat-2/>. Site visited 30-04-2014.

¹⁶²⁶ OKETOLA Dayo, *ibid*.

¹⁶²⁷ Paragraph 1(c), Decision 4/CP.12. See also, *Tematea Online*. Available at, <http://www.tematea.org/?q=node/8020> Site visited 30-03-2014.

domestic actors themselves have the potential to dramatically alter the context within which environmental policy-making occurs at the local level, as is the case in China, where international organisations and bilateral aid programmes are empowering environmental protection advocates and information flow.¹⁶²⁸ Similarly, the UNFCCC stipulates that developed countries “shall also provide such financial resources, including for the transfer of technology, needed by the developing country parties to meet the agreed full incremental costs of measures” towards GHG mitigation and adaptation to climate change.¹⁶²⁹ Reforming the legal systems including reforming administrative law to reduce regulatory risks while ensuring that public regulation is accessible to stakeholders and subject to independent review. Also, encourage financial reforms for competitive and open national markets.¹⁶³⁰ Developing economically and environmentally efficient rural and urban infrastructure requires careful consideration of appropriate technological needs, but the controversy surrounding the use of intellectual property rights (IPRs) might constrain green technology transfer to Africa, most of which countries are more aids-dependent, and may not be able to afford the cost of financing such.¹⁶³¹

5.3 Conclusion

Efforts must be stepped up to ease the technicality clogs in technology transfer regimes clogging easy transfer to developing countries so as to allow these up-coming economies better access to technologies that would help drive up their economies and bring them out of the woods like is presently the case with China. China is now a super economy, the second largest globally, threatening to outstage the US this year, according to a fresh research by the International Comparison Programme (ICP), coordinated by the World Bank,¹⁶³² having driven down poverty, a major economic factor affecting all developing countries. Doling out monies to the developing countries under the various Funds established under the UNFCCC or the KP would not be as beneficial to them as much as giving them access to sound technology to develop their economies like China has succeed in doing with the aid of the developed countries transferring technology there, which has really paid off handsomely.

All the KP flexible mechanisms tools should in the very least, be extended to the emerging economies, and the giant oil-producing developing countries noted for large gas flaring, like Nigeria, Angola, Iran, among others, failing which these stand to bring all efforts being committed to checkmating global warming and climate

¹⁶²⁸ ECONOMY Elizabeth and SCHREURS Miranda A., Domestic and International Linkages in Environmental Politics, in SCHREURS Miranda A and ECONOMY Elizabeth (Eds.), *The Internationalization of Environmental Protection*, Cambridge, Cambridge University Press, 1997, p.11.

¹⁶²⁹ See Article 4.3 UNFCCC 1992. See also, LEAL-ARCAS Rafael, *Climate Change and International Trade*, Cheltenham, Edward Elgar Publishing, 2013, p.186. See further, RONG Fang, *Understanding Developing Country Stances on Post-2012 Climate Change Negotiations: Comparative Analysis of Brazil, China, India, Mexico and South Africa*, *Energy Policy*, Vol.38, 2012, pp.4582-4591.

¹⁶³⁰ DAVIDSON Ogunlade, op cit.

¹⁶³¹ African Development Bank (AfDB), *Technology Transfer for Green Growth in Africa 2012*, June 2013. Available at <http://www.greengrowthknowledge.org/resource/african-development-report-2012-towards-green-growth-africa.html> Also at, <http://www.afdb.org/en/knowledge/publications/african-development-report/> . Sites visited 11-04-2014.

¹⁶³² MONAGHAN Angela, *China Poised to Overtake US as World's Largest Economy, Research Shows: Economists Previously Expected the US- Number 1 Since the 19th Century- to Keep the Top Until 2019*, *The Guardian Online*, Wednesday 30 April, 2014. Available at <http://www.theguardian.com/business/2014/apr/30/china-overtake-us-worlds-largest-economy>. Site visited 04-05-2014. Se also, TENCER Daniel, *China to Have World's Largest Economy This Year: World Bank*, *The Huffington Post Canada Online*, 5 March, 2014. Available at http://www.huffingtonpost.ca/2014/05/03/china-worlds-largest-economy_n_5255825.html. Site visited 04-05-2014.

change since it was stepped up in 1972, to nought and a colossal loss of resources. Their emissions promises to outweigh those of the developed countries since the industrialisation of the world centuries back, in no distant time. Improvement in the transfer of technologies to these oil producing developing countries might be enhanced for the benefit of the entire world in order to ease the incidence of gas flaring, an enormous emission of CO₂, while the gas being flared might be converted to energy generation or exported for income, both of which they need essentially. Giving more funds to these countries cannot be as beneficial as transferring energy technologies to them through the oil MNCs operating in their jurisdictions. Despite much activity, relatively little is being achieved in terms of affecting the growth pattern of developing countries, even the CDM's impact is little felt in terms of project activities, hence the desired goal of its contributing to the sustainable development of the developing countries, just as it might not assist the developed countries in contributing to stabilizing GHG emissions concentrations, the ultimate goals of the UNFCCC.¹⁶³³ It becomes obvious and necessary that the KP in the next commitment should in the same vein it started with in underscoring the importance of domestic abatement in Annex I countries, should also extend same measures to the emerging economies countries as their emissions trend now threatens to surpass those of the Annex I countries.

¹⁶³³ FIGUERES Christiana, Sectoral CDM: Opening of the CDM to the Yet Unrealised Goal of Sustainable Development, CSDA/IISD Journal, 2002.

CHAPTER SIX

LATEST DEVELOPMENTS

“There is a tide in the affairs of men. Which, taken at the flood, leads on to fortune; Omitted, all the voyage of their life is bound in shallows and in miseries. On such a full sea are we now afloat, And we must take the current when it serves, Or we lose our ventures.”- Brutus, in Shakespeare’s Julius Caesar.

6.0 Introduction

The Kyoto Protocol first commitment period ended in 2012, and pursuant to this reality, activities towards a second commitment period or an entirely new regime after the first commitment period began in earnest way back to COP13 Bali when negotiations to a successor to the KP dominated the negotiations, and has been gathering momentum since then. However, it suffices to say until this moment negotiations are still ongoing, the consequence of which is a period of interregnum between the two periods (the KP first commitment period and its successor), as Parties have not reached any agreement on what the post-Kyoto should be. Succession of events in the international arena towards a consensus from the ritualistic yearly summits and conferences of the UNFCCC otherwise tagged Conference of the Parties, has proved that the center cannot hold in the scheme of things in finding an easy solution to curbing climate change in the foreseeable future. This chapter therefore, sets to examine the outcomes of a number of these conferences, and attempts a projection from the outcome of these summits. So far, there has been no clear indications of a reality of a clear-cut futuristic expectation. To chart a way forward, we have to critically examine the past and see what went wrong, how, where and when, which is what this chapter tries to accomplish with a diagnosis of a couple of the recent attempts in this direction. From the Bali climate conference 2007, the successive negotiations have been focused on charting a way forward after the expiration of the KP in 2012. This chapter examines the outcomes of some of these series of negotiations and how they have succeeded in proffering a workable arrangement for the post 2012 era.

6.1 The Copenhagen Conference 2009 (COP15)

The United Nations Climate Conference in Copenhagen came as the culmination of two straight years of intense negotiations on a new global climate agreement¹⁶³⁴ arising from the COP13 2007- the Bali Climate conference, which produced the Bali Road Map, from which an Action Plan,¹⁶³⁵ which drew up a concrete negotiation plan

¹⁶³⁴ DIMITROV Radoslav S., Inside Copenhagen: The State of Climate Governance, Global Environmental Politics, Vol.10, No.2, May 2010, pp.18-24. See also, International Institute for Sustainable Development, Summary of the Copenhagen Climate Change Conference, IISD Earth Negotiations Bulletin, Vol.12, No.459, 22 December, 2009. Available at <http://www.iisd.ca/download/pdf/en12459e.pdf>. Site visited 01-05-2014.

¹⁶³⁵ The Bali Action Plan, which opened a new negotiation track under the UNFCCC, with the target of bringing the parties to the UNFCCC and the US to reach an agreement in five main areas by the end of COP 15: a shared vision of what the parties to the Convention aim to achieve, including a long-term goal for emissions reductions; mitigation of climate change by

with the aim of achieving an agreement at COP15 Copenhagen Conference in December 2009¹⁶³⁶ for the adoption of a new deal on emissions reduction to take effect not later than 2012, after the expiration of the first commitment period of the KP.¹⁶³⁷ The Bali Action Plan had forecast that Copenhagen would produce a shared vision for long term cooperative action, a long term global goal for emissions reduction to achieve the ultimate objective of the Convention. Towards attaining this goal, it sets forth a negotiating process with two broad objectives, first, to establish the targets and timetables relating to reductions in the emission of CO₂ and other GHGs that can achieve a safe long-term level of concentration of these gases in the Earth's atmosphere; and second, to identify and implement specific strategies by which the agreed targets and timetables can be achieved.¹⁶³⁸ From inception in the 1970s, the process of international environmental negotiations has been characterised by the active participation of advocacy non-governmental organisations (NGOs), who worked hard to influence governmental negotiations by framing issues, setting the agenda and shaping the positions of key states. Their numbers have grown from a modest 250 NGOs accredited in the first Conference on the Human Environment held in Stockholm in 1972, to a staggering 20,611 registered NGO observers at COP 15, in Copenhagen. Their credibility derived from their subject expertise, while their legitimacy derived from the perception that they were a moral and democratic force representing the views of citizens.¹⁶³⁹ As the COP-15

reducing the atmospheric concentration of GHG emissions, including quantified commitments from developed nations and nationally appropriate mitigation actions from developing nations, including through reduced deforestation; adaptation to impacts such as changing rainfall patterns, extreme weather events, rising sea levels and shifting patterns of disease; technology transfer and development to support both adaptation and mitigation; and finance and investment to pay for all of the above. See, NEWSON Nicola, Debate on 14th January: The Copenhagen Conference on Climate Change, House of Lords Library Note, LLN 2010/001, p.2, 8th January, 2010.

¹⁶³⁶ The Conference included the fifteenth Conference of the Parties to the UNFCCC and the fifth Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (COP/MOP5). Both were held in conjunction with the thirty-first sessions of the Subsidiary Body for Scientific and Technological Advice (SBSTA 31) and the Subsidiary Body for Implementation (SBI 31), the tenth session of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP 10) and the eighth session of the Ad Hoc Group on Long- term Cooperative Action under the UNFCCC (AWG- LCA 8). See, International Institute for Sustainable Development (IISD), Summary of the Copenhagen Climate Change Conference, IISD Earth Negotiations Bulletin, Vol.12, No.459, 22 December, 2009. Available at <http://www.iisd.ca/download/pdf/en12459e.pdf>. Site visited 01-05-2014. See also, MASSAI Leonardo, The Long Way to the Copenhagen Accord: Climate Change Negotiations 2009, RECIEL Vol.19, No.1, 2010. Available at <http://www.onlinelibrary.wiley.com/doi/10.1111/j.1467-9388.2010.00668.x.pdf>. Site visited 13-04 -2014. See further, LABUHN Britta, The Role of the European Union in International Climate Politics: From the Leader to a Watcher, University of Twente, 10 August, 2011. Available at http://www.essay.utwente.nl/61424/1/BSc_B_Labuhn.pdf. Site visited 14-05-2014. See likewise, KULOVESI Kati and GUTIÉRREZ Maria, Climate Change Negotiations Update: Process and Prospects for a Copenhagen Agreed Outcome in December 2009, Review of European Community and International Environmental Law (RECIEL), Vol.18, No.3, 2009, pp. 229-243, 230.

¹⁶³⁷ NLERUM Francisca E., Climate Change, Ethics, Policy and Development, in KOLA-OLUSANYA Anthony et al (Eds.), Environment and Sustainability: Issues, Policies and Contentions, Ibadan, Ibadan University Press, 2011, p141.

¹⁶³⁸ FOWLER Robert, The Role of Marine 'Forests' and soils as Carbon Sinks: Enhanced Bio-Sequestration as a Mitigation Strategy to Help Avoid Dangerous Climate Change, in RICHARDSON Benjamin J. et al (Eds.), Climate Law and Developing Countries: Legal and Policy Challenges For the World Economy, Cheltenham, Edward Elgar Publishing, 2009, pp.178-179.

¹⁶³⁹ OGLESBY Dona Maries, Spectacle in Copenhagen: Public Diplomacy on Parade, CPD Perspectives on Public Diplomacy, Paper 4, December 2010, Los Angeles, Figueroa Press. Available at <http://www.uscpubliediplomacy.org/sites/uscpubliediplomacy.org/files/legacy/Publications/perspectives/CPDPerspectivesCopenhagen.pdf>. Site visited 06-05-2014.

was expected to yield the next international climate agreement, applications for credentials soared,¹⁶⁴⁰ and the conference had been oversubscribed and ENGOs were thus left out in the cold disenfranchised, which led to street protests by demonstrators of more than 100,000 people in Copenhagen alone and a big mass movement in other places.¹⁶⁴¹ The silencing of the ENGOs perspective runs counter to established international principles of broad participation in multilateral environmental agreements (MEAs),¹⁶⁴² especially of the magnitude of “Hopenhagen,” from which the world literally had very high expectations of a new global agreement.

As anticipated from previous efforts, the Copenhagen Accord, the conference outcome, focuses on targets and measures for GHG emissions to keep global temperature increases below 2°C as recommended by science, implying schemes, audits, incentives compliance, regulations and such the likes that have been difficult to implement at national levels, let alone internationally.¹⁶⁴³ Officials were expected to agree on a new climate treaty as a successor to the Kyoto Protocol whose first phase expired in 2012¹⁶⁴⁴, and a set of four other essentials- how much are industrialised countries willing to reduce their emissions of GHGs?; how much are major developing countries like China and India willing to do in order to limit the growth of their emissions?; how to raise the financial help needed by the developing countries to engage in reducing their emissions and adapting to the impacts of climate change?; and how such funds are to be manage?¹⁶⁴⁵ Serious efforts had been made to find how best to measure and monitor emissions of CO₂ and GHG, structure incentives to protect carbon ‘sinks’ and identify targets and timetables for emissions reduction. There were also discussions on how to strengthen the fundamental principle of CBDR in order to engage all nations, especially the emerging regional power houses of China and India in the global efforts to control emissions. Other issues seriously discussed include who pays for emissions reductions, type of reasonable ‘burden sharing’ and how best to support through funding technology transfer, and the participation of developing countries in a new global climate change regime.¹⁶⁴⁶

Without gainsaying, COP 15 was technically a serial multilateral conference, whose convention provides negotiation and arbitration between Parties as enforcement mechanisms.¹⁶⁴⁷ It was able to sustain the long-

¹⁶⁴⁰ FISHER Dana R., COP-15 in Copenhagen: How the Merging of Movements Left Civil Society Out in the Cold, *Journal of Global Environmental Politics*, Vol.10, No.2, May 2010, pp.11-17.

¹⁶⁴¹ FISHER Dana R., COP-15 in Copenhagen: How the Merging of Movements Left Civil Society Out in the Cold, *Journal of Global Environmental Politics*, Vol.10, No.2, May 2010, pp.11-17.

¹⁶⁴² WILSON Winfield J., Legal Foundations For NGO Participation in Climate Treaty Negotiations, *Climate Law Reporter*, 2010, Vol.10, Iss.2.

¹⁶⁴³ HASAN Helen M. and DWYER Catherine, Was the Copenhagen Summit Doomed From the Start? Some Insights From Green IS Research, *Proceedings of AMCIS*, 2010, pp.1-12.

¹⁶⁴⁴ NIELSEN Laura; PAGH Peter and RØNNE Anita (Eds.), Introduction, *The Copenhagen Protocol on Climate Change- An International Negotiation Competition*, Copenhagen, DJØF Publishing, 2009, p.9.

¹⁶⁴⁵ EDGE Abigail and ADAM David, Q&A: Copenhagen Climate Change Conference 2009, *The Guardian Online*, 1 May, 2009. Available at <http://www.theguardian.com/environment/2009/may/01/q-and-a-copenhagen-summit>. Site visited 07-05-2014.

¹⁶⁴⁶ HAUFBAUER Garry Clyde CHARNOVITZ Steve and KIM Jisun, *Global Warming and the World Trading System*, Cambridge Journals Online, 2010, Vol.9, Special Iss.1, p.282. Available at <http://www.cambridge.org/action/displayAbstract?fromPage=online&aid=7416180>. Site visited 06-05-2014.

¹⁶⁴⁷ JONES Martin Mark, “Hopenhagen” to “Nopenhagen”? The Role of Public Expectation at the Copenhagen Summit, 3 July, 2011. Available at [http://www.e-ir.info/2011/07/03/"hopenhagen"-to-"nopenhagen"-the-role-of-public-expectation-at-the-copenhagen-summit/](http://www.e-ir.info/2011/07/03/). Site visited 08-05-2014. See also, WILSON Winfield J., op cit.

term goal of limiting climate change to no more than 2°C, systems of “pledge and review” for mitigation commitments or actions by both developed and developing countries, and significant new financial resources.¹⁶⁴⁸ It, more importantly served as a new starting point for progress in international negotiations, but might arguably be signaling the ultimate imminent death of the Kyoto Protocol.¹⁶⁴⁹ The EU and other developed countries pledged to provide a fast-start-finance (FSF) credit facility of US\$30 billion per year during the 2010-2012 period, to shore-up to \$100 billion per year by 2020 to the developing countries.¹⁶⁵⁰ It also considered the issue of technology.¹⁶⁵¹ Copenhagen established four new bodies- a mechanism on REDD-plus,¹⁶⁵² a High-Level Panel under the COP to study implementation of financial provisions, the Copenhagen Green climate Fund, and Technology Mechanism.¹⁶⁵³ It equally established a process for recording the mitigation targets and actions of both developed and developing countries, and provides for “international consultation and analysis” of developing country actions, plus fuller monitoring, reporting and verification of actions that receive international support as well as developed country target.¹⁶⁵⁴ The prospects of Copenhagen seemed good, but it succumbed to difficulty by failing to capture the various national policies in an international agreement, as most of the world’s major economies have either adopted, or are seriously considering significant domestic policies to reduce their GHG emissions. In this instance, the EU has already established an emissions trading system, and

¹⁶⁴⁸ BODANSKY Daniel, The Copenhagen Climate Change Conference: A Postmortem, *American Journal of International Law*, Vol. 104, No.2, April 2010, pp. 230-240. See also, ATAPATTU Sumudu, Climate Change, Differentiated Responsibilities and State Responsibility: Devising Novel Legal Strategies For Damage Caused by Climate Change, in RICHARDSON Benjamin J. et al (Eds.), *Climate Law and Developing Countries: Legal and Policy Challenges For the World Economy*, Cheltenham, Edward Elgar Publishing, 2009, p.54. See further, LEAL-ARCAS Rafael, *Climate Change and International Trade*, Cheltenham, Edward Elgar Publishing, 2013, p.195.

¹⁶⁴⁹ BRUYNINCKX Hans and YE Qi, The Increasingly Complex Nature of EU- China Climate Relations, in BRUYNINCKX Hans et al (Eds.), *The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies*, Cheltenham, Edward Elgar Publishing, 2013, p.40. See also, Source Watch, Copenhagen Accord, 21 January, 2010. Available at http://www.sourcewatch.org/index.php?title=Copenhagen_Accord. Site visited 23-03-2011.

¹⁶⁵⁰ BELIS David et al, Introduction: Governing Climate Relations Between Europe and Asia in a Restructuring World Order, in BRUYNINCKX Hans et al (Eds.), *The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies*, Cheltenham, Edward Elgar Publishing, 2013, p.2. See also, United Nations Framework Convention on Climate Change (UNFCCC), Copenhagen Climate Change Conference- December2009. Available at https://unfccc.int/meetings/copenhagen_dec_2009/meetings/6295.php . Site visited 12-05-2014. See further, CURTIN Joseph, The Copenhagen Conference: How Should the EU Respond? Institute of International and European Affairs, Dublin, January 2010. Available at <http://www.iiea.com/.../the-copenhagen-conference-how-should-the-eu-respond>. Site visited 22-07-2011. See as well, Source Watch, Copenhagen Accord, 21 January, 2010. Available at http://www.sourcewatch.org/index.php?title=Copenhagen_Accord. Site visited 23-03-2011. See further, GOLDSTEIN Katherine, Obama in Copenhagen Speech: Full Text, 18 December, 2009. Available at http://www.huffingtonpost.com/2009/12/18/obama-in-copenhagen-speech_n_396836.html. Site visited 17-04-2010. Also, STRECK Charlotte and CHAGAS Thiago, *Developments in Climate Finance From Rio to Cancun*

¹⁶⁵¹ International Institute for Sustainable Development (IISD), Summary of the Copenhagen Climate Change Conference, *IISD Earth Negotiations Bulletin*, Vol.12, No.459, 22 December, 2009. Available at <http://www.iisd.ca/download/pdf/en12459e.pdf>. Site visited 01-05-2014.

¹⁶⁵² United Nations Framework Convention on Climate Change (UNFCCC), Copenhagen Accord, Draft Decision-/CP.15, 18 December, 2009. Available at <http://www.unfccc.int/resource/docs/2009/cop15/eng/107.pdf> . Site visited 18-03-2014. See also, DIMITROV Radoslav S., op cit.

¹⁶⁵³ United Nations Framework Convention on Climate Change (UNFCCC), Copenhagen Climate Change Conference- December2009. Available at https://unfccc.int/meetings/copenhagen_dec_2009/meetings/6295.php . Site visited 12-05-2014. Op cit. See also, LEAL-ARCAS Rafael, op cit., p.196.

¹⁶⁵⁴ BODANSKY Daniel, op cit.

has pledged to reduce its emissions by 20 per cent from 1990 levels by 2020, and by 30 per cent as part of a global and comprehensive agreement for the post 2012 period. The US House of Representatives having passed a domestic climate bill that would reduce US emissions by roughly 17 per cent below 2005 levels by 2020, indicating a gradual thaw in the US' hard stance on climate change. On the part of the developing nations, China and India have both adopted carbon intensity targets, to reduce their emissions per unit of gross domestic product by 40-45 per cent from 2005 levels by 2020, and 20-25 per cent, respectively.¹⁶⁵⁵

Copenhagen was burdened from the onset with a predetermined end-result of failure to reach a legally binding agreement,¹⁶⁵⁶ right from mid-October, as was rubber-stamped by heads of state at a meeting in Singapore of the Asia-Pacific Economic Conference.¹⁶⁵⁷ It was threatened by the 'rich-poor' rhetoric, leading to a fissure perpetrated by the fear by developing countries, that they might be required to curb their development to solve a problem created by rich countries while making themselves rich.¹⁶⁵⁸ The Summit was a somewhat hybrid event, for which the journey to it was long, tortuous, hard preparation made, with several preparatory meetings conducted up until the commencement of the Summit proper,¹⁶⁵⁹ but bedeviled by high diplomacy and

¹⁶⁵⁵ MCKIBBEN Warwick J; MORRIS Adele C. and WILCOXEN Peter J., Comparing Climate Commitments: A Model-Based Analysis of the Copenhagen Accord, The Climate and Energy Economics Project, The Brookings Institution, 27 May, 2010. See also, The Center for Climate and Energy Solutions, Climate Change 101: International Action, January 2011. Available at <http://www.c2es.org/docUploads/climate101-international.pdf>. Site visited 18-06-2014. See as well, Status of Global Mitigation Action: Current Targets and Policies in Key Countries, sine die. Available at <http://www.climatechange.gov.au/sites/climatechange/files/files/reducing-carbon/mpccc/international-climate-change-policies-pdf.pdf>. Site visited 18-06-2014. See further, HOGAN Pat et al, Tracking Emissions and Mitigation Actions: Current Practice in China, Germany, Italy and the United States, Climate Policy Initiative, February 2012, p.7. See equally, CHANDLER William et al, Climate Change Mitigation in Developing Countries: Brazil, China, India, Mexico, South Africa, and Turkey, The Pew Center on Global Climate Change, October 2002. Available at http://www.c2es.org/docUploads/dev_mitigation.pdf. Site visited 18-06-2014. See also, Issue Brief, The Global Climate Change Regime, Council on Foreign Relations, 19 June, 2013. Available at <http://www.cfr.org/climate-change/global-climate-change-regime/p21831>. Site visited 18-06-2014. OECD, OECD Environmental Outlook to 2050, Climate Change Chapter, November 2011. Available at <http://www.oecd.org/env/cc/49082173.pdf>. Site visited 18-06-2014.

¹⁶⁵⁶ The UN Secretary-General, Ban Ki-Moon admitted in November that an agreement would not be achieved and the best that could be hoped for would be voluntary reduction targets. World leaders had also agreed that a legally binding global climate treaty was 'off the table' at this stage, to be replaced with a 'politically binding agreement.' See, NAGTZAAM Gerry, What Rough Beast? Copenhagen and Creating a Successor Agreement to the Kyoto Protocol, 36 Monash U.L. Rev. 215 (2010), p.216.

¹⁶⁵⁷ EGENHOFER Christian and GEORGIEV Anton, The Copenhagen Accord: A First Stab at Deciphering the Implications for the EU, Centre for European Policy Studies (CEPS), 25 December, 2009. Available at http://www.aei.pitt.edu/14523/1/CE_and_AG_on_Copenhagen_formatted.pdf. Site visited 13-05-2014.

¹⁶⁵⁸ TAYLOR Lenore, How the Rich-poor Chasm Sank Copenhagen Summit, 13 February, 2010. Available at <http://www.theaustralian.com/national-affairs/opinion/how-the-rich-poor-chasm-sank-copenhagen-summit/story-e6frgd0x-1225829865899>. Site visited 06-05-2014.

¹⁶⁵⁹ At least five different preparatory meetings (negotiating sessions) were held by the AWG-LCA and AWG-KP in 2009 alone: Bonn I from 29 March- 8 April, 2009; Bonn II from 1-12 June, 2009; Bonn III from 11-14 August, 2009; Bangkok from 25 September-9 October, 2009; and Barcelona from 2-6 November, 2009, all to prepare all for the completion of negotiations on a new international agreement on climate change. See, EGENHOFER Christian and GEORGIEV Anton, op cit. See also, MASSAI Leonardo, The Long Way to the Copenhagen Accord: Climate Change Negotiations 2009, RECIEL Vol.19, No.1, 2010. Available at <http://www.onlinelibrary.wiley.com/doi/10.1111/j.1467-9388.2010.00668.x.pdf>. Site visited 13-04-2014. See also, AKANLE Tomilola "Tomi" et al, A Brief Analysis of the Copenhagen Climate Change Conference, International Institute for Sustainable Development (IISD), The Earth Negotiations Bulletin Analysis of COP 15/CMP 5,

personalization of power.¹⁶⁶⁰ It had such issues as increased registration and poor planning among myriad of others. It started with the difficulty in making significant advances in pre-summit negotiations, leading to readjustment of discourse in advance of the summit from one of overt optimism to cautious pragmatism, and dimmed hopes for a full-fledged legal agreement proved unrealistic.¹⁶⁶¹ The failure to reach substantial agreement in advance of Copenhagen significantly increased time-pressures at the summit itself, resulting in the empirical manifestation of the circumvention of the all-Party UNFCCC in preference of the small-Party- the United States and Brazil, South Africa, India and China (US+BASIS).¹⁶⁶² This produced the “Copenhagen Accord,” a supposed weak Accord which is a non-legally binding political declaration,¹⁶⁶³ light in content, lacking transparency in its drafting process,¹⁶⁶⁴ as against the draft texts of 200-plus pages negotiated over two years, which was leaked before the commencement of the summit,¹⁶⁶⁵ eventually trashed and replaced with this brand new declaration of two and a half pages, with no global targets for aggregate emission reductions to ensure environmental results, and was not formally adopted, hence a free-floating agreement without an institutional home and lacking legal status in international law.¹⁶⁶⁶ Moreso, it was Accord reached among 28 Parties, including all major emitters and economies including the most vulnerable and least developed.¹⁶⁶⁷

The Copenhagen Accord is a document attached to a Decision expressly rejected by several parties.¹⁶⁶⁸ While it should be acknowledged clearly that, some developing countries (rather, newly industrialised countries), should begin to shoulder some of the burden of mitigating climate change beyond 2012 under the Copenhagen Accord, and the present Annex I countries should bear more stringent targets under the Accord, countries formed negotiating blocs to obstruct the attainment of a true global deal.¹⁶⁶⁹ Most conspicuous of these obstructionist

excerpted from Vol.12, No.459 of the Earth Negotiations Bulletin, (s.d.). Available at http://www.iisd.org/pdf/2009/enb_copenhagen_commentary.pdf. Site visited 14-05-2014.

¹⁶⁶⁰ JONES Martin Mark, op cit.

¹⁶⁶¹ JONES Martin Mark, ibid. See also, BODANSKY Daniel, op cit.

¹⁶⁶² The United States plus Brazil, South Africa, India and China.

¹⁶⁶³ LEAL-ARCAS Rafael, *Climate Change and International Trade*, Cheltenham, Edward Elgar Publishing, 2013, p.193.

¹⁶⁶⁴ BOZZI Augusto and RAPTIS Emanuel, *Analysis of the Power Structures of Global Environmental Governance: The Political Failure of the COP15*, MIDA 11 Political Process Paper, p.6, 24 October, 2013. Available at http://www.eraptis.files.wordpress.com/2011/04/politicalprocesspaper_2013-10-24115227.pdf. Site visited 14-05-2014.

¹⁶⁶⁵ AKANLE Tomilola “Tomi” et al., op cit.

¹⁶⁶⁶ DIMITROV Radoslav S., op cit. See also, JONES Martin Mark, ibid. See further, Carbon copy, *Copenhagen Climate Change Summit 2009*, Carbon News, 28 January, 2010. Available at <http://carbon-news.blogspot.be/2010/01/copenhagen-climate-change-summit-2009.html>. Site visited 12-05-2014. See equally, RAJAMANI Lavanya, *The Climate Regime in Evolution: The Disagreements That survive the Cancun Agreements*, *Carbon and Climate Law Review* 146, 2011, pp.135-146.

¹⁶⁶⁷ The Parties included the BASIC countries, Algeria, Australia, Bahamas, Canada, Colombia, Denmark, Ethiopia, the EU, Gabon, Grenada, Indonesia, Japan, Lesotho, Maldives, Mexico, Papua New Guinea, Poland, Norway, Russia, Saudi Arabia, South Korea, Sudan, Sweden and the US, together with the UN Secretary General. See also, RAJAMANI Lavanya, III. *The Making and Unmaking of the Copenhagen Accord*, *International and Comparative Law Quarterly*, Vol.59, Iss.3, July 2010, pp.824-843.

¹⁶⁶⁸ MASSAI Leonardo, *The Long Way to the Copenhagen Accord: Climate Change Negotiations in 2009*, *Review of European Community and International Environmental Law (RECIEL)*, Vol.19, No.1, 2010, pp.104-121.

¹⁶⁶⁹ Some of the other coalitions include the USA, the EU, the G77/China, AOSIS, SIDS and OPEC. See Linköping University, *Role Play: Post-Kyoto Negotiations*, *Contemporary Issues in International Governance*, 2013. Available at https://www.liu.se/utbildning/pabyggnad/F7MME/student/course/733a51-contemporary-issues-in-international-governance/filarkiv-contemporary-issues-in-international-governance/2013/1/Roleplayinstructions_contemporary_HT13.pdf. Site visited 06-05-2014.

states/blocs are the BASIC countries.¹⁶⁷⁰ Besides these, the pledges made would not put the world on a realistic pathway towards limiting temperature increase to 2° C (which itself is still a cause for concern and worry as inadequate to avert dangerous climate change).¹⁶⁷¹ The legal status of the Copenhagen Accord remains unclear and ambiguous, as far as the decision of the COP was not adopted, initially.¹⁶⁷² Though it established an enhanced REDD, (now REDD+), it left the important details of the Scheme unresolved, especially potential loopholes that could exacerbate deforestation, just as the commitments to financing mitigation, adaptation and technology transfer are rather limited in scope.¹⁶⁷³ The important question here is, if the larger percentage of all climate-mitigation and adaptation funds have been going to China and yet it would still rallied the BASIC countries to bring the brightest hope for a new global agreement in Copenhagen to such an inglorious end of dashed hope and expectations to many countries, what would it have motivated the group to do if the advanced countries were to stop funding, as the present situation grimly portrays?

Several issues proved impossible to resolve, among which were, the number of international agreements to be negotiated; the future of the KP; the targets for maximum global temperature increase, carbon concentrations and aggregate emission reductions; the method of determining country targets (top-down versus bottom-up); and the role of agriculture and forestry policy.¹⁶⁷⁴ There was high international expectation on moves to put a price on CO₂ emissions in the summit, which was never met.¹⁶⁷⁵ Virtually all of the BASIC countries, especially China and India witnessed tremendous economic transformation, that they are now the new world economic

¹⁶⁷⁰ The BASIC States alliance consisting of Brazil, China, India and South Africa, altogether representing roughly 40% of the world's population, was formed by an agreement on November 28, 2009 with a commitment to act jointly at the Copenhagen Climate Summit. It was initiated and led by China, and subsequently have been working to define a common position on emission reductions and climate aid money. See, Wikipedia, BASIC Countries, 3 July, 2013. Available at http://en.wikipedia.org/wiki/BASIC_countries. Site visited 08-06-2014. See also, LABUHN Britta, The Role of the European Union in International Climate Politics: From the Leader to a Watcher, University of Twente, 10 August, 2011, p.27. Available at http://www.essay.utwente.nl/61424/1/BSc_B_Labuhn.pdf. Site visited 14-05-2014. See equally, HAPPAERTS Sander and BRUYNINCKX Hans, Rising Powers in Global Climate Governance. Negotiating in the New World Order, KU Leuven Working Paper No.124, October 2013. Available at https://www.ghum.kuleuven.be/ggs/publications/working_papers/new_series/wp121-130/wp124-happaerts-bruyninckx-finaal.pdf. Site visited 06-06-2014. See further, OLSSON Marie et al, Together Alone? Brazil, South Africa, India, China (BASIC) and the Climate Change Conundrum, Stockholm Environment Institute (SEI), Policy Brief, 2010. Available at <http://www.sei-international.org/mediamanager/documents/Publications/SEI-PolicyBrief-Olsson-BASIC-ClimateChangeConundrum.pdf>. Site visited 06-06-2014. See again, TABAU Anne-Sophie and LEMOINE Marion, Willing Power, Fearing Responsibilities: BASIC in the Climate Negotiations, Carbon and Climate Law Review, Iss.3, 2012, p.197. Available at <http://www.connection.ebscohost.com/c/articles/84409486/willing-power-fearing-responsibilities-basic-climate-negotiations>. Site visited 06-06-2014.

¹⁶⁷¹ NORDHAUS William D., Economic Aspects of Global Warming in a Post-Copenhagen Environment, Proceedings of the National Academy of Sciences of the United States of America (PNAS), 29 June, 2010, Vol.107, No.26, pp.11721-11726. Available at <http://www.pnas.org/content/107/26/11721.full.pdf+html>. Site visited 14-05-2014.

¹⁶⁷² BODANSKY Daniel, "The International Climate Change Regime: The Road From Copenhagen", Belfer Center for Science and International Affairs. Available at http://www.belfercenter.hks.harvard.edu/publication/20437/international_climate_change_regime.html. Site visited 13-05-2014.

¹⁶⁷³ Source Watch, Copenhagen Accord, 21 January, 2010. Available at http://www.sourcewatch.org/index.php?title=Copenhagen_Accord. Site visited 23-03-2011.

¹⁶⁷⁴ DIMITROV Radoslav S., op cit.

¹⁶⁷⁵ Financial Times Features, Split on the Atom, Businessday Online, 15 September, 2009, p.33. Available at <http://www.businessdayonline.com/split-on-the-atom>.

powers, otherwise called the Advanced Developing Countries (ADC).¹⁶⁷⁶ China in its own case, sustained double-digit economic growth rates consistently for the greater part of the past three decades, putting severe pressures on local, regional and indeed the global environment through its highly unsustainable system of energy consumption and production. Its estimated total of 2436.01 million tonnes of oil equivalent (MTOe), with 68.4 per cent from coal, while its renewable energy excluding hydropower and nuclear, amounted to less than one per cent of the total.¹⁶⁷⁷ China's posture arose from its determination to ward-off the focus on developing countries emissions in the Copenhagen process, particularly its own and other major developing (newly industrialised countries') economies, marking a significant reorientation of the climate change negotiations, a departure from the initial negotiating processes exclusive focus on emissions reductions by only the developed countries during the first decade of the regime.¹⁶⁷⁸ The US tried to move for the Parties to effectively take this issue off the table by excluding any new commitments for non-Annex I countries.¹⁶⁷⁹ The intense negotiations that characterised the summit for the two weeks with intractable controversies which some described as acrimonious discussions, ended up in parties agreeing to adopt a COP decision with a questionable transparency, whereby the COP merely "takes note" of, but not adopted, neither passed unanimously or by a majority, the Copenhagen Accord attached to the decision as an unofficial and compromised document.¹⁶⁸⁰ Though the COP15 became distinct for the extremely large attendance, with about 120 world leaders converging on Copenhagen, more than 194 sovereign states Parties attending and more than 40,000 people representing governments, NGOs, intergovernmental organisations (IGOs), academia, the business sector, faith-based organisations, media and UN agencies, which constituted the highest concentration of robust decision-making power the world has seen,¹⁶⁸¹ yet its palpable failure was manifest before its commencement and indeed beyond the worst fears of environmental experts. It was also significant in that it marks the first time the US participated at a climate summit with a more solid policy on climate change at its national level under the Obama administration,¹⁶⁸² a distinct departure from the past posture under the previous administrations, whose uncooperative and hostile disposition has severely hunted global progress in negotiations on climate change.

High degree of fragmentation and revealed dominant influence of the 'FoC' subgroup over the other members, coupled with the developing countries resolve not to take emissions reduction targets led in part and in fact, a great deal to the failure of the Summit.¹⁶⁸³ This was made quite manifest with the eventual outcome of the

¹⁶⁷⁶ JACOB James, Copenhagen and the 'BASIC' Countries: Some Basic Differences Between the Indian and Chinese Emissions, *Current Science*, Vol. 99, No.4, 25 August, 2010, pp.439-443.

¹⁶⁷⁷ See National Bureau of Statistics of China, 2012. See also, BELIS David et al, *ibid.*, p.4

¹⁶⁷⁸ BODANSKY Daniel, *op cit.*

¹⁶⁷⁹ BODANSKY Daniel, *ibid.*

¹⁶⁸⁰ International Institute for Sustainable Development, Summary of the Copenhagen Climate Change Conference, *IISD Earth Negotiations Bulletin*, Vol.12, No.459, 22 December, 2009. Available at <http://www.iisd.ca/download/pdf/en12459e.pdf>. Site visited 01-05-2014. See also, Carbon copy, Copenhagen Climate Change Summit 2009, *Carbon News*, 28 January, 2010. Available at <http://carbon-news.blogspot.be/2010/01/copenhagen-climate-change-summit-2009.html>. Site visited 12-05-2014.

¹⁶⁸¹ United Nations Framework Convention on Climate Change (UNFCCC), Copenhagen Climate Change Conference-December2009. Available at https://unfccc.int/meetings/copenhagen_dec_2009/meetings/6295.php. Site visited 12-05-2014. See also, DIMITROV Radoslav S., *op cit.*

¹⁶⁸² MASSAI Leonardo, The Long Way to the Copenhagen Accord: Climate Change Negotiations 2009, *RECIEL* Vol.19, No.1, 2010. Available at <http://www.onlinelibrary.wiley.com/doi/10.1111/j.1467-9388.2010.00668.x.pdf>. Site visited 13-04 -2014.

¹⁶⁸³ BOZZI Augusto and RAPTIS Emanuel, *op cit.*, p.9.

Summit- the Copenhagen Accord, hurriedly put together by a handful of these countries, the US and the BASIC countries, which was later to spark rows and near collapse of the entire Summit after the Parties comprising ministers, experts and heads of governments deliberations for two weeks. The conference was factionalised from the onset which spelt its doom as each group- (the developed countries' group and the developing countries' group), wanted to have its way notwithstanding what resulted. It also brought to the fore, a conspicuous shift of economic power and influence, as the emerging economies countries, or preferably, the newly industrialised countries led and coordinated by China dictated the mode and tempo of the negotiations to the end, and the Group of 77+China (G77/China)¹⁶⁸⁴ also in part too. That was to change the face of negotiations under the UNFCCC since then with the emergence of the Like-Minded Developing Countries in climate change (LMDC).¹⁶⁸⁵ The G77/China remained unified in its opposition to establishing concrete targets and a roadmap for the green economy.¹⁶⁸⁶ The battles during Copenhagen were fought between the developed (Annex I) and developing (non-Annex I) countries in the main, with further regional groupings,¹⁶⁸⁷ forging of alliances both across and between traditional firewalls separating developed and developing states.

The African sub region in the G77/China group, the ideology of climate justice emerged strongly, coming to present the North as having unfair and unethical use of the world's finite carbon resources, and thus have contributed to and still contributing much in terms of GHG emissions, while Africa's contribution remains a paltry 3.8 per cent of the total global GHG emissions.¹⁶⁸⁸ It thus reveals quite clearly how the Africans has been placated by the position of the G77/China, where China was the chief motivator, whereas China remains the

¹⁶⁸⁴ The Group of 77 is a third world contingent formed after a southern disquiet in the UN led developing countries to push for the establishment of United Nations Conference on Trade and Development (UNCTAD) in 1964, from which the G77/China later sprang up with 77 founding members under the name of Group of 77, but its membership has now grown to more than 130 members. It has an environment-development dichotomy, on which ground many developing country politicians such as the Indian Prime Minister, Indira Gandhi, emphasised that developing countries must prioritise economic development over environmental stewardship, defining these as inherently competing priorities. This ideology China and India, nay the BASIC countries still hold on to today. See, HALLDING Kars et al, *Together Alone: BASIC Countries and the Climate Change Conundrum*, Copenhagen, Rosendahls Bogtrykkeri AS Publishing, 2011, p.5. See also, LYSTER Rosemary, *Adaptation and Climate Justice*, in VERSCHUUREN Jonathan (Ed.), *Research Handbook on Climate Change Adaptation Law*, Cheltenham, Edward Elgar Publishing, 2013, p.39. See further, ECONOMY Elizabeth, *Chinese Policy-Making and Global Climate Change: Two-Front Diplomacy and the International Community*, in SCHREURS Miranda A. and ECONOMY Elizabeth, *The Internationalization of Environmental Protection*, Cambridge, Cambridge University Press, 1997, p.31. See again, *United Nations Framework Convention on Climate Change (UNFCCC), Party Groupings*, sine die. Available at https://www.unfccc.int/parties_and_observers/parties/negotiating_groups/items/2714.php. Site visited 21-05-2014.

¹⁶⁸⁵ The membership comprise: Algeria, Bangladesh, Belarus, Bhutan, Bolivia, China, Congo Democratic Republic, Cuba, Dominica, Ecuador, Egypt, El Salvador, India, Indonesia, Iran, Iraq, Kuwait, Malaysia, Mali, Myanmar, Nepal, Nicaragua, Pakistan, Philippines, Saudi Arabia, Sri Lanka, Sudan, Syria, Thailand, Venezuela, Vietnam, and Zimbabwe. See, *Third World Network, Members of Like-Minded Developing Countries Issue Statement After an Informal Meeting*, 8 March, 2013. Available at <http://www.twinside.org.sg/title2/climate/info.service/2013/climate130301.htm>. Site visited 28-03-2014.

¹⁶⁸⁶ ALSTINE James van; AFIONIS Stavros and DORAN Peter, *The UN Conference on Sustainable Development (Rio + 20): A Sign of the Times or 'Ecology as Spectacle'?* Sustainability Research Institute (SRI) Paper Online, No.34, August 2012. Available at <http://www.see.leeds.ac.uk/fileadmin/Documents/research/sri/workingpapers/SRIPs-34.pdf>. Site visited 27-04-2014.

¹⁶⁸⁷ WRIGHT Chris, *Getting to Know the Negotiating Blocks*, The Adopt a Negotiator Project, 1 December, 2012. Available at <http://adoptanegotiator.org/2012/12/01/getting-to-know-the-negotiating-blocks/>. Site visited 28-03-2014.

¹⁶⁸⁸ NHAMO Godwell, *Copenhagen 18/12: Africa Must Continue Calling for a Fair, ambitious and Binding Climate Deal*, *Journal of African and Asian Studies*, Vol.10, 2010, pp.100-120. Available at <http://booksandjournals.brillonline.com/content/journals/10.1163/156921011x586988>. Site visited 13-05-2014.

greatest problem and the US, both being the two largest global emitters of CO₂, and not willing in the least to do anything in support of global efforts, rather taking always the obstructionists position during negotiations. The case of the former more worrisome being the world's largest and is still steadily increasing its emissions, despite its technological- advantageous position, which it has failed to bring to bear on this issue of curtailing its emissions, because it is cheaper to burn coal for production and for energy generation. China's¹⁶⁸⁹ contributions to GHG emissions in the face of its persistent refusal to take internationally binding commitment were blamed for the failure of the Copenhagen Climate Change Summit COP15 2009. At the summit, China's behaviour was criticized as having been "calculated to frustrate progress,"¹⁶⁹⁰ and was thus perceived to be a key stumbling block in the global fight against climate change,¹⁶⁹¹ whereas, India too had come to the Summit with a predetermined position to foil any attempt at a legally binding agreement, stating by its environment minister, Jairam Ramesh that "[L]egally binding" emissions targets won't be acceptable for India. "[I]t's going to be impossible to sell in our democratic system."¹⁶⁹² Though China reportedly committed to voluntary targets (Nationally Appropriate Mitigation Actions NAMAs) in the Copenhagen and Cancun deals under the so-called "pledge and review approach," pledging to reduce carbon emissions per unit of GDP by 40-45 per cent, based on 2005 levels,¹⁶⁹³ its posture and vituperations therein did not portray that of one committed to making good its commitment. This is even more so the fact that both the Copenhagen Accord and the Cancun Agreements are mere political statements, lacking any legality, which makes enforcement impossible.

China's economy has grown tremendously since the late 1970s, surpassing Japan's as the world's second largest economy in 2010, though, it still ranks 133rd in global per capita income (PCI). The economic transformation has impacted on the lives of its citizens, leaving only 36 per cent of its population in poverty, earning less than US\$2

¹⁶⁸⁹ China's Energy Development Report 2009 indicated that for energy consumption in China, 69 per cent of primary energy comes from coal and more than 80 per cent of the capacity of power generation is from thermal power, which paints a picture of unsustainable energy and energy shortage, a bottleneck in China's economic development. See, DING Fei et al, Green Energy Development and Technology Transfer in China and India, *Journal of International Development and Cooperation*, Vol.19, No.2, 2012, pp.13-24.

¹⁶⁹⁰ Chinese Premier addressed the issue of his country's transparency as a determining factor in the negotiations, stating further that China has made clear commitments to reducing its emission and also pledged to improve national communications on verifying emissions reductions, but stressing that it shall not be at the risk of his country's national sovereignty. China appreciates its role as a major factor in the global climate regime, yet has been unwilling and reluctant to commit to binding emission reduction targets. See, CONNELL Dave, *The Latest From Copenhagen*, 20 December, 2009. Available at <http://www.blog.nature.org/2009/12/nature-conservancy-copenhagen-latest/>. Site visited 17-05-2014. See also, CURTIN Joseph, *The Copenhagen Conference: How Should the EU Respond?* Institute of International and European Affairs, Dublin, January 2010. Available at <http://www.iiea.com/.../the-copenhagen-conference-how-should-the-eu-respond>. Site visited 22-07-2011. See as well, BELIS David and SCHUNZ Simon, *China, the European Union and Global Environmental Governance: The Case of Climate Change*, in BRUYNINCKX Hans et al (Eds.), *The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies*, Cheltenham, Edward Elgar Publishing, 2013, p.56.

¹⁶⁹¹ ONG Lynette H., *The Apparent "Paradox" in China's Climate Policies: Weak International Commitment on Emissions Reduction and Aggressive Renewable Energy Policy*, *Journal of Asian Survey*, Vol.52, No.6, 2012, pp.1138-1160, 1139.

¹⁶⁹² *International Economy, India to Resist U.S. Pressure on Carbon Emission Caps*, *The Guardian Nigerian Newspapers Online*, 21 July, 2009, p.59.

¹⁶⁹³ BELIS David et al, *Introduction: Governing Climate Relations Between Europe and Asia in a Restructuring World Order*, in BRUYNINCKX Hans et al (Eds.), *The Governance of Climate Relations Between Europe and Asia: Evidence From China Vietnam as Key Emerging Economies*, Cheltenham, Edward Elgar Publishing, 2013, p.5. See also, *The Center for Climate and Energy Solutions, Climate Change 101: Understanding and Responding to Global Climate Change*, *The Pew Center on Global Climate Change*, January 2011.

a day. China and India are replacing care for the environment as a national goal with wealth creation. The case of China being more pathetic as being both the world's biggest polluter and itself a victim of pollution.¹⁶⁹⁴ The climate burden of the Chinese economic growth on the rest of the world is disproportionately large compared to even that of the Annex I countries. The combined emissions of the BASIC countries in 2006 added up to 8131.7 m tonnes, with their total population of 0.270 billion living in them with an annual mean per capita emission of 3.00 tonnes. The total aggregate emissions from all the Annex I Parties, the US and the rest of the developing world (excluding the BASIC countries) during the period were 6034.4, 5902.7 and 6125.1 m tonnes CO₂ respectively, with the aggregate population of 0.617 billion (Annex I Parties excluding the US), 0.303 billion (the US), and 2.049 billion (the rest of the world excluding the BASIC countries) and their annual per capita emissions were 6.61, 19.49 and 2.99 respectively. A correlation of these figures reveals that the rest of the over 150 developing countries combined emissions constitute a mere three-fourths of the total emissions from the four BASIC countries. Yet, of the four BASIC countries emissions, China's emissions constituted 74 per cent, while that of Brazil and South Africa combined constituted just 10 per cent, leaving India with the balance.¹⁶⁹⁵

Chinese negotiators classified emissions as "luxury emissions" and "survival emissions," arguing that the developed nations ought to adjust their consumption patterns and lifestyles to allow the developing countries to feed their populations.¹⁶⁹⁶ The reasons adduced by China is not sufficient for China to continue what the developed nations have done in the past, the troubles of which is borne by the whole world now and which threatens the earth if nothing urgent is done to curb its threatening consequences. China itself has surpassed the previous emissions ratio of the developed nations, and is not satisfied yet. China's participation in climate change of late and from the start of concern on the environment in Stockholm 1972 has been one of a laggard, uncooperative attitude toward treaty obligations, and in the Beijing Ministerial Declaration on the Environment and Development 1991, declared its resistance to any external pressure or diplomatic initiative deemed incompatible with China's level of development,¹⁶⁹⁷ a stance it still holds till today. If all developing countries are to continue in the same aggressive manner of China, the developed nations would not be curtailed in their emissions and any hope of a truce to the present situation would have long been lost completely. Even in the final analysis of the Copenhagen talks between the US President Obama and the BASIC countries leaders, China still vehemently refused to accede to legal emissions verification.¹⁶⁹⁸ The BASIC countries in the controversial Copenhagen Accord called for voluntary reductions in GHG emissions rather than the mandatory reductions many participants expected.¹⁶⁹⁹ China's current efforts remain nothing to write home about as it is still merely limited to incorporation of domestic legislation and targets in the Copenhagen and Cancun deals under the so-

¹⁶⁹⁴ GAVIN Neil and MARSHALL Tom, Mediated Climate Change in Britain: Scepticism on the Web and on Television Around Copenhagen, *Journal of Global Environmental Change*, Vol.21, Iss.3, August 2011, pp.1035-1044. Available at <http://www.sciencedirect.com/science/article/pii/S0959378011000343> . Site visited 18-05-2014.

¹⁶⁹⁵ JACOB James, op cit.

¹⁶⁹⁶ ONG Lynette H., *ibid.*, pp.1142

¹⁶⁹⁷ ONG Lynette H., *ibid.*, p.1141.

¹⁶⁹⁸ FAIOLA Anthony; EILPERIN Juliet and POMFRET John, Copenhagen Climate Deal Shows New World Order May be Led by U.S., China, *The Washington Post*, 20 December, 2009.

¹⁶⁹⁹ HOCHSTETLER Kathryn Ann, The G-77, BASIC and Global Climate Governance: A New Era in Multilateral Environmental Negotiations, *Revista Brasileira de Política Internacional*, Rev. bras. polít. int. Vol.55, no. spe Brasília 2012. See also, United Nations Framework Convention on Climate Change (UNFCCC), Copenhagen Accord, Draft Decision-/CP.15, 18 December, 2009. Available at <http://www.unfccc.int/resource/docs/2009/cop15/eng/107.pdf> . Site visited 18-03-2014.

called pledge and review approach.¹⁷⁰⁰ The developing countries criticized the EU on financial aid as being insufficient and also contend that the EU's proposal is an attempt to kill Kyoto and drastically weaken the legal status of industrialised country commitments.

The BASIC countries also put up a common front in favour of preserving the main tenets of Kyoto, hence doing all to avoid taking emissions reductions targets.¹⁷⁰¹ Such alignments with other similar and/or like-minded countries are familiar features in international political and such other gatherings, usually for concrete negotiating blocks, but may such have turned out to be employed in detrimental way to block progress, as in the case of the BASIC countries, the Umbrella Group, the Group of 77+China. These ones have been mostly employed to obstruct the progress of negotiations and decisions in these climate change negotiations, which is usually detrimental to the cause and interests of other less-influential groups like the Small Islands Developing States (SIDS), the Least Developed Countries (LDCs) and the African Group nations (AG).¹⁷⁰² Though these latter ones belong to some of these broader groups, but they often could not find their voices or enough clout to counter greater powers in such groups to be able to make a point for themselves. It is important to note the declining unity of the G-77 in negotiations, especially in the climate negotiations between 2008 and the present time, hence its continued sustenance is becoming puzzling. Other groups springing up within the G-77 conglomerate are now conspicuously taking the stage, most especially the dominating posture of China in the successive climate negotiations has been overwhelmingly observed. Though the BASIC countries stated clearly their intention to remain within the G-77, it is however too obvious that they have no business being in this group any more, considering the open breaks in the Copenhagen summit.¹⁷⁰³ Their Joint statement of July 2012¹⁷⁰⁴ 'to continue to work to maintain the strength and unity of the G-77 group' is betrayal of their stance at the Copenhagen summit.¹⁷⁰⁵ There is simply a conflict of interests between the BASIC's and many of the other smaller groups within the G-77 such as the AOSIS, the SIDS, the LDCs, and the African regional group.¹⁷⁰⁶ There was as well the Organisation of Petroleum Exporting Countries (OPEC), which expectedly would have an observer status at such fora as these, which has always taken a skeptic position in the UNFCCC negotiations, objecting any policies and measures that will have a negative effect on their oil export revenues, through its member states.¹⁷⁰⁷

¹⁷⁰⁰ BELIS David and SCHUNZ Simon, China, the European Union and Global Environmental Governance: The Case of Climate Change, in BRUYNINCKX Hans et al (Eds.), The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies, Cheltenham, Edward Elgar Publishing, 2013, p.56.

¹⁷⁰¹ LABUHN Britta, op cit, p.27.

¹⁷⁰² WRIGHT Chris, op cit,

¹⁷⁰³ According to Brahma Chellaney, Professor of Strategic Studies at the Center for Policy Research in New Delhi, "China cleverly deflected pressure by hiding behind small, poor countries and forging a negotiating alliance..., the BASIC bloc." It used these small countries to constantly raise procedural obstacles and frustrate negotiations. See, CURTIN Joseph, The Copenhagen Conference: How Should the EU Respond? Institute of International and European Affairs, Dublin, January 2010. Available at <http://www.iiea.com/.../the-copenhagen-conference-how-should-the-eu-respond>. Site visited 22-07-2011.

¹⁷⁰⁴ BASIC countries Ministers meeting, July 2012.

¹⁷⁰⁵ HOCHSTETLER Kathryn Ann, op cit.

¹⁷⁰⁶ HOCHSTETLER Kathryn Ann, ibid.

¹⁷⁰⁷ Linköping University, Role Play: Post-Kyoto Negotiations, Contemporary Issues in International Governance, 2013. Available at <https://www.liu.se/utbildning/pabyggnad/F7MME/student/course/733a51-contemporary-issues-in->

Copenhagen was dramatic and full of intrigues, portraying a reflection of a world in which the balance of power has significantly changed in the last twenty years.¹⁷⁰⁸ From the Copenhagen Accord's near-exclusion of the EU, it has come to be seen that the US and China came out with a pact they both could live with, which is a true reflection of the domestic political realities in both Washington and Beijing.¹⁷⁰⁹ This is an indication that they both obviously have between them the means to solve all the world's problems, being the two largest emitters of GHG, more cautious than the EU and others about establishing a strict set of international rules to combat global warming.¹⁷¹⁰ This only goes to confirm the impression that it is the US, China and the other emerging economies that really matter in any lasting climate solution.¹⁷¹¹ It was evident that the two largest emitters—China and the US would prefer an agreement based on a national, bottom-up approach, rather than a top-down legally binding agreement, different fundamentally from the KP. Rather than defining emissions targets from the top-down through international negotiations, the Copenhagen Accords establishes a bottom-up process allowing each party to define its own commitments actions unilaterally, in a “pledge and review manner.”¹⁷¹² As against the traditional top-down, command and control approach perceived of having limited effectiveness, premised on a false assumption of ecological equilibrium, this kind of “pledge and review” mechanisms would provide an international platform for a country to pledge an economy-wide emissions target, or a policy or set of actions, in setting of transparency mechanisms for reporting and reviewing emissions data, but devoid of sanctions for pledges unmet. This is a contradistinction from the KP, which established a legally-binding, global cap-and-trade scheme.¹⁷¹³

It is generally argued that conventional environmental policy instruments like command-and-control measures are insufficient in the light of the challenges posed by the vision of sustainable development. This being for the reasons of inefficiencies and bureaucratic requirements those instruments create, which has led to a favour of market-based instruments like environmental taxes and tradable permits notwithstanding the limitations of their actual use.¹⁷¹⁴ Yet, both the US¹⁷¹⁵ and China either lack a national policy programme on climate change, or

[international-governance/filarkiv-contemporary-issues-in-international-governance/2013/1/Roleplayinstructions_contemporary HT13.pdf](http://international-governance/filarkiv-contemporary-issues-in-international-governance/2013/1/Roleplayinstructions_contemporary_HT13.pdf). Site visited 06-05-2014.

¹⁷⁰⁸ BROOKES Tom and NUTHALL Tim, What Did the Copenhagen Climate Summit Achieve? BBC News Online, 21 December, 2009. Available at <http://www.news.bbc.co.uk/2/hi/science/nature/8424522.stm>. Site visited 01-05-2014.

¹⁷⁰⁹ EGENHOFER Christian and GEORGIEV Anton, The Copenhagen Accord: A First Stab at Deciphering the Implications for the EU, Centre for European Policy Studies (CEPS), 25 December, 2009. Available at http://www.aei.pitt.edu/14523/1/CE_and_AG_on_Copenhagen_formatted.pdf. Site visited 13-05-2014.

¹⁷¹⁰ FAIOLA Anthony; EILPERIN Juliet and POMFRET John, op cit.

¹⁷¹¹ CURTIN Joseph, The Copenhagen Conference: How Should the EU Respond? Institute of International and European Affairs, Dublin, January 2010. Available at <http://www.iiea.com/.../the-copenhagen-conference-how-should-the-eu-respond>. Site visited 22-07-2011.

¹⁷¹² BODANSKY Daniel, A Tale of Two Architectures: The Once and Future U.N. Climate Change Regime, *Arizona State Law Journal*, Spring 2011, vol.43, Iss.1, pp.697-712. See also, LEACH Melissa et al, *Transforming Innovation for Sustainability, Ecology and Society*, Vol.17, No.2, Art. 11, 2012.

¹⁷¹³ TANGEN Kristian, The Odd Couple?: The Merits of Two Tracks in the International Climate Change Negotiations, *The Finnish Institute of International Affairs Briefing Paper 59*, 30 April, 2010. See also, KIIM Rakhyun E. and MACKEY Brendan, *International Environmental Law as complex Adaptive System, International Environmental Agreements*, Vol. 14, 2014, pp.5-24.

¹⁷¹⁴ HELM Carsten, *Sustainability and New Economic Policy Options: The Example of International Emissions Trading*, in WELFENS Paul J. J. (Ed.), *Internationalisation of the Economy and Environmental Policy Options*, Berlin, Springer-Verlag Publishing, 2001, p.193.

have weak policies and institutions lacking the strength to carry through in this aspect. China launched its National Climate Change Programme in June 2007, followed by its policies and actions for addressing climate change a year later. It proposed an ambitious target for energy efficiency improvement in its 11th Five-Year Plan, in which it proposed its energy intensity GDP to be reduced by 20 per cent from 2005 to 2010, and planned to raise the proportion of renewable energy in primary energy supply up to 10 per cent by 2010 and 15 per cent by 2020, all of which are yet outstanding.¹⁷¹⁶ A clear message from Copenhagen therefore is that it offers a glimpse into a new world order in which international diplomacy will increasingly be shaped by cooperation between the US and the emerging regional powers, especially China. Arguably, in furtherance of the new order, the BRICS¹⁷¹⁷ countries has gone to announce the formation of a New Development Bank, which is expected to operate parallel to and as an alternative international financial system to the World Bank and the International Monetary Fund. This is viewed as an effort by the bloc to affirm the shift of the balance of power.¹⁷¹⁸ In the light of the new system being adopted by the erstwhile non-cooperating countries, what then become of the previous policies in the “old system under the KP,” such as the emissions trading system and others? The EU would then need, essentially to harness its weapons of budget and trade among others to enforce its relevance. The EU could also pursue a global level of pricing of carbon in future negotiations, and go on to create a global carbon market as an important part of the EU strategy for the negotiations on a post-2012 regime.¹⁷¹⁹ EU policy makers have emphasised that, irrespective of the outcome of the UNFCCC negotiations on a post-Kyoto climate policy package, the EU ETS will remain in place after 2012.¹⁷²⁰ To facilitate this, the EU has put in place a long-term target policy under the ‘20-20’ as adopted in April 2009 which envisaged six principal elements: (i) a directive for the promotion of renewable energy sources; (ii) a revised EU ETS starting in 2013; (iii) an ‘effort sharing’ decision that sets binding emissions targets for EU Member States in sectors not subject to the ETS; (iv) a regulation to reduce by 2015 average CO₂ emissions of new passenger cars to 120g/km; (v) new environmental quality standards for fuels and biofuels targeted at reducing by 2020 GHG emissions from fuels by 6 per cent over their entire life cycle; and (vi) a regulatory framework for carbon capture and storage. These were meant to both address climate change and energy policy changes, as well as to enable both the Member States and the European Commission impose an ambitious emissions ceiling on industry without a legally binding constraint.¹⁷²¹ As a result of the fiercely contested EU’s right to cover international flights under its ETS, in November 2012 the

¹⁷¹⁵ After 23 years of climate negotiations, the US still lacks key climate policies on a national level. See, KOSONEN Kaisa, *Global Climate Politics at COP19: The State of Play*, Greenpeace Briefing, November 2013.

¹⁷¹⁶ RONG Fang, *Understanding Developing Country Stances on Post-2012 Climate Change Negotiations: Comparative Analysis of Brazil, China, India Mexico and South Africa*, *Energy Policy*, Vol.38, 2010, pp.4582-4591.

¹⁷¹⁷ Brazil, Russia, India, China and South Africa, an expanded body of the BASIC group, now including Russia.

¹⁷¹⁸ BAX Tameena, *Poll: Will the BRICS Shift the Balance of Power?* *The Guardian Online*, 25 July, 2014. Available at <http://www.theguardian.com/global-development-professional-network/poll/2014/jul/24/brics-bank-world-bank-power>. Site visited 02-08-2014.

¹⁷¹⁹ EGENHOFER Christian and GEORGIEV Anton, op cit. See also, PAVESE Carolina B. and TORNEY Diarmuid, *The Contribution of the European Union to Global Climate Change Governance: Explaining the Conditions for EU Actorness*, *Rev. bras. polit. Int.* Vol.55, no. Spe Brasilia 2012. Available at http://www.scielo.br/scielo.php?pid=s0034-73292012000300008&script=sci_arttext. Site visited 13-04-2013.

¹⁷²⁰ FLACHSLAND Christian; MARSCHINSKI Robert and EDENHOFER Ottmar, *Global Trading Versus Linking: Architectures for International Emissions Trading*, *Energy Policy*, Vol.37, Iss.5, May 2009, pp.1637-1647.

¹⁷²¹ EGENHOFER Christian and ALESSI Monica, *EU Policy on Climate Change Mitigation Since Copenhagen and the Economic Crisis*, CEPS Working Document No. 380, March 2013.

EU suspended the inclusion of international following the ICAO Council meeting of 9 November, for a review of the inclusion after modification.¹⁷²²

On the other hand, the EU strongly advocated for a legally binding agreement coupled with fixed targets and timetables for when those targets should be reached, and continued hoping for a comprehensive and operational agreement with commitments for GHG reductions and finance in line with their responsibilities and capabilities.” For offering financial assistance for investments aimed at mitigating the effects of climate change, the EU would want developing countries to undertake legally binding commitments under the new agreement.¹⁷²³ The EU’s interest was not served in Copenhagen as it were,¹⁷²⁴ as EU member states pushing for strong emission reduction targets, implemented primarily through domestic measures, while the US aside from breaking through the BASIC group, also acted together with “Umbrella Group,”¹⁷²⁵ where it normally belongs, pushing for the unrestricted use of market-based mechanisms, including emissions trading.¹⁷²⁶ Europe’s lack of a coherent unified policy, the uncoordinated public financial efforts in the area of climate change and the disparate and badly reported national external expenditures in this area are the fundamental reasons for the failure of the EU to be a serious interlocutor in the Copenhagen climate negotiations, and also losing its leadership role.¹⁷²⁷ Despite this, the EU was able to harness the operationalisation of the new provisions in the Lisbon Treaty regarding its external action to contribute to the integration of the Copenhagen Accord into the

¹⁷²² EGENHOFER Christian and ALESSI Monica, *ibid*.

¹⁷²³ BOZZI Augusto and RAPTIS Emanuel, *Analysis of the Power Structures of Global Environmental Governance: The Political Failure of the COP15*, MIDA 11 Political Process Paper, p.6, 24 October, 2013. Available at http://www.eraptis.files.wordpress.com/2011/04/politicalprocesspaper_2013-10-24115227.pdf. Site visited 14-05-2014. See also, EGENHOFER Christian and GEORGIEV Anton, *The Copenhagen Accord: A First Stab at Deciphering the Implications for the EU*, Centre for European Policy Studies (CEPS), 25 December, 2009. Available at http://www.aei.pitt.edu/14523/1/CE_and_AG_on_Copenhagen_formatted.pdf. Site visited 13-05-2014.

¹⁷²⁴ BELIS David and SCHUNZ Simon, *China, the European Union and Global Environmental Governance: the Case of Climate Change*, in BUYNINCKX Hans et al (Eds.), *The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies*, Cheltenham, Edward Elgar Publishing, 2013, p.60.

¹⁷²⁵ The Umbrella Group is loose coalition of industrialised non-EU countries consisting of Australia, Canada, Japan, Kazakhstan, New Zealand, Norway, The Russian Federation, Ukraine and the US, has traditionally been one of the spoilers of climate negotiations. See, KEMP Luke, *Universal and Useless? The Umbrella Group and the 2015 Agreement*, The Adopt a Negotiator Project, 1 May, 2013. Available at <http://www.adoptanegotiator.org/2013/05/01/universal-and-useless-the-umbrella-group-and-the-2015-agreement/>. Site visited 20-05-2014. See also, *The Umbrella Group*, Umbrella Group Statement: Durban High Level Session, sine die. Available at http://www.cop17-cmp7durban.com/downloads/news/speeches/en/111206_cop17_hls_australian_behalf_umbrella_group.pdf. Site visited 20-05-2014. See further, *United Nations Framework Convention on Climate Change (UNFCCC), Party Groupings*, sine die. Available at https://www.unfccc.int/parties_and_observers/parties/negotiating_groups/items/2714.php. Site visited 21-05-2014.

¹⁷²⁶ BODANSKY Daniel, *The Copenhagen Climate Change Conference: A Postmortem*, *The American Journal of International Law*, Vol.104, No.2 April 2010, pp.230-240.

¹⁷²⁷ EGENHOFER Christian and GEORGIEV Anton, *op cit*. See also, FERRER Jorge Núñez, *Internal and External EU Climate Objectives and the Future of the EU Budget*, *European Policy Analysis*, Swedish Institute for European Policy Studies (SIEPS), March Issue, 2010. HAPPAERTS Sander and BRUYNINCKX Hans, *Rising Powers in Global Climate Governance. Negotiating in the New World Order*, KU Leuven Working Paper No.124, October 2013. Available at https://www.ghum.kuleuven.be/ggs/publications/working_papers/new_series/wp121-130/wp124-happaerts-bruyninckx-finaal.pdf. Site visited 06-06-2014. See also, ELGSTRÖM Ole, *EU Leadership in an Emerging New World Order*, *Being Text of a Paper Presented at the 5th Pan-European Conference on EU Politics*, Porto, 24-26 June, 2010, p.13

UN climate regime talks through the Cancun Agreements.¹⁷²⁸ The EU's climate negotiation history has been credited for the major success in the launch of the Durban Platform which was based on the Copenhagen Accord and the Cancun Agreements.¹⁷²⁹ Painted as the "most chaotic show on earth" and arguments "strangled" negotiations,¹⁷³⁰ the Copenhagen Accord thus suffered wide credibility as a small number of developing countries among which were Venezuela, Bolivia, Cuba, Nicaragua, Tuvalu, and Sudan, voiced strong objections to a less-than-transparent and undemocratic negotiating process involving only a small handful of states to the exclusion of the larger majority. It was branded by Sudan (holding the chairmanship of G-77/China group), as "a suicide note for Africa," while most other countries admit that the outcome was far from perfect.¹⁷³¹ Copenhagen brought to the fore, the clear manifestation of the insecurity of the US in the face of its economic and political decline vis-à-vis China, weakening of the hitherto world climate change giant EU, and fragmentation of the G-77.¹⁷³² The Conference produced two main outcomes: the tentative political declaration and the continuation of UN negotiations, the new mandate which lacks binding climate agreement.¹⁷³³ Though embroiled in chaos and palpable bleak-end from the very beginning of it, Copenhagen would remain a "unique moment" in history,¹⁷³⁴ as far as climate change negotiations are concerned. It produced the conditions for increased attention by developing countries to adaptation and increased willingness among developed countries to address this issue. Though weak in language and lacking legality, with plenty of wiggle room, it brought to existence a promise to respond to adaptation needs, particularly for the most vulnerable countries, in a balanced way with mitigation efforts.¹⁷³⁵

6.2 The Cancún Climate Conference (COP 16) 2010

The Cancun climate conference was a follow-up to the Copenhagen conference which brought so much disappointment because of high hopes that were not met, hence a year later at the Cancun, there was much

¹⁷²⁸ BELIS David and SCHUNZ Simon, op cit, p.60.

¹⁷²⁹ BUYNINCKX Hans and YE Qi, The Increasingly Complex Nature of EU-China Climate Relations, in BUYNINCKX Hans et al (Eds.), *The Governance of Climate Relations Between Europe and Asia: Evidence From China and Vietnam as Key Emerging Economies*, Cheltenham, Edward Elgar Publishing, 2013, p.40.

¹⁷³⁰ MILIBAND Ed, Climate Summit Most Chaotic Show on Earth, BBC News Online, 20 December, 2009. Available at http://www.news.bbc.co.uk/1/hi/uk_politics/8423227.stm. Site visited 11-05-2014.

¹⁷³¹ AKANLE Tomilola "Tomi" et al, A Brief Analysis of the Copenhagen Climate Change Conference, International Institute for Sustainable Development (IISD), *The Earth Negotiations Bulletin Analysis of COP 15/CMP 5*, excerpted from Vol.12, No.459 of the Earth Negotiations Bulletin, (s.d.). Available at http://www.iisd.org/pdf/2009/enb_copenhagen_commentary.pdf. Site visited 14-05-2014. See also, GOLDENBERG Suzanne; HELM Toby and VIDAL John, Copenhagen: The Key Players and How They Rated, *The guardian Online*, 20 December, 2009. Available at <http://www.theguardian.com/environment/2009/dec/20/Copenhagen-obama-brown-climate>. Site visited 20-05-2014.

¹⁷³² ROBERTS Timmons J., Multipolarity and the New World (Dis)Order: US Hegemonic Decline and the Fragmentation of the Global Climate Regime, *Journal of Global Environmental Change*, Vol.21, Iss.3, August 2011, pp.776-784.

¹⁷³³ DIMITROV Radoslav S., Inside Copenhagen: The State of Climate Governance, *Global Environmental Politics*, Vol.10, No.2, May 2010, pp.18-24.

¹⁷³⁴ BROOKES Tom and NUTHALL Tim, What Did Copenhagen Climate Summit Achieve, BBC News Online, 21 December, 2009. Available at <http://www.news.bbc.co.uk/2/hi/science/nature/8424522.stm>. Site visited 28-04-2014. See also, CIPLET David; ROBERTS J. Timmons and KHAN Mizan, The Politics International Climate Adaptation Funding: Justice and Divisions in the Greenhouse, *Journal of Global Environmental Politics*, Vol.13, No.1, February 2013, pp.49-68

¹⁷³⁵ CIPLET David; ROBERTS J. Timmons and KHAN Mizan, The Politics of International Climate Adaptation Funding: Justice and Divisions in the Greenhouse, *Journal of Global Environmental Politics*, Vol.3 No.1, February 2013, pp.49-68.

serious progress in terms of global climate negotiations. By this, it salvaged the seeming-failure of Copenhagen.¹⁷³⁶ The Cancun summit was equally well attended by parties, with 193 nations participating, with a resolve to reach a “balanced package” of measures that would advance climate protection, while doing all to avoid the contentious issues of assessing emissions reductions commitments.¹⁷³⁷ A level of considerable progress and success was attained in Cancun because, the delegates had a higher pressure to deliver than they did in Copenhagen.¹⁷³⁸ This was because of a level of enabling trust to underpin the negotiations as parties felt considerably well consulted in the period preceding the summit and there was no apprehension of a secret text coming up to trump their work at Cancun. This trust was fundamental to reaching agreement.¹⁷³⁹ There was focus on operational details on the Copenhagen Accord decisions by the negotiators and ministers throughout 2010 and in Cancun as to incorporating the targets and actions rather than what they would be. China and the US were both in a much more cooperative mode, avoiding blame game and focusing on accomplishing the targets. Then, major negotiating blocs and key countries were able to see at least one of their top priorities in the final agreement while remaining flexible on other pieces to find common ground.¹⁷⁴⁰

Measurement, reporting and verification (MRV)

Cancun was able to set the basis for a system of measuring and checking efforts made to reduce emissions which has been accepted by all signatories, especially India, Brazil and China. It thus produced the basis for the most comprehensive and far reaching international response to climate change the world has ever seen to reduce carbon emissions and build a system which made all countries accountable to each other for those reductions.¹⁷⁴¹ So far, at least about 89 countries have now pledged to limit their emissions, accounting for more than 80 per cent of global emissions.¹⁷⁴² The parties recognised the “Gigatonne Gap” that is, the gap between mitigation pledges on the table and the targets needed to limit global warming below 2°C the basis of the agreement,¹⁷⁴³ but lacked a clear process to close the gap, which then is expected to form the basis of the

¹⁷³⁶ MONJON Stéphanie, Limiting Greenhouse Gas Emissions: Is Cancun Agreement Enough? International Journal of Atoms for Peace, Vol.3, No.3, 2012, pp.197-205. See also, EILPERIN Juliet and BOOTH William, Cancun Agreements Put 193 Nations on Track to Deal With Climate Change, The Washington Post, 11 December, 2010. Available at http://www.washingtonpost.com/wp-dyn/content/article/2010/12/11/AR2010121102308_pf.htm . Site visited 27-10-2011.

¹⁷³⁷ HULTMAN Nathan, The Cancun Agreements on Climate Change, Brookings, 23 March, 2011. Available at http://www.brookings.edu/opinions/2010/12/14_climate_hultman.aspx . Site visited 23-03-2011.

¹⁷³⁸ MORGAN Jennifer, Reflections on the Cancun Agreements, World Resources Institute (WRI), 14 December, 2010. Available at <http://www.wri.org/stories/2010/12/reflections-cancun-agreements> . Site visited 23-03-2011.

¹⁷³⁹ CONNOR John, Recognition: The Positive Side of Cancun, Ecos Magazine Online, 9 March, 2011. Available at <http://www.ecomagazine.com/paper/EC10077.htm> . Site visited 23-05-2014. See also, HULTMAN Nathan, *ibid*. See also, MORGAN Jennifer, *ibid*.

¹⁷⁴⁰ HULTMAN Nathan, *ibid*.

¹⁷⁴¹ United Nations Framework Convention on Climate Change (UNFCCC), Cancun Climate Change Convention- November 2010. Available at http://unfccc.int/meetings/cancun_nov_2010/meeting/6266.php . Site visited 22-05-2014. See also, MONJON Stéphanie, *op cit*.

¹⁷⁴² REIDY Chris and MCGREGOR Ian M., Climate Governance is Failing Us: We All Need to Respond, Journal of Multidisciplinary International Studies, Vol.8, No.3, September 2011.

¹⁷⁴³ Parties also agreed to consider a more ambitious 1.5°C limit based on the best available scientific knowledge. See Climate Focus, CP16/CMP6: The Cancun Agreements: Summary and Analysis, January 2011. See also, United Nations Framework Convention on Climate Change (UNFCCC), Cancun Climate Change Conference- November 2010. Available at http://unfccc.int/meetings/cancun_nov_2010/meeting/6266.php . Site visited 22-05-2014. See further, Thematic Digest- Stock of Knowledge on COP1-17 on Climate Change, *sine die*. Available at <http://www.icimod.org/resource/6036> . Site

negotiations in Bonn and Durban. The Cancun Long-term Cooperative Action (AWG-LCA), decision adopts the 2°C goal but introduces a benchmark from which this temperature increase is to be measured- from pre-industrial levels.¹⁷⁴⁴ From 2009, the climate change negotiations opened up an unprecedented opportunity for all developing countries to join global efforts to contribute towards reducing GHG emissions. On mitigation, developing countries agreed to craft Nationally Appropriate Mitigation Actions (NAMAs) that are in line with their national development objectives. Through NAMAs, developing countries aim to reduce their emissions below business as usual by 2020. COP16 decided to set up a registry to record NAMAs.¹⁷⁴⁵ Countries that are willing to support NAMA initiatives can enter the details of that support in the registry, thereby enabling developing countries in need of support to be matched with relevant offers.¹⁷⁴⁶ Developed countries would be expected to submit economy-wide emission reduction targets and agreed on strengthened reporting frequency and standards and to develop low-carbon national plans and strategies.¹⁷⁴⁷

Moving from Copenhagen to Cancun, parties have generally conceded that binding outcomes (top-down approaches) are not on the immediate horizon, rather a “balanced package of decisions,”¹⁷⁴⁸ (in other words, bottom-up approach) which represents political rather than legal commitments.¹⁷⁴⁹ On closer inspection, the KP also contains bottom-up elements, as its targets were not imposed by any kind of global authority, but were rather subject to bargaining and horse-trading among nations. Bottom-up entails national or regional mitigation or emissions reductions programmes put forward by countries on a strictly voluntary basis, based on a determination of what is socially, economically, politically and technically feasible and affordable to the countries considering their national circumstances. While, the top-down approach is hinged on a multilateral/universal approach, whereby negotiations are prepared defining the overall shape of the agenda first before proceeding to deal with the individual components. The former begins with details and works up to the highest conceptual level, with more flexibility and voluntary disposition of the parties, with their major

visited 26-05-2014. FUHR Lili, From Cancun to Durban-COP17, Heinrich Böll Stiftung, South Africa, 3 February, 2014.

Available at <http://za.boell.org/2014/02/03/cancun-durban-cop-17> . Site visited 23-05-2014.

¹⁷⁴⁴ RAJAMANI Lavanya, The Climate Regime in Evolution: The Disadvantage That Survive the Cancun Agreements, Carbon and Climate Law Review (CCLR), Vol.146, No.2, 2011, pp.136-146. See also, United Nations Framework Convention on Climate Change (UNFCCC), Cancun Climate Change Convention- November 2010. Available at http://unfccc.int/meetings/cancun_nov_2010/meeting/6266.php . Site visited 22-05-2014. See further, United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, Held in Cancun From 29 November to 10 December 2010, 15 March, 2011. Available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=17> . Site visited 20-05-2014.

¹⁷⁴⁵ Network of Regional Governments for Sustainable Development, The Cancun Agreements UNFCCC COP16/CMP6: Quick Guide, April 2011. Available at http://www.ngr4sd.org/default/files/content/public/29-climatechange/background/cop16/quick_guide_cancun_agreements_201104291.pdf . Site visited 25-05-2014.

¹⁷⁴⁶ United Nations Framework Convention on Climate Change (UNFCCC), Pre 2020 Ambition: Quantified Emission Limitation or Reduction Commitments by Developed Countries, 2014. Available at http://unfccc.int/focus/mitigation/pre_2020_ambition/items/8165.php . Site visited 23-05-2014.

¹⁷⁴⁷ Thematic Digest- Stock of Knowledge on COP1-17 on Climate Change, sine die. Available at <http://www.icimod.org/resource/6036> . Site visited 26-05-2014. See also, United Nations Framework Convention on Climate Change (UNFCCC), Cancun Climate Change Conference- November 2010. Available at http://unfccc.int/meetings/cancun_nov_2010/meeting/6266.php . Site visited 22-05-2014.

¹⁷⁴⁸ BODANSKY Daniel and DIRINGER Elliot, The Evolution of Multilateral Regimes: Implications for Climate Change, The Pew Center on Global Climate Change, December 2010. Available at <http://www.c2es.org/docUploads/evolution-multilateral-regimes-implications-climate-change-.pdf> . Site visited 22-05-2014.

¹⁷⁴⁹ BODANSKY Daniel, The Durban Platform: Issues and Options for a 2015 Agreement, Center For Climate and Energy Solutions, December 2012. Available at <http://www.c2es.org/docUploads/durban-platform-issues-and-options.pdf> . Site visited 26-05-2014.

concern hinged on investment protection, as against the latter first and beyond all the overarching environmental interests from which all issues then flow.¹⁷⁵⁰ The top-down approach refers to the traditional UNFCCC and the Kyoto Protocol approach, which sets binding quantitative economic-wide emission-reduction commitments according to the “carbon budget” for developed countries. It is criticized of lacking in effectiveness for the emissions reductions gap of 9 Gton CO₂eq between reaching the 2° goal and the lowest-ambition scenario. Countries also complain about the exclusion of the emerging countries economies like China and India in the emission reduction commitment scheme.¹⁷⁵¹ The bottom-up approach is based on pledges of emission reduction made by countries according to national circumstances. It encourages wider participation and potential compliance. Ensures overall higher reductions than the top-down approach as it involves more countries, which could lead to increased mitigation in shorter time frame.¹⁷⁵² As against a total discountenance of the top-down approach or an outright adoption of the bottom-up approach with its conceivable shortcomings too, a sectoral approach may be more convincing, as a hybrid approach to interest groups, as calculating emissions targets based on technological analysis may reduce uncertainty about future marginal costs of abatement. A sectoral approach would achieve effective emissions reductions by promoting technology development and transfer.¹⁷⁵³

Conversely, the Cancun Agreements, while based on national pledges, still put in place a process of international assessment and review for developed countries and international consultation and analysis for developing countries.¹⁷⁵⁴ These are only a little bit more relaxed than under the KP, which tend to make way for unwilling countries to stealthily avoid taking proper measures toward emissions reduction, unlike when they are well monitored as under the KP. The sum total of the entire national pledges falls far short of what is required to cut global emissions to 2°C as stipulated by the IPCC to avert a dangerous change situation.¹⁷⁵⁵ If the picture of enforcement from the beginning of the KP is anything to go by, the world may only by this new arrangement, be witnessing a gradual disintegration of the strength and systematic whittling down of commitment¹⁷⁵⁶ by hitherto committed countries from the resolve to bring under control the activities of countries on climate change until eventually there is nothing left absolutely and the world comes to the position it was before the KP was agreed in 1997. It is important that necessary parameters are inserted into the measurement, verification and reporting

¹⁷⁵⁰ LEAL-ARCAS Rafael, *Climate Change and International Trade*, Cheltenham, Edward Elgar Publishing, 2013, pp.294, 295, 311. See also, YANG Muxi, *Top Down, Bottom Up or a Hybrid?*, Duke to Warsaw Online, 19 November, 2013. Available at <http://www.sites.duke.edu/duketowarsaw/2013/11/19/top-down-bottom-up-or-a-hybrid/>. Site visited 31-05-2014.

¹⁷⁵¹ YANG Muxi, *ibid.*

¹⁷⁵² YANG Muxi, *ibid.*

¹⁷⁵³ SAWA Akihiro, *A Sectoral Approach as an Option for Post-Kyoto Framework*, The Harvard Project on International Climate Agreements, Discussion Paper 08-23, December 2008. See also, YANG Muxi, *ibid.*

¹⁷⁵⁴ Van ASSELT Harro; MEHLING Michael and SIEBERT Clarisse Kehler, *The Changing Architecture of International Climate Change Law*, in Van CALSTER G; VANDENBERGHE W. and REINS L. (Eds.), *Research Handbook on Climate Change Mitigation Law*, Cheltenham, Edward Elgar Publishing, 2014. Available at <http://www.ecocidealert.com/wp-content/uploads/2014/SSRN-id2402770.pdf>. Site visited 23-05-2014.

¹⁷⁵⁵ REIDY Chris and MCGREGOR Ian M., *Climate Governance is Failing Us: We All Need to Respond*, *Journal of Multidisciplinary International Studies*, Vol.8, No.3, September 2011.

¹⁷⁵⁶ The bottom-up process allows each party to determine its own target level, base year and accounting rules, which may allow uniformity of process among parties, and lack of transparency in the accounting process. See, BODANSKY Daniel, *A Tale of Two Architectures: The Once and Future U.N. Climate change Regime*, *Arizona State Law Journal*, Spring 2011, Vol.43, Iss.1, pp. 697-712.

(MRV) system adopted to monitor the non-Annex I countries¹⁷⁵⁷ and the US emission reductions, to ensure that countries which have avoided emissions reduction commitment before now, especially the emerging economies and the US, do not come through the back door to make a mockery of the commitments of the Annex I countries in this new dispensation as being witnessed from the Copenhagen outcome.¹⁷⁵⁸ This is on the heels of the fact that, there was no deal struck on a balance between developing countries demands for a new round of developed country targets under the KP and the refusal of Japan and some other developed countries to accede, thus leaving all options on the table with no clear path toward a binding agreement.¹⁷⁵⁹ This is a moral burden on the EU which has so far championed this cause to this time, before it be hijacked by these new reluctant entrants. The system of reporting is expected to be boosted by means of detailed annual inventories of GHG emissions and of biannual progress reports in emission reductions.¹⁷⁶⁰ In other words, ensuring transparency here is of the essence ultimately, to ensure that truly emission reductions are achieved as claimed by the reporting country. If this is unlike the KP which only gave states freedom in how they implement their commitments, but did not give them similar flexibility in defining the form and nature of their commitments, and yet it was not able to strictly hit the expected target, how then would this somewhat loose system be in the end? The KP prescribed a single type of international commitment (fixed emission targets, among other national priorities),¹⁷⁶¹ it could be reasonably justified that fears that countries would take advantage of the new system to abuse it than the previous system, particularly states like the emerging economies who do not want anything to interfere with their economic rise and development.

Finance

The Green Climate Fund (GCF), established at the COP15 and fleshed out in COP16, as an operating entity of the financial mechanism of the Convention, to help finance low carbon development strategies in developing

¹⁷⁵⁷ Developing countries that received international support for their mitigation would be subject to international verification. See Par. 61, United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, op cit. see also, Brookings Institution, The Cancun Agreements on Climate Change, 2010. Available at http://www.brookings.edu/2010/1214_climate_hultman.aspx. Site visited 07-11-2011.

¹⁷⁵⁸ The Chinese government acknowledged that its country's environmental situation is "extremely grim," because it failed to meet official pollution reduction goals for 2011-2013, and is therefore making an order to 6 million older, polluting vehicles off the roads, out of the estimated 240 million vehicles on its roads. See, MCDONALD Joe, China to Take 6 Million Vehicles Off Roads, ABC News Online, 27 May, 2014. Available at <http://www.abcnews.go.com/International/wireStory/china-million-older-vehicles-off-roads-23877244> . Site visited 27-05-2014. See also, WENCONG Wu, Figures Vary But Scientists Agree Cars Major Polluters, China Daily Online, 16-01-2014. Available at http://www.chinadaily.com.cn/business/motoring/2014-01/16/content_17238859.htm. Site visited 28-05-2014. See again, STANWAY David and CHEN Kathy, China to Scrap Millions of Cars in Anti-Pollution Push, Reuters Online, 26 May, 2014. Available at <http://www.reuters.com/article/2014/05/26/us-china-pollution-idUSKBN0E60AN20140526>. Site visited 28-05-2014.

¹⁷⁵⁹ Pew Center, Sixteenth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change and Sixth Session of the Meeting of the Parties to the Kyoto Protocol, November 29 – December 10, 2010, Cancún, Mexico. Available at <http://www.c2es.org/docUploads/cancun-climate-conference-cop16-summary.pdf> . Site visited 22-05-2014.

¹⁷⁶⁰ Network of Regional Governments for Sustainable Development, op cit. See also, Par. 40, United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, Held in Cancun From 29 November to 10 December 2010, 15 March, 2011. Available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=17> . Site visited 20-05-2014.

¹⁷⁶¹ BODANSKY Daniel, A Tale of Two Architectures..., op cit.

countries was strengthened and designed as an operating entity of the long-term financial mechanism of the UNFCCC under its Article 11.¹⁷⁶² The purpose of the Fund is to make a significant and ambitious contribution to the global efforts towards attaining the goals set by the international community to combat climate change and to contribute to the ultimate objective of the UNFCCC, and to promote the paradigm shift towards low-emission and climate-resilient development pathways by providing support to developing countries to limit or reduce their GHG emissions and to adapt to the impacts of climate change, in terms of sustainable development.¹⁷⁶³ The new guidance on the GCF sets forth principles for prioritizing and governing this aid, emphasizing both mitigation and adaptation. The Fund is to be administered by the World Bank (WB), for a three-year probationary period with the long-term manager to be agreed thereafter.¹⁷⁶⁴ The funding is expected to be sourced from a wide variety of sources, including public and private, bilateral and multilateral, as well as other alternative sources.¹⁷⁶⁵ The Fund operates under the “guidance” rather than the authority of the COP, and would be governed by a 24-member board with equal representation from developed and developing countries.¹⁷⁶⁶ The Cancun LCA decision incorporates these elements from the Copenhagen Accord in the text. It

¹⁷⁶² See Par.10 Copenhagen Accord, 2009. See also, LEAL-ARCAS Rafael, *Climate Change and International Trade*, Cheltenham, Edward Elgar Publishing, 2013, p.202. See also, EILPERIN Juliet and BOUTH William, op cit. See further, BODANSKY Daniel, *W[h]ither the Kyoto Protocol? Durban and Beyond*, Harvard Project on Climate Agreements, 2011. See further, STRECK Charlotte and CHAGAS Thiago, *Developments in Climate Finance From Rio to Cancun*, World Bank Legal Review, Vol.3, 2 October, 2011. Available at http://www.climatefocus.com/downloads/StreckChagas_final.pdf. Site visited 20-05-2014. Also, BODANSKY Daniel, *A Tale of Two Architectures: The Once and Future U.N. Climate change Regime*, Arizona State Law Journal, Spring 2011, Vol.43, Iss.1, pp. 697-712. See likewise, Climate Focus, CP16/CMP6: The Cancun Agreements: Summary and Analysis, January 2011. See again, United Nations Framework Convention on Climate Change (UNFCCC), Cancun Climate Change Conference- November 2010. Available at http://unfccc.int/meetings/cancun_nov_2010/meeting/6266.php. Site visited 22-05-2014. See as well, United Nations Framework Convention on Climate Change (UNFCCC), Green Climate Fund, 2014. Available at http://unfccc.int/cooperation_and_support/financial_mechanism/green_climate_fund/items/5869.php. Site visited 27-05-2014. See Par. 102, Decision1/CP.16, United Nations Framework Convention on Climate Change (UNFCCC), Cancun Climate Change Convention- November 2010. Available at http://unfccc.int/meetings/cancun_nov_2010/meeting/6266.php. Site visited 22-05-2014. See further, United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, Held in Cancun From 29 November to 10 December 2010, 15 March, 2011. Available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=17>. Site visited 20-05-2014. See as well RAJAMANI Lavanya, op cit.

¹⁷⁶³ Green Climate Fund, Songdo, May 2014. Available at <http://www.gcfund.org/home.html>. Site visited 27-05-2014. See also, Green Climate Fund, *Mandate and Governance*, 2014. Available at http://www.gcfund.org/about_the_fund/mandate-and-governance.html. Site visited 27-05-2014. See gain, United Nations Framework Convention on Climate Change (UNFCCC), Green Climate Fund, 2014. Available at http://unfccc.int/cooperation_and_support/financial_mechanism/green_climate_fund/items/5869.php. Site visited 27-05-2014.

¹⁷⁶⁴ HULTMAN Nathan, op cit. See also, Par. 107, United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, Held in Cancun From 29 November to 10 December 2010, 15 March, 2011. Available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=17>. Site visited 20-05-2014.

¹⁷⁶⁵ RAJAMANI Lavanya, op cit.

¹⁷⁶⁶ Climate Focus, op cit. See also, DRUMMOND Laura, *UNFCCC Green Climate Fund Created*, Journal of Sustainable Development Law and Policy, Vol.11, Iss.2, Winter 2011. See also, Par. 103, United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, Held in Cancun From 29 November to 10 December 2010, 15 March, 2011. Available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=17>. Site visited 20-05-2014. See further, Pew Center, Sixteenth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change and

“takes note” of and recognises commitments made by developed countries in relation to short and long term financing, acknowledging the World bank as its interim trustees.¹⁷⁶⁷ It further requires these funds to be for a balanced allocation between adaptation and mitigation, and provision for technology development and transfer, and capacity-building. Funding for adaptation will be prioritized for the most vulnerable developing countries such as the LDCs, SIDS and Africa.¹⁷⁶⁸ There exists divergences over the form and function of the Fund in discussions held up to 2012, while access modalities and modes of application for the Funds only gathered momentum during the 2013 third GCF Board meeting. It was however agreed that “a country-driven approach” should be employed as a core principle to building model of the Fund. The Board completed the essential policy requirements to make the Fund operational at its final meeting in Songdo, South Korea on May 2014.¹⁷⁶⁹ Lessons learned from the Adaptation Fund and the Global Environment Facility should form the design process of the GCF with particular attention to the direct access modalities.¹⁷⁷⁰ Ambiguity gives room for evasion of contribution on the part of contributors or donors, and misapplication and possibly fraud on the part of the recipients. Current commitments to climate change mitigation fall short both in ambition and in available financing. Studies show that both the additional \$30 billion in fast-start financing and the annual \$100 billion by 2020 stipulated by the Cancun Agreements are well below what was projected to be needed for the developing-country share of reducing global temperature to the agreed upon target. The World Bank Report 2010 indicates that the international community is far from reaching the amount of funding that is needed to stabilize CO₂ concentrations at 450ppm.¹⁷⁷¹

Sixth Session of the Meeting of the Parties to the Kyoto Protocol, November 29 – December 10, 2010, Cancún, Mexico. Available at <http://www.c2es.org/docUploads/cancun-climate-conference-cop16-summary.pdf> . Site visited 22-05-2014.

¹⁷⁶⁷ RAJAMANI Lavanya, op cit. See also, Pew Center, Sixteenth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change and Sixth Session of the Meeting of the Parties to the Kyoto Protocol, November 29- December 10, 2010, Cancún, Mexico. Available at <http://www.c2es.org/docUploads/cancun-climate-conference-cop16-summary.pdf> . Site visited 22-05-2014. See further, Climate Focus, CP16/CMP6: The Cancun Agreements: Summary and Analysis, January 2011.

¹⁷⁶⁸ See Paragraphs 95, 97 United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, Held in Cancun From 29 November to 10 December 2010, 15 March, 2011. Available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=17> . Site visited 20-05-2014. See also, NAFO Seyni, Defining “Mobilized” Climate Finance: Solving a Fractal Conundrum, Prepared for the Climate Change Expert Group (CCXG) Global Forum on the New UNFCCC Market Mechanism and Tracking Climate Finance, 19-20 March 2012, Paris. Available at <http://www.oecd.org/env/cc/50034085.pdf> . Site visited 15-05-2014. See as well, DRUMMOND Laura, op cit. See further, Van AASELT Harro; MEHLING Michael and SIEBERT Clarisse Kehler, The Changing Architecture of International Climate Change Law, in Van CALSTER G; VANDENBERGHE W and REINS L., Research Handbook on Climate Change Mitigation Law, Cheltenham, Edward Elgar Publishing, 2014. Available at <http://www.ecocidealert.com/wp-content/uploads/2014/SSRN-id2402770.pdf> . Site visited 23-05-2014.

¹⁷⁶⁹ United Nations Framework Convention on Climate Change (UNFCCC), Statement by UNFCCC Executive Secretary Christiana Figueres on the Completion of the Institutional Design of the Green Climate Fund, United Nations Climate Change Secretariat Media Alert, 21 May, 2014. Available at http://unfccc.int/files/press/press_releases_advisories/application/pdf/ma20142105_cf_gcf.pdf . Site visited 25-05-2014.

¹⁷⁷⁰ Green Climate Fund Website. Available at <http://www.gcfund.net> . Site visited 28-09-2013. See also, Southeast Asia Network of Climate Change Offices (SEAN-CC), Green Climate Fund Briefing Paper, Background, UNEP SEAN-CC Pre-COP19, October 2013. See as well, Green Climate Fund, Mandate and Governance, 2014. Available at http://www.gcfund.org/about_the_fund/mandate-and-governance.html . Site visited 27-05-2014.

¹⁷⁷¹ STRECK Charlotte and CHAGAS Thiago, op cit. See also, ABBOTT Kenneth w. and GARTNER David, The Green Climate Fund and the Future of Environmental Governance, Earth System Governance Working Paper No.16, Lund, 2011. See further, Southeast Asia Network of Climate Change Offices (SEAN-CC), Green Climate Fund Briefing Paper, Background,

Technology transfer and capacity-building

The Agreements established a new and potentially interesting approach by creating an international Technology Mechanism (TM), consisting of a Technological Executive Committee (TEC) and a Climate Technology Centre and Network (CTCN) to facilitate the process of clean technology sharing knowledge among all nations with a particular focus on developing countries.¹⁷⁷² It outlines the establishment of a TEC and a CTCN,¹⁷⁷³ to make fully operational by 2012 this technology mechanism to boost the innovation, development and spread of new climate-friendly technologies, with the goal to match technology suppliers with technology needs.¹⁷⁷⁴ The new TEC consists of 20 experts- 11 from developing countries and 9 from developed countries, who will identify technology needs, coordinate international efforts and make recommendations towards making them effective. Members of this body are to be high-level expert nominees from Parties. The CTCN has a smaller center and large network, including regional units. Its responsibilities include facilitating international network of national, regional, sectoral and international networks to provide advice and support to needy developing countries and

UNEP SEAN-CC Pre-COP19, October 2013. See likewise, ADLER Robert W., Climate Change Adaptation and Agricultural and Forestry Law, in VERSCHUUREN Jonathan (Ed.), Research handbook on Climate Change and Adaptation Law, Cheltenham, Edward Elgar Publishing, 2013, p.235.

¹⁷⁷² EILPERIN Juliet and BOOTH William, Cancun Agreements Put 193 Nations on Track to Deal With Climate Change, The Washington Post Online, 11 December, 2010. Available at http://www.washingtonpost.com/wp-dyn/content/article/2010/12/11/AR2010121102308_pf.htm . Site visited 27-10-2011. See also, DRUMMOND Laura, UNFCCC Green Climate Fund Created, Journal of Sustainable Development Law and Policy, Vol.11, Iss.2, Winter 2011. See further, Part IV (b), United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, Held in Cancun From 29 November to 10 December 2010, 15 March, 2011. Available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=17> . Site visited 20-05-2014. See also, LEAL-ARCAS Rafael, op cit, p.205. Van ASSELT Harro; MEHLING Michael and SIEBERT Clarisse Kehler, op cit. see as well, PUEYO Ana et al, The Role of Technology Transfer for the Development of a Local Wind Component Industry in Chile, Journal of Energy Policy, Vol.39, 2011, pp.4274-4283. See likewise, RAJAMANI Lavanya, op cit. See again, HULTMAN Nathan, op cit.

¹⁷⁷³ Mary Robinson Foundation, COP Timeline, Mary Robinson Foundation- Climate Justice, 2014. Available at <http://www.mrfcj.org/our-work/unfccc/cop-timeline.html>. Site visited 26-05-2014. See also, HULTMAN Nathan, op cit. See as well, Pew Center, Sixteenth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change and Sixth Session of the Meeting of the Parties to the Kyoto Protocol, November 29 – December 10, 2010, Cancún, Mexico. Available at <http://www.c2es.org/docUploads/cancun-climate-conference-cop16-summary.pdf> . Site visited 22-05-2014. See further, Paragraph 117 (a) and (b), United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, ibid. See as well, MORGAN Jennifer, op cit.

¹⁷⁷⁴ United Nations Framework Convention on Climate Change (UNFCCC), Cancun Climate Change Conference- November 2010. Available at http://unfccc.int/meetings/cancun_nov_2010/meeting/6266.php . Site visited 22-05-2014. See further, Thematic Digest- Stock of Knowledge on COP1-17 on Climate Change, sine die. Available at <http://www.icimod.org/resource/6036> . Site visited 26-05-2014. See also, Mary Robinson Foundation, COP Timeline, Mary Robinson Foundation- Climate Justice, 2014. Available at <http://www.mrfcj.org/our-work/unfccc/cop-timeline.html>. Site visited 26-05-2014.

to stimulate development as well as facilitating and encouraging cooperation.¹⁷⁷⁵ These are responsible for facilitating the effective implementation of the Technology Mechanism under the guidance of the COP.¹⁷⁷⁶

The Cancun Agreements emphasised the necessity of determining technology needs on a national-level and the priority of strengthening national systems of innovation and technology innovation centres, as well as the development and implementation of national technology plans for mitigation and adaptation.¹⁷⁷⁷ Coupled with this is an explicit provision for capacity-building in the Agreements.¹⁷⁷⁸ It requires that capacity-building support be enhanced to the developing country Parties with a view to strengthening endogenous capacities at the subnational, national or regional levels, as appropriate to bring about the achievement of the full, effective and sustained implementation of the Convention.¹⁷⁷⁹ Capacity refers to the combination of all the resources available to humanity to achieve established goals.¹⁷⁸⁰ The quest for a full, effective and sustained implementation has largely involved a set of players like the multilateral development banks such as the World Bank Group and other regional banks like the African Development Bank (AfDB), setting up pilot programmes for climate resilience (PPCR), which has closely integrated adaptation into existing development planning.¹⁷⁸¹ A key question for planning adaptation is how to take into account the dynamic interactions between environment, society and adaptation, being a recognisable two-way connection between development and adaptation/adaptive capacity.¹⁷⁸² Bilateral agreements in science, trade, technological, technical, socio-economic and other research areas related to climate change may enhance capacity building, by promoting education and public awareness and exchange of information related to these.¹⁷⁸³

The UNFCCC provides for all that should ascertain true capacity-building in developing country Parties, requiring the strengthening of relevant institutions at various levels and national coordinating bodies and organisations, networks for the generation, sharing and management of information and knowledge through North-South, South-South and triangular cooperation, climate change communication, education, training and public

¹⁷⁷⁵ MORAGN Jennifer L., op cit. See also, Climate Focus, CP16/CMP6: The Cancun Agreements: Summary and Analysis, January 2011. See further, MASON-CASE Sarah, The Cancun Agreements and Legal Preparedness for Climate Change in Developing Countries, Sustainable Development Law on Climate Change Legal Working Paper Series, March 2011. Available at

http://www.cisd.org/public/docs/legal/MasonCaseSarah_TheCancunAgreementsandLegalPreparednessforClimateChangeinDevelopingCountries.pdf . Site visited 28-05-2014. See again, Pew Center, op cit.

¹⁷⁷⁶ See Par. 118, United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, op cit.

¹⁷⁷⁷ MASON-CASE Sarah, op cit.

¹⁷⁷⁸ See Part IV (C), United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, op cit.

¹⁷⁷⁹ Par. 130, *ibid*.

¹⁷⁸⁰ Lyster Rosemary, Adaptation and Climate Justice, in VERSCHUUREN Jonathan, Research Handbook on Climate Change Adaptation Law, Cheltenham, Edward Elgar Publishing, 2013, p.41.

¹⁷⁸¹ FANKHAUSER Samuel and BURTON Ian, Spending Adaptation Money Wisely, Centre for Climate Change Economics and Policy Working Paper No.7, and Grantham Research Institute on Climate Change and Environment Working Paper No.37, January 2011, p.13. Available at http://www.eprints.lse.ac.uk/36255/1/Spending_adaptation_money_wisely.pdf. Site visited 29-05-2014.

¹⁷⁸² BOSELLO Francesco et al., Challenges to Planning Climate Adaptation Strategies in Europe, Bottom-up Climate Adaptation Strategies Towards a Sustainable Europe (BASE) Policy Brief, Issue No.1, April 2013. Available at http://www.base-adaptation.eu/sites/default/files/BASEPolicyBrief_No_1April2013.pdf . Site visited 29-05-2014.

¹⁷⁸³ See Article 4.1 (g), UNFCCC, 1992. See also. LEAL-ARCAS, Rafael, op cit., p.185.

awareness at all levels, strengthening integrated approaches and stakeholders participation, supporting existing emerging capacity-building needs in areas of mitigation, adaptation technology development and transfer among others.¹⁷⁸⁴ It also requires that financial resources (both public and private) for enhanced action on capacity-building in developing country Parties be provided by the Annex II Parties and other Parties (developed countries) in a position to do so.¹⁷⁸⁵ Training and education constitute the fulcrum of information sharing a significant aspect of capacity-building. But this basic window of capacity-building is being systematically stifled by the developed countries as they have consistently been hiking cost of training of manpower from developing countries,¹⁷⁸⁶ and also raising higher the entry requirements standards for admissions to academic programmes for prospective candidates from these developing countries beyond the reach of their products, thus denying them access to acquisition of basic and current technologies which they lack, which in multiplier terms constitute a strong setback in these mostly poor countries catching up technologically. This is subtle denial of information and technology transfer. It may be expedient to engage more academic institutions in the developing countries in sustainable development programmes like collaboration and exchange of academic and technical staff, which will greatly enhance the standing of such institutions and the quality of their graduates, making them more suitable for present challenges in a demanding world. Information and technology transfer to China and India through compulsory licensing offers a unique opportunity to exploit the benefits of international trade,¹⁷⁸⁷ but has created environmental nightmare in these countries and some other emerging economies countries which failed to take due care of the environmental aspects of their economic development. Developing, identifying and diffusing sustainable technologies are expensive tasks, which will not be accomplished without a major and constant commitment of resources from rich countries, but the recipient countries are essentially required to be full partner in the process.¹⁷⁸⁸ More recently, research reveals that breakthrough technologies cannot improve the performance of international environmental agreements with the exception of breakthrough technologies that exhibit increasing returns to scale. This will be enough to

¹⁷⁸⁴ Par. 130, (a)-(e), United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, op cit.

¹⁷⁸⁵ See, Par. 130, (a)-(e), United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, ibid. See also, LEAL-ARCAS Rafael, op cit., p.192. GOODSTEIN Eban S., Economics and the Environment (5th Ed.), Hoboken, John Wiley & Sons Publishing, 2008, pp.457-458.

¹⁷⁸⁶ Student News, Overseas Students Used as 'Cash Cows' by UK Universities, The Independent Online, 8 August, 2013. Available at <http://www.independent.co.uk/student/news/overseas-students-used-as-cash-cows-by-uk-universities-8752635.html>. Site visited 23-11-2013. See also, Press Association, International Students Charged Four Times as Much in Fees as UK Students, Huffington Post Online, 8 August, 2013. available at http://www.huffingtonpost.co.uk/2013/08/08/international-students-cash-cows-tuition-fees_n_3726304.html. Site visited 23-11-2013. See further, BURNS Judith, International Students Pay Premium at UK Universities, BBC News Education and Family, 9 August, 2013. Available at <http://www.bbc.co.uk/news/education-23614142>. Site visited 23-11-2013. See as well, PATON Graeme, Universities 'Using Foreign Students as Cash Cows,' The Telegraph Online, 20 September, 2012. Available at <http://www.telegraph.co.uk/education/university/955608/Universities-using-foreign-students-as-cash-cows.html>. Site visited 23-11-2013. See again, SUROOR Hasan, UK Universities Told to Stop Treating Foreign Students as 'Cash Cows,' First Post Online, 14 August, 2013. Available at <http://www.firstpost.com/world/uk-universities-told-to-stop-treating-foreign-students-as-cash-cows-1032147.html>. Site visited 23-11-2013. See equally, International Student, British Council Warns UK Universities, 29 March, 2010. Available at <http://www.blog.internationalstudent.com/2010/03/british-council-warns-uk-universities/>. Site visited 23-11-2013.

¹⁷⁸⁷ GUPTA Rishi R., Compulsory Licensing in TRIPS: Chinese and Indian Comparative Advantage in the Manufacture and Exportation of Green Technologies, Journal of Sustainable Development Law and Policy, Vol.12, Iss.5, Rio+20 Article 5, Spring 2012, 21, 54-55.

¹⁷⁸⁸ GOODSTEIN Eban S., op cit, p.459.

reverse the nature of the game when emissions are completely eliminated and hence the fact that different results would be obtained in the alternative. It is imperative that it is only with conscious cooperation between the technology advanced and developing countries that substantial pollution emissions reduction could be achieved, without this, countries would pollute more for the same level of investment and consequently, raise global emissions.¹⁷⁸⁹

Reducing emissions from deforestation and forest degradation in developing countries

Both the UNFCCC¹⁷⁹⁰ and the KP¹⁷⁹¹ have provisions on deforestation, requiring parties and Annex I countries to promote the sustainable management and cooperate in the conservation and enhancement of sinks and reservoirs. It also requires meeting their emissions reduction commitments by using net changes in GHG emissions by sources, and removals by sinks resulting from direct human-induced land-use change and forestry activities.¹⁷⁹² The idea of including avoided deforestation in the climate convention was revived at the 2005 COP in Montreal with the submission of a proposal by Papua New Guinea (PNG) and Costa Rica on behalf of the newly formed 'Coalition for Rainforest Nations' (CfRN).¹⁷⁹³ REDD starting its evolution from Montreal COP11, is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forest lands and invest in low-carbon paths to sustainable development.¹⁷⁹⁴ In other words, payment for ecosystem services (PES) approach to climate change mitigation providing opportunities to address mitigation and adaptation in complimentary ways.¹⁷⁹⁵ REDD took its root from the adoption of the KP, as a key climate change mitigation strategy, and was formalized at the thirteenth session of the Conference of the Parties (COP13), to the UNFCCC in Bali 2007, before advancing a step further to its present status in the COP16 Cancun 2009.¹⁷⁹⁶ REDD+¹⁷⁹⁷ goes beyond deforestation and forest degradation and includes the role of

¹⁷⁸⁹ EL-SAYED Abeer and RUBIO Santiago J., Sharing R&D Investments in Cleaner Technologies to Mitigate Climate Change, FEEM Working Paper No.41, 2014.

¹⁷⁹⁰ See Article 4.1(d), UNFCCC.

¹⁷⁹¹ See Article 3.3 and 3.4, KP.

¹⁷⁹³ OKEREKE Chukwumerije and DOOLEY Kate, Principles of Justice in Proposals and Policy Approaches to Avoided Deforestation: Towards a Post-Kyoto Climate Agreement, Global Environmental Change, Vol.20 Iss.1, February 2010, pp.82-95.

¹⁷⁹⁴ SPRATT Stephen and CRAWFORD Guy, Researching Forest Taxation and REDD+ in sub-Saharan Africa: A Concept Note and Call for Research Partners, June 2013. Available at <http://www.ictd.ac/sites/default/files/Files/Forests-TaxationandREDD%2Bin-sub-Saharan-Africa> . Site visited 04-06-2014.

¹⁷⁹⁵ ADLER Robert W., Climate Change Adaptation and Agricultural and Forestry Law, in VERSCHUUREN Jonathan (Ed.), Research handbook on Climate Change and Adaptation Law, Cheltenham, Edward Elgar Publishing, 2013, p.235.

¹⁷⁹⁶ See, Paragraphs 68-79, United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, Held in Cancun From 29 November to 10 December 2010, 15 March, 2011. Available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=17>. Site_ See also, visited 20-05-2014. The REDD Desk, What is REDD+? 14 May, 2014. Available at <http://www.theredddesk.org/what-is-redd#toc-4>. Site visited 03-06-2014.

¹⁷⁹⁷ REDD+ aims include to prevent over exploitation of forest resources; to encourage sustainable forest management; to ensure that proceeds (taxes and REDD+ finance) are distributed equitably, and to minimise corruption and maximise compliance. See SPRATT Stephen and CRAWFORD Guy, op cit.

conservation,¹⁷⁹⁸ sustainable management of forests and enhancement of forest carbon stock in developing countries, thus giving it the sobriquet “plus,” with its original appellation.¹⁷⁹⁹ To enhance the provisions on deforestation and forest management, the UNFCCC at the Bali COP 13, mandates parties to negotiate a post 2012 instrument with possible financial incentives for forest-based climate change mitigation actions in developing countries. Parties, particularly developed country parties were thus among others, encouraged to support capacity-building, provide technical assistance, facilitate the transfer of technology and address institutional needs of developing countries to estimate and reduce emissions from deforestation and forest degradation. It created a process under the Subsidiary Body for Scientific and Technological Affairs (SBSTA) to handle issues relating to REDD emissions reporting.¹⁸⁰⁰

The Cancun Agreement building on the Copenhagen Accord,¹⁸⁰¹ was elaborate in its considerations of issues on reducing emissions from deforestation (REDD+), considering that deforestation and degradation of forests in developing countries contribute to approximately 12 to 17 per cent of the global annual GHG emissions, and approximately 20-25 of global anthropogenic GHG emissions, and are the main sources of emissions from many developing countries.¹⁸⁰² The decision outlines a phased approach to strengthening efforts by developing countries to reduce emissions from deforestation and other forestry-related activities, starting with the development of national strategies and evolving into result-based actions that should be fully measured, reported and verified.¹⁸⁰³ There are considerable differences among developing countries such that makes a phased implementation approach necessary, thus allowing countries to go through the process of policy design, stakeholder consultation, and consensus building, testing and evaluating in accordance with their national status.¹⁸⁰⁴ The Agreements established a mechanism that encourages developing countries to contribute to mitigation actions in the forest sector by the full scope of REDD+ activities.¹⁸⁰⁵ It requires the developing

¹⁷⁹⁸ Provides safeguards in biodiversity conservation. See SCHMITT Christine et al, Greening REDD+: Challenges and Opportunities for Forest Biodiversity Conservation, CBD Global Expert Workshop on Biodiversity Benefits, Nairobi, 20-23 September, 2010. Available at <http://www.cbd.int/doc/meetings/for/ewredd-01/other/ewredd-01-uni-freiburg-en.pdf>. Site visited 05-06-2014.

¹⁷⁹⁹ UN-REDD Programme, About REDD+, 2009. Available at <http://www.un-redd.org/aboutredd/tabid/102614/default.aspx>. Site visited 02-06-2014. See also, ADLER Robert W., op cit, p.235.

¹⁸⁰⁰ See Paras.75, 76, UN-REDD, United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, op cit. See also, UN Collaborative Programme on Reducing Emissions From Deforestation and Forest Degradation in Developing Countries (UN-REDD), FAO, UNDP, UNEP Framework Document, 20 June, 2008. Available at http://www.un-redd.org/Portal/15/documents/publications/UN-REDD_FrameworkDocument.pdf. Site visited 02-06-2014.

¹⁸⁰¹ Paragraph 6 of the Copenhagen Accord states that the Parties to the UNFCCC: “recognise the crucial role reducing emission from deforestation and forest degradation and the need to enhance removals of greenhouse gas emission by forests and agree on the need to provide positive incentives to such actions through the immediate establishment of a mechanism including REDD-plus, to enable the mobilisation of financial resources from developed countries.” The Accord in a short paragraph was rich in promise but limited in details, indeed sought to create a REDD+ Mechanism, but failed to scale through the distrust and bickering that characterised the last moments of the Copenhagen conference. See RAJAMANI Lavanya, op cit. See also, Van ASSELT Harro; MEHLING Michael and SIEBERT Kehler op cit.

¹⁸⁰² CUYPERS Dieter; DAUWE Tom and VANGOIDSENHOVEN Marieke, REDD+ in the Cancun Agreement: An Analysis From the Front Line, Be-REDDi Working Paper No.1, March 2011. See also, KAROUSAKIS Katia, Initial Review of Policies and Incentives to Reduce GHG Emissions From Deforestation, International Energy Agency, OECD, October 2006, p.6.

¹⁸⁰³ Pew Center, op cit.

¹⁸⁰⁴ CUYPERS Dieter; DAUWE Tom and VANGOIDSENHOVEN Marieke, op cit.

¹⁸⁰⁵ Climate Focus, CP16/CMP 6: The Cancún Agreements: Summary and Analysis, Climate Focus, Amsterdam, January 2011.

countries to develop national strategies, forest reference levels and a forest monitoring system as well as provide information on “safeguards, as an important feature of the REDD+ framework.”¹⁸⁰⁶ Cancun made safeguard principles on forest governance and social environmental and climate concerns clear and accessible to stakeholders of REDD+ participating countries which are meant to be promoted and supported in accordance with the principles listed in the Agreement.¹⁸⁰⁷ A consociation of the UNEP, the International Resource Panel and UN REDD have launched a report outlining how integrating REDD+ programmes into a green economy approach can help mitigate climate change, while conserving and even boosting the economy and social benefits that forests provide to human society.¹⁸⁰⁸ In both Bali and Cancun, the Parties committed to ensuring the establishment of an improved accounting mechanisms and rules necessary to account properly for emissions reductions from improved forestry practices for potential inclusion in a post-Kyoto climate regime.¹⁸⁰⁹ It provides for reliable measuring, reporting and verification (MRV),¹⁸¹⁰ a process which converts national governments into principal forest stakeholders. In addition to this, it calls on developing countries to develop a national strategy or action plan; a national forest or forest emission reference level; and a transparent national system for monitoring and reporting of conservation and emission-reduction efforts.¹⁸¹¹ The Cancun Agreements laid down the necessity that mitigation actions in the forest sector must promote or support “respect for the knowledge and rights of indigenous peoples and members of local communities,” while ensuring “the full and

¹⁸⁰⁶ Safeguard are policies and measures designed to prevent risks of impairing effects of climate change mitigation measures as REDD-plus (such as increasing GHGs in another forms and places or resulting in effects of emissions reductions and increased absorption to be a temporary) and negative impacts on forest governance, the natural environment and society, and to enhance positive effects. See, IEHARA Toshiro, Basic Knowledge Needed for REDD-plus Implementation, in HIRATA Y, et al, REDD-Plus Cookbook, REDD Research and Development Center, Forestry and Forest Products Research Institute, Japan, June 2013, p.38. Available at <http://www.ffpriaffrc.go.jp/redd-rdc/en/reference/cookbook.htm>. Site visited 23-05-2014. See also, CHHATRE Ashwini et al., Social Safeguards and Co-Benefits in REDD+: A Review of the Adjacent Possible, Journal of Current Opinion in Environmental Sustainability, Vol.4, Iss.6, December 2012, pp.654-660. See further, VISSEREN-HAMAKERS Ingrid J. et al, Trade-offs, Co-benefits and Safeguards: Current Debates on the Breadth of REDD+, Journal of Current Opinion in Environmental Sustainability, Vol.4, Iss.6, December 2012, pp.646-653. See as well, Pew Center, Sixteenth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change and Sixth Session of the Meeting of the Parties to the Kyoto Protocol, November 29 – December 10, 2010, Cancún, Mexico. Available at <http://www.c2es.org/docUploads/cancun-climate-conference-cop16-summary.pdf> . Site visited 22-05-2014.

¹⁸⁰⁷ IEHARA Toshiro, *ibid.*, p.38. See also, MCDERMOTT Constance L., et al, Operationalizing Social Safeguards in REDD+: Actors, Interests and Ideas, Journal of Environmental Science and Policy, Vol.21, August 2012, pp.63-72. See as well, RAJAMANI Lavanya, *op cit.*

¹⁸⁰⁸ MCGLADE Jacqueline, Tackling Climate Change- First Grab the World’s Attention, University World News, Iss.00320, 22 May, 2014. Available at <http://www.universityworldnews.com/article.php?story=20140511152055198> . Site visited 22-05-2014.

¹⁸⁰⁹ ADLER Robert W., *op cit.*, p.237.

¹⁸¹⁰ AVITABILE Valerio, Measuring Tropical Forest Carbon Stocks, in LYSTER Rosemary; MACKENZIE Catherine and MCDERMOTT Constance (Eds.), Law, Tropical Forests and Carbon: The Case of REDD+, Cambridge, Cambridge University Press, 2013, p.48.

¹⁸¹¹ PHELPS Jacob; WEBB Edward L. and AGRAWAL Arun, Does REDD+ Threaten to Recentralise Forest Governance? Policy Forum, Vol.328, April 2010. Available at http://www.rightsandresources.org/documents/files/doc_1461.pdf. Site visited 05-06-2014. See also, CUYPERS Dieter; DAUWE Tom and VANGOIDSENHOVEN Marieke, *op cit.* See likewise, Climate focus, CP16/CMP6: The Cancun Agreements, *op cit.* See equally, Pew Center, Sixteenth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, *op cit.*

effective participation of relevant stakeholders, in particular indigenous peoples and local communities” in such activities.¹⁸¹²

This basic requirement of the Agreements many developing countries are yet to come to terms with, as many indigenous peoples are still grossly alienated from this requirement on their land, either by the government or by TNCs operating as agents of the State. This is one of the very basic issues in the Niger Delta area of Nigeria, where both the government and the oil TNCs operating in the area jointly constitute a threat to the people, who in response after exhaustive agitation have taken to self-help by way of anarchy and brigandage. Safeguards are meant to amplify the comparative strengths of local communities that could be brought to bear upon the success of REDD+ in sequestering carbon while providing social co-benefits.¹⁸¹³ The Agreements set the stage for a nationally-driven phased approach to REDD+ with a framework of a three-phase process for further development for developing countries: (i) development of national strategies or action plans and capacity building; (ii) implementation of national strategies or action plans that could involve REDD+ pilot projects; and (iii) results-based REDD+ with financing likely to include both market and non-market mechanisms.¹⁸¹⁴ The Agreements calls on parties to promote, support and report on the implementation of seven social and environmental safeguards for REDD+, which includes transport governance, respect for the rights of indigenous peoples and local populations, as well as their full participation in in REDD+ activities, and actions that reduce the risks of biodiversity loss, reveals (permanence) and displacement of emissions leakage.¹⁸¹⁵ It provides guidelines for developing countries to identify and implement REDD+ actions that could reduce GHG emissions from deforestation and land-use change,¹⁸¹⁶ and encouraged developed countries to assist in this process. It however, merely provides the framework and do not obligate any country to specific reductions, in the hope that future multi or bilateral agreements could arise as a result of the more formalized REDD process imitated under the Cancun Agreements, but as of now remains only an open question.¹⁸¹⁷ Developed countries on their part have a clearly defined role to provide financial support and that they should address their own actions that drive deforestation.¹⁸¹⁸

The AWG-LCA has the responsibility to explore financing options for the full implementation of results-based actions (phase III implementation of REDD+), and a separate decision on market based mechanisms which was

¹⁸¹² See, Appendix I to Decision 1, Cancun Agreements. See also, MCDERMOTT Constance L., et al.

¹⁸¹³ CHHATRE Ashwini et al, Social Safeguards and Co-Benefits in REDD+: A Review of the Adjacent Possible, Journal of Current Opinion in Environmental Sustainability, Vol.4, Iss.6, December 2012, pp.654-660. See also, CUYPERS Dieter; DAUWE Tom and VANGOIDSENHOVEN Marieke, op cit.

¹⁸¹⁴ International Institute for Sustainable Development (IISD), What is REDD+? 2013. Available at http://www.iisd.org/climate/land_use/redd/about.aspx. Site visited 02-06-2014. See also, Climate Focus, CP16/CMP 6, op cit.

¹⁸¹⁵ JAGGER Pamela et al, REDD+ Safeguards in National Policy Discourse and Pilot Projects, in ANGELSEN Arild et al (Eds.),Analysing REDD+: Challenges and Choices, Bogor, Center for International Forestry Research (CIFR), 2012, p.301.

¹⁸¹⁶ ROBLEDO Carmenza and BLASER Jürgen, Summary of “Key Issues in Negotiations on Land Use, Land Use Change and Forestry, With an Emphasis on Developing Countries,” in CARPENTER Chad, The Bali Action Plan: Key Issues in the Climate Negotiations: Summary for Policy Makers, Environment and Energy Group, September 2008. Available at http://www.globalbioenergy.org/uploads/media/0809_UNDP_-_The_bali_action_plan_key_issues_in_the_climate_negotiations.pdf . Site visited 05-02-2014.

¹⁸¹⁷ HULTMAN Nathan, op cit.

¹⁸¹⁸ MORGAN Jennifer, Reflections on the Cancun Agreements, World Resources Institute, 14 December, 2010. Available at <http://www.wri.org/stories/2010/12/reflections-cancun-agreements>. Site visited 23-03-2011.

finalised in Durban 2011.¹⁸¹⁹ Under REDD+, recipient governments will devise strategies for land-use and forest sector planning, stakeholder negotiations, tenure clarification, carbon brokering, national-level carbon accounting, and provision of funds and services to local actors.¹⁸²⁰ The country-driven approach of the Cancun Agreements was specific on legal reform and related local development necessary to REDD+, including impact assessments, natural resource law, water management laws and land tenure claims. REDD+ is financed through the forest tax systems, intended to be characterised by very low-levels of revenue collection, meant to check widespread corruption and endemic illegal logging, resulting in a rapid and unsustainable rate of deforestation in many countries. Also from the Forest Carbon Partnership Facility (FCPF), a World Bank programme consisting of the Readiness Fund and the Carbon Fund, established in 2008 as a global partnership focused on REDD+. It is also meant to assist tropical and sub-tropical forest countries develop the systems and policies for REDD+, providing them with performance-based payments for emissions reductions. This Fund complements the UNFCCC negotiations on REDD+ by demonstrating REDD+ national level application. It attracts funds from sixteen financial contributors, which altogether pledged about US\$447 million.¹⁸²¹ Within its first two years of operation, the Fund has created a framework and processes for REDD+ readiness, which helps countries get ready for future systems of financial incentives for REDD+.¹⁸²²

Asides competing governance structures and interests which could give rise to conflicts and create barriers to REDD+,¹⁸²³ upbeat security apparatus to counter and curb activities of forest poachers and effectively curb illegal felling and logging of wood would be essential in many developing countries. Curbing the activities of these may be of enormous costs to the government for many obvious reasons among which are: high cost of litigation of arrested vandals, exorbitant cost of effecting law review or reform, to ensure their achieving the desired aims of the state, high cost of acquisition of modern equipment for effective monitoring of the forests. Some or a combination of these could actually hamper the government's success in this aspect. Criminals engaging in such illicit business are known to have vast networks, oftentimes international, hence make them quite financially buoyant enough to withstand legal confrontations from the governments, just like the case in oil bunkering and smuggling in some oil-producing countries. Law enforcement agencies in most cases are handicapped in bringing

¹⁸¹⁹ See Para. 77 United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, op cit. See also, Climate Focus, CP16/CMP 6, op cit. See also, CUYERS Dieter; DAUWE Tom and VANGOIDSENHOVEN Marieke, op cit.

¹⁸²⁰ PHELPS Jacob; WEBB Edward L. and AGRAWAL Arun, Does REDD+ Threaten to Recentralise Forest Governance? Policy Forum, Vol.328, April 2010. Available at http://www.rightsandresources.org/documents/files/doc_1461.pdf. Site visited 05-06-2014.

¹⁸²¹ Agence Française de Développement, Australia, British Petroleum, Canada, CDC Climat, Denmark the EU, Finland, Germany, Italy, Japan, The Nature Conservancy, the Netherlands, Norway, Spain, Switzerland, the UK and the US.

¹⁸²² Forest Carbon Partnership, The Forest Carbon Partnership Facility, 2010. Available at <http://www.forestcarbonpartnership.org/fcp/node/12>. Site visited 25-10-2011. See also, Climate Funds Update, Forest Carbon Partnership Facility, sine die. Available at <http://www.climatefundsupdate.org/listing/forest-carbon-partnership-facility>. Site visited 18-06-2014. See as well, The Forest Carbon Partnership Facility: Facilitating the Weakening of Indigenous Peoples' Rights to Lands and Resources, Briefing by the Forest Peoples Programme, February 2008.

¹⁸²³ MASON-CASE Sarah, The Cancun Agreements and Legal Preparedness for Climate Change in Developing Countries, Sustainable Development Law on Climate Change, Legal Working Paper Series 06, March 2011. Available at <http://www.cisd.org/public/docs/legal/MasonCaseSarahTheCancunAgreementsandLegalPreparednessforClimateChangeinDevelopingCountries.pdf>. Site visited 28-05-2014.

their illicit activities under effective control or outright stoppage, and they could be dangerous.¹⁸²⁴ Their activities constitute a huge revenue loss to the developing countries governments, who are almost helpless either, unless there is cooperation on the part of the developed countries governments usually the recipients, to impose strict legislation and measures to counter the activities of their own corporations in the business.¹⁸²⁵ The impact of REDD+ is not yet felt as it should be by now in the SSA. A lot of things are into this among which is the issue of energy. Fuel-wood is still the most prevalent in most of the countries in the sub-region. This is why efforts should be stepped-up to enhance projects on the CDM and such others in these areas, otherwise, the people would continue to depend more on the forests for their energy needs. Also, more of technology transfer and capacity-building to enhance industrialisation and human resource development, these will reduce the soaring unemployment rate of the sub-region, as well as bring affordable new technologies to the people and help reduce their almost total daily reliance on the forests for their daily living. Developed countries and regions should be ready to curb their demand beyond the current stance, for and reliance on forest resources, particularly those sourced illegally from the developing countries, notwithstanding that they are cheaper, but

¹⁸²⁴ From 2009-11, Global Witness accounts that there was a near doubling in the number of murders of activists and journalists (let alone law enforcement agents) who were opposing (or scrutinising) human rights abuses around issues such as mining, poaching and logging. See, LeBARON Genevieve and DAUVERGNE Peter, A Threat to Growth? Environmental Activism in the Wake of the 2008 Financial Crisis, Sheffield Political Economy Research Institute (SPERI), 7 January, 2014. See also, Global Witness, A Hidden Crisis? Global Witness Briefing, No.19, pp.2, June 2012. Available at http://www.globalwitness.org/sites/default/files/library/A_hidden_crisis-FINAL_190612_v2.pdf. Site visited 18-07-2014. See as well, LEAHY Stephen, Canada's Environmental Activists Seen as Threats to National Security, The Guardian Online, 14 February, 2014. Available at <http://www.theguardian.com/environment/2013/feb/14/canada-environmental-activism-threat>. Site visited 18-07-2014. See further, CBC News, Shale Gas Protest Policing Costs Top \$4M, CBC News Online, 5 December, 2013. Available at <http://www.cbc.ca/news/canada/new-brunswick/shale-gas-protest-policing-costs-top-4m-1.2452560>. Site visited 18-07-2014.

¹⁸²⁵ MURDOCK Heather, Oil Theft Dilemma Stymies Nigeria's Niger Delta, Voice of America (VOA) Online, 27 March, 2014. Available at <http://www.voanews.com/content/oil-theft-dilemma-stymies-nigerias-niger-delta/1880431.html>. Site visited 04-06-2014. See also, OWOLABI Tife; COCKS Tim and HEINRICH Mark, Nigeria Arrests 12 Including Two Britons for Oil Thefts, Reuters Online, 28 March, 2014. Available at <http://www.reuters.com/article/2014/03/28/us-nigeria-oiltheft-idUSBREA2R13C20140328>. Site visited 04-06-2014. See further, VIDAL John, £1bn a Month: The Spiralling Cost of Oil Theft in Nigeria, the Guardian Online, 6 October, 2013. Available at <http://www.theguardian.com/global-development/22013/october/06/oil-theft-costs-nigeria>. Site visited 04-06-2014. See likewise, DONOVAN John, Shell May Give up Nigerian Oil Pipeline Because of Thefts, Sabotage, 5 November, 2013. Available at <http://www.royaldutchshellplc.com/2013/11/05/shell-may-give-up-nigerian-oil-pipeline-because-of-thefts-sabotage/>. Site visited 04-06-2014. See also, BLAS Javier, 'Theft and Sabotage' Lead Nigeria into an Oil Crisis, FT Online, 4 May, 2014. Available at <http://www.ft.com/intl/cms/s/2bff3f8a-bb15-11e3-948c-00144feabdc0,Authorised=false.html>?. Site visited 04-06-2014. See as well, IBTimes Staff Reporter, Why Nigerian Oil Theft Isn't All Bad: As Foreign Oil Corporations Back Out, Domestic Companies Move In, International Business Times Online, 19 September, 2013. Available at <http://www.ibtimes.com/why-nigerian-oil-theft-isnt-all-bad-foreign-oil-corporations-back-out-domestic-companies-move-in>. Site visited 04-06-2014. See again, LAWSON Sam, Illegal Logging in the Republic of Congo, Chatham House Programme Paper, 1 April, 2014. Available at <https://www.chathamhouse.org/publications/papers/view/198640#>. Site visited 04-06-2014. See further, SAUNDERS Jade, Weak Enforcement Holds Back EU's Fight Against Illegal Logging, Chatham House, 3 March, 2014. Available at <https://www.chathamhouse.org/media/comment/view/197777>. Site visited 04-06-2014. See, REID Cate, EU's Action to Fight Illegal Logging Makes the Headlines in the Financial Time's "This is Africa" Magazine, European Commission, 2013. Available at <http://www.capacity4dev.ec.europa.eu/public-flegt/blog/eus-actio-fight-illegal-logging-makes-headlines-financial-times-africa-magazine>. Site visited 04-06-2014.

they are having very negative impact on the environment from where they are sourced.¹⁸²⁶ The issue of illegal small arms importation to the developing countries of the world ends up strengthening the growth of crime in those places.

Adaptation and mitigation

Adaptation and mitigation constitute the two main policy responses to climate change. Cancun Agreements created a Technology Mechanism to develop and disseminate environmentally sound technologies and know-how to facilitate implementation of adaptation and mitigation activities that would coincide with the development and enhancement of existing knowledge and technologies in developing countries.¹⁸²⁷ Adaptation first emerged as a major strategy to address climate change in Marrakech 2001, with three relevant funding institutions and a national planning programme for the LDCs.¹⁸²⁸ Adaptation and mitigation became more prominent in the decisions of Cancun because of their decisive implications in climate change in different parts of the globe.¹⁸²⁹ The Cancun Agreements provides that adaptation must be addressed with the same priority as mitigation and that it requires appropriate institutional arrangements to enhance adaptation action and support.¹⁸³⁰ The implications of climate change on development make both mitigation and, in particular, adaptation essential to responding to the impacts of climate change. Policy makers have thus recognised the need to integrate climate change adaptation into all spheres of policy-making.¹⁸³¹ Both the UNFCCC and the KP contain adaptation provisions, included largely at the insistence of vulnerable developing countries, yet the main emphasis of national and international climate policy has been on mitigation, as reflected in the national communications submitted by developed and developing country Parties to the UNFCCC, which contain much less information about adaptation than about mitigation.¹⁸³² The KP, for example is almost all mitigation, with limited adaptation. The signatories focus on mitigation targets and timetables without acknowledging how adaptation can affect these emission reduction efforts. Effective climate protection needs to use an integrated portfolio of mitigation and adaptation strategies.¹⁸³³ The climate change issue is one which is likely to occur in a gradual fashion over a medium to long-term future. In the short-term, i.e. the next 10-20 years, the policy priority has been the reduction of the emission of GHGs through mitigation actions, while necessary adaptation actions should be fashioned out for the long-term through the UNFCCC negotiations. Mitigation in economics is thus commonly referred to as self-protection, and adaptation is called self-insurance.¹⁸³⁴

¹⁸²⁶ RUDEL Thomas K., *The Quiet Woods: REDD+ in Societies With Intact Rainforests*, in LYSTER Rosemary; MACKENZIE Catherine and MCDERMONT Constance (Eds.), *Law, Tropical Forests and Carbon: The Case of REDD+*, Cambridge, Cambridge University Press, 2013, p.75.

¹⁸²⁷ ADLER Robert W., *op cit*, p.235.

¹⁸²⁸ CIPIET David J; ROBERTS Timmons and KHAN Mizan, *The Politics of International Climate Adaptation Funding: Justice and Divisions in the Greenhouse*, *Journal of Global Environmental Politics*, Vol.13, No.1, February 2013, pp.49-68.

¹⁸²⁹ CHANDANI Achala and SIEGLE Linda, *Climate Watchlist: Key Issues for Cancun Negotiations*, European Capacity Building Initiative (ECBBI), Policy Brief, 2010. Available at <http://www.pubs.iied.org/pdfs/G03017.pdf> . Site visited 06-06-2014.

¹⁸³⁰ See UNFCCC, *Draft Decision-/CP.16, Art. 1.2(b)*, 29 Nov.-10 Dec., 2010. See also, MASON-CASE Sarah, *op cit*.

¹⁸³¹ MADZWAMUSE Masego, *Climate Governance in Africa*, Heinrich Böll Stiftung Southern Africa, 3 February, 2014. Available at <http://www.za.boell.org/2014/02/03/climate-governance-africa> . Site visited 05-06-2014.

¹⁸³² HUQ Saleemul and REID Hannah, *Mainstreaming Adaptation in Development*, *IDS Bulletin*, Vol.35, Iss.3, 2004, pp.15-21.

¹⁸³³ SHOGREN Jason, *Climate Protection: What Insight Can Economics Offer?*, in OWEN Anthony D. and HANLEY Nicks, (Eds.), *The Economics of Climate Change*, London, Routledge Publishing, 2004, pp.62,63.

¹⁸³⁴ HUQ Saleemul and REID Hannah, *op cit*. See also, SHOGREN Jason, *ibid*.

Adaptation has consistently been an issue at each negotiation for a long time before it came to considerable focus at the Bali summit. At the Cancun summit, Parties established the Cancun Adaptation Framework (CAF),¹⁸³⁵ to enhance adaptation efforts by all countries. The adopted adaptation framework stipulates agreements on (i) conducting impact, vulnerability and adaptation assessments, (ii) a process to enable LDC Parties to formulate and implement national adaptation plans,¹⁸³⁶ (iii) the establishment of an Adaptation Committee to promote the implementation of an enhanced action on adaptation in a coherent manner under the Convention, and (iv) a request to support the developing country activities with long term, scaled-up, predictable, new and additional finance, technology and capacity building.¹⁸³⁷ These bring areas of concentration on development of plans, projects and programmes; strengthening institutions; improving research, observation and information management systems; impact, vulnerability and financial needs assessment; and adaptation technology.¹⁸³⁸ The framework created for the first time, a “climate-induced displacement, migration and planned relocation.”¹⁸³⁹ It also included a work programme on “loss and damage” associated with climate impacts in vulnerable countries in reaction to demand by the SIDS.¹⁸⁴⁰ The Agreement therefore advocated for a country-driven approach “with a view to integrating adaptation into relevant social, economic and environmental policies.”¹⁸⁴¹ It recommended adaptation documents to include financial and social impact assessments, evaluative adaptation options and disaster risk reduction strategies. It requires that programmes particularly should address water resources, health, agriculture, food and security, infrastructure, socio-economic activities and coastal zones.¹⁸⁴² The Agreements established an Adaptation Committee which was charged with coordinating adaptation activities under the Convention.¹⁸⁴³ The Committee has no ability to

¹⁸³⁵ United Nations Framework Convention on Climate Change (UNFCCC), Cancun Adaptation Framework, 2014. Available at <http://unfccc.int/adaptation/items/5852.php> . Site 06-06-2014. United Nations Framework Convention on Climate Change (UNFCCC), Cancun Agreements, 2010. Available at http://unfccc.int/meetings/cancun_nov_2010/items/6005.php . Site 06-06-2014.

¹⁸³⁶ United Nations Framework Convention on Climate Change (UNFCCC), The Cancun Agreements, Adaptation, 2010. Available at <http://cancun.unfccc.int/adaptation/> . Site visited 06-06-2014.

¹⁸³⁷ Climate Focus, CP16/CMP 6, op cit. See also, Paras. 11-35, United Nations Framework Convention on Climate Change (UNFCCC), Report of the Conference of the Parties on its Sixteenth Session, Held in Cancun From 29 November to 10 December 2010, 15 March, 2011. Available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=4> . Site visited 06-06-2014.

¹⁸³⁸ MORGAN Jennifer, Reflections on the Cancun Agreements, op cit.

¹⁸³⁹ RIERA Jose, Seminar to Address the Adverse Impacts of Climate Change on the Full Enjoyment of Human Rights, United Nations High Commissioner for Refugees (UNHCR), 23 February, 2013. Available at http://www.ohchr.org/Documents/Issues/ClimateChange/Seminar2012/JoseRiera_UNHCR23Feb2012.pdf . Site visited 06-06-2014.

¹⁸⁴⁰ See Para. 26 LCA Decision 1/CP.16, The Cancun Agreements; Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, UN Doc, UNFCCC/CP/2010/7/Add.,1,15, March 2011. See also, RAJAMANI Lavanya, op cit.

¹⁸⁴¹ See UNFCCC, Draft Decision-/CP.16 (29 Nov.-10 Dec. 2010) Art.II; also, Art.III. E. See also, MASON-CASE Sarah, op cit.

¹⁸⁴² MASON-CASE Sarah, *ibid*.

¹⁸⁴³ The Committee’s functions include: providing technical support and guidance to the Parties; Sharing of relevant information, knowledge, experience and good practices; Promoting synergy and strengthening engagement with national, regional and international organisations, centres and networks; Providing information and recommendations, drawing on adaptation good practices, for consideration by the COP when providing guidance on means to incentivize the implementation of adaptation actions, including finance, technology and capacity building; and Considering information communicated by the Parties on their monitoring and review of their adaptation actions, support provided and received.

induce countries to adapt or to fund adaptation, but its values derive from its convening power and informational brokering. It also put in place a process to investigate the possibility of an international climate risk insurance facility, which could be a potential innovation in international policy.¹⁸⁴⁴ The CAF requires the LDCs and other developing countries to formulate extensive national adaptation planning documents.

Adaptation is not defined explicitly in the Convention, but is referenced only in the overall context of climate change, ostensibly because, adaptation was not a core issue in the early years of the UNFCCC. It however refers to any adjustment that takes place in natural or human systems in response to actual or expected impacts of climate change, aimed at moderating harm or exploiting beneficial opportunities.¹⁸⁴⁵ The IPCC proffering an understanding of adaptation, describes it as adjustment in natural or human systems to actual or expected climatic stimuli or their effects, which moderates harms or exploits beneficial opportunities, involving a process of sustainable and permanent adjustments in response to new and changing environmental circumstances.¹⁸⁴⁶ It is also variously described as efforts by society or ecosystem to prepare for or adjust to future climate change, adjustments which could be protective or opportunistic, that is, taking advantage of any beneficial effects of climate change.¹⁸⁴⁷ It simply connotes how to live or cope with the problems and potential impacts of climate change as they occur.¹⁸⁴⁸ Adaptation seeks to lower the risks posed by the consequences of climate changes. It helps reduce vulnerability by lowering sensitivity or building adaptive capacity, as well as allowing populations to benefit from opportunities of climate changes like growing new crops in areas that were previously unsuitable.¹⁸⁴⁹ Adaptation includes changes in management activities, institutional settings and infrastructure that enable effective response to the changes in climate that may occur, or including projects, programmes and

See, United Nations Framework Convention on Climate Change (UNFCCC), Adaptation Committee, 2014. Available at http://unfccc.int/adaptation/groups_committees/adaptation_committee/items/6053.php . Site visited 06-06-2014.

¹⁸⁴⁴ HULTMAN Nathan, op cit.

¹⁸⁴⁵ ERIKSEN Siri E. H. et al, Climate Change Adaptation and Poverty Reduction: Key Interactions and Critical Measures, Report Prepared for the Norwegian Agency for Development Cooperation (NORAD), Global Environmental Change and Human Society (GECHS) Report 2007:1, p.10. Available at <http://www.sei-international.org/mediamanager/documents/Publications/Climate/climatechangeadaptationpovertyreduction.pdf> . Site visited 30-06-2014.

¹⁸⁴⁶ SCHIPPER E. Lisa F. and HEDGER Merylyn McKenzie, Summary of "Adaptation to Climate Change: The New Challenge for Development in the Developing World," in CARPENTER Chad, The Bali Action Plan: Key Issues in the Climate Negotiations: Summary for Policy Makers, Environment and Energy Group/UNDP Publication, September 2008. Available at http://www.globalbioenergy.org/uploads/media/0809_UNDP_-_The_bali_action_plan_Key_issues_in_the_climate_negotiations.pdf . Site visited 05-02-2014.

See also, DANKELMAN Irene, Introduction: Exploring Gender, Environment and Climate Change, in DANKELMAN Irene (Ed.), Gender and Climate Change: An Introduction, London, Earthscan Publishing, 2010, p.7. See again, IPCC Fourth Assessment Report: Climate Change 2007, Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability, 2007. Available at http://www.ipcc.ch/publications_and_data/ar4/wg2/en/annexessgloss. Site visited 12-02-2014. See likewise, IPCC, Appendix I: Glossary, sine die. Available at <http://www.ipcc.ch/pdf/glossary/ar4-wg2.pdf>. Site visited 10-06-2014.

¹⁸⁴⁷ Environmental Protection Agency (EPA), Adaptation Overview, 14 June, 2012. Available at <http://www.epa.org/climatechange/impacts-adaptation/adapt-overview.html>. Site visited 19 October, 2012.

¹⁸⁴⁸ HUQ Saleemul and REID Hannah, Mainstreaming Adaptation in Development, IDS Bulletin Vol.35, Iss.3, 2004, pp.15-21. See also, Environmental Protection Agency (EPA), *ibid*.

¹⁸⁴⁹ FISHER Susannah and CLARK Duncan, What is Climate Change Adaptation? The Guardian Online, 27 February, 2012. Available at <http://www.theguardian.com/environment/2012/feb/27/climate-change-adaptation>. Site visited 26-06-2014.

policies that directly respond to climate risks.¹⁸⁵⁰ It may also mean actions taken in anticipation of the adverse effects of climate change and taking appropriate action to prevent or minimize the damage arising of such, or taking advantage of opportunities that may arise.¹⁸⁵¹ Adaptation may not be regarded in isolation from mitigation, as they are both important elements of climate change policy usually positively or negatively interlinked, and more importantly, some adaptation measures equally serve mitigation goals.¹⁸⁵²

Adaptation to climate change is a complex multi-faceted topic that presents a number of challenges, particularly for the developing world. Climate change impacts are affecting developing countries, particularly the poor and most vulnerable, because they have fewer social, technological and financial resources for adaptation. Adaptation measures that reduce vulnerability to climate change are critical, especially in countries where the risks are “here and now.” It also affects the sustainable development of countries, and their abilities to achieve the UN Millennium Development Goals (MDGs) by 2015.¹⁸⁵³ Action was initially delayed on adaptation because, developed countries¹⁸⁵⁴ were not yet motivated to address adaptation, based on perceived self-interest. While many of the G77 and AOSIS delegates early on wanted more focus on it, for the Annex I Parties, especially the OECD,¹⁸⁵⁵ a focus on it would amount to an acknowledgment of responsibility and liability based on historical emissions. Thus, some key developed countries avoided adaptation issues because acknowledging culpability on this might fuel demand for solutions to other global problems, such as poverty, health, and human rights violations. Two factors drove the shift of adaptation to center stage in the negotiations, first was an apparent increase in climate-related disasters, and second, since the 1997 adoption of Kyoto Protocol, it became increasingly clear that industrialised nations were not taking adequate action to prevent dangerous anthropogenic interference with the climate system as agreed under the Convention. These thus necessitated the prominence accorded the adaptation in Marrakech 2001 as a major issue to address climate change. Then came Montreal 2005 and Bali 2007 COPs, which committed major focus to adaptation. Marrakech 2001 COP7 established the LDC Expert Group, and also laid out the objectives of three new funds: the Special Climate Change Fund (SCCF), the LDC Fund and the Adaptation Fund, specifically meant to provide sources of funding to adaptation issues.¹⁸⁵⁶ The Montreal Climate Summit (COP11) 2005 adopted a five-year work programme on adaptation to climate change impacts. This programme paves the way for concrete steps to identify impacts and measures to adapt to climate change. It gave prominence to technology transfer as a means of reducing

¹⁸⁵⁰ TWOMLOW Steve et al, Building Adaptive Capacity to Cope With Increasing Vulnerability Due to Climate Change in Africa- A New Approach, *Journal of Physics and Chemistry of the Earth*, Vol.33, 2008, pp.780-787. See also, WEAVER Catherine and PERATSAKIS Christian, International Aid for Adaptation, in MORAN Ashley (Ed.), *Climate Change Adaptation in Nigeria: Key Considerations for Decision Makers*, Working Paper, 8 March, 2011.

¹⁸⁵¹ European Commission, *Adaptation to Climate Change*, European Commission Climate Action, 15 April, 2014. Available at http://ec.europa.eu/clima/policies/adaptation/index_en.htm. Site visited 11-06-2014.

¹⁸⁵² VERSCHUUREN Jonathan, What is Climate Change Adaptation?, in VERSCHUUREN Jonathan (Ed.), *Research Handbook on Climate Change Adaptation Law*, Cheltenham, Edward Elgar Publishing, 2013, p.8.

¹⁸⁵³ SCHIPPER E. Lisa F. and HEDGER Merylyn McKenzie, *ibid*.

¹⁸⁵⁴ These constitute about 25% of total world population, but generate more than 75% of the entire global GHG emissions. See, PARIKH Jyoti, *India and Climate Change: Mitigation, Adaptation, and a Way Forward*, in ZEDILLO Ernesto (Ed.), *Global Warming: Looking Beyond Kyoto*, Washington, D.C., Brookings Institution Press, 2008, p.205.

¹⁸⁵⁵ SATHAYE Jayant et al, *Sustainable Development and Mitigation*, in *Climate Change 2007: Mitigation, Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge, Cambridge University Press, 2007, p.704.

¹⁸⁵⁶ HUQ Saleemul; REID Hannah and MURRAY Laurel, *Climate Change and Development Links*, Gatekeeper Series 123, 2006.

emissions, with particular emphasis on carbon capture and storage (CCS), which it said is estimated to have potential of reducing mitigation costs by up to 30 per cent.¹⁸⁵⁷

Most scientists now agree that climate change is inevitable, especially with the revelations by the recent IPCC Reports from 2007, and that it will have major impacts on the climate worldwide and agricultural productivity, particularly in sub-Saharan Africa. Similarly, correspondingly the far-reaching benefits of adaptation projects are less obvious compared to mitigation projects in non-Annex I countries which bring clear benefits to Annex I countries.¹⁸⁵⁸ Many actors in both developing and developed countries and civil society were reluctant to engage adaptation issues because of fears that it would distract from efforts to achieve an adequate mitigation framework. Adaptation was delayed by intra-G77 disunity relating to Article 4(8) of the Convention concerning funding, insurance and transfer of technology in response to the adverse effects of climate change on developing countries. Also, the stand-off between Annex I countries and countries whose economies are highly dependent on income generated from the production, processing and the export, and/or consumption of fossil-fuels and associated energy-intensive products, such as Saudi Arabia and other OPEC countries, who are demanding compensation to help diversify their oil-dependent economies.¹⁸⁵⁹ Generally, the international response on both adaptation and mitigation has been far from adequate, more so in the case of adaptation, rather large sums of money has been committed to food relief programmes, a short term coping mechanism that negates the development of adaptive strategies, and can foster a dependency syndrome.¹⁸⁶⁰ The low profile of adaptation early on was evident from the fact that, as late as 2006, only six of the forty-four proposals for a post-Kyoto regime dealt with adaptation as a policy issue.¹⁸⁶¹ An adaptation framework will embody synergies with important issues like economic development, poverty reduction and disaster management with a vital sustainable development pathway. This requires long-term thinking and wholistic consideration climate change risks across all levels. It requires the capacity for both short and long-terms climate change impacts as those predicted by the IPCC, and strategies for shorter-term adjustments for shorter-term climate variability. Then, it would require substantial funding to meet the costs of adapting to climate change in the developing world, which would be handsome enough in multiple of billions of dollars.¹⁸⁶² Incidentally, most if not all of these necessary coordinates are non-existent in most developing countries of the world, hence they are ill-prepared for climate change adaptation. Adaptation today is a burning issue on climate change negotiations, because of the widespread effects of its damning incidences around the world. Even if assumed that the physical impacts of climate change were evenly distributed between states, the costs of adaptation would almost certainly exacerbate existing international inequalities, because richer countries not only have superior adaptive

¹⁸⁵⁷ Press Release, United Nations Convention on Climate Change Agrees on Future Critical Steps to Tackle Climate Change, United Nations Framework Convention on Climate Change (UNFCCC), Montreal, 10 December, 2005.

¹⁸⁵⁸ CIPLET David; ROBERTS J. Timmons and KHAN Mizan, *The Politics of International Climate Adaptation Funding: Justice and Divisions in the Greenhouse*, *Journal of Global Environmental Politics*, Vol.13, No.1, February 2013, 49-68. See also, TWOMLOW Steve et al, op cit. See also, HUQ Saleemul; REID Hannah and MURRAY Laurel A., op cit.

¹⁸⁵⁹ CIPLET David; ROBERTS J. Timmons and KHAN Mizan, *ibid*.

¹⁸⁶⁰ TWOMLOW Steve et al, op cit.

¹⁸⁶¹ CIPLET David; ROBERTS J. Timmons, and KHAN Mizan, *ibid*.

¹⁸⁶² CARPENTER Chad, *The Bali Action Plan: Key Issues in the Climate Negotiations*, Summary for Policy Makers, Environment and Energy Group/UNDP Publication, September 2008. available at http://www.globalbioenergy.org/uploads/media/0809_UNDP_-_The_Bali_action_plan_Key_issues_in_the_climate_negotiations.pdf. Site visited 05-02-2014.

capabilities due to highly developed industrial and commercial sectors, they also appear to have greater discretion in their consumption behaviour.¹⁸⁶³

A major focus now should be building resilience, more especially in the developing countries, so as to enhance adaptive capacity that is, fostering the ability of a system to adjust and adapt to climate change and to moderate potential damages, to take advantage of opportunities or to cope with the consequences.¹⁸⁶⁴ Developing countries are the most vulnerable to climate change because of their low adaptive capacity and growing dependence on resources sensitive to changes in climate.¹⁸⁶⁵ The adaptive capacity of those affected by climate change largely depends on their access to economic, ecological, social and human resources including institutional structures, the decision-making process, information and public awareness.¹⁸⁶⁶ This implies the need to apply options that can help vulnerable people cope with climate variability, more extreme events, increasing variability of precipitation, and the associated socioeconomic implications of these changes.¹⁸⁶⁷ It is suggestive that, working with nature's capacity to absorb or control impact in urban and rural areas can be a more efficient way of adapting to climate change than simply focusing on physical infrastructure, and by enhancing protected areas to facilitate biodiversity, but only when linked to ecosystem functions.¹⁸⁶⁸ The implications of climate change on development make both mitigation and in particular adaptation, essential to responding to the impacts of climate change.¹⁸⁶⁹

Ecosystems are bound to face adaptation challenges, but some species will be able to migrate or change their behaviour to accommodate changes in climate, while others may completely go extinct.¹⁸⁷⁰ Either way, it triggers biodiversity imbalance and end up affecting the nature the more. What is important is the identification of successful adaptations in the developing world where the greatest risk and physical vulnerability persists.¹⁸⁷¹ For instance, northern Nigeria has lower household resilience in terms of infant mortality, access to improved water sources, and child malnutrition, yet according to new projections from a mid-century model of climate

¹⁸⁶³ PAGE, Edward A., *Climate Change, Justice and Future Generations*, Cheltenham, Edward Elgar Publishing, 2007, p.35.

¹⁸⁶⁴ HUQ Saleemul and REID Hannah, *Mainstreaming Adaptation in Development*, IDS Bulletin, Vol.35, Iss.3, 2004, pp15-21. See also, GALLOPÍN Gilberto C., *Linkages Between Vulnerability, Resilience, and Adaptive Capacity*, *Journal of Global Environmental Change*, Vol.16, Iss.3, 2006, pp.293-303. See further, CARPENTER Stephen R. and BROCK William A., *Adaptive Capacity and Traps*, *Journal of Ecology and Society*, Vol.13, Iss.2, 2008, Art.40. Available at <http://www.ecologysociety.org/vol13/iss2/art40/>. Site visited 13-06-2014. See as well, SMIT Barry and WANDEL Johanna, *Adaptation, Adaptive Capacity and Vulnerability*, *Journal of Global Environmental Change*, Vol.16, Iss.3, August 2006, pp.282-292. See, COLBURN Lisa and SEARA Tarsila, *Resilience, Vulnerability, Adaptive Capacity, and Social Capital*, NOAA, 2nd National Social Indicators Workshop, 27-29 September, 2011. Available at https://www.st.nmfs.noaa.gov/Assets/econ-human/social/documents/Resilience_vulnerability_adaptive_capacity_and_social_capital_Colburn.pdf. Site visited 13-06-2014.

¹⁸⁶⁵ MADZWAMUSE Masego, *Climate Governance in Africa- Adaptation Strategies Institutions*, Heinrich Böll Stiftung, 11 January, 2011. Available at <http://www.boell.de/en/ecology/africa-climate-governance-in-africa-adaptation-strategies-and-institutions-10914.html>. Site visited 19-07-2012.

¹⁸⁶⁶ HUQ Saleemul; REID Hannah and MURRAY Laurel, op cit.

¹⁸⁶⁷ TWOMLOW Steve et al, op cit.

¹⁸⁶⁸ CLIQUET An et al, *Adaptation to Climate Change Legal Challenges for Protected Areas*, *Utrecht Law Review*, Vol.5, Iss.1, 2009, pp.158-175.

¹⁸⁶⁹ MADZWAMUSE Masego, op cit.

¹⁸⁷⁰ Environmental Protection Agency (EPA), op cit.

¹⁸⁷¹ ADGER W. Neil et al, *Adaptation to Climate Change in the Developing World*, *Journal of Progress in Development Studies*, Vol.3, Iss.3, 2003, pp.179-195.

change in Africa, this area will be subject to an additional 51 to 100 heat wave days per year and an additional 20 to 50 drought days per year, just as it has been areas of historic droughts, scarce rains, and highly variable precipitation.¹⁸⁷² Analogues of adaptation previously have been complemented with policy and social science research on the present adaptive capacity of governments, civil society and markets to deal with climate perturbations.¹⁸⁷³ Government's response to climate change has been inextricably tied to the programmes of international donors working in Nigeria, the country ranking as the top recipient of international development aid in Africa, receiving roughly US\$21 billion between 2005 and 2008, accounting for 11.64 per cent of all foreign development assistance to Africa in this period.¹⁸⁷⁴ The government has not matched this with equal counterpart funds for the same cause, yet predictions, foremost of which was from the IPCC, has identified the country as a climate change "hot spot" likely to see major shifts in weather in the 21st century.¹⁸⁷⁵ Nigeria so far lack a comprehensive national strategy on adaptation while efforts in that regards have been led by individual ministries and have thus focused on such ministries' sectoral interests. Its first National Communication on Climate Change came out in 2003, but its climate change response remains largely uncoordinated. Its National Climate Change Policy is only being expected.¹⁸⁷⁶ Climate change remains a special unit in the Ministry of Environment, which makes coordinating climate change issues suffer some manifest setbacks, and in effect, limited adaptation strategies to focus on the physical hazards of climate change.¹⁸⁷⁷ The situation is similar in many countries in the sub-Saharan region as in Nigeria. The question then is how would climate change issues be properly taken care of in such countries as they simply have shown that they have not appreciated the enormity of the problem?

There is need for stepping-up of policy framework for climate change adaptation governance, often articulated in a National Adaptation Plans of Action (NAPA), and/or National Climate Change Response Strategies (NCCRS), which is grossly inadequate where available and in many of the countries across Africa, is completely non-existent. It is inconceivable that a country like Nigeria does not have either despite its visible vulnerability, likewise Zimbabwe.¹⁸⁷⁸ This means such countries have not embarked on a comprehensive planning process for adapting to climate change. This should be a foundation for a broader regional adaptation framework and policy. To address vulnerability challenges in Africa, the Africa Adaptation Programme was launched in 2008 by the UNDP in partnership with the United Nations Industrial Development Organisation (UNIDO), the United Nations Children's Fund (UNICEF), and the World Food Programme (WFP), with an initial sum of US\$92.1 million

¹⁸⁷² BUSBY Joshua; SMITH Todd and WHITE Kaiba, Nigeria's Vulnerability to Climate Change, in MORAN Ashley (Ed.), Climate Change Adaptation in Nigeria: Key Considerations for Decision Makers, Working Paper, 8 March, 2011.

¹⁸⁷³ ADGER W. Neil et al, op cit.

¹⁸⁷⁴ WEAVER Catherine and PERATSAKIS Christian, International Aid for Adaptation, in MORAN Ashley (Ed.), Climate Change Adaptation in Nigeria: Key Considerations for Decision Makers, Working Paper, 8 March, 2011.

¹⁸⁷⁵ See, Federal Ministry of Environment, National Policy on Desertification and Drought, Abuja, 2008. See also, SAYNE Aaron, Climate Change Adaptation and Conflict in Nigeria, United States Institute of Peace Special Report, June 2011. Available at http://www.usip.org/sites/default/files/Climate_Change_Nigeria.pdf. Site visited 05-06-2014.

¹⁸⁷⁶ SAYNE Aaron, Climate Change Adaptation and Conflict in Nigeria, Special Report, United States Institute of Peace, June 2011. Available at http://www.usip.org/sites/default/files/Climate_Change_Nigeria.pdf. Site visited 05-06-2014.

¹⁸⁷⁷ RALEIGH Clionadh and MORAN Ashley, Challenges in the Next Five Years, in MORAN Ashley (Ed.), Climate Change Adaptation in Nigeria: Key Considerations for Decision Makers, Working Paper, 8 March, 2011. See also, SAYNE Aaron, *ibid*.

¹⁸⁷⁸ MADZWAMUSE Masego, Climate Governance in Africa – Adaptation Strategies and Institutions, Heinrich Böll Stiftung Publication, ii January, 2011. Available at <http://www.boell.de/en/ecology/africa-climate-governance-in-africa-adaptation-strategies-and-institutions-10914.html>. Site visited 19-07-2014.

support from the Government of Japan. The Programme was meant to support long-term efforts of countries to further develop their capacity to successfully identify, design and implement holistic climate change adaptation programmes to ensure national development policy, planning and practice resilience to climate impacts. In a 3 year period concluding in 2012, 20 countries benefited from transformational changes in the areas of long-term planning, leadership and institutional capacity, and climate resilient policies and measures. It also aided them in generating knowledge on adjusting national development processes to fully incorporate climate change risks and opportunities.¹⁸⁷⁹ The laissez-faire disposition of many developing countries to climate change is why they fail to develop a national legal and policy framework, this accounts for why regional cooperation on this is at the very lowest ebb, and they could not participate actively on the international scene. This is one of the reasons why there are very low CDM projects on the African continent relative to other developing regions of the world like Asia and Latin America. A lot needs to be done to arouse these countries to adaptation and mitigation actions to make them better prepared against climate disasters.

Notwithstanding the low magnitude of regional adaptation policies in the SSA, in West Africa which has been consistently coping with persistent drought since the early 1970s,¹⁸⁸⁰ some measures have been taken at the regional level towards common adaptation such as the creation of the Permanent Interstate Committee for Drought Control in the Sahel (CILSS), which has to some extent impacted on the situation. The CILSS has been actively involved in region's agro-hydro-climatic data collection and management; the setting-up of an early warning system; research and training through its Regional Centre for Training and the Application of Agrometeorology and Operational Hydrology (AGRHYMET); the Seasonal Rainfall and Flow Forecast for West Africa (PRESAO) launched in 1998; the West and Central African component of the Global Hydrological Cycle Observing System (HYCOS-AOC) being implemented since 2000; the West and Central African component of the Flow Regimes from International Experimental and Network Data (FRIEND) Project set up since 1992; and more recently, the programme for assessing the impacts and adaptations to climate change which includes projects for West Africa; and the project on strengthening the capacities of CILSS Member States to Adapt to Climate Change, launched in 2002.¹⁸⁸¹ The greater percentage of all these actions have been from international

¹⁸⁷⁹ United Nations Development Programme (UNDP), Africa Adaptation Programme (2008-2012). Available at http://www.undp.org/content/undp/en/home/ourwork/environmentandenergy/projects_and_initiatives/aap/. Site visited 16-06-2014. See also, WILLIAMS Michael, Norway Contributes US\$ 10 Million to Support Climate Services for Adaptation in Africa, World Meteorological Organisation Press Release No. 982, 21 November, 2013. Available at http://www.wmo.int/pages/mediacentre/press_releases/pr_982_en.html. Site visited 16-06-2014. See further, Africa Adapt, The Regional Climate Change Programme, Africa Adapt/One World Sustainable Investments, 2011. Available at <http://www.africa-adapt.net/projects/180/>. Site visited 16-06-2014. See as well, Research for Development (R4D), Climate Change Adaptation in Africa, sine die. Available at <http://www.r4d.dfid.gov.uk/Project/60055/>. Site visited 16-06-2014. See also, World Health Organisation (WHO), The Global Framework for Climate Services (GFCS) Adaptation Programme in Africa, sine die. Available at <http://www.who.int/globalchange/projects/gfcs/en/>. Site visited 16-06-2014.

¹⁸⁸⁰ The precipitation of the sub-region has witnessed an average of a 25% decrease in rainfall over the African Sahel during the past 40-30 years, characterised by a decrease in the number of rainfall events, coupled with a warming of approximately 0.7°C over most of the entire continent of Africa during the 20th century. See IPCC TAR 2001. See also, ELASHA Balgis Oman et al, Background Paper on Impacts, Vulnerability and Adaptation to Climate Change in Africa, African Workshop on Adaptation Implementation of Decision 1/CP.10 of the UNFCCC Convention, Accra, 21-23 September, 2006.

¹⁸⁸¹ NIASSE Madiodio; AFOUDA Abel and AMANI Abou, Reducing West Africa's Vulnerability to Climate Impacts on Water Resources, Wetlands and Desertification: Elements for a Regional Strategy for Preparedness and Adaptation, IUCN Regional Office for West Africa, 30 June, 2004. Available at http://www.iucn.org/about/work/programmes/water/resources/wp_resources_publications/wp_resources_ecosys/?1151/

commitments, which yet has been insufficient. A 10-year programme on “Climate Information for Development Needs: an Action Plan for Africa” (ClimDev Africa) jointly developed by the African Union (AU), the UNECA and GCOS still lacks funding.¹⁸⁸² The EU in a June 2007 Green Paper on Adapting to climate change in Europe approaches adaptation as a regional priority to be achieved in close coordination with Member States, but stresses that adaptation measures must be considered within a larger international context. The European Commission prefaced the Paper by emphasizing the preeminence of mitigation measures and framing adaptation measures as a secondary but essential component of a European climate change strategy.¹⁸⁸³

This contrasts the EU where there are comprehensive policy and legal frameworks on almost every aspect of climate change. For instance, the European Commission’s Action Plan on halting the decline of biodiversity and objective to support biodiversity adaptation to climate change among a wide array of similar provisions.¹⁸⁸⁴ The European Commission adopted an EU adaptation strategy in April 2013, which currently has 16 adaptation strategies,¹⁸⁸⁵ that apart from the individual states adaptation strategies independent of the EU’s actions, which focuses on three key objectives- promotion of action by member states, ‘climate-proofing’ action at EU level, and better informed decision-making. Adaptation types range from anticipatory, autonomous and planned, as the situation may demand. How so beautiful adaptation might be, yet there are limits to the ability to adapt, as over the long-term, adaptation alone may not be sufficient to cope with all the projected impacts of climate change, so actions to mitigate climate change must continue.¹⁸⁸⁶ A lot more mitigation from CO₂ is needed to close the emission gap as described by the International Energy Agency that, if construction of energy infrastructure continues at its current pace without additional action to de-carbonise, by 2015, locked-in emissions of CO₂ from the infrastructure will have committed 95 per cent of allowable emissions under the 2°C guardrail, and by 2017, all allowable emissions will be taken up by the existing energy infrastructure¹⁸⁸⁷

[Reducing-West-Africas-vulnerability-to-climate-impacts-on-water-resources-wetlands-and-desertification](#). Site visited 22-08-2012. See also, JOST Stéphane; SIDIBÉ Brahim and MAGHA Mohamadou, Climate Change in West Africa: Sahelian Adaptation Strategies, OECD/Sahel and West Africa Club (SWAC) Briefing Note, No.3, January 2009.

¹⁸⁸² JOST Stéphane; SIDIBÉ Brahim and MAGHA Mohamadou, *ibid.*

¹⁸⁸³ CARLARNE Cinnamon Piñon, *Climate Change Law and Policy: EU and US Approaches*, Oxford, Oxford University Press, 2010, p.301.

¹⁸⁸⁴ See, for instance, Commission of the European Communities, *Adapting to Climate Change: Towards a European Framework for Action*, White Paper, COM(2009) 147 final, Brussels, 01-04-2009. See also, Communication from the Commission Halting the loss of biodiversity by 2010 and beyond. Sustaining ecosystem services for human well-being, COM(2006)0216, 22 May 2006. Also, Green Paper from the Commission to the Council, the European Parliament and Social Committee and the Committee of the Regions. *Adapting to climate change in Europe, options for EU action*, COM(2007)0354, 29 June, 2007. See further, CLIQUET An et al, *op cit.*

¹⁸⁸⁵ European Commission, *Adaptation to Climate Change*, European Commission Climate Action, 15 April, 2014. Available at http://ec.europa.eu/clima/policies/adaptation/index_en.htm. Site visited 11-06-2014. See also, European Commission, *What is the EU Doing? European Commission Climate Action*, 30-04-2014. Available at

http://ec.europa.eu/clima/policies/adaptation/what/index_en.htm. Site visited 11-04-2014. See further, Department for Environment, Food and Rural Affairs; PATERSON Owen and Environment Agency, *Adapting to Climate Change*, 17 April, 2014. Available at <https://www.gov.uk/government/policies/adapting-to-climate-change>. Site visited 26-06-2014.

¹⁸⁸⁶ Environmental Protection Agency (EPA), *op cit.*

¹⁸⁸⁷ International Energy Agency (IEA), *World Energy Outlook: Executive Summary*, 2011. Available at <http://www.iea.org/Textbase/npsum/weo2011sum.pdf>. Site visited 18-10-2012. See also, MYHRVOLD N.P. and CALDEIRA K., *Greenhouse Gases, Climate Change and the Transition From Coal to Low-Carbon Electricity*, Environmental Research Letters, Vol.7, No.1, 2012. See further, ZAELE Durwood; ANDERSEN Stephen O. and BORGFORD-PARNELL Nathan,

Mitigation is the other aspect of taking care of impacts of climate change. Climate change are abatement measures and actions taken to make less rigorous the effects and magnitude of climate change, such as reduction in anthropogenic GHG emissions, increasing the capacity of carbon sinks through reducing deforestation, or increasing reforestation. It is a counterpart policy to adaptation, both of which are highly essential, whose provisions will influence how the global economy and geopolitics look in near future.¹⁸⁸⁸ Mitigation measures are such as are taken to reduce or avert the occurrence or the effects of an incident on an environment, such as reducing greenhouse gas emissions to avert climate change, while adaptation measures are such as are taken to deal with the unavoidable impacts of the incident.¹⁸⁸⁹ It addresses the root causes and seeks to minimize future climate change by reducing GHG emissions through weakening the link between economic growth and carbon emissions.¹⁸⁹⁰ Mitigation stands tall as a principal goal of international environmental policy,¹⁸⁹¹ providing a strong link between sustainable development and climate change mitigation, as a human intervention to reduce anthropogenic forcing of the climate system.¹⁸⁹² Mitigation comprises all human activities aimed at reducing the emissions or enhancing the sinks of GHGs.¹⁸⁹³ The Stern Review adjudged that the short-term costs of mitigating climate change would be significantly less than the longer-term costs of inaction.¹⁸⁹⁴ The mitigation agenda provided a convenient platform to profile the power of technology and just opportunities for innovation and entrepreneurship.¹⁸⁹⁵ Mitigation is achieved by reducing

Strengthening Ambition for Climate Mitigation: The Role of the Montreal Protocol in Reducing Short-Lived Climate Pollutants, *Review of European Community and International Environmental Law*, Vol.21, Iss.3, November 2012, pp.231-242.

¹⁸⁸⁸ ZEDILLO Ernesto op cit, p.9.

¹⁸⁸⁹ Commission of the European Communities, *Adapting to Climate Change: Towards a European Framework for Action*, White Paper, COM(2009) 147 final, Brussels, 01-04-2009. See also, Intergovernmental Panel on Climate Change (IPCC), *IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation, Summary for Policymakers*, Abu Dhabi, 5-8 May, 2011. Available at http://www.unclearn.org/sites/www.unclearn.org/files/inventory/ipcc_summary_for_pm.pdf. Site visited 11-06-2014. See also, *Global Greenhouse Warming, Climate Mitigation and Adaptation*, 2014. Available at <http://www.global-greenhouse-warming.com/climate-mitigation-and-adaptation.html>. Site visited 11-06-2014.

¹⁸⁹⁰ TWOMLOW Steve et al, op cit. See also, FISHER Susannah and CLARK Duncan, *What is Climate Change Adaptation?* The Guardian Online, 27 February, 2012. Available at <http://www.theguardian.com/environment/2012/feb/27/climate-change-adaptation>. Site visited 26-06-2014.

¹⁸⁹¹ More than 80 countries listed climate mitigation pledges for 2020 under the Copenhagen Accord, and anchored also under the Cancun Agreements within the UNFCCC framework. See, RASTOGI Namrata Patodia, *Common Metrics: Comparing Countries' Climate Pledges*, Pew Center on Global Climate Change, September 2011.

¹⁸⁹² HUNLEY Mark E. and REDALJE Donald G., *CO₂ Mitigation and Renewable Oil From Photosynthetic Microbes: A New Appraisal, Mitigation and Adaptation Strategies for Global Change*, Vol.12, 2007, pp.573-608. See also, METZ Bert, *Climate Change Mitigation: The Working Group III Contribution to the IPCC Third Assessment Report*, 2001. See further, DANKELMAN Irene, op cit, p.7.

¹⁸⁹³ ERIKSEN Siri E. H. et al, *Climate Change Adaptation and Poverty Reduction: Key Interactions and Critical Measures*, Report Prepared for the Norwegian Agency for Development Cooperation (NORAD), *Global Environmental Change and Human Society (GECHS) Report 2007:1*, p.10. Available at <http://www.sei-international.org/mediamanager/documents/Publications/Climate/climatechangeadaptationpovertyreduction.pdf>. Site visited 30-06-2014.

¹⁸⁹⁴ PAVESE Carolina B. and TORNEY Diarmuid, *The Contribution of the European Union to Global Climate Change Governance: Explaining the Conditions for EU Actorness*, *Rev. bras. polit. Int.* Vol.55, no. Spe Brasilia 2012. Available at http://www.scielo.br/scielo.php?pid=s0034-73292012000300008&script=sci_arttext. Site visited 13-04-2013.

¹⁸⁹⁵ HOHNEN Paul, *A Shift to the Climate Adaptation Agenda*, 7 December, 2010. Available at <http://www.ethicalcorp.com/communications-reporting/shift-climate-adaptation-agenda>. Site visited 10-09-2012.

both the energy intensity of GDP and the carbon intensity of energy used.¹⁸⁹⁶ Mitigation is the reduction in emissions of any greenhouse gases that contribute to climate change, enhancing GHG sinks simultaneously.¹⁸⁹⁷ Mitigation is addressed in the IPCC WGIII AR4 (Mitigation), which identified seven sectors specifically including: energy supply, transportation and its infrastructure, residential and commercial buildings, industry, agriculture, forestry, and waste management.¹⁸⁹⁸

Both Copenhagen and Cancun Summits considered seriously mitigation actions and confirmed that nationally appropriate mitigation actions (NAMAs), originally created by the Bali Action Plan, are the primary vehicle for developing countries mitigation efforts.¹⁸⁹⁹ NAMAs are domestic plans for climate change mitigation which developing countries are required to undertake as voluntary commitments, to reduce business-as-usual emissions by 2020, as against Annex I countries' legal emissions reductions commitments.¹⁹⁰⁰ NAMAs contain nationally defined strategies, projects and programmes,¹⁹⁰¹ and can be seen as the first step toward larger expected contributions and potentially binding commitments from developing countries, and also provide a way for developing countries to assume a share of the needed reductions which may not be covered by the joint commitments by developed countries. Mitigation actions are funded from the Global Environment Facility (GEF) funds, which are expected to directly reduce 2.6 billion tonnes of CO₂ equivalent and catalyse reduction of an additional 6.85 billion tonnes through transformation of markets. The GEF pursues its mitigation mission through: promotion of innovation and technology transfer; demonstration of systemic impacts of mitigation options, and supporting the creation of enabling environments for broad-based mainstreaming of mitigation in development. Its adaptation programmes rely on responsiveness to COP guidance; responsiveness to the needs of vulnerable developing countries; responsiveness to independent evaluations; and complementarity and coherence with other climate change funds, while implementing thematic priorities.¹⁹⁰² NAMAs could also be part of a new regime under the Convention, which relies entirely on voluntary contributions from both developed and developing countries, in place of the KP which placed commitments only on the former. Could also be continuation of a future regime to build on Annex I countries commitments as a supplement by

¹⁸⁹⁶ Organisation for Economic Cooperation and Development (OECD), *Climate Change Mitigation: What Do We Do?* 2008.

¹⁸⁹⁷ FORTUNY Loreley, *Climate Change Mitigation and Adaptation – Impact Assessment Considerations/Approaches*, Impact Assessment Wiki, 30 October, 2012. See also, DANKELMAN Irene, op cit, p.7.

¹⁸⁹⁸ Intergovernmental Panel on Climate Change (IPCC), *Climate Change Mitigation Measures and Water*, sine die. Available at <https://www.ipcc.ch/pdf/technical-papers/ccw/chapter6.pdf>. Site visited 11-06-2014.

¹⁸⁹⁹ See, Para.1 (b)(ii) Bali Action Plan. See also, JUNG Martina et al, *Nationally Appropriate Mitigation Actions: Insights From Example Development*, Ecofys, March 2010. Available at http://www.ecofys.com/files/files/report_ecofys_nama_overview_eng_04_2010.pdf. Site visited 12-06-2014. See also, van TILBURG X. et al, *On Developing a NAMA Proposal*, Discussion Paper, ECN-O-11-053, September 2011. Available at <http://www.ecn.nl/docs/library/report/2011/o11053.pdf>. Site visited 12-06-2014.

¹⁹⁰⁰ LYSTER Rosemary, *Adaptation and Climate Justice*, in VERSCHUUREN Jonathan (Ed.), *Research Handbook on Climate Change Adaptation Law*, Cheltenham, Edward Elgar Publishing, 2013, p.39.

¹⁹⁰¹ MASON-CASE Sarah, op cit. See also, Pew Center, *Sixteenth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change and Sixth Session of the Meeting of the Parties to the Kyoto Protocol*, Cancun, 29 November- 10 December, 2010. Available at <http://www.c2es.org/docUploads/cancun-climate-change-conference-cop-16-summary.pdf>. Site visited 22-05-2014.

¹⁹⁰² DIXON Robert K., *Global Environment Facility and Climate Change Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP)* 6 June, 2013. Available at http://www.unfccc.int/files/meetings/bonn_jun_2013/in-session/application/pdf/adp2-2_briefing_global_environment_facility_06062013.pdf. Site visited 30-04-2014.

developing countries based on CBDR.¹⁹⁰³ The Cancun Agreements enhanced existing provisions for reporting by requiring Parties to submit their national communications every four years, and developed countries should submit biennial reports and developing countries biennial update reports. Developing countries are also required to submit national communications which include a GHG inventory and information on mitigation actions, within four years of the initial disbursement of financial resources to assist them in preparing their national communications, and biennial update reports.¹⁹⁰⁴ A NAMA registry is established to take record of NAMAs voluntarily undertaken by developing countries, transfer of funds and resources to the developing countries to carry out actions, and matching available funding with countries wishing to implement actions.¹⁹⁰⁵ For mitigation actions funded domestically, an international consultation and analysis (ICA), is established which arose as compromise between the US and the BASIC countries in Copenhagen. It creates for the developed countries as well, international assessment and review (IAR).¹⁹⁰⁶

The Cancun Agreements requires the biennial reports of developing countries- including all actions, supported and unsupported to be subject to the ICA process, for transparency. The developed countries on their part are to submit apart, from the GHG inventory and biennial reports on their progress both in achieving emission reductions and providing financial, technology and capacity building support to developing countries in a measurable, reportable and verifiable manner.¹⁹⁰⁷ Both developed and developing countries alike take measurement, reporting and verification (MRV), mitigation action as demanded by the Bali Action Plan (BAP).¹⁹⁰⁸ In formulating NAMAs, strategies are meant to be flexible enough as to capture the various diversities of national needs.¹⁹⁰⁹ NAMAs permit developing countries to attract climate finance by encouraging bilateral and other alternative low-carbon investments based on country-driven priorities and capabilities.¹⁹¹⁰ Climate instability threatens with impacts which no single country can solve alone, but its solution lies on the coordination of national actions within regional and international frameworks. Yet identification and selection of actions to mitigate GHG emissions will be a great challenge because these emissions are strongly tied to human activities that support life systems.¹⁹¹¹ For the world's poor, policies to mitigate climate change may, in the

¹⁹⁰³ LINNÉR Björn-Ola and PAHUJA Neha, A Registry of Nationally Appropriate Mitigation Actions: Goals, Outcomes and Institutional Requisites, Royal Swedish Academy of Sciences, Vol.41, 2012, pp.56-67.

¹⁹⁰⁴ United Nations Framework Convention on Climate Change (UNFCCC), FOCUS: Mitigation- Reporting on National Implementation and MRV, 2014. Available at <http://unfccc.int/focus/mitigation/items/7173.php>. Site visited 12-06-2014. See also, Climate Focus, CP16/CMP6: The Cancún Agreements: Summary and Analysis, op cit. See further, RAJAMANI Lavanya, op cit.

¹⁹⁰⁵ See, Para. 53, LCA Decision.

¹⁹⁰⁶ See, Paras. 44 and 46(d), LCA Decision.

¹⁹⁰⁷ See, Para. 40, LCA Decision. See also, RAJAMANI Lavanya, op cit. see as well, JUNG Martina; EISBRENNER Katja and HÖHNE Niklas, How to Get Nationally Appropriate Mitigation Actions (NAMAs) to Work, Policy Update, Ecofys, Iss.11, 2010. Available at http://www.ecofys.com/files/files/policy_update_namas_ecofys_11_2010.pdf. Site visited 12-06-2014.

¹⁹⁰⁸ WINKLER Harald, Summary of Climate Change Mitigation Negotiations, With an Emphasis on Options for Developing Countries, in CARPENTER Chad, The Bali Action Plan: Key Issues in the Climate Negotiations, Summary for Policy Makers, Environment and Energy Group/UNDP, September 2008. Available at http://www.globalbioenergy.org/uploads/media/0809_UNDP_-_The_Bali_action_plan_key_issues_in_the_climate_negotiations.pdf. Site visited 05-02-2014.

¹⁹⁰⁹ DAVIDSON Ogunlade R., Strategies to Mitigate Climate Change in a Sustainable Development Framework, sine die. Available at <http://uneprisoe.org/copenhagenconf/davidson.htm>. Site visited 20-07-2012.

¹⁹¹⁰ MASON-CASE Sarah, op cit.

¹⁹¹¹ DAVIDSON Ogunlade R., op cit.

short term, have as much impacts as climate change itself. Likewise, policies to mitigate climate change may, in the short-term, have as much impact as climate change itself, which poses a risk to poor and marginalized communities through its physical impact and policy responses to its real or perceived threats.¹⁹¹² For developing countries, mitigation actions are better developed in a bottom-up manner to achieve reductions relative to baseline emissions, and be supported by technology and finance.¹⁹¹³ Technology and finance transfer have been perceived by the developing countries as inadequate so far,¹⁹¹⁴ suffices to say that these are veritable means of bringing these countries out of poverty and set them on proper industrial foundation and breakthrough, and should therefore, be sufficiently enhanced. Mitigation actions not rightly directed are likely to hurt the developing countries more than developed countries if the following are anything to go by: (i) environmental labeling in trade; this is borne out of the 'air-freighted' label policy, which may grossly discourage the purchase of fruits and vegetables from many countries in the sub-Saharan region of Africa, like Kenya, Ethiopia and others alike, due to food miles leading to labeling schemes in some UK and European supermarkets. (ii) Also, 'carbon footprint' policy could lead to the labeling of tourism and thus discouraging holidays in other African countries like The Gambia, Namibia, South Africa, Madagascar, among others. Large populations of people in Africa subsist on agriculture as well as tourism in many of these countries.

Biofuel production and food prices is another issue of concern, as demand for biofuels is rocketing and may likely lead to an astronomical increase in the cost of factors of production; land, rural labour, and inputs such as fertilizers and others. Recent OECD/FAO projections suggest that between 2005/06 and 2016/17, the price of maize will rise by 40 per cent, wheat by 20 per cent and rice by 14 per cent.¹⁹¹⁵ A disproportionate rise in one will have a magnificent multiplier effect on the others, and the poor people bear the risk of the increase as such staples may get out of reach of the common man. Another is the issue of forest protection. Good as the idea behind this is, climate change initiatives to preserve carbon held in tropical forests through the REDD+, CDM and others may become detrimental to developing countries particularly in those parts of the world where almost the entire life of the people is dependent on the forest. The principles and operations of these laudable programmes must be worked out in such a way that bring the benefits therein to the very local people in the communities, else their lives become more miserable and poverty is multiplied in geometrical fold among them, contrary to the intendment of such programmes. The developed countries want the developing countries to preserve their forests for carbon sequestration, yet a lot of extraneous conditions are attached to trade on food and agriculture, and foreign aids to these already impoverished countries, to subject them to some policies they would not ordinarily align or agree with, most of which in many cases are not even trade related. These are countries where the larger percentage of cultivated lands are small-holders basis, hence limited output. Left alone, more of their forests would be converted to agriculture with the high rise in population of these places. So to constrain them from doing this in the guise of forest preservation as 'carbon sinks,' means the benefits from such policies must reach the grassroots. This means governments and other stakeholders in the

¹⁹¹² PROWSE Martin and PESKETT Leo, Mitigating Climate Change: What Impact on the Poor? Overseas Development Institute Opinion, 6 April, 2008. Available at <http://www.odi.org.uk/opinion/1090-mitigating-climate-change-impact-poor>. Site visited 28-04-2014.,

¹⁹¹³ WINKLER Harald, op cit.

¹⁹¹⁴ HARRIS Emily, Improving the International Climate Change Regime's Provision for Developing Country Participation, Dissertation Submitted in Partial Fulfilment of the Degree of Bachelor of Laws (Honours) at the University of Otago, Dunedin, October 2007, p.22.

¹⁹¹⁵ PROWSE Martin and PESKETT Leo, op cit.

implementation of those programmes must be well monitored to contain the level of corruption¹⁹¹⁶ and resource diversions that could hinder the benefits from reaching the people. Former Indian Prime Minister, Rajiv Gandhi once told the Indian parliament that, only 15 per cent of aid money got through to its intended beneficiaries- corruption makes the poor poorer.¹⁹¹⁷ With most of the stringent conditions attached to trade and particularly regarding food and agriculture, the disadvantaged regions of the world might not feel obliged to continue to play along with the West which is utilizing its land for agricultural production and would request the developing world not to produce enough to feed its population, yet attaching difficult conditions to making the food available to them in the face of hunger and starvation staring their people in the face. People can and will protect themselves from the risks posed by climate change through private and collective mitigation and adaptation actions and insurance markets.¹⁹¹⁸ Contrary to all these, climate change mitigation may potentially require applying subsidies and similar measures in order to encourage inflow of friendly technologies to these vulnerable countries and regions. Countries around the world are known to maintain different array of subsidies for particular industries with the purported intent of promoting economic development. Such subsidies may be in form of special tax breaks, privileged access to imported parts and materials, protection from international competition, low-cost access to natural resources, the provision of subsidized or interest-free loans and investment.¹⁹¹⁹

Many crisis flashpoints in Africa and other parts of the less developed world national economies are weak, and make the environment suffer. If the environment is abused and resources are over consumed, people suffer and economies decline. Every smallest local action or decision, good or bad, have potential worldwide

¹⁹¹⁶ Money laundering in Nigeria is about the single greatest economic and societal problem confronting the country of immense enormous resources, but which wallows in abject self-inflicted poverty. The Nigerian anti-graft agency, the Economic and Financial Crime Commission (EFCC) in a recent release presented a grim picture of an estimated \$129 billion dollars (equivalent to N21 trillion Nigerian naira) as illicitly transferred out of the country between 2003 and 2013. See, LADAN Muhammed Tawfiq, Recent Trends in Regulating Money Laundering and Terrorism Financing in the Banking, Insurance and Capital Market Sectors of the Financial Economy of Nigeria: Role of the Financial Regulators, Text of Paper presented at a 3-Day National Conference on Money Laundering in Nigeria, Abuja, 10-13 December, 2013. See also, BORGHEZIO Mario, Money Laundering, Banks and Finance, Thematic paper on money laundering, Special Committee on Organised Crime, Corruption and Money Laundering, January 2013. Available at http://www.europa.europa.eu/meetdocs/2009_2014/documents/crim/dv/borghezio_ml_/borghezio_ml_en.pdf . Site visited 28-07-2014. See further, HAMMOURI Abd AIKhaleq and WEIDAN Adnan Mohammed, The Role of Commercial Banks Towards Money Laundering an Empirical Study, European Scientific Journal, Vol.9, No.34, December 2013. See as well, HUDSON Michael, Big Banks Are Knee-Deep in the Dirty Money-Laundering Business, AlterNet Online, 2 May, 2013. Available at <http://www.alternet.org/investigations/big-banks-are-knee-deep-dirty-money-laundering-business> . Site visited 28-07-2014. See further, PENA Joyce Dela, Exporting Criminality: Money Laundering in a Domestic and International Context, Stanford University, 2012. Available at http://web.stanford.edu/group/journal/cgi-bin/wordpress/wp-content/uploads/2012/09/Pena_SocSci_2009.pdf . Site visited 28-07-2014. See, MURPHY Dylan, Money Laundering and the Drug Trade: The Role of the Banks, Global Research, 13 May, 2014. Available at <http://www.globalresearch.ca/money-laundering-and-the-drug-trade-the-role-of-the-banks/5334205> . Site visited 28-07-2014.

¹⁹¹⁷ HAWLEY Susan, Exporting Corruption: Privatisation, Multinationals and Bribery, Corner House Briefing 19, 30 June, 2000. Available at <http://www.thecornerhouse.org.uk/resource/exporting-corruption-0> . Site visited 28-07-2014.

¹⁹¹⁸ SHOGREN Jason, Climate Protection: What Insight Can Economics Offer?, in OWEN Anthony D. and HANLEY Nicks, (Eds.), The Economics of Climate Change, London, Routledge Publishing, 2004, pp.62,63.

¹⁹¹⁹ GOODSTEIN Eban S., Economics and the Environment (5th Ed.), Hoboken, John Wiley & Sons Publishing, 2008, pp.446-447. See also, LEAL-ARCAS Rafael, op cit., pp.132-133.

repercussions.¹⁹²⁰ There is also, the green growth strategies, which presumes greener growth paths to control growing carbon emissions. This may be beneficial to the poor in the developing countries if they support low-polluting, labour-intensive production and such likes, but if otherwise, such strategies may affect poorer countries in the developing world than the more affluent ones among this category like China and India. Introduction and enhancement of such policies as carbon taxes, environmental standards, regulation and labeling may help out, but must be ensured that such do not undermine economic growth in the place of improvement of energy and productivity.¹⁹²¹ Such policies if not pursued with adequate care and restraints might be detrimental to the Bali Roadmap provision for a need to consider the 'economic and social consequences of response measures.'¹⁹²² Climate variability is hardly a new factor in Africa's history and with global warming, Africa's vulnerability is deepening, making it the most exposed region in the world to the impacts of climate change.¹⁹²³ In Copenhagen 2009, the Heads of State and Government agreed to take action to meet the objective of stabilizing global average temperature rise at or below 2°C compared to pre-industrial temperatures,¹⁹²⁴ which goal was also reaffirmed in Cancun 2010,¹⁹²⁵ seeking a possibility of limiting the temperature rise to 1.5°C, a guardrail associated with returning CO₂ concentrations to 350 ppm¹⁹²⁶ from its current 395.77, as of June 2012.¹⁹²⁷ Cancun clearly marked the end of the Copenhagen Blues and put the negotiations back on track, but it dealt the death blow to the process of establishing a top-down and comprehensive international climate agreement, as it was a vague compromise on the future of the KP and the possibility of a second commitment period after 2012.¹⁹²⁸ The sub-Saharan Africa is at this stage best suited for mitigation measures as its economy is projected to be on steady and sustained rise in the present and coming years. This means that a lot of investments- industrial and infrastructural would be taking place there.

New technologies should be introduced to these countries rather than leaving them to develop on such archaic technologies as coal-driven energy. More countries in the sub-Saharan Africa are becoming oil-producing nations and so should rather tap the associated gas and channel same to energy production to enhance and

¹⁹²⁰ UNCED, United Nations Conference on Environment and Development, Johannesburg Summit 2002, 26 August- 4 September, 2002. Available at http://www.un.org/jsummit/html/basic_info/unced.html. Site visited 30-07-2012.

¹⁹²¹ PROWSE Martin and PESKETT Leo, op cit.

¹⁹²² PROWSE Martin and PESKETT Leo, ibid.

¹⁹²³ World Bank, African Energy Minister Conference, Proceedings Report, Road to Durban: Promoting Sustainable Energy Access for Africa, Johannesburg, 15-16 September, 2011. Available at <http://www.ppiaf.org/files/publication/African-Energy-Ministers-Conference-Proceedings-Report-Johannesburg-Se-15-16-2011.pdf> . Site visited 12-06-2014.

¹⁹²⁴ See, Decision 2/CP.15, Copenhagen Accord (UN Doc. FCCC/CP/2009/11/Add.1,30 March, 2010), at para.2.

¹⁹²⁵ See, Decision 1/CP.16, The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention (UN Doc. FCCC/CP2010/7/Add.1, 15 March 2011), at 3.

¹⁹²⁶ See, Decision 2/CP.15 Copenhagen Accord, op cit. See also, HANSEN James et al, Target Atmospheric CO₂: Where Should Humanity Aim? Open Atmospheric Science Journal, Vol.2, 2008, pp.217-231.

¹⁹²⁷ NOAA Earth System Research Laboratory Global Monitoring Division, Trends in Atmospheric Carbon Dioxide: Recent Mauna Loa CO₂ (June 2012). Available at <http://www.esrl.noaa.gov/gmd/ccgg/trends>. Site visited 21-11-2012. See also, ZAEKE Durwood; ANDERSEN Stephen O. and BORGFORD-PARNELL Nathan, Strengthening Ambition for Climate Mitigation: The Role of the Montreal Protocol in Reducing Short-Lived Climate Pollutants, Review of European Community and International Environmental Law, Vol.21, Iss.3, November 2012, pp.231-242. See further, MOLINA Mario et al, Reducing Abrupt Climate Change Risk Using the Montreal Protocol and Other Regulatory Actions to Complement Cuts in CO₂ Emissions, Proceedings of the National Academy of Sciences of the United States of America, Vol.106, N0.49, 2009. Available at <http://www.pnas.org/content/106/49/20616.full> . Site visited 21-05-2012.

¹⁹²⁸ FUHR Lili, From Cancun to Durban-COP 17, Heinrich Böll Stiftung Southern Africa, 3 February, 2014. Available at <http://za.boell.org/2014/02/03/cancun-durban-cop-17>. Site visited 23-05-2014.

boost the energy sector with clean energy. This will impact other sectors of the economy like agriculture, production, transportation, education, and others. It will also help develop the renewable energy sector. There are a number of correlations between adaptation and mitigation, but the major difference between them remains the scale of their effect and the associated costs. Adaptation will have impacts primarily on local scale: actions are based on specific needs of the affected regions here. The cost-savings from adaptation efforts mainly accrue through reduced risk impacts, often at an individual, or community level. Mitigation on the other hand is a global effort requiring broad changes of behaviour and technological advancements. Mitigation strategies are usually expensive in the short- term, because they are capital- intensive (change in technology, urban transport and collective infrastructure), and require fundamental changes to urban systems, as is presently the case in the city of Lagos, Nigeria, which is projected to become the third largest megacity in the world by 2015.¹⁹²⁹ But over time, the costs of mitigation are generally self-financed through cost-savings.¹⁹³⁰

6.3 United Nations Conference on Sustainable Development (Rio+20) 2012

The Rio+20 Conference came twenty years after the original Rio Earth Summit, in commemoration of the twentieth anniversary of the landmark Rio Earth Summit 1992, and to assess what has been achieved and what else needed to be done to achieve the original and anticipated goals of sustainable development.¹⁹³¹ Rio+20 seeks three main objectives: secure renewed political commitment to sustainable development; assess the progress and implementation gaps in meeting already agreed commitments; and address new and emerging challenges.¹⁹³² Tagged “The Future We Want,” Rio +20 made frequent reference to climate change as a key disruptor of sustainable development,¹⁹³³ acknowledging that much has been accomplished, but most of the problems that gave rise to the introduction of sustainable development have yet to be solved.¹⁹³⁴ The problems acknowledged as setbacks because of multiple interrelated crises were identified as food security, biodiversity loss, extreme poverty, increment in unsustainable development leading to stress on the earth’s limited natural resources and further on the carrying capacity of ecosystems, all aside from climate change, the most far

¹⁹²⁹ OJUMU Akin, Welcome to Lagos: How Nigeria’s Dirt Poor Scratch a Living in a City Teeming With Business Flair, The Guardian Online, 4 April, 2010. Available at <http://www.theguardian.com/world/2010/apr/04/documentary-film-welcome-to-lagos-nigeria>. 23-09-2012. See also, OYEGOKE S. O; ADEYEMI A. O. AND SOJOBI A. O., The Challenges of Water Supply for a Megacity: A Case Study of Lagos Metropolis, International Journal of Scientific and Engineering Research, Vol.3, Iss.2, February 2012.

¹⁹³⁰ HOORNWEG Daniel et al, Cities and Climate Change: An Urgent Agenda, The WB Urban Development Series Knowledge Papers, Vol.10, December 2010, Washington D.C., p.8.

¹⁹³¹ GROSS Michael, Will Rio+20 Find a Way to More Sustainable Development? Current Biology, Vol.22, Iss.11, June 2012, pp.R425-R428.

¹⁹³² Principles for Responsible Management Education (PRME), PRME @ Rio+20, 2014. Available at <http://www.unprme.org/global-forum/prme-rio-20.php#top> . Site visited 23-06-2014.

¹⁹³³ LYSTER Rosemary, Adaptation and Climate Justice, in VERSCHUUREN Jonathan (Ed.), Research Handbook on Climate Change Adaptation Law, Cheltenham, Edward Elgar Publishing, 2013, p.53.

¹⁹³⁴ Sustainable development, as a political concept introduced by the Brundtland Report (WCED 1987) emerged on the political scene as a quintessential recipe to address the deterioration of the environment and its consequences on human development, and to reconcile the concepts of the global North and the global South. See, HAPPAERTS Sander, Sustainable Development and Subnational Governments: Going Beyond Symbolic Policies, Environmental Development, Vol.4, 2012, pp.2-17. See also, planet Under Pressure, State of the Planet Declaration, 26-29 March, 2012. Available at http://www.planetunderpressure2012.net/pdf/state_of_planet_declaration.pdf . Site visited 20-06-2014. See also, HAPPAERTS Sander, Sustainable Development and Subnational Governments: Going Beyond Symbolic Politics? Environmental Development, Vol.4, 2012, pp.2-17.

reaching of them. It acknowledged deep concern that around 1.4 billion people still live in extreme poverty,¹⁹³⁵ while one-sixth of the world's population is undernourished.¹⁹³⁶ The critical importance of poverty eradication is emphasised and the need to make progress to achieve the MDGs target by 2015.¹⁹³⁷ It acknowledged that in 2012, over 900 million people still suffer from hunger, the most vulnerable being poor populations worldwide especially, in the rural areas, and that hunger persists even though global food production has outpaced population growth over the past half century. That hunger and undernourishment may deprive a child, especially during the 1000 days from conception, of ever reaching their full physical and cognitive potential. That hunger and undernourishment have significant economic costs like reduced lifetime productivity and earnings, sustainable resource use, deepening poverty, slow economic development and resource degradation.¹⁹³⁸ That, the duo are tightly linked. Observed similarly as to climate, financial, economic, social, and energy crises and threats being faced by the world today. Rio+20 officially defines sustainable development as composed of three dimensions that must be pursued simultaneously: economic, social and environmental.¹⁹³⁹

Rio+20 negotiations highlight seven areas that need priority attention viz: jobs, energy, cities, water, oceans, disasters and food. It observed that too many people are still not living a healthy and productive life, which depends on food security, safe and nutritious food in line with a person's dietary needs, while the world grows in ways that are not always in harmony with nature. That health is a precondition for, an outcome of, and an indicator of all three dimensions of sustainable development. Sustainable development will not be achieved in presence of high burden on communicable/non-communicable diseases. The global burden and threat of non-communicable diseases constitute one of the major challenges for sustainable development in the twenty-first century.¹⁹⁴⁰ It pointed out the consequential effects the environment is having on the burden of disease, that

¹⁹³⁵ International aid defines poverty as multiple deprivations of basic capabilities: economic, socio-cultural, human, political and protective. See, LOEWE Markus, Post 2015: How to Reconcile the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs), German Development Institute Briefing Paper 18/2012. See also, DREXHAGE John and MURPHY Deborah, Sustainable Development: From Brundtland to Rio 2012, Background Paper, International Institute for Sustainable Development, September 2010. Available at http://www.un.org/wcm/webdav/site/climatechange/shared/gsp/docs/GSP1-6_Background_on_Sustainable_Devt.pdf. Site visited 24-06-2014. See further, SCARANO Fabio; GUIMARÄES André and da SILVA José Maria, Rio+20: Lead By Example, *Nature*, Vol.486, Iss.7401, June 2012, pp.25-26.

¹⁹³⁶ GROSS Michael, op cit.

¹⁹³⁷ CLÉMENÇON Raymond, Welcome to the Anthropocene: Rio+20 and the Meaning of Sustainable Development, *Journal of Environment and Development*, Vol.21, No.3, 2012, pp.311-338.

¹⁹³⁸ Warming temperatures, sea-level rise and unpredictable shifts in weather are already cutting into food production and will have long-term effects on human survival, according to UN Report released in October 2013, stating that climate change is happening faster than ever and will only get worse. See, CHILDRESS Sarah, UN Report: Climate Change Will Deepen Poverty, Hunger, *Frontline Online*, 31 March, 2014. Available at <http://www.pbs.org/wgbh/pages/frontline/environment/climate-of-doubt/un-report-climate-change-will-deepen-poverty-hunger/>. Site visited 25-07-2014.

¹⁹³⁹ CLÉMENÇON Raymond, *ibid*. See also, SALLEH Ariel, Green Economy or Green Utopia? Rio+20 and the Reproductive Labour Class, *American Sociological Association*, Vol.18, No.2, 2012, pp.141-145.

¹⁹⁴⁰ International Diabetes Federation, Rio+20 Outcome Document: The Future We Want, Summary, June 2012. Available at http://www.idf.org/sites/default/files/201206-Rio%2B20Outcomes_Document-The_Future_We_Want_Summary_0.pdf. Site visited 19-06-2014. See also, GROSS Michael, *ibid*. See also, LANGLOIS Etienne V. et al, Towards a Better Integration of Global Health and Biodiversity in the New Sustainable Development Goals Beyond Rio+20, *Ecohealth*, Vol.9, 2012, pp.381-385. See further, ALLEYNE George et al, Embedding Non-Communicable Diseases in the Post-2015 Development Agenda, *The Lancet*, Vol.381, Iss.9866, February 2013, pp.566-574.

about 24 per cent of the global burden of disease, and 23 per cent of deaths are attributable, while 36 per cent sub-Saharan Africa and south Asia, and major disease burden being diarrheal diseases, infections of the lower respiratory tract, injuries related to workplace hazards and road traffic, and malaria.¹⁹⁴¹ It pointed out further that, public health and sustainable development are linked by interactions between the physical environment such as air pollution, chemical exposures and climate change, and the social environment (Ottawa Charter and World Conference on Social Determinants of Health), together with poverty reduction and confrontation of diseases related to poverty.¹⁹⁴² It noted with dismay that environmental impacts are still high on agricultural and food systems. It observes the astronomical growth in human population¹⁹⁴³ and the pressure it exerts on natural resources, and that the current population and consumption trends produce three major challenges: (i) extreme poverty faced by around 1.3 billion people causing all kinds of other problems like migration and unsustainable land use, (ii) unsustainably high consumption of material goods in the richer countries, based on a failure to value the natural resources that are overexploited for this consumption and thus threatened by depletion, and (iii) the population growth itself, which tends to exacerbate other problems faced by developing countries.¹⁹⁴⁴ Parties therefore committed to systematically considering population trends and projections in their national, rural and urban development opportunities and address the challenges associated with demographic change, including migration.¹⁹⁴⁵ Towards this, it was requested of each Head of State or Government to identify one city that is the most sustainable and to develop a network for innovation for cities.¹⁹⁴⁶

Governments also decided to establish an intergovernmental process under the United Nations General Assembly (UNGA) to prepare options on a strategy for sustainable development financing. More than US\$513 billion was pledged to build a sustainable future.¹⁹⁴⁷ The US announced a partnership between the US and African nations, with US\$20 million in funding, to unlock private financing for clean energy projects in Africa and beyond. Brazil also pledged US\$6 million to UNEP's fund targeting developing countries, and \$10 million towards climate change challenges in Africa, LDCs, and SIDS. China also made similar pledge, while the European Commission (EC) President announced that the EC would mobilise €400 million to support sustainable energy projects. Japan too announced funding for a three-year programme of disaster risk reduction, and eight multilateral banks pledged to invest US\$175 billion over the next 10 years to support the creation of sustainable transport systems. Italy also announced an additional US\$6 million for projects implementing sustainable

¹⁹⁴¹ HAINES Andy et al, From the Earth Summit to Rio+20: Integration of Health and Sustainable Development, *The Lancet*, Vol.379, Iss.9832, June 2012, pp.2189-2197.

¹⁹⁴² HAINES Andy et al, *ibid*.

¹⁹⁴³ Global population is projected to reach 9 billion people by 2030, which means global demand for water would rise by 30%, for food and energy would rise by 50%, which constitute further strain on the already distressed system. See, RAWORTH Kate, A Safe and Just Space for Humanity: Can We Live Within the Doughnut? Oxfam Discussion Paper, February 2012. Available at <http://www.oxfam.org/sites/www.oxfam.org/files/dp-a-safe-and-just-space-for-humanity-130212-en.pdf>. Site visited 24-06-2014.

¹⁹⁴⁴ GROSS Michael, *op cit*.

¹⁹⁴⁵ CLÉMENÇON Raymond, *op cit*.

¹⁹⁴⁶ DORAN Peter et al, Summary of the United Nations Conference on Sustainable Development, IISD/Earth Negotiations Bulletin, Vol.27, No.51, 25 June, 2012.

¹⁹⁴⁷ STREIMIKIENE Dalia, United Nations Conference on Sustainable Development Rio+20, *Intellectual Economics*, Vol.7, No.1, 2013, pp126-130. See also, CLÉMENÇON Raymond, *ibid*.

development activities, especially relating to climate change.¹⁹⁴⁸ The economic growth in developing countries that follows the resource-intensive model of developed countries constitutes a real and growing threat to the planet's well-being. This means more sustainable development pathways are needed in both developed and developing countries, which require a level of dialogue, cooperation and trust that simply does not reflect in today's multilateral institutions or regimes.¹⁹⁴⁹ Many governments that institutionalize sustainable development interpret it as a met-policy, and they design transversal instruments such as sustainable development strategies (SDSs) and interdepartmental working groups. However, sustainable development policies as meta-policies often do not result in concrete policy measures in specific sectors, and thus increase the risk of being detached from reality and from what sustainable development was all about in the first place, yet sustainable development attracts a high degree of declaratory commitment filled with all sorts of references to sustainability, even if the large majority of the populace are not aware of the symbolic character of the policies concerned.¹⁹⁵⁰ Rio+20 is about making governments to adopt clear and focused practical measures for implementing sustainable development, based on the many examples of the success we have over the last 20 years.¹⁹⁵¹ While sustainable development is intended to encompass three pillars, over the past twenty years it has often been compartmentalized as an environmental issue and more compounded and limiting is the reigning orientation of development as purely economic growth. This has been the framework used by developed countries in attaining their unprecedented levels of wealth, and major and rapidly developing countries are following the same course. This portends the great danger of imminent peril of the exhaust to natural resources, or their quality being compromised to the extent of threatening current biodiversity and natural environments.¹⁹⁵²

Owing to changes in atmospheric concentrations of GHGs affecting the energy balance of the global climate system,¹⁹⁵³ the Summit deliberated on Green Economy¹⁹⁵⁴ as its first theme, with government delegations

¹⁹⁴⁸ DORAN Peter et al., op cit. See also, BÄR Holger; JACOB Klaus and WERLAND Stefan, Green Economy Discourses in the Run-Up to Rio 2012, Environmental Policy Research Centre, 2-11. See as well, GUALBERTI Giorgio, Development Finance for Universal Energy Access, FEEM Working Paper, No.12, 2012. See further, MEYERSTEIN Ariel, The New Protectors of Rio: Global Finance and the Sustainable Development Agenda, Sustainable Development Law and Policy, Vol.12, No.3, Rio+20 Article 4, Spring 2012, pp.15-20, 52-54. Also, GUALBERTI Giorgio; MARTINS Luis Filipe and BAZILIAN Morgan, An Econometric Analysis of the Effectiveness of Development Finance for the Energy Sector, Energy for Sustainable Development, Vol.18, February 2014, pp.16-27. See again, STRECK Charlotte and CHAGAS Thiago, Developments in Climate Finance: From Rio to Cancun, 2 October, 2011.

¹⁹⁴⁹ DREXHAGE John and MURPHY Deborah, Sustainable Development: From Brundtland to Rio 2012, September 2010, p.7.

¹⁹⁵⁰ HAPPAERTS Sander, op cit.

¹⁹⁵¹ LEGGETT Jane A. and CARTER Nicole T., Rio+20: The United Nations Conference on Sustainable Development, June 2012, Congressional Research Service, 18 June, 2012.

¹⁹⁵² DREXHAGE John and MURPHY Deborah, op cit.

¹⁹⁵³ HAMMOND Geoffrey P. and PEARSON Peter J. G., Challenges of the Transition to a Low Carbon, More Electric Future: From Here to 2050, Energy Policy, Vol.52, January 2013, pp.1-9.

¹⁹⁵⁴ The Rio+20 Report defines green economy as one combining enhanced resource efficiency with environmental resilience, while boosting prosperity and equity in society. See, European Environment Agency (EEA), Resource-Efficient Green Economy EU Policies, EEA Report No.2, 2014, p.9. See also, BÄR Holger; JACOB Klaus, and WERLAND Stefan, Green Economy Discourses in the Run-Up to Rio 2012, Environmental Policy Research Centre FFU-Report 07-2011, Freie Universität Berlin, p.8. See further, VANHULST Julien and BELING Adrian E., Buen Vivir: Emergent Discourse Within or Beyond Sustainable Development? Journal of Ecological Economics, Vol.101, 2014, pp.54-63. See again, SWEENEY Sean, Earth to Labour, New Labour Forum, Vol.21, No.1, Winter 2012, pp.10-13. Available at https://www.academia.edu/4209075/Earth_to_Labor_Sweeney_on_Ecological_Unionism. Site visited 18-07-2014.

agreeing that each country will choose its own green economy approach and policy mix based on national priorities assessment and adapting measures to national institutions and economic systems, because of the persistence of developing countries on seeing a green economy as just one possible way to sustainable development, as against the US' insistence on no additional financial commitments forthcoming during the Rio 2012.¹⁹⁵⁵ The notion of a green economy is simply an aphorism for “green” growth, which applies in many cases to the growth of the entire economy of a country.¹⁹⁵⁶ The delegates generally agreed on the importance of the private sector in sustainable development and the outcome of this being a large number of private deals on renewable energy, pollution control, water infrastructure and other commercial and development investments.¹⁹⁵⁷ Green economy is considered as one of the important tools, guided by the Rio Principles, Agenda 21, the Johannesburg Plan of Implementation (JPOI) and contributing to the MDGs. It emphasised the power of communication technologies, of linking finance, technology and capacity building, and the importance of governments in showing leadership. It invited relevant stakeholders and major UN regional economic commissions and other UN bodies and international organisations to support developing countries, and for business and industry to develop sustainability strategies.¹⁹⁵⁸ Green economy seeks to value and include environmental economic values in markets and government policies, in the social development and poverty alleviation, it portrays a reliance on the use of renewable energy sources.¹⁹⁵⁹ In the follow-up to this, the United Nations General Assembly (UNGA), expressed determination to address the themes of the United Nations Conference on Sustainable Development (UNCSD), namely, green economy in the context of sustainable development and poverty eradication, and the institutional framework for sustainable development.¹⁹⁶⁰

The European Commission has set an 80 per cent reduction of carbon emissions in transport and 70 per cent reduction in the use of oil. The US is set to prove that it is taking the issue of emissions from transportation by the horn, as it was reported that there are now more electric vehicle charging stations in the US than McDonald's Restaurants.¹⁹⁶¹ Globally, transport is the second largest source of GHG emissions,¹⁹⁶² contributing

¹⁹⁵⁵ CLÉMENÇON Raymond, op cit.

¹⁹⁵⁶ BRAND Ulrich, Green Economy- The Next Oxymoron? No Lessons Learned From Failures of Implementing Sustainable Development, GAIA- Ecological Perspectives for Science and Society, Vol.21, No.1, 2012, pp.28-32. See also, JÄNICKE Martin, “Green Growth”: From a Growing Eco-Industry to Economic Sustainability, Energy Policy, Vol.48, September 2012, pp.13-21.

¹⁹⁵⁷ LEGGETT Jane A. and CARTER Nicole T., op cit. See also, STREIMIKIENE Dalia, op cit.

¹⁹⁵⁸ DORAN Peter et al, op cit.

¹⁹⁵⁹ De OLIVIERA Jose A. Puppim, Rio+20: What We Can Learn From the Process and What is Missing, Cad. EBAPE.BR, Vol.10, No.3 Article 2, September 2012, pp.492-507. Available at

<http://www.bibliotecadigital.fgv.br/ojs/index.php/cadernosebape/article/viewFile/5476/4198>. Site visited 23-06-2014

¹⁹⁶⁰ United Nations, Future We Want- Outcome Document of the United Nations Conference on Sustainable Development, Rio de Janeiro, Brazil, 20- 22 June, 2012. A/RES/66/288, 11 September, 2012. Available at <http://sustainabledevelopment.un.org/futurewewant.html>. Site visited 19-06-2014. See also, SALLEH Ariel, Green Economy or Green Utopia? Rio+20 and the Reproductive Labour Class, American Sociological Association, Vol.18, No.2, 2012, pp.141-145

¹⁹⁶¹ McDonalds reportedly have about 13, 900 locations dotted across the US, while the Electric Vehicles (EV) Charging points have recently installed charging station number 18,000, outnumbering the eatery. See, United Nations Framework Convention on Climate Change, Bonn Climate Change Conference- March 2014. Available at http://www.unfccc.int/meetings/bonn_mar_2014/meeting/7979/view/virtualparticipation.php. Site visited 10-07-2014. See also, DeMORRO Christopher, There Are Now More Chargepoint Chargers Than McDonalds, CleanTechnica, 8 July, 2014. Available at <http://www.cleantechnica.com/2014/07/08/now-chargepoints-chargers-mcdonalds/>. Site visited 10-07-2014.

22 per cent of global GHG vehicles ownership per 1000 people as of 2011.¹⁹⁶³ Biofuels occupy a conspicuous position in renewables,¹⁹⁶⁴ hence biofuels policies have been typically driven by three major concerns: climate change, energy security and rural development. Climate change concerns have since made biofuels more broadened and internationalised.¹⁹⁶⁵ The Commission succeeded in linking the development of EU climate policy with a concern for Europe's energy security in the medium term.¹⁹⁶⁶ Besides, it was to cash in on the derivatives it offers, as it is capable of boosting resource efficiency and maintaining ecosystem resilience. It is seen as a complementary means to achieving sustainable development. The World Bank, the European Environment Agency (EEA) and UNEP perceive it as means to focus on natural systems and the biosphere and the importance of respect for environmental limits- respecting resource constraints and planetary boundaries.¹⁹⁶⁷ Measures are being seriously pursued to promote indigenous sources, including renewables¹⁹⁶⁸ and nuclear energy, and a view to accelerating the diversification of its external energy supplies, especially for gas.¹⁹⁶⁹ Climate policies may constitute certain risks for energy security in that, if unconventional oil resources are not exploited, more regions would need to import oil. This is however, a progressively declining risk because of the decreasing importance of oil.¹⁹⁷⁰ The reasons for turning away from fossil energy resources are underscored by their finiteness, enormous pollution and in particular, climate change.¹⁹⁷¹ Over the next 40 years or thereabout, there is doubtless going to be a drastic growth in energy demand, resulting principally from the development of rapidly industrialising countries such as China and India and a couple of others emerging in other parts of Asia, Latin America and Africa. Their heavy reliance on energy would considerably aggravate the rapid further depletion of finite fossil fuel resources like oil, and natural gas, and the need for climate change mitigation therefore require a portfolio of energy options: energy demand reduction and energy efficiency improvements,

¹⁹⁶² International Energy Agency (IEA) Statistics, CO₂ Emissions From Fuel Combustion: Highlights, 2012 Edition, p.9. Available at <http://www.iea.org/co2highlights/co2highlights.pdf>. Site visited 11-07-2014.

¹⁹⁶³ The top ten highest vehicle ownership in the world includes: Monaco-842; Liechtenstein-826; USA-786; Iceland-747; Luxembourg-741; Malta-709; New Zealand-708; Australia-703; Lithuania-615; and Spain-593. See, The World Bank, Motor Vehicles (Per 1,000 People), 2014. Available at <http://www.data.worldbank.org/indicator/IS.VEH.NVEH.P3>. Site visited 11-07-2014.

¹⁹⁶⁴ Currently, more than 50 countries have mandated or promoted biofuel blending to displace oil in domestic transport supply, with the EU setting out a mandatory share of 10% renewable energy in transport by 2020 in its Renewable Energy Directive. See, International Energy Agency (IEA): Highlights, 2012 Edition, p.21, OECD/IEA 2012. Available at <http://www.iea.org/co2highlights/co2highlights.pdf>. Site visited 11-07-2014.

¹⁹⁶⁵ LINARES Pedro and PÉREZ-ARRIAGA Ignacio J., A Sustainable Framework for Biofuels in Europe, Energy Policy, Vol.52, January 2013, pp.166-169.

¹⁹⁶⁶ PAVESE Carolina B. and TORNEY Diarmuid, The Contributions of the European Union to Global Climate Change Governance: Explaining the Conditions for EU Actorness, Rev. Bras. Polít. Int. Vol.55 no. spe Brasília 2012, pp.125-143. Available at http://www.scielo.br/scielo.php?pid=s0034-73292012000300008&script=sci_arttext. Site visited 13-04-2013.

¹⁹⁶⁷ European Environment Agency (EEA), Resource-Efficient Green Economy EU Policies, EEA Report No.2, 2014, p.11.

¹⁹⁶⁸ Germany increased its renewable energy shares of electricity to 23.5% in 2012 from 3.4% in 1990, and is making good progress towards its 2020 target of 35%. See, BRAUN Nadine et al, Instruments to Increase Climate Policy Ambition Before 2020- Economic and Political Implications in Selected Industry and Emerging Countries, Öko-Institut e.V., Institute for Applied Ecology, Berlin, 6 June, 2014, p.24.

¹⁹⁶⁹ AFP, EU Lays Out Energy Plan, to Reduce Russia Dependence, AFP News Online, 28 may, 2014. Available at <http://www.uk.news.yahoo.com/eu-lays-energy-plan-reduce-171748621.html-Og0ANp>. Site visited 29-05-2014.

¹⁹⁷⁰ CHERP Aleh et al, Global Energy Security Under Different Climate Policies, GDP Growth Rates and Fossil Resources Availabilities, Journal of Climate Change, Vol. 29, 2014.

¹⁹⁷¹ SCHLÖR Holger; FISCHER Wolfgang and HAKE Jürgen-Freidrich, The Meaning of Energy Systems for the Genesis of the Concept of Sustainable Development, Journal of Applied Energy, Vol.97, 2012, pp.192-200.

carbon capture and storage from fossil fuel power plants, and a switch to other low or zero carbon energy sources: various sorts of renewables, including bioenergy and biofuels or nuclear power.¹⁹⁷² Yet, one-third of the world population has hardly any access to abundant fossil fuel energy, and the energy consumption of the industrialised countries is a multiple higher than the average.¹⁹⁷³ There are still some cheering news from a couple of develop countries such as Denmark, and Germany's "energy transformation," that informed of their intention to be fossil fuels independent by 2050. Germany will close down all nuclear plants by 2022, and increase the share of renewable energy to at least 80 per cent by2050.¹⁹⁷⁴ Efforts are however to be made towards eliminating fossil fuel subsidies so as to discourage reliance on fossil energy resources. The International Energy Agency contends that this has the potential of reducing global energy demand by 5 per cent and CO₂ emissions by nearly 6 per cent in 2020¹⁹⁷⁵

On the institutional framework for sustainable development (IFSD), it was agreed to strengthen IFSD by promoting the full and effective participation of all countries in decision-making processes; promote the review and stock-taking of progress in implementation of all sustainable development commitments and enhance participation and effective engagement of civil society. It calls for capacity building especially for developing countries, including in conducting their own monitoring and assessments. Reform of existing international processes and institutions on environmental matters was recommended for the effectiveness and efficiency of environmental protections. It also called for the strengthening of UNEP, and proposed the creation of a new council for sustainable development.¹⁹⁷⁶ The agreement adopted in Rio calls for the UNGA in its next session to take decisions on designating a body to operationalize the 10-year framework of programmes on sustainable consumption and production; determining the modalities for the third international conference on SIDS, in 2014; identifying the format and organizational aspects of the high-level forum, which is to replace the Commission on Sustainable Development. Rio+20 agreements left to the UNGA the duty of defining a clear mandate for the high-level forum.¹⁹⁷⁷ The UNGA did establish a new High-level Political Forum on 9 July, 2013 in the place of the UNCSO, to boost efforts to tackle global economic, social and environmental challenges, as required of it by the Agreements.¹⁹⁷⁸ The agreements strengthened the UNEP; constituting a working group to develop global sustainable development goals (SDGs) to be agreed by the UNGA; establishing an intergovernmental process under UNGA to prepare a report proposing options on an effective sustainable

¹⁹⁷² HAMMOND Geoffrey P. and PEARSON Peter J. G., op cit.

¹⁹⁷³ SCHLÖR Holger; FISCHER Wolfgang and HAKE Jürgen-Friedrich, The Meaning of Energy Systems for the Genesis of the Concept of Sustainable Development, *Journal of Applied Energy*, Vol.97, 2012, pp.192-200.

¹⁹⁷⁴ DORAN Peter et al, op cit.

¹⁹⁷⁵ IEAGHG Information Paper, 2012-IPG: Rio+20 Agreements, IEAGHG, 22 June, 2012. Available at http://www.ieaghg.org/docs/General_Docs/Publications/Information_Papers/2012-IP6.pdf Rio20.pdf. See also, CLIMENT Juan Costa et al, What Did Rio+20 Deliver for Business? Ernst and Young, 2012.

¹⁹⁷⁶ LEGGETT Jane A. and CARTER Nicole T., op cit. See also, DORAN Peter et al, *ibid*.

¹⁹⁷⁷ CLÉMENÇON Raymond, op cit. See also, Science for Policy, UN High-Level Political Forum, Science for Policy and Rio+20 Follow-up, sine die. Available at <http://www.icsu.org/science-for-policy/un-high-level-political-forum> . Site visited 22-05-2014. See also, Paragraphs 84-86 Future We Want- Outcome Document, A/RES/66/288, 27 July, 2012. Available at <http://www.sustainabledevelopment.un.org/futurewewant.html>. Site visited 19-06-2014.

¹⁹⁷⁸ United Nations Environment Programme (UNEP), Un General Assembly Sets Up New UN Forum to Boost Sustainable Development Efforts, UNEP News Centre, 10 July, 2013. Available at <http://www.unep.org/newscentre/Default.aspx?DocumentID=2723&ArticleID=9566=en> . Site visited 23-082013. See also, Science for Policy, UN High-Level Political Forum, Science for Policy and Rio+20 Follow-Up, sine die. Available at <http://www.icsu.org/science-for-policy/un-high-level-political-forum> . Site visited 22-05-2014.

development financing strategy; and considering a set of recommendations from the Secretary-General for a facilitation mechanism that promotes the development, transfer and dissemination of clean and environmentally-sound technologies. It stressed also, the essence of strengthening regional cooperation using regional entities, including the UN regional commissions and their subregional offices, and emphasised the attention to indigenous peoples and gender issues.¹⁹⁷⁹ The critical role of technology and the importance of promoting innovation, particularly in developing countries was emphasised, especially the importance of technology transfer to developing countries and recall of the provisions on technology transfer, finance, access to information, which constitutes an integral aspect of technology transfer, and intellectual property rights as agreed in the Johannesburg Plan of Implementation.¹⁹⁸⁰

Arguably, one of the most significant and consequential commitments in the political declaration at Rio+20 is the countries' pledge to develop Sustainable Development Goals (SDGs) as successors to the Millennium Development Goals (MDGs) which are due to expire by 2015.¹⁹⁸¹ It builds and advances on "the future we want," requiring post-MDGs framework to include indicators of sustainable development to safeguard people and our planet, on the understanding that the process leading to the SDGs should be coordinated and coherent with the processes considering the post 2015 development agenda.¹⁹⁸² It therefore encompasses sustainable energy for all (SE4All), which garnered more than US\$50 billion pledge from the private sector to help its actualization.¹⁹⁸³ SDGs would serve as approach that link development, social inclusion and environmental protection.¹⁹⁸⁴ SDGs are favoured to replace MDGs for many reasons adduced for the lapses of the latter among which are that the MDGs cannot easily be transformed into national objectives, having been originally formulated as global goals, without modification they were to be seen as national objectives in order to create national accountability; some goals at the global level were unrealistic right from the onset, others demonstrate low ambitions; some yet are too focused on the social sectors and neglecting the production sectors and economic development.¹⁹⁸⁵ SDGs are intended to: support the establishment of sustainable development goals reflecting the key areas of sustainable development on a global level; support the establishment of national

¹⁹⁷⁹ DORAN Peter et al, *ibid*.

¹⁹⁸⁰ STREIMIKIENE Dalia, *op cit*. See also, United Nations, *Future We Want- Outcome Document*, *op cit*.

¹⁹⁸¹ CLIMENT Juan Costa et al, *What Did Rio+20 Deliver For Business?* Ernst and Young, 2012. Available at http://www.ey.com/Publications/vwLUAssets/Rio_20_Summit_leaves_lasting_legacy/SFILE/Rio_20_Summit_leaves_lasting_legacy.pdf. Site visited 23-06-2014. See also, GROSS Michael, *op cit*. See further, International Diabetes Federation, *Rio+20 Outcomes Document: The Future We Want Summary*, June 2012. Available at [http://www.idf.org/sites/default/files/201206-Rio%2B20Outcmes Document-The Future We Want Summary 0.pdf](http://www.idf.org/sites/default/files/201206-Rio%2B20Outcmes%20Document-The%20Future%20We%20Want%20Summary%200.pdf). Site visited 19-06-2014. See as well, STREIMIKIENE Dalia, *op cit*. See also, ELLIOTT Jennifer A., *An Introduction to Sustainable Development* (4th Ed.), Oxon, Routledge Publishing, 2013, p.11. See as well, EVANS Alex and STEVEN David, *Sustainable Development Goals- A Useful Outcome From Rio+20?* Center on International Cooperation, January 2012. Available at http://www.cic.nyu.edu/sites/default/files/cic_evans_steven_rio20_report.pdf. Site visited 24-06-2014.

¹⁹⁸² STREIMIKIENE Dalia, *op cit*. See also, LEACH Melissa et al, *Transforming Innovation for Sustainability, Ecology and Society*, Vol.17, No.2, Art. 11, 2012.

¹⁹⁸³ CLIMENT Juan Costa et al, *What Did Rio+20 Deliver for Business?: The Implications of Rio+20 for Business With Reflection by Six Global Leaders*, Ernst and Young, 2012. See also, STREIMIKIENE Dalia, *ibid*.

¹⁹⁸⁴ VAUGHAN Adam, *Rio+20 Summit: The Final Day As it happened: Rolling News, Comment and Developments From the Closing Day of the UN Conference on Sustainable Development in Brazil*, *The Guardian Online*, 22 June, 2012. Available at <http://www.theguardian.com/environment/blog/2012/jun/22/rio-20-summit-final-day-live-blog>. Site visited 23-06-2014.

¹⁹⁸⁵ LOEWE Markus, *Post 2015: How to Reconcile the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs)*, German Development Institute Briefing Paper 18/2012.

sustainable goals with a clear contribution to global sustainable development; ensure social and transparent monitoring mechanisms so that governments can be held accountable by their citizens; the post-MDG goals need to reflect the responsibility of developed countries regarding the impacts of their actions on the rights to natural resources for poor people; and recognise that to achieve the goals in a sustainable manner means that States must address natural hazard risk and vulnerability into development plans.¹⁹⁸⁶ Member States agreed that SDGs must: be based on Agenda 21 and the Johannesburg Plan of Implementation (JPOI); fully respect all the Rio Principles; be consistent with international law; build on commitments already made; contribute to the full implementation of the outcomes of all major summits in the economic, social and environmental fields; focus on priority areas for the achievement of sustainable development, being guided by the outcome document; address and incorporate in a balanced way, all three dimensions of sustainable development and their interlinkages; be coherent with and integrated into the United Nations development agenda beyond 2015; not divert focus or effort from the achievement of the MDGs; and include active involvement of all relevant stakeholders, as appropriate, in the process.¹⁹⁸⁷ The SDGs are thus to focus MDGs strengths, while avoiding their weaknesses, be more comprehensive than the MDGs have been, be correlation sensitive, be outcome-oriented, be specified by indicators, be country specific, and be realistic while still ambitious.¹⁹⁸⁸

6.4 Post- 2012 Climate Change Regime

At the UN climate talks in 2010, during the 16th session of the COP to the UNFCCC, governments committed to a maximum temperature rise of 2°C above pre-industrial levels, which with the present picture clearly and increasingly seems unlikely to meet this target.¹⁹⁸⁹ Under the KP, the Ad Hoc Working Group on Further Commitments for Annex I Parties (AWG-KP) was created to negotiate how the quantified emissions limitation and reduction obligations (QELROs) of the Annex I parties would continue in the post-2012 time period, giving a foresight to what the period was to look like.¹⁹⁹⁰ The KP has been perceived to be on a collision course with the global trade policy regime as represented by the World Trade Organisation (WTO), with resultant fears by environmentalists that international trade will undercut reductions in GHG emissions as dirty production migrates to non-participating, and developing countries, in what is known as leakage.¹⁹⁹¹ This arose from the fact that as at the end of the KP first commitment period, most of the Annex I countries met their commitments, but because KP left out developing countries, total global emissions have surged by 50 per cent since 1990, largely driven by massive economic expansion and coal burning in China¹⁹⁹² and other parts of Asia. It also had a very

¹⁹⁸⁶ Aprovev, Submission to the Rio+20 Zero Draft Preparation, Aprovev/actalliance, sine die. Available at http://www.aprodev.eu/files/climate_change/other/aprodev_act_submission_rio20_zero_draft_text.pdf. Site visited 23-06-2014.

¹⁹⁸⁷ STREIMIKIENE Dalia, op cit.

¹⁹⁸⁸ LOEWE Markus, op cit.

¹⁹⁸⁹ Zommers Zinta, Emissions and Adaptation Gaps: Can We Bridge the Cracks in Climate Policy? UNEP Global Environmental Alert Service (GEAS), February 2014.

¹⁹⁹⁰ MORGAN Jennifer, The Emerging Post-Cancun Climate Regime, in BRUNNÉE Jutta; DOELLE Meinhard and RAJAMANI Lavanya (Eds.), Promoting Compliance in an Evolving Climate Regime, Cambridge, Cambridge University Press, 2011, p.18.

¹⁹⁹¹ FRANKEL Jeffrey, Global Environmental Policy and Global Trade Policy, Harvard Kennedy School, Faculty Research Working Papers Series, RWP08-058, October 2008.

¹⁹⁹² China's emissions rose by 65% to 78% compared to its 2005 levels, while India shows an increase of 72% to 80%. See, RASTOGI Namrata Patodia, Common Metrics: Countries' Climate Pledges, Post-2012 Climate Policy, Pew Center on Global

limited impact, being too narrow in ambition, its tools too massively bureaucratic, and offering too many loopholes.¹⁹⁹³ There is thus a need for a “fair” climate policy which integrates with it development and trade policies in the best interest of economic development, while the environment is not jeopardized.¹⁹⁹⁴ Rio+20 concluded with a pry into the future with a closer look into three conspicuous areas: corporate sustainability reporting, business adaptation to climate change and climate leadership from business.

There has been a flurry of activities on the post-2012 climate change regime which began in the Bali Summit, achieving the credit for a framework to negotiate a future agreement. The post-Kyoto negotiations are taking on the possibility of a combination of the top-down and bottom-up policies architecture based on decentralized linkages between and among regional, national and sub-national emissions trading systems, as part of a hybrid policy architecture mutually non-exclusive from the Durban Platform for Enhanced Action. International emissions trading (IET) based on a template of the EU ETS,(the world’s largest CO₂ cap-and-trade programme), possibly reviewed and fine-tuned for the global regime; and a linkage of domestic cap-and-trade programmes well-coordinated coupled with emission taxes through a system of harmonised national carbon taxes subsumed in a system of international cap-and-trade.¹⁹⁹⁵ Besides the EU ETS remains so far the best-developed arrangement, and the most successful of the world’s carbon markets,¹⁹⁹⁶ being the cornerstone of EU policy to counter climate change, seen as providing the core of a wider scheme¹⁹⁹⁷ to limit carbon emissions worldwide. IET serves as the cornerstone of several proposed international policy architectures.¹⁹⁹⁸ These would rely on bilateral and multilateral agreements linking nations cap-and-trade systems together by accepting each other’s allowances or credits. It has the benefit of creating cost savings and market liquidity benefits for all connected systems, while achieving the same aggregate reductions in GHG emissions. It has been described as the only system that can drive the innovation we need and the new technologies we need to solve the problem of climate change mitigation on the long-run.¹⁹⁹⁹ The desired alternative to a Kyoto style global market has yet to be specified, but it builds on the reality of the World Bank report which shows that there are lots of carbon market systems in various stages of development, implementation or operation and that if they could be linked

Climate Change, September 2011. Available at <http://www.c2es.org/docUploads/country-pledge-brief.pdf>. Site visited 04-12-2011.

¹⁹⁹³ COSSINS Dan, The Legacy of Kyoto, The Scientist Magazine, 29 November, 2012. Available at <http://www.the-scientist.com/?articles.view/articleNo/33488/title/The-Legacy-of-Kyoto/> . Site visited 26-05-2014.

¹⁹⁹⁴ ALDY Joseph E., Architecture for Agreement: Addressing Global Climate Change in the Post-Kyoto World, ZEW Wirtschaftsforum 2008, Mannheim, 27 June, 2008.

¹⁹⁹⁵ ALDY Joseph E., *ibid.* See also, RANSON Matthew and STAVINS Robert N., Linkage of Greenhouse Gas Emissions Trading Systems: Learning From Experience, Faculty Research Working Paper Series, Harvard Kennedy School, February 2014.

¹⁹⁹⁶ GRUBB Michael, Emissions Trading: Cap and Trade Finds New Energy, Nature Online, 28 November, 2012. Available at <http://www.nature.com/nature/journal/v491/n7426/full/491666a.html> . Site visited 24-06-2014. See also, SKÆRSETH Jon Birger and WETTESTAD Jørgen, Making the EU Emissions Trading System: The European Commission as an Entrepreneurial Epistemic Leader, Journal of Global Environmental Change, Vol.20, No.2, 2010, pp.314-321.

¹⁹⁹⁷ World Nuclear Association, Policy Responses to Climate Change, March 2014. Available at <http://www.world-nuclear.org/info/Energy-and-Environment/Policy-Responses-to-Climate-Change/>. Site visited 13-05-2014.

¹⁹⁹⁸ ALDY Joseph E. and STAVINS Robert N, Architectures for an International Global Climate Change Agreement: Lessons for International Policy Community, in ALDY Joseph E. and STAVINS Robert N. (Eds.), Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World, Cambridge, Cambridge University Press, 2007, p.356.

¹⁹⁹⁹ KEOHANE Nathaniel, The Urgency of U.S. Action on Climate Change, and the Prospects for Legislation, New York University Environmental Law Journal, Vol.18, March 2009.

together, a global market would coalesce.²⁰⁰⁰ Currently, about 40 national and more than 20 sub-national jurisdictions are implementing or preparing measures to limit carbon emissions, such as carbon taxes, emission trading systems, or restrictive regulation.²⁰⁰¹ It is almost apparent that without a price on carbon emissions the CO₂ emissions issue might be much more difficult to fully resolve, besides it promises to plug emissions leakage when it eventually permeates much of the global energy system.²⁰⁰² Aside from its widespread, the IET has further advantages of yielding least-cost emission mitigation, it could serve the purpose of funds transfer to developing countries.²⁰⁰³

The linkage agreements could also provide mechanisms for countries to coordinate and harmonise their emissions caps, price controls and other design features.²⁰⁰⁴ International emissions trading can significantly curtail the additional mitigation costs of the EU Roadmap 2050,²⁰⁰⁵ launched in 2011 for moving to a low-carbon economy in 2050. It has the ambitious aim of reducing GHG emissions in the EU-27 (now 28) by 80 to 95 per cent in 2050 relative to 1990 emissions, and limiting global warming to 2°C as a strategic target for 2050.²⁰⁰⁶ The EU has interestingly adopted numerous laws both to fulfill its commitments and to prepare the paths for a new post-2012 agreement or framework. Among these include a host of policies to support renewable energy, improve energy efficiency, decarbonize transport and advance a strategy on low-carbon technology deployment. The unfolding of a new EU strategy however, promises to be somewhat critical as a number of its Central and Eastern European Member States have been consistently opposing an increase in the level of ambition, a likely constraint to the EU's long-term target policy.²⁰⁰⁷ There is a corresponding need to promote international technology transfer, embodying sound R&D, with capacity-building and new technologies which spheres transcend the overseas development assistance (ODA) and CDM, to fully engage and involve the developing countries in the true spirit of CBDR.²⁰⁰⁸

²⁰⁰⁰ HONE David, To Be, or Not to Be: Carbon Markets Post 2020? 17 January, 2014. Available at

<http://www.blogs.shell.com/climatechange/category/kyoto-protocol/>. Site visited 26-05-2014.

²⁰⁰¹ STENEK Vladimir, Carbon Bubbles and Stranded Assets, The World Bank, 3 June, 2014. Available at

<https://blogs.worldbank.org//climatechange/carbon-bubbles-stranded-assets>. Site visited 03-07-2014. See also, RANSON

Matthew and STAVINS Robert N., op cit.

²⁰⁰² HONE David, op cit.

²⁰⁰³ ALDY Joseph E. and STAVINS Robert N, op cit., p.356.

²⁰⁰⁴ RANSON Matthew and STAVINS Robert N., op cit.

²⁰⁰⁵ De CIAN Enrica et al, European-Led Climate Policy Versus Global Mitigation Action: Implications on Trade, Technology, and Energy, *Climate Change Economics*, Vol.4, Suppl.1, 2013, pp.1340002-1-1340002-27.

²⁰⁰⁶ HÜBLER Michael and LÖSCHEL Andreas, The EU Decarbonisation Roadmap 2050- What Way to Walk, *Energy Policy*, Vol.55, 2013, pp.190-207. See also, JOSWICKA Magdalena and PULLES Tinus, Identifying Transport's Potential Contributions to Future GHG Reduction, TNO Paper produced as part of contract ENV.c.3/SER/2008/0053 between European Commission Directorate-General Environment and AEA Technology plc., 7 September, 2009. Available at

<http://www.eutransportghg2050.eu/cms/assets/EU-Transport-GHG-2050-Task2-Paper-Identifying-transports-contribution-07-09-09-FINAL.pdf> . Site visited 03-07-2014. See further, FORSTER H. et al, Science for Environment Policy, European Commission, 12 June, 2014. Available at

<http://www.ec.europa.eu/environment/integration/research/newsalert/pdf/376na3.pdf>. Site visited 11-07-2014.

²⁰⁰⁷ EGENHOFER Christian and ALESSI Monica, EU Policy on Climate Change Mitigation Since Copenhagen and the Economic Crisis, CEPS Working Document, No.380, March 2013.

²⁰⁰⁸ KEOHANE Robert O. and RAUSTIALA Kal, Toward a Post-Kyoto Climate Change Architecture: A Political Analysis, The Harvard Project on International Climate Agreements, Discussion Paper 08-01, July 2008. See also, ALDY Joseph E., op cit.

Efforts aimed at securing mitigation of climate change in the post-Kyoto must solve three problems: (i) secure sufficient participation to be effective; (ii) its agreement should be meaningful enough that if followed, would ensure meaningful climate change mitigation, and (iii) should be able to command compliance with the rules.²⁰⁰⁹ This then demand one vital aspect of focus in the post-2012 negotiation: astute and visionary leadership to effectively coordinate and harmonise the political commitments by leaders of States as the new dispensation promises to present as observed from the outcome of Copenhagen with the effective dismantling of the top-down, command and control structures of the KP. There seems in the post-Copenhagen situation, to be a global leadership vacuum. China and the US could have constructed an accord of their own liking in Copenhagen, but their actions could hardly be called visionary leadership, which the world yearns for to steer the ship of the climate change negotiations at this crucial moment.²⁰¹⁰ Notwithstanding their pronouncements, China and the US have not and cannot, definitely not in the present, match their words with congruent actions. The structures to do this are not there, neither the will power also. There should be in place a consistent international system with a supranational authority in the form of an enhanced body like the UNEP or a different body established for this onerous purpose. Yet, no deal excluding the US and China, which between them both emit more than 40 per cent of the world's GHGs will be worth the paper on which it is written. But domestic politics in both countries effectively block "G-2" leadership on climate. The US Congress is always poised to block or totally vote against any climate regulation legislation, just as American corporations have for years been subtly and openly opposed to and vociferously campaigning against climate change, and denying its existence. They have been sponsoring legislators and different interest groups against it.²⁰¹¹ The Chinese government in turn, faces an even

²⁰⁰⁹ KEOHANE Robert O. and RAUSTIALA Kal, *ibid*.

²⁰¹⁰ ELGSTRÖM Ole, *EU Leadership in an Emerging New World Order, Being Text of a Paper Presented at the 5th Pan-European Conference on EU Politics, Porto, 24-26 June, 2010, p.13.*

²⁰¹¹ Notably, the Koch Industries and ExxonMobil have been most outstanding in climate change denial campaign. The Koch Industries, one of the top ten air polluters in the US has been a very bitter enemy of the Obama administration because of its policies on climate change. It outdid ExxonMobil in giving money to organisations fighting legislation related to climate change. The owners- David H. and Charles Koch have funded campaigns against so many Obama administration policies, that their ideological network became known as the 'Kochtopus,' for its notoriety against climate change. See MAYER Jane, *Covert Operations, The New Yorker Online, 30 August, 2010.* Available at <http://www.newyorker.com/magazine/2010/08/30/covert-operations> . Site visited 25-07-2014. See also, VIDAL John, *US Oil Company Donated Millions to Climate Sceptic Groups, Says Greenpeace, The Guardian Online, 30 March, 2010.* Available at <http://www.theguardian.com/environment/2010/mar/30/us-oil-donated-millions-climate-sceptics> . Site visited 25-07-2014. See equally, LEHMANN Evan and Climatewire, *Who Funds Contrariness on Climate Change? Scientific American Online, 31 March, 2010.* Available at <http://www.scientificamerican.com/article/who-funds-contrariness-on> . Site visited 25-07-2014. See further, Union of Concerned Scientists, *A Climate of Corporate Control: How Corporations Have Influenced the U.S. Dialogue on Climate Science and Policy, May 2012, pp.5,7,8,11.* Available at http://www.ucsusa.org/assets/documents/scientific_integrity/a-climate-of-corporate-control-report.pdf site visited 25-07-2014. See as well, Greenpeace, *The Koch Brothers: Funding \$67,042,064 to Groups Denying Climate Change Science Since 1997, Greenpeace, USA, 2014.* Available at <http://www.greenpeace.org/usa/en/campaigns/global-warming-and-energy/polluterwatch/koch-industries/> . Site visited 25-07-2014. See as well, GOLDENBERG Suzanne, *Conservative Groups Spend Up to \$1 bn a Year to Fight Action on Climate Change, The Guardian Online, 20 December, 2013.* Available at <http://www.theguardian.com/environment/2013/dec/20/conservative-groups-1bn-against-climate-change> . Site visited 25-07-2014. See again, MAYER Jane, *Koch Pledge Tied to Congressional Climate Inaction, 30 June, 2013.* Available at <http://www.newyorker.com/news/news-desk-koch-pledge-tied-to-congressional-climate-inaction> . Site visited 25-07-2014. See further, ISRAEL Josh, *Major Companies Distance Themselves From U.S. Chamber Campaign Against Obama's Climate Plan, Climate Progress Online, 3 June, 2014.* Available at <http://www.thinkprogress.org/2014/06/03/3444143/member-companies-chamber-climate/> . Site visited 25-07-2014. See as well, CARTALUCCI Tony, *The Climate Change Corporate*

harsher constraint, even though the nation has adopted important energy efficiency legislation, the Chinese Communist Party has staked its legitimacy and political survival on raising the living standard of the average Chinese.²⁰¹² On the basis of the magnitude of emission of the G-2 emitters alone, it is worth it to fine-tune any new arrangement that brings them to participation even if it means to jettison the old arrangement, so as to find a way of taking off a greater chunk of the GHG emissions from the duo. Rather, a coalition of willing actors in the international community is being constructed, though second-best, but still worthwhile progress toward mitigating climate change without a multilateral treaty.²⁰¹³ This arrangement should allow all individuals to do their part.

The form of the new agreement may yet remain a speculation at best, Nicholas Stern had argued that a treaty that contains firm and measurable commitments, that are legally binding is likely to be more effective in securing lasting emissions reduction than a system of voluntary pledges. This is because in economic analysis of climate stability as a public good, such international commitments are seen as essential if the collective action of “free riding” is to be overcome. Also, because multilateral environmental policy focused on creating comprehensive regimes has contributed to the growth of important institutions that support global environmental governance. And further, because the firm commitments that economy enabling them to reduce transaction costs. Then, even if international agreement on a global deal remains elusive, the continuous push for such an outcome helps to maintain political momentum in international negotiations.²⁰¹⁴ Much above all are the issues of participation and compliance, which have been main issues in international law. How are nations to be induced, coerced or persuasively invited to participate in the scheme? If developing countries are not an effective part of a post-Kyoto agreement, there will be the risk of an “emission leakage” (distorting the international pattern of production and trade) which would become significant and inhibitory to industrialised countries participation.²⁰¹⁵ This is in the sense that comparative advantage in the production of carbon-intensive goods and services will shift outside the coalition of participating states, making developing countries’ economies, more carbon-intensive through “emission-leakage” than they otherwise would be.²⁰¹⁶ Compliance with obligations that the states have accepted raises specific problems that increase when environmental matters are in question.²⁰¹⁷ Compliance refers to abiding by, conforming to the rules, that is, to the quotas

Lobby: A Threat to the Environment, Global Research Online, 19 February, 2013. Available at <http://www.globalresearch.ca/the-climate-change-corporate-lobby-threatens-the-environment/5323438> . Site visited 25-07-2014.

²⁰¹² HALE Thomas, A Climate Coalition of the Willing, *The Washington Quarterly*, Vol.34, No.1, 2011, pp.89-101.

²⁰¹³ HALE Thomas, *ibid.*

²⁰¹⁴ STERN Nicholas, *The Economics of Climate Change: The Stern Review*, Cambridge, Cambridge University Press, 2007.

See also, FALKNER Robert; STEPHAN Hannes and VOGLER John, *International Climate Policy After Copenhagen: Toward a ‘Building Blocks’ Approach*, in HELD David; FANE-HERVEY Angus and THEROS Marika (Eds.), *The Governance of Climate Change: Science, Politics and Ethics*, Hoboken, John Wiley Publishing, 2013, pp.206-207.

²⁰¹⁵ ZEDILLO Ernesto, Introduction, in ZEDILLO Ernesto (Ed.), *Global Warming: Looking Beyond Kyoto*, Washington D.C., Brookings Institutional Press, 2008, p.8.

²⁰¹⁶ STAVINS Robert N., *An International Policy Architecture for the Post-Kyoto Era*, in ZEDILLO Ernesto (Ed.), *Global Warming: Looking Beyond Kyoto*, Washington D.C., Brookings Institutional Press, 2008, p.147.

²⁰¹⁷ KISS Alexandre and SHELTON Dinah, *Guide to International Environmental Law*, Public Law and Legal Theory Working Paper No.347, The George Washington University Law School, Martinus Nijhoff Publishing, 2007. See also, GOLDSMITH Jack L. and POSNER Eric A., *The Limits of International Law*, American Enterprise Institute for Public Policy Research, April 2005. See further, SIMMONS Beth A., *Mobilising for Human Rights: International Law in Domestic Politics*, Cambridge, Cambridge University Press, 2009, pp.5, 6. See as well, KUMM Mattias, *The Legitimacy of International Law: A Constitutionalist*

established by the participation regime together with the rules for purchasing and selling unused quotas. It then means some kind of enforcement may be ultimately devised, if any proposal for enforceable quotas would have to be reinforced.²⁰¹⁸

The negotiations on the 2015 agreement face several challenges: they require a balance between a 'top-down' and a 'bottom-up' approach to international climate policy,²⁰¹⁹ they need to be flexible and dynamic enough to accommodate changes in scientific insights and socio-economic and political conditions, but must also be predictable enough to ensure that the ultimate objective is not lost out of sight.²⁰²⁰ Good care must be taken however in implementing a new treaty based entirely on market-based instruments, which are an example of indirect regulation, leaving more freedom of choice to citizens and firms than the command control method.²⁰²¹ The former is prone to manipulation even in the face of the MRV to monitor the system, unlike the latter as practiced under the KP, which might have been improved in its lapses. It is observed that international regimes often come about not through deliberate decision-making at one international conference, but rather emerge as a result of codifying informal rights and rules that have evolved over time through a process of converging expectations or tacit bargaining.²⁰²² Much as this conditionality is important, it is equally required that such agreement or laws emanating thereof be hard law rather than soft law, because adjudication, just as it is equally more formal.²⁰²³ Differences between the EU and the US accounted for lack of agreement on the Kyoto system, but which is almost entirely fixed, while the major developing countries also have their own ideas about regulatory institutions, leading to even more dispersion in institutional preferences.²⁰²⁴

Compliance and participation cannot but be of very serious concern at this stage, as reports from the COP 18 Doha 2012 presents a grim picture of greater coal consumption than the previous year. It contends that there is noticeable decline of emissions in the developed countries, while China and India recorded continuing growth in

Framework of Analysis, *The European Journal of International Law*, Vol.15, No.5, 2004, pp.907-932. See also, SANDS Philippe and PEEL Jacqueline, *Principles of International Environmental Law* (3rd Ed.), Cambridge, Cambridge University Press, 2012, pp.15, 16. See again, DIXON Martin, *Textbook on International Law* (7th Ed.), Oxford, Oxford University Press, 2013, pp.1, 6. AREND Anthony Clark and BECK Robert J., *International Law and the Use of Force: Beyond the U.N. Charter Paradigm*, Oxon, Routledge Publishing, 2014, pp.9, 10.

²⁰¹⁸ SCHELLING Thomas, Epilogue: Architectures for Agreement, in ALDY JE STAVINS Robert N. (Eds.), *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World*, Cambridge, Cambridge University Press, 2007, p.344-345.

²⁰¹⁹ UNFCCC, Decision 1/CP.17, Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action, UN Doc FCCC/CP/2011/9/Add.1, Para.4, 15 March, 2012. See also, Van AASELT Harro; MEHLING Michael and SIEBERT Clarisse Kehler, *The Changing Architecture of International Climate Change Law*, in Van CALSTER G; VANDENBERGHE W and REINS L., *Research Handbook on Climate Change Mitigation Law*, Cheltenham, Edward Elgar Publishing, 2014. Available at <http://www.ecocidealert.com/wp-content/uploads/2014/SSRN-id24002270.pdf>. Site visited 23-05-2014.

²⁰²⁰ Van AASELT Harro; MEHLING Michael and SIEBERT Clarisse Kehler, *ibid*.

²⁰²¹ PEETERS Marjan, Towards a European System of Tradable Pollution Permit? *Tilburg Foreign Law Review*, vol.2, 1993, pp.117-133.

²⁰²² KEOHANE Robert O. and VICTOR David G., *The Regime for Complex Climate Change, Perspectives on Politics*, Vol.9, No.1, March 2011, pp.7-23.

²⁰²³ TOOPE Stephen J., *Formality and Informality*, in BODANSKY Daniel; BRUNNÉE Jutta and HEY Ellen (Eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 2010, p.108. See also, Van AASELT Harro; MEHLING Michael and SIEBERT Clarisse Kehler, *op cit*.

²⁰²⁴ KEOHANE Robert O. and VICTOR David G., *op cit*.

coal-related emissions, leaping more than 5 per cent in 2011 compared to the previous year.²⁰²⁵The Doha Conference agreed to a new commitment period for the Kyoto Protocol and affirmed a previous decision to adopt a new legal global climate pact by 2015, as decided by governments at the 2011 Durban Conference which produced the Durban Platform.²⁰²⁶The Durban Platform decision on a future climate agreement specifies that the agreement would be “applicable to all Parties.”²⁰²⁷Fossil fuels play a very central role in global economic development, but raise serious implications for the earth’s climate. CO₂ rose 3 per cent in 2011 to 9.5 billion metric tons of carbon and are expected to increase a further 2.6 per cent by the end of 2012.²⁰²⁸In 2011, CO₂ emissions from the combustion of coal increased by 4.9 per cent to 13.7 per cent GtCO₂.²⁰²⁹To achieve the level of decarbonisation required consistent with the current burning of coal at the rate of 679 Gt CO₂ by 2050, a much greater rate of improvement in efficiency will be necessary.²⁰³⁰To have a more than 66 per cent chance of remaining on the 2°C pathway, the world can only emit a further 1050 Gt CO₂ which is approximately one-quarter of all known global fossil fuel reserves.²⁰³¹The question of compliance and enforcement can be a bit critical in handling here by the virtue of the fact that violations of multilateral environmental agreements (MEAs) are most often committed by non-state actors, from individuals to large-scale industries otherwise, TNCs. In many instances, the political costs of enforcing national and international law on the private sector may be higher than when the state regulates its own activities. These are coupled with the fact that the regulation of non-state behaviour is likely to require legislation that may be difficult to adopt when the non-state actors play a powerful role in the domestic political arena,²⁰³² as is common with the TNCs in many states where they operate in contemporary times, oftentimes having enormous influence over the entire machineries of government.

²⁰²⁵ GILLIS Justin and BROODER John M., With Carbon Dioxide Emissions at Record High, Worries on How to Slow Warming, The New York Times Online, 2 December, 2012. Available at <http://www.nytimes.com/2012/12/03/world/emissions-of-carbon-dioxide-hit-record-in-2011-researchers-say.html> . Site visited 07-07-2014.

²⁰²⁶ United Nations, Climate Change, United Nations Global Issues, sine die. Available at <http://www.un.org/en/globalissues/climatechange/>. Site visited 06-06-2014.

²⁰²⁷ UNFCCC, Decision 1/CP.17, Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action, UN Doc FCCC/CP/2011/9/Add.1, Para.2, 15 March, 2012. See also, Van AASELT Harro; MEHLING Michael and SIEBERT Clarisse Kehler, op cit.

²⁰²⁸ Research Institute for Environment, Energy, and Economics (RIEEE), RIEEE’s Greg Marland: Keeping Global Climate Change Below 2°C Will Require “Aggressive Actions,” RIEEE Appalachian State University, 5 December, 2012. Available at <http://www.rieee.appstate.edu/news/rieees-gregg-marland-keeping-global-climate-change-below-2-c-will-require-aggressive-actions>. Site visited 07-07-2014. See also, CANADEL Pep, The Widening Gap Between Present Emissions and the Two-Degree Target, The Commonwealth Scientific and Industrial Research Organisation (CSIRO), 3 December, 2012. Available at <http://www.csiro.au/Portals/Media/2012/The-widening-gap-between-present-emissions-and-thetwo-degree-target.aspx>. Site visited 07-07-2014.

²⁰²⁹ International Energy Agency (IEA), CO₂ Emissions From Fuel Combustion: Highlights, 2013 Edition, OECD/IEA, 2013. Available at <https://www.iea.org/publications/freepublications/publication/CO2EmissionsFromFuelCombustionHighlights2013.pdf>. Site visited 11-07-2014.

²⁰³⁰ HUNT Collin, Illustrated Implications of the Terrifying New Math of Meinshausen and McKibben, Economic Analysis and Policy, Vol.43, No.3, December 2013, pp.235-246.

²⁰³¹ DAVIDSON Ogunlade et al, New Unabated Coal is not Compatible With Keeping Global Warming Below 2°C, 2013. Available at <http://www.europeanclimate.org/documents/nocoal2c.pdf>. Site visited 07-07-2014. See also, European Commission, IPCC Report Highlights Need for Collective and Significant Action to Keep Warming Below 2°C, European Commission Climate Action, 14 April, 2014. Available at http://www.ec.europa.eu/clima/news/articles/news_2014041401_en.htm. Site visited 06-07-2014.

²⁰³² KISS Alexandre and SHELTON Dinah, op cit.

Indications there are however, that the US would be willing seriously to cooperate with the new treaty in 2015, stating in its Submissions on Elements of the 2015 Agreement that the US supports a Paris agreement that reflects the seriousness and magnitude of what science demands, and should thus be designed to promote ambitious efforts by a broad range of Parties. This might be an indication of its willingness to do all within its reach to foster cooperation and compliance of the developing countries, particularly the BASIC countries. Christiana Figueres the UNFCCC Executive Secretary, declared that China and US are moving together on climate policy indicating a good momentum for Paris 2015.²⁰³³ It equally acknowledges the continuation of the common but differentiated responsibilities and respective capabilities (CBDR/RC) to apply to future efforts under the Convention.²⁰³⁴

Governments are gearing up for a new global climate agreement by 2015,²⁰³⁵ which is being negotiated to deal with climate change beyond 2020. A key challenge in defining this new agreement is that while obligations are to start from 2020, global emissions need to peak before 2020 if temperature rise is to be limited to below 2°C.²⁰³⁶ This means more emission cuts would have to take place before 2020 to prevent catastrophic warming levels.²⁰³⁷ The international regime entails a national emission quotas enforced by some international mechanism with trading of unused quotas- trading between national governments, not between individual emitters.²⁰³⁸ From the present indications, there is no plan ahead that every world leader can sign up to, but a number of initiatives. The world seems not to even have the right forum for leaders to discuss the issue in a way conducive to adopting the policies to effectively reduce exposure to catastrophic impacts of climate change potentially many years to come; the main game is expected to be in 2015.²⁰³⁹ Most proposals for a successor to the KP have not recommended specific emissions, concentration, or temperature goals rather, their focus have been on frameworks for setting and implementing goals.²⁰⁴⁰ Such goals should be all-inclusive if the Bali Action Plan submissions are anything to go by, with a broad consensus that States have a common responsibility to address climate change, though such responsibilities should be differentiated.²⁰⁴¹ Major developing countries like China and India relying on equity and the CBDR principles to contemplate avoiding reduction of emissions

²⁰³³ United Nations Framework Convention on Climate Change, , Bonn Climate Change Conference- March 2014. Available at http://www.unfccc.int/meetings/bonn_mar_2014/meeting/7979/view/virtualparticipation.php. Site visited 10-07-2014.

²⁰³⁴ U.S. Submission on Elements of the 2015 Agreement, sine die. Available at http://www.unfccc.int/files/documentation/submissions_from_parties/adp/application/pdf/u.s._submission_on_elements_of_the_2015_agreement.pdf . Site visited 26-05-2014.

²⁰³⁵ FRIEDMAN Lisa, Negotiations: U.N. Summit Takes Shape But Plans for 'Bold Pledges' Remain Elusive, E&E, 21 May, 2014. Available at <http://www.eenews.net/stories/1059999925> . Site visited 06-06-2014.

²⁰³⁶ International Energy Agency (IEA): Highlights, 2012 Edition, p.15, OECD/IEA 2012. Available at <http://www.iea.org/co2highlights/co2highlights.pdf>. Site visited 11-07-2014.

²⁰³⁷ KOSONEN Kaisa, Global Climate Politics at COP19: The State of Play, Greenpeace Briefing, November 2013.

²⁰³⁸ SCHELLING Thomas, op cit, p.243.

²⁰³⁹ FRIEDMAN, Lisa, Negotiations: U.N. Summit Take Shape But Plans for 'Bold Pledges' Remain Elusive, E&E Publishing, 21 May, 2014. Available at <http://www.eenews.net/stories/1059999925>. Site visited 06-06-2014. See also, ZEDILLO Ernesto, Introduction, in Global Warming: Looking Beyond Kyoto, Washington D.C., Brookings Institutional Press, 2008, p.10.

²⁰⁴⁰ ALDY Joseph E. and STAVINS Robert N, Architectures for an International Global Climate Change Agreement: Lessons for International Policy Community, in ALDY Joseph E. and STAVINS Robert N. (Eds.), Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World, Cambridge, Cambridge University Press, 2007, p.355.

²⁰⁴¹ BRUNNÉE Jutta, From Bali to Copenhagen: Towards a Shared Vision for a Post-2012 Climate Regime? Maryland Journal of International Law, Vol.25, Iss.1, 86-108, (2010).

commitments in the post-2012, should not arise, they should rather take the lead in cutting emissions.²⁰⁴² This is understandable in that both constitute the largest emitters with China topping the list. Their economies have been growing at galloping rate (both are the second and third largest economies in the world, with China looking set to overtake the US economy in due course),²⁰⁴³ and there should be a measure to control the level of their emissions. To do otherwise is to make them as liable as did the developed world in historical emissions.

To achieve the goal of legal agreement in 2015, there are groundwork that could be harmonised and built upon to facilitate this. An important lesson from COP15 in Copenhagen is that Parties came to position themselves rather than negotiate with other Parties, having completed domestic processes long before,²⁰⁴⁴ which was why erstwhile non-cooperating Parties were able to realign themselves and produced an Accord out of it. A number of regional arrangements and institutions have been in place by way of bilateral deals of various types by large industrialised countries that are most worried about climate change. The US had forged a major partnership with India to give it access to missile material and technology that had been unavailable because India was not part of the nuclear non-proliferation treaty. This move is expected to lead to massive reductions in India's emissions among other benefits. The UK has created a bilateral partnership with China to test advanced coal combustion technologies. Other countries like Australia, France and the US as well as several private firms are also working out bilateral deals mostly on coal and nuclear power with the Chinese government and institutions, which are expected to yield fruitful results in shaping the post-2012 regime. The EU and its constituent States have series of such enviable alliances and partnership with different countries and regions across the world, such as with China, African, Caribbean and Pacific (ACP), and others. The European Commission and the Australian Government are linking up their ETS over Phase III of the EU system for the Australian entities from the start of full carbon allowance trading in 2015.²⁰⁴⁵ China too piloting emission trading regionally, and rapidly expanding its renewable energy production, as it strives to bring low its coal consumption, according to a recent coal consumption trends which predicts that China's coal might peak faster than anticipated.²⁰⁴⁶ The US and China have both agreed within themselves to cooperate on climate change in a new deal July 2014. China is the world's biggest emitter of greenhouse gases and the United States is number 2, which means progress on reducing global output requires their participation. They announced eight joint projects aimed at capturing and storing carbon and setting up more efficient power distribution networks. They also agreed to raise fuel

²⁰⁴² BRUNNÉE Jutta, *ibid.*

²⁰⁴³ China's annual GDP has been growing at 9-10% annually for consistent 30 years, and now with its slowing in recent years, its economy is still expanding at double the pace of America's. According to the World Bank's International Comparison Programme (ICP) data, new assessments put China's economy at 87% of the size of the US' in 2011, and in 2012, China's GDP was US\$8.2tn while the US was \$16.2tn. India now holds a 6.4% share of global GDP on a PPP basis, moving from 10th place in 2005 to 3rd place in 2011, and now the world's third largest economy, moving ahead of Japan. See, YUEH Linda, Is China About to Overtake US as the World's Largest Economy? BBC News Online, 30 April, 2014. See also, PANDA Ankit, World Bank: India Overtakes Japan as World's Third Largest Economy, The Diplomat Online, 01 May, 2014. Available at <http://www.bbc.com/news/business-27216705> and <http://www.thediplomat.com/2014/05/world-bank-india-overtakes-japan-as-worlds-third-largest-economy/>. Sites visited 04-05-2014.

²⁰⁴⁴ FUJIWARA Noriko, Navigating the Road From Warsaw Towards a Climate Agreement in 2015, Centre for European Policy Studies (CEPS), 5 December, 2013.

²⁰⁴⁵ HONE David, To Be, or Not to Be: Carbon Markets Post 2020? 17 January, 2014. Available at <http://www.blogs.shell.com/climatechange/category/kyoto-protocol/>. Site visited 26-05-2014.

²⁰⁴⁶ KOSONEN Kaisa, Global Climate Politics at COP19: The State of Play, Greenpeace Briefing, November 2013.

efficiency standards for cars and trucks and to study gas use in industrial boilers. They both restated their individual commitments to low-carbon economic growth and significantly reducing their GHG emissions.²⁰⁴⁷

Multilateral institutions such as the World Bank have also not been left out of institution-building on climate change, sponsoring the Prototype Carbon Fund in the late 1990s to make investments for the CDM. The Bank has adopted an across-the-board effort to bring climate change concerns into its main lending and granting activities, thus creating much larger leverage on the money that flows into agriculture, power plants, infrastructure and other investments that cause or are affected by the changing climate.²⁰⁴⁸ Minilateralism could indeed forge a way forward for a breakthrough by convening smaller groups of key states such as the 20 biggest emitters or the G20.²⁰⁴⁹ This could be a promising route to overcoming barriers to an environmental agreement on climate change response. An agreement in this direction between 20 nations responsible for 80 per cent of emissions would essentially provide a reasonable way forward out of the current situation.²⁰⁵⁰ The IPCC in its latest report shows that collective and significant global action is all that is needed to reduce GHG emissions in order to keep global warming below 2°C, failing which, it becomes more expensive and difficult, more costly and an increased reliance on technologies to remove carbon dioxide from the atmosphere.²⁰⁵¹ The report reveals that to have greater than 66 per cent chance of limiting warming to 2°C, global emissions must be cut substantially to between 40 per cent and 70 per cent below the 2010 level by the middle of this century. The consequences of a failure in this regards is much higher risk and possibly catastrophic change in the global environment. The summation of these is that we are nearing tipping points that may set in motion whole chain reactions that we do not know how to model.²⁰⁵² Despite this situation, fossil fuels are still being subsidized by hundreds of billions of dollars yearly, while exploration for new fossil fuels continues with higher environmental and social risks, like in the Arctic,²⁰⁵³ where a little skirmish brewed up between an NGO and a Government recently. Nigeria and many developing countries still subsidise fossil fuels, an attempt by the government to cut down the practice caused serious unrest in the country a couple of years back, as the massively impoverished work force and populace resisted moves by the government to remove the “supposed subsidy,” which has been grossly bastardised. It has become an avenue for massive fraud by governmental officials and agencies both governmental and private involved in oil activities, while the products are not even available for the populace. As much as it remains good argument for fossil fuels subsidies to be removed to jerk-up the prices of products, most countries which still indulge in the practice are not doing it for luxury, but as inevitable means to cushion

²⁰⁴⁷ KLAPPER Bradley and WATT Louise, China, U S Closer on North Korea, Climate Change, Associated Press Online, 10 July, 2014. Available at <http://www.finance.yahoo.com/news/china-us-closer-north-korea-climate-change-114730692--finance.html>. Site visited 12-07-2014.

²⁰⁴⁸ KEOHANE Robert O. and VICTOR David G., op cit.

²⁰⁴⁹ The G20 countries account for 84% of all fossil fuel emissions. See, KOSONEN Kaisa, op cit.

²⁰⁵⁰ REIDY Chris and MCGREGOR Ian M., (Guest Eds.), Climate Governance is Failing Us: We All Need to Respond, in Global Climate Change Policy: Post-Copenhagen Discord Special Issue, Journal of Multidisciplinary International Studies, Vol.8, No.3, September 2011.

²⁰⁵¹ IPCC Working Group III Report on mitigation of Climate Change, 13 April, 2014. See also, European Commission, IPCC Report Highlights Need for Collective and Significant Action to Keep Warming Below 2°C, European Commission Climate Action, 14 April, 2014. Available at http://www.ec.europa.eu/clima/news/articles/news_2014041401_en.htm. Site visited 06-07-2014.

²⁰⁵² KEOHANE Nathaniel, The Urgency of U.S. Action on Climate Change, and the Prospects for Legislation, New York University Environmental Law Journal, Vol.18, March 2009.

²⁰⁵³ KOSONEN Kaisa, op cit.

the consequences of poverty on their citizens, which was why there were nationwide industrial actions by the entire national workforce and deadly protests in Nigeria when the government made to slash the subsidies in January 2012.²⁰⁵⁴

The UNFCCC is already putting together elaborate elements for a draft universal 2015 climate agreement, the first draft which is expected to be on the table in Lima, Peru 1-12 December, 2014. In the final run-up to 2015, Warsaw 2013 produced two milestones: Parties were asked to communicate “intended nationally-determined contributions” by March 2015; and the Ad Hoc Working Group on the Durban Platform for Enhanced Action was requested to identify before COP20 in Lima, the information that Parties would provide when putting forward their contributions.²⁰⁵⁵ It is expected that most of the negotiated contents of the Paris Agreement should be ready then while an anticipated common understanding of how individual components of this new agreement is envisaged. Series of meetings have been lined up in preparation for this. In its March 2014 meeting in Bonn, a very significant mitigation potential was identified in energy efficiency, which exists across all big, key sectors, including buildings, transport, industry and appliances. But participants observed that market incentives and clearer and stronger national policies are still essential to unlock the full potential of the “low-hanging fruit” of climate action in energy efficiency.²⁰⁵⁶ More focus is to be committed to cities, as it was emphasised that 98 per cent of cities face climate risks. Countries decided to initiate or intensify domestic preparation for their intended national contributions towards the 2015 agreement which is expected to come into force from 2020. Parties are therefore to submit clear and transparent plans well in advance of COP 21 in Paris, by the first quarter of 2015.²⁰⁵⁷ Countries activities towards the 2020 2°C emissions-limit target must hinge heavily on renewable energy support measures, which are becoming popular in many industrialised and developing countries across the world, not only for their decarbonisation potential, but more for the multiple co-benefits that they entail, including increased rural electrification, improved energy security, decreased dependence on depleting resources and volatile fossil fuel markets, and improved local air quality and associated health benefits, policies

²⁰⁵⁴ Associated Press, Nigeria Restores Fuel Subsidy to Quell Nationwide Protests, the Guardian Online, 16 January, 2012. Available at <http://www.theguardian.com/world/2012/jan/16/nigeria-restores-fuel-subsidy-protests> . Site visited 28-05-2013. See also, BBC, Nigerians Protest at Removal of Fuel Subsidy, BBC News Africa, 3 January, 2012. Available at <http://www.bbc.com/news/world-africa-16390183> . Site visited 28-05-2013. See as well, CNN Wire Staff, Nigerians Protest End of Fuel Subsidy, CNN Online, 9 January, 2012. Available at <http://www.edition.cnn.com/2012/01/09/world/africa/nigeria-strike/> . Site visited 28-05-2013. See also, LAUMANN Dennis, “Occupy Nigeria” Strike Victory, The Guardian Online, 25 January, 2012. Available at <http://www.cpa.org.au/guardian/2012/1532/13-occupy-nigeria.html> . Site visited 28-05-2013. OLUSOLA-OBASA Bosede, 2012: Unforgettable Year of Subsidy Protests, Plane Crashes, Flood Disasters, Olympics Failure, The Punch Online, 29 December 2012. Available at <http://www.punchng.com/feature/year-in-review/2012-unforgettable-year-of-subsidy-protests-plane-crashes-flood-disasters-olympics-failure/> . Site visited 28-05-2013. See further, AKINBOBOLA Yemisi, Bid to End Subsidy Stirs Protests in Nigeria, Africa Renewal Online, April, 2012. Available at <http://www.un.org/africarenewal/magazine/april-2012/bid-end-subsidy-stirs-protest-nigeria> . Site visited 28-05-2013.

²⁰⁵⁵ FUJIWARA Noriko, Navigating the Road From Warsaw Towards a Climate Agreement in 2015, Centre for European Policy Studies (CEPS), 5 December, 2013.

²⁰⁵⁶ United Nations Framework Convention on Climate Change, Bonn Climate Change Conference- March 2014. Available at http://www.unfccc.int/meetings/bonn_mar_2014/meeting/7979.php . Site visited 10-07-2014.

²⁰⁵⁷ United Nations Climate Change Secretariat, Press Release, Warsaw, 23 November, 2013. See also, NUTTALL Nick and HAY John, Press Release, United Nations Climate Change Secretariat, Bonn, 5 March, 2014. Available at https://www.unfccc.int/files/press/files_releases_advisories/application/pdf/pr20140503_adp_openingf.pdf . Site visited 13-05-2014.

already anticipated coverage of 50 per cent globally.²⁰⁵⁸ Therefore, a strong regional economic integration organisation with a new collaborative network structure of nation states and non-state actors- giving non-state actors a variety of voluntary, semi-formal and formal roles in formulating policy responses and implementing international agreements would make an entire difference from the erstwhile Kyoto Protocol.²⁰⁵⁹ Non-state actors cannot afford to be left out considering their enormous influence and resources and being the actual *dramatis personae* in climate change as well as in the WTO.

6.5 Conclusion

Every attention is focused on 2015, when a new treaty is expected to be concluded in COP21 Paris, to usher in a new regime after the KP, an interregnum following the rather long expiration of the KP, and the coming in place of a new regime. The way forward from here would be for all to act now in the best way they could, in a manner of a polycentric approach to climate change characterised by action across all scales and sectors.²⁰⁶⁰ Since the UN climate regime does not limit membership to nation states, but allows the so-called Regional Economic Integration Organisations (REIOs),²⁰⁶¹ which thrust global climate leadership on the EU as the US stood aloof, a position the EU has enviably shouldered and presented worthwhile example to follow to other regions of the world. It is a time for action for other regions to follow the EU steps as a global solution has proved almost entirely abortive in the KP first commitment period, whereas the EU was able to forge ahead more easily when States were incapacitated. This is a message of what could be achieved forging on regionally for an eventual global coordination. It makes distribution of responsibilities easier on the long run.²⁰⁶² In the light of this and unfolding events in the Asia region between China and its neighbours, it behoves the EU and perhaps the US to wield their influence in resolving the seeming misunderstanding in the region so it degenerate to a critical and outright conflict that could close neighbours farther apart. It is time to build alliances to save our planet from the threat of changing climate. It is in true harmony that China and its neighbours could forge common policies on the environment, moreso that it is in this region we have the larger numbers of emerging economies, whose actions in industrialisation threatens the balance. From the COP15 Copenhagen Summit 2009, there has been the reality of a new world order, with the emergence of a rearrangement and a new approach to the climate change from erstwhile countries which were strange bedfellows to the KP, the US and the BASIC countries. It promises a new dawn that presumes to be more embracing with an entire new disposition distinct from the old order. The Parties and the UNFCCC must put in place parameters to avoid another “Copenhagen” in COP21 Paris 2015, which is just around the corner. Now that the ice is thawing on the American “Our lifestyle is not negotiable” rigidity, and the Chinese are seeing reasons gradually to move away from their persistent “survival

²⁰⁵⁸ BRAUN Nadine et al, Instruments to Increase Climate Policy Ambition Before 2020- Economic and Political Implications in Selected Industry and Emerging Countries, Öko-Institut e.V., Institute for Applied Ecology, Berlin, 6 June, 2014, p.12.

²⁰⁵⁹ GHALEIGH Navraj Singh, ‘Six Honest Serving Men’: Climate Change Litigation as Legal Mobilisation and the Utility of Typologies, University of Edinburgh, School of Law Working Paper Series, No. 2010/08.

²⁰⁶⁰ REIDY Chris and MCGREGOR Ian M., Climate Governance is Failing Us: We All Need to Respond, Journal of Multidisciplinary International Studies, Vol.8, No.3, September 2011.

²⁰⁶¹ Art. 22, UNFCCC.

²⁰⁶² PAVESE Carolina B. and TORNEY Diarmuid, The Contribution of the European Union to Global Climate Change Governance: Explaining the Conditions for EU Actorness, Rev. Bras. Polit. Int. Vol.55, (special edition), 2012. Available at http://www.scielo.br/scielo.php?pid=s0034-73292012000300008&script=sci_arttext . Site visited 13-04-2013.

emissions” so that the rest of the world might survive too,²⁰⁶³ it is just appropriate to hit the nail of the new treaty on the head and reach an agreement that would bring the hope for a resilient stable climate in the world

Chapter Seven

General Conclusion

7.1 Overview

This research has examined climate change measures in the sub-Saharan Africa with a view to presenting it as one of the most vulnerable regions of the world, due to apparently lack of functional legal, policy and regulatory frameworks in place in the region. It examines the level of climate change awareness in Nigeria as a focus for the sub-region. It examines the situation in the European Union, the world’s most advanced region on climate change and related issues, and studies how and why the EU has been able to present an enviable position as against virtually every other region of the world, especially the United States and China. It goes on to consider the United Nations activities in bringing climate change concerns under control, and examines the role an effective international law regime could play in the scheme of things on climate change in the sub-region.

Chapter one examined the conceptual and theoretical background to the research, from the perspective of the enormity of the consequences of climate change in the sub-Saharan African (SSA) region. It considers further, the meaning and the causes of the subject-matter, climate change tracing the issue of climate change evolution through the years and the establishment of relevant institutions like the Intergovernmental Panel on Climate Change (IPCC) and the United Nations Framework Convention on Climate Change (UNFCCC), and their effects on the sub-region. It argues that the major cause of climate change is more substantially anthropogenic than natural causes as some scientists would argue to dissipate efforts at containing the consumption of fossil fuels, the greatest culprit in carbon dioxide emissions. It attempts an analysis of the composition of the substances, and how they result from the burning of fossil fuels in the course of production by man, and resulted in the alteration of the atmosphere leading to the trapping of these substances, the outcome of which is change in climate. It presents the high vulnerability rate of the SSA, which contrastingly contributed the lowest carbon emissions in the world. It presents why the sub-region needs special mitigation attention commensurate to its precarious situation and the need to guard against more serious threatening consequences in the future. The consequences of climate change are being felt more and in higher magnitude than in the past, because of the activities of resources exploitation in the sub-region many more countries of which are joining the oil club, with the resultant effects of high degree of oil spillage and gas flaring, especially common with Nigeria, the region’s largest producer and one of the world’s largest producer and exporter. The chapter further presents that the phenomenon is general in nature transcending borders, which means it is of a common concern, therefore requiring the attention of all, but placing responsibilities more on some countries beyond others, hence, the principle of common but differentiated responsibilities (CBDR), devised as an approach of the international legal

²⁰⁶³ China is working on how to cap its greenhouse gas emissions for the first time, an effort that would spur the worldwide effort to hold back climate change, according to Xie Zhenhua, China’s lead envoy to a global warming talks most recently. See, MORALES Alex, China Seeks to Cap Fossil Fuel Emissions For First Time, Bloomberg Business Week Online, 5 June, 2014. Available at <http://www.businessweek.com/news/2014-06-05/china-working-to-cap-emissions-as-soon-as-possible-xie> . Site visited 10-07-2014.

regime to distribute responsibility according to economic ability and status, making the developed countries appreciate their onerous responsibilities in mitigating more than the developing countries. The chapter presents the case of the EU as a body of sovereign states, coordinated under the same umbrella pursuing a common purpose, which has championed climate change beyond every other region of the world, and set itself as a pacesetter. It goes to present the objectives of the research as principally that of a lacuna in the Nigerian law as a picture of the general situation in the SSA. It posits that the aim is to present the practical and theoretical limitations of developing countries as responsible for their vulnerability owing to obvious laxities in their framework. It also, presents the justification for the research and the methodology to adopt in carrying out the research, as well as a breakdown of the research into components of seven chapters.

Chapter two examines the climate change situation in Nigeria, as a major oil producing country, whose economy rests almost solely on oil production. The chapter examines the activities of the transnational corporations (TNCs) operating in the oil industry and their flagrant, unpalatable and uncharitable activities in indiscriminate spillage and even worse, gas flaring a direct threat to the atmosphere. Even though the country is a non-Annex I country to the KP, whose greenhouse gas emissions are deemed to be low, the extremely high rate of gas flaring in the oil sector made a nonsense of that assumption. The country ranks only second to the world's highest flarer of gas, the Russian Federation, which makes its case worthy of concern, as there are no immediate plans to stop or end its flaring. Flares are carbon emission point sources that are often not included in emission databases. It presents that this has been because of the absence of appropriate legal and policy frameworks to regulate the industry, the laissez faire attitude of the government to law and policy implementation, and the undue influence of the influential TNCs to manipulate things in their favour against the local communities and the government thereby rendering the entire system comatose. This carries a heavy price-tag on the local inhabitants of the vast areas of operation of the TNCs, in terms of the adverse effects to their health and environment, land and waters. This has been having a heavy toll on the Niger Delta regarded as one of the most extensive in the world, but which biodiversity has been very badly altered thereby. Beyond these, it constitutes a serious nuisance and threat to the country's neighbours in terms of air pollution. And it contributes immensely to global GHG emissions, impacting negatively on efforts at curbing climate change. The chapter further examines a number of relevant laws and their inadequacies and the incapacity of the government to rectify the situation even as of the moment of this research. The chapter further discusses some problems associated with climate change in Nigeria such as desertification, deforestation, erosion and flooding, and the state of legislation regulating these. It concludes with a touch on corruption as a major stifling effect on policies and legislation, thwarting whatever could have been done to salvage the situation with the little structures available.

Chapter three examines the concept of sustainable development, its essence to the country as a panacea to its wastage of resources through indiscriminate gas flaring, excessive oil spillage and, growing and unabated oil theft syndrome- bunkering, which has assumed a dimension of threatening world oil prices, to the consternation of industry participants and watchers alike. It asserts the importance of the concept to conservation and sustainable application of resources especially fossil fuels, in curbing climate change. It discusses the similar concepts of the precautionary principle, the participation principle, and the prevention principle, their essentiality in upholding the judicious use of resources and how they have helped to ensure peoples, groups and communities' participation in environmental affairs, and what the consequences of their non-observance has been to the management of the environment. It examines the state of sustainable development in Nigeria, and

how it has been disregarded by both the government of the country, and the TNCs operating in the oil sector of the economy, the result of which is unfavourable presentation of the country as a notorious gas flaring nation, though lacking in sustainable energy for essential life and industrialisation. The chapter discusses government laxity in implementing its laws and the associated problems relating to this, such as extreme corruption, oil bunkering in the oil producing regions, the failure of the TNCs to apply industrial best practices in their operations in the country, with the attendant consequences, among which is the lawless act of kidnapping and abduction of foreigners in the Niger Delta, especially oil workers. It discusses the high rate of poverty and unemployment in the country as well, as manifest failure of its non-application of the principles of sustainable development and associated principles. It observed the same scenario for the SSA, which now has the highest percentage of global poverty ratio. It concludes by presenting sustainable development as the unavoidable live-wire of conservation the country needs to maintain a level of sanity and necessary conservation in the oil sector, the main foreign exchange source of the country's economy.

Chapter four examines the role regional economic groupings could play in fostering a much faster and easier cooperation, implementation of international legal and policy regulations across nations' boundaries and a better appreciation of climate change. The example of the European Union (EU), is essential, which though started as a purely economic group, out to prevent a recurrence of the effects of the consequences of the world war II in Europe, but has succeeded in showing the world that the climate change problem is not insurmountable. It also viewed the Economic Community of West African States (ECOWAS), a regional economic grouping in the SSA like the EU in Europe. It argues that the enviable performance of the EU in global environmental and climate change leadership was a result of the law and policies put in place to guide the activities of its peoples, corporations and governments, through a system of common policies domestically enforced throughout its constituent 28 member states. And through a well-coordinated system of regional institutions which operate inter dependently, but have succeeded in producing for the world a pattern to follow in the face of the failure of a global attempt- through the Kyoto Protocol, whose first commitment period is over and has not recorded much success. It examined some of its most pivotal policies like the Emission Trading Scheme, the carbon tax policy, the system of administration of its regulations and policies in such a way they rarely conflict with member states national systems, while the member states retain their sovereignty, though implementing regional policies on climate change through national institutions. It examines the strategic roles played by some of the regional body's institutions particularly, the European Commission and the Court of Justice of the European Union, in developing policies and enforcing them through numerous landmark decisions which ensured that Member States obeyed and complied with the common policies and legislation. The EU as regional body so separately ratified the Kyoto Protocol just as each of its Member States, and was able to surpass its emission reduction commitment at the expiration of the KP's first commitment period, sake of the due application of its strict policies. Contrasted to the EU is ECOWAS which started much later than the EU but equally with similar goals as the EU, and without including climate change goal then, but which has yet to make any appreciable progress in this regards. It has had regional conflicts to grapple with in many of its Member States, which has crippled its original goals. It also lacked common policy objectives and common legal framework towards issues of common interest unlike the EU. The chapter argues that just as the EU comprised multi-cultural peoples and yet was able to foster unity in cooperation and has forged ahead with it among its numerous sovereign member states, the ECOWAS if it would endeavour to adopt common policies on issues of

common interest like the EU, it could similarly make a landmark on climate change. And ditto for other similar economic regional groupings in the SSA.

Chapter five examines the effects of the international climate change negotiations starting with the Rio Earth Summit 1992, which produced the Rio Declaration. It discusses the major decisions of the Summit bothering on its recommendation of an equitable solution to global ecological crisis. This requires the industrialised countries to spearhead efforts towards development that is sustainable, and sustainable exploitation of world's resources in a way as not to jeopardise the interests of future generations. The UNCED earns the credit for bringing the concept of sustainable development to the awareness of the world. It established the Agenda 21, and promotion of technology transfer to developing countries to facilitate their development, and also, about the close disparity between climate change and development which many governments have failed to give cognisance to. It also produced a number of important international instruments that have changed the game in many such issues among which include the United Nations Framework Convention on Climate Change, which gave rise to the Kyoto Protocol; the United Nations Convention to Combat Desertification, and the Convention on Biological Diversity (CBD), which entered into force on 29 December, 1993. These have helped the transformation of the world in many diverse respects in those aspects of human endeavours they were meant to regulate. The UNCED was not without its negative aspect in that it was nearly stifled by the combined effects of the US and China, which failed to agree with the rest of the world, and did their all to oppose the outcome of the Summit. The Agenda 21 is likewise pivotal in its expectations as presenting the necessity of education as crucial for sustainable development, a world framework for sustainability, eradication of poverty, which is so widespread especially in developing countries and calling the awareness of the rich nations to aid the developing and poor countries. This led to the Summit's coming up with funds for the less developed world. It laid out the framework for the involvement and participation of every level of government in the development process, as well as the non-governmental organisations. It also has a flaw in not being able to curb consumption pattern of the world resources which is lopsided in favour of the developed world as against the poor nations. The chapter took a critical view of the activities of transnational corporations (TNCs) and points to their adverse consequences in most cases in countries and communities where they operate. This has in most cases left a sore taste environmental devastation in the mouths of the people of such areas. Yet they have assumed a notoriety of strength and undue influence, that it becomes almost impossible to check their activities without a backlash. The chapter further examines population and urbanisation growth and the negative impacts it tend to have on climate change, as many megacities are growing especially in the developing countries which are infrastructures-overwhelmed.

The chapter examines the Kyoto Protocol coming after the UNCED, which has brought to the limelight the grave implications of man's industrial activities, its negative impacts on the environment and atmosphere. It has since attained a dimension of serious concern for virtually all nations and regions of the world. The KP has to its credit the facilitation of development and deployment of technologies to assist in resilience to the impacts of climate change to the developing world. It also established various mechanisms for nations to cushion the effects of climate and for the Annex I countries to offset their emission targets, such as the Joint Implementation, the International Emissions Trading (emissions trading scheme), and the clean development mechanism(CDM), which is the KP mechanism that allows developing countries a chance of participation in the KP. It noted the shortcoming of the KP in its limitation to only the industrialised countries, rather than entirely universal, as one

that would greatly impact its entire outcome. It also examined the UNCCD which has the responsibility to cater for desertification and problems associated with it in such areas of the world as concerned. It observed that the UNCCD first adopted the bottom-up approach in its operation, which is displacing the traditional top-down approach as being adopted in many of the world's bodies and institutions operations. It observed that a lot more needed be done to bring the activities of the UNCCD to be appreciated, as desertification is threatening more areas of the world arising from various causes, most of which are anthropogenic. It critically assessed the clean development mechanism (CDM) as it affects the developing countries being their only avenue for participation in the UNFCCC for the first commitment period, and for acquisition of basic technology transfer particularly in energy efficiency. It concludes that the CDM has had very minimal effect on the generality of the developing countries because of the lopsided concentration of its projects on a very few countries, to the neglect of the others, more especially the LDCs. The consequence of this is the narrowing of the result of the programme. It also examined technology transfer as a basic platform for the flow of know-how to the developing world and bringing them out of poverty and total dependence on the developed world. It noted the various obstacles to free flow of technology among which are the seeming reluctance of the advanced world to part with its technology to the developing countries; finance to acquire the necessary technologies from them; the hindrance provided in some international instruments as the trade-related aspects of intellectual property rights (TRIPS) among others, which constitute a face-saving device for withholding of technology from the developing countries by the developed countries' technology rights owners. It concludes that without a genuine passage of technologies to the developing countries, there may not be a true solution to the problem of climate change and the likes, no matter the extent to which funds are provided to the developing countries by the developed countries.

Chapter six examines the latest developments on climate change, being steps taken towards the end of the first commitment period of the KP and after it, towards putting in place a new international agreement either for a second commitment period, or a new treaty altogether. The chapter starts with a review of the decisions of the Copenhagen Conference COP15 2009, which drew so much attention with high expectations but ended up a disappointment to many across the world, expecting the sealing of a new deal in place of outgoing KP. Basically adjudged a failure, the research finds that it nonetheless, made good provisions for progress into what to expect in the next dispensation after the KP. It threw up a new world balance of power from the west to a set of developing countries, which hold no-barred in confronting the previous arrangement and succeeded in bringing it down at Copenhagen, promptly replacing it with a new arrangement that is fast evolving- a displacement of the top-down arrangement for a bottom-up arrangement. The chapter however agrees that a combination of both arrangements into one new treaty would make a more preferred, workable new arrangement for the post-2012 treaty. The chapter further acknowledges the establishment in Copenhagen of a set of provisions including more funds for climate change mitigation and adaptation in developing countries, technology transfer, a new process of reporting of mitigation targets for both developed and developing countries alike. The greatest of its benefits is the bringing up to acknowledging a role in the climate change process of erstwhile countries which have done all to thwart whatever gains could have been achieved under the KP- that is, the US and China leading the BASIC countries group. This it considers a great opportunity to advance the cause of climate change mitigation challenge, supposedly having all participating in the new treaty. Its flaws remain that its Decisions was not ratified, hence its legality remains an issue. The document itself was hurriedly packaged by a mere handful of Parties to the exclusion of other participating Parties, and a discard of the original Text Decision

prepared for adoption. Then, it left out the non-governmental organisations in the negotiation process during the Summit, which had besieged Copenhagen in their tens of thousands, and had been a negation of the norm from inception of environmental conferences in Stockholm 1972 through Rio 1992. These might be weighty, but might not be sufficient enough to completely take the aroma from the sauce.

The chapter examines also the Cancun Conference COP16 2010, which came on the heels of the Copenhagen and effective made to seal up whatever loopholes might have been created by its predecessor- the Copenhagen Accords. The Cancun Agreements was detailed on all issues left in sketches by the Copenhagen Accords, issues such as system for measuring and checking efforts by countries reporting of their emissions targets- measuring, review and verification (MRV), finance for climate vulnerabilities in poor and developing countries, enhanced provisions on technology transfer, capacity-building and, research and development, deforestation which earned a boost with a more comprehensive framework and better funding, and then, adaptation and mitigation. It took a detailed scrutiny of the concepts as the basis of the research itself, and came to a conclusion that no one should be down-played for the other as both would be required *pari passu* for a wholistic climate change solution efforts. It however argued that for the sub-Saharan Africa region, as for many other places alike, a good mitigation programme is needed to precede adaptation programmes. The region mostly lack necessary policy framework required for international intervention in adaptation, which should form a basic aspect of the mitigation programme. It goes on to examine the Rio+20 Conference 2012, which as a stock-taking and review of progress on sustainable development programmes as laid out in 1992 in an elaborate set of objectives tagged the millennium development goals (MDGs). It argues that a very important aspect of it- poverty eradication has not made substantial progress in many parts of the world, most particularly in the sub-Saharan African region. The African region described as the developing region with the most constrained access to finance, to adumbrate the studies argument that the insufficient presence of CDM projects in the entire African region is a disservice to the UNFCCC's efforts at mitigating climate change in the poorest continent of the world. It examined some important decisions of the summit bordering on intergovernmental process towards enhancing strategies coordinated by the United Nations General Assembly (UNGA), for better funding of sustainable development projects in countries across the world; deliberations on transformation of economies to green economies; strengthening the institutional framework for sustainable development through effective participation in decision-making processes, capacity-building, reform of existing international processes and institutions on environmental matters for effectiveness; and then, call for further development of sustainable development goals previously known as the millennium development goals.

The chapter equally examined negotiations toward arriving at a workable treaty for the post-Kyoto era. It observes the odds against the KP as it is- not favouring the interests of the world Trade Organisation (WTO), hence might not be favoured for a continuity. It advocated an all-inclusive agreement based on the principle of CBDR-RC as advocated by the US, with the EU ETS model for a template to adopt. It also advocated for a comprehensive carbon tax system to discourage subsidy on fossil fuel, saving for exceptionally poor countries or countries where poverty level are exceptionally high. It advocated further a more comprehensive strategy for technology transfer to developing countries to enable their accelerated development. It observed that compliance and participation that will be all-embracing must be envisaged to avoid the "emission-leakage" scenario of the KP. It concluded with recommendation for the encouragement of the EU pattern of regional

economic integration organisations (REIOs) in other regions of the world to foster the easy adoption of climate common policies that would be easier to harmonise generally globally.

7.2 Implications of the Research for Legislation, Policy and Practice

This research has set to examine the state of legislation and policy frameworks on climate change in Nigeria as a picture of the sub-Saharan Africa with a view to presenting it as a major and substantial reason for the low consciousness on climate change issues and the region's higher vulnerability and susceptibility to climate-related problems. The research established and proved that Nigeria and most of the countries in the sub-region equally lack the requisite facilities to enforce its laws on climate change and related issues such as sustainable development, biodiversity conservation, technology transfer among others. It points out the lacunae in the climate change and environmental laws framework of Nigeria, with a view to arousing the attention and interest of the appropriate authorities, executive and legislative, to this for necessary actions. Only a wholesome and entire overhaul of the legal framework on the environment particularly climate change and sustainable development aspects could save the current situation in the country and appease the Niger Delta areas of the country.²⁰⁶⁴ This is all too important for the country as without it, the much desired development might be after all be elusive considering the fact that unregulated business is a haven for fraud and a discouragement to foreign direct investment (FDI), which shot the Chinese economy. Legislation that specifically target the elimination of gas flaring by the oil multinationals should be put in place, implemented and enforced with the intent not only to discourage the wasteful habit, but also to encourage the conservation of the gas resource for the benefit of the future generation of the country. Legislation in the oil and gas sector should be revised wholistically to improve on the compensatory aspects to cater for the interest of the indigenous peoples of the Niger Delta area who suffer in many dimensions due to the exploration activities of the oil TNCs, unlike in the current situation that give so much loopholes for the TNCs to avoid culpability.²⁰⁶⁵ The economic growth index of the SSA has been impressive in the past couple of years and has been predicted to remain for the rest of the decade by appropriate monitoring bodies.²⁰⁶⁶ Proper measures and parameters thus needs must be put in place to regulate this, the first of which is legal and policy framework.

²⁰⁶⁴ STEVENS Lisa, The Illusion of Sustainable Development: How Nigeria's Environmental Laws Are Failing the Niger Delta, Vermont Law Review, Vol.36, 2011, pp.387-407.

²⁰⁶⁵ Leigh Day, a British Advocate argued that under the Nigerian Oil Pipelines Act, anyone who suffered from an oil spill can claim compensation if they can show a company was guilty of neglect in failing to "protect, maintain or repair" its pipelines. This has been largely difficult for the impoverished people to do easily against the oil multinationals which have competence to disprove and fault any genuine evidence the local people might have presented against them in litigation. See, ALOHAN Juliet, Claimants Reject Shell's \$51m Offer Over Nigeria Oil Spills, Leadership Newspapers Online, 23 June, 2014. Available at <http://www.leadership.ng/news/375561/claimants-reject-shells-51m-offer-nigeria-oil-spills> . Site visited 22-07-2014.

²⁰⁶⁶ HENNIGAN Michael, The Economic Rise of Africa Opens New FDI Frontier, Finfacts Ireland Online, 21 August, 2013. Available at http://www.finfacts.ie/irishfinancenews/article_1026427.shtml . Site visited 06-09-2013. See also, HENNIGAN Michael, IMF: Developing Economies Are Victims of Corporate Tax Avoidance, Finfacts Ireland Online, 26 June, 2014. Available at http://www.finfacts.ie/irishfinancenews/article_1027862.shtml . Site visited 21-07-2014. See further, CHILES Nick, With Impressive Growth, Half of Sub-Saharan Africa is Middle Income, Atlanta Black Star Online, 18 November, 2012. Available at <http://www.atlantablackstar.com/2012/11/18/with-impressive-growth-half-of-subsaharan-africa-is-middle-income/> . Site visited 12-08-2013.

The research will be most essential to regional economic organisations like the ECOWAS, ASEAN, the South African Development Community (SADC), the East African Community (EAC), among many others around the world, to explore the immense benefits that accrue from the EU system to the benefit of the world. A global international legal framework is more easily achieved if it generates from a consistent network of regional apparatus like the EU's. It is observed that a complex system of making at the aggregate level, as is being expected from Paris 2015; rather agreements have self-organised and complexity emerged spontaneously.²⁰⁶⁷ The Hon. Cedric Frolick MP, Chairperson of the National Assembly of South Africa and President of the Global Legislators Organisation, said “[I]t is time to develop a new vision for an international agreement that reflects a changed world.... Such an agreement that will strengthen national governance and empower the very actors that are the bridge from the local to the national and the international. For a future climate change agreement to succeed national climate laws must be at its heart.”²⁰⁶⁸ In furtherance to this, senior legislators from over 100 countries resolved to politically test a new model for an international climate change agreement that has national legislation at heart, debating on the principles of what good climate legislation on mitigation, adaptation and forests/REDD+ as well as natural capital accounting.²⁰⁶⁹ This presents a case for a significant commitment into national and regional legislation. Solutions other than the development of appropriate international law have emerged from regional, national and sub-national legal regimes addressing GHG mitigation and to a lesser extent adaptation.²⁰⁷⁰

The research has pointed out salient areas of necessity in bringing about meaningful participation in the next climate change dispensation especially by the developing countries such as genuine technology transfer, capacity-building and, research and development, instead of transferring more funds to them by the industrialised countries which can never be sufficient to meet their ever-growing demands for ever insufficient funds. If good and meaningful practicable legal and policy frameworks can be put in place for these, then the developing countries would be able to develop rapidly like China, India and a handful of other emerging economies countries. This however must be built on emission-free energy system. The research also poses the

²⁰⁶⁷ KIM Rakhyun E. and MACKEY Brendan, International Environmental Law as Complex Adaptive System, International Law Agreements, Vol.14, 2014, pp.5-24.

²⁰⁶⁸ Categories, Globe President Calls for a New Generation of Climate Change Agreement to be Developed in Lima and Paris, Globe International Online, 19 May, 2014. Available at <http://www.globeinternational.org/news/item/globe-president-calls-for-a-new-generation-of-climate-change-agreement>. Site visited 25-05-2014.

²⁰⁶⁹ A number of countries indeed already have direct legislation on climate change in their constitutions, among which are Ecuador, The Dominican Republic, Tunisia, etc. See, Categories, Legislators From 100 Countries to Place National Legislation at Heart of a 2015 Global Agreement on Climate Change, Globe International Online, 21 May, 2014. Available at http://www.globeinternational.org/news/item/legislators-to-place-national-legislation-at-heart-of-a-2015-global-agreement?utm_source=GLOBE+International+Newsletter&utm_campaign=5df24587de-GLOBE+International+May+News+Update+5+20+2014&utm_medium=email&utm_term=0_8f3f54b95c-5df24587de-58287289. Site visited 25-05-2014. See also, KING Ed, Tunisia Embeds Climate Change in Constitution, Responding to Climate Change (RTCC), 27 January, 2014. Available at <http://www.rtcc.org/2014/01/27/tunisia-embeds-climate-change-in-constitution/>. Site visited 07-02-2014.

²⁰⁷⁰ The largest scheme to date is the EU's ETS based on Directive 2003/87/EC, for regional; while the UK's Climate Change Act 2008 claims to be the world's first legally binding long-term framework to cut emissions by 34% by 2020 and 80% by 2050, for national; and the Scottish Climate Change (Scotland) Act 2009- an emanation of the devolved Scottish Parliament creates a binding framework to reduce the territory's GHG emissions by 42% by 2020 and 80% by 2050. See, GHALEIGH Navraj Singh, 'Six Honest Serving Men': Climate Change as Legal Mobilisation and Utility of Typologies, University of Edinburgh School of Law Working Paper Series No. 2010/08.

necessary requisites for proper legal framework to contain the activities of TNCs particularly in developing countries and jurisdictions other than their home states, where they operate without due regards to local legislation of those countries, thereby their interests being inimical to those host states or communities, such as applicable with the Oil TNCs operating in Nigeria and many other states. Sir Robert Jennings, President of the International Court of Justice (ICJ), in 1991 declared that, since climate change “is a global problem, it can only have a global solution. So the only possible answer is that it must be brought about through the development of appropriate international law.”²⁰⁷¹ Such an international efforts that emanates from the national levels through the regions and all-embracing as this research advocates.

7.3 Further Questions Raised by the Research

The research argues that the current system working through the global system has failed to achieve the desired goal of bringing GHG emissions under control, especially viewing it from the failure of the KP first commitment period, which merely succeeded in increasing the global emission rather than bringing it down as anticipated in the beginning of it. It therefore, raised the question of adopting other means like encouraging the world’s regional economic integration organisations (REIOs), existing in different parts of the world, which has succeeded in unifying nations more than a central global approach. It thus points the inadequacy of the current system and calls for the adoption of a more efficient system patterned after the EU, which remains a lone model of the success of REIO in climate change. It points further to the inadequacy of the transfer of technology and research and development efforts towards the developing countries, which constitute the larger percentage of the world. Instead of increasing the rate of their advancement, the developed world and their institutions are raising the stakes farther beyond the reach of the poor countries making them poorer and more dependent on the developed for their sustenance. Most important is the fact that the world’s TNCs are developed-countries home-based. But they dominate the economic, industrial and every other aspect of the lives of the developing countries with substandard practices and impunity which they dared not employ in their home states or other developed countries. They never employed industrial best practices in the third countries, which is why their nuisance level is exorbitantly high than can be tolerated by the local communities. Shell was found liable on these grounds by a UK court earlier this year on this ground.²⁰⁷² It is worthy to note that litigants have had to

²⁰⁷¹ GHALEIGH Navraj Singh, *ibid*.

²⁰⁷² Judge Robert Akenhead of the London Technological and Construction Court on 20 June, 2014 ruled Shell is responsible for taking reasonable steps to protect its infrastructure, including installing leak detection systems, surveillance equipment and anti-tamper equipment. Shell does not have such equipment in its Nigerian fields, though they are considered mandatory in oilfields in the developed world. See, Hazardex, UK Court Says Shell Legally Liable for Spills by Oil Thefts in Nigeria, Hazardex Online, 23 June, 2014. Available at <http://www.hazardexonthenet.net/article/77573/uk-court-says-Shell-legally-liable-for-spills-caused-by-oil-thefts-in-Nigeria.aspx> . Site visited 23-06-2014. See also, Our Reporter, Niger Delta Fishermen Reject Shell’s \$50m, The Nation Newspapers Online, 23 June, 2014. Available at <http://www.thenationonline.net/new/niger-delta-fishermen-reject-shells-50m/> . Site visited 23-06-2014. See similarly, Dutch Court Finds Shell Liable for Oil Spill in Nigeria, 30 January, 2013. Available at <http://www.com/news/search/?q=Niger+Delta> . Site visited 08-11-2014. See as well, *Fidelis Ayoro Oguru and Others v. Royal Dutch Shell PLC, C/09/330891/ HA ZA 09-0579 (2013)*. See further, ROWELL Andy, Legal Precedent Set as Shell Found Guilty in The Hague, Oil Change International, 30 January, 2013. Available at <http://www.priceofoil.org/2013/01/30/legal-precedent-set-as-shell-found-guilty-in-the-hague/> . Site visited 27-08-2013. See

shift their litigations and actions against the TNCs because it has become practically impossible for them to get judgment against the TNCs in the local courts. This calls for a total review of the entire judicial system in Nigeria and in the entire SSA region where the TNCs have assumed a position of “higher than the law” and therefore do all within their reach to stifle any legal process instituted against them. Until this is done, there may be a very long way yet to go to enforce environmental laws in the country. One great challenge of the research is that it found that mitigation is still at very low ebbs in the SSA at this time, when then do we expect real mitigation programme to commence in this vital zone of the world touted as the next emerging economies of the world? Or are we waiting for many other states to develop in the mould of China and India before we are jolted to realize what the consequences are for this world and the future?²⁰⁷³ A germane question is why is it difficult for African countries to enforce their legislation and policies, even when in the otherwise, the consequences are colossal and damaging socially, economically and in the general welfare of the people?

7.4 Conclusion and Recommendations

This research has explored the world of climate change in Nigeria and the SSA in a limited albeit exhaustively enough to bring to the fore what the issues are that have kept the country back on virtually all issues pertaining to its mitigation and adaptation. It presents the near-zero level of climate change awareness of the country, despite its conspicuous position as the world’s second largest gas flaring nation. Nigeria and other countries in the SSA sub-region which have no concrete climate change laws and policies should start immediately to put in place such. It is good that such countries should be denied the enjoyment of some pecuniary benefits, particularly such as are meant for climate change mitigation and adaptation. It is disheartening to note that the majority of countries in this region depend on aids from donors to live, even the ones that should have been better off like Nigeria are battling with corruption that is already threatening their very existence.²⁰⁷⁴ 90 per cent of the countries in the SSA were rated below 50 per cent by the Transparency International in 2013, which is below average. Corruption is eating far deeper into the system especially in Nigeria where the government seems now to have indirectly encouraged it by shamefacedly granting state pardon to former state officials convicted for corruption who are cronies of the ruling party and associates of government officials.²⁰⁷⁵ With the

again, GILLIGAN Elaine, Breakthrough Ruling in The Hague on Shell’s Nigerian Subsidiary, Friends of the Earth, 31 January, 2014. Available at http://www.foe.co.uk/news/shell_nigeria_ruling_38951 . Site visited 08- 09- 2013.

²⁰⁷³ BBC, The MINT Countries: Next Economic Giants? BBC News Magazine, 6 January, 2014. Available at <http://www.bbc.com/news/magazine-25548060> . Site visited 23-07-2014. See also, NORTHAM Jackie, The Global Economy: A World of Acronyms, Npr., 13 May, 2014. Available at <http://www.npr.org/blogs/parallel/2014/05/13/311852601/the-global-economy-will-mint-countries-be-the-new-brics> . Site visited 23-07-2014. See as well, BOESLER Matthew, The Economist Who Invented the BRICS Just Invented a Whole New Group of Countries: The MINTs, Business Insider, 13 November, 2013. Available at <http://www.businessinsider.com/jim-oneil-presents-the-mint-economies-2013-11> . Site visited 23-07-2014. See, SEKULARAC Ivana and DEUTSCH Anthony, Dutch Court Says Shell Responsible for Nigeria Spills, Reuters Online, 30 January, 2013. Available at <http://www.reuters.com/article/2013/01/30/us-shell-nigeria-lawsuit-idUSBRE90S16X20130130> . Site visited 23-07-2014.

²⁰⁷⁴ Transparency International, Corruption Perceptions Index 2013.

²⁰⁷⁵ NOSSITER Adam, U.S. Embassy Criticises Pardons in Nigerian Corruption Cases, The New York Times, 15 March, 2013. Available at http://www.nytimes.com/2013/03/16/world/africa/us-embassy-criticises-pardons-in-nigeria-corruption-cases.html?_r=0 . Site visited 24-07-2014. See also, OYELEKE Sodiq, State Pardon Fuels Corruption, Says El-Rufai, The Punch Newspapers Online, 23 June, 2014. Available at <http://www.punchng.com/news/state-pardon-fuels-corruption-says-el-rufai/> . Site visited 24-07-2014. See as well, FABIYI Olusola, Stop Pardoning Convicted Corrupt Officials, Conference Tells Jonathan, The Punch Newspapers Online, 26 June, 2014. available at <http://www.punchng.com/news/stop-pardoning->

pervasive rate of corruption, which has aggravated oil theft incidences,²⁰⁷⁶ the oil industry is at serious risk as illegal oil refining is on the rise in the bushes in the Niger Delta, which has proven difficult if not impossible for the security agencies to stop.²⁰⁷⁷ Their activities constitute a very grave threat to the environment which may be impossible to restore to its natural state. The government has simply not been keen on stopping corruption and its attendant consequences, and this has been taking its toll grievously heavily on the environment the local communities and the indigenous people, as some of the gas flaring stacks in the Niger Delta have been burning for several decades and has so remained, while the government felt it must continue, otherwise the government might not survive, oil being its major revenue earner. But the health effects are much on the people of the area and the larger vicinity. The government must regulate the activities of the industry operators by a system of efficient and effective body of laws and policies. Successful countries seem to use a combination of penalties and incentives along with targeted infrastructure investments that drive up the opportunity cost of flaring associated gas, while simultaneously expanding end-use options.²⁰⁷⁸ The judicial system too must be made functional to administer same as in developed countries.²⁰⁷⁹ Efforts must be made to put in place such principles

[convicted-corrupt-officials-conference-tells-jonathan/](http://www.thisdaylive.com/articles/us-considers-sanctions-against-nigerian-officials/142390/) . Site visited 24-07-2014. See further, Home News, US Considers Sanctions Against Nigerian Officials, This Day Newspapers Online, 17 March, 2013. Available at <http://www.thisdaylive.com/articles/us-considers-sanctions-against-nigerian-officials/142390/>. Site visited 24-07-2014. See, NNOCHIRI Ikechukwu, Money Laundering: FG Withdraws Charges Against Mohammed Abacha, Vanguard Newspapers Online, 19 June, 2014. Available at <http://www.vanguardngr.com/2014/06/money-laundering-fg-withdraws-charges-mohammed-abacha/>. Site visited 24-07-2014. See also, ADESOMOJU Ade, FG Withdraws N446.3bn Theft Charges Against Mohammed Abacha, The Punch Newspapers Online, 18 June, 2014. Available at <http://www.punchng.com/news/fg-withdraws-n446-3bn-theft-charges-against-mohammed-abacha/>. Site visited 24-07-2014. See further, ADESOMOJU Ade, N446bn Theft Case: Protests as FG Drops Charges Against Mohammed Abacha, The Punch Newspapers Online, 19 June, 2014. Available at <http://www.punchng.com/news/n446bn-theft-case-protests-as-fg-drops-charges-against-mohammed-abacha/>. Site visited 24-07-2014. See again, ROSS Will, Is Nigeria Serious About Tackling Corruption? BBC News Africa, 12 March 2014. Available at <http://www.bbc.com/news/world-africa-26535530> . Site visited 24-07-2014. See further, AYOBAMI Oyinola O., Corruption Eradication in Nigeria: An Appraisal, Library Philosophy and Practice 2011. Available at <http://www.webpages.uidaho.edu/~mbolin/ayobami.htm> Site visited 24-07-2014. See further, United Nations Office on Drugs and Crime (UNODC), Anti-Corruption Climate Change: It Started in Nigeria, 6th National Seminar on Economic Crime, Abuja, 13 November, 2007. Available at <http://www.unodc.org/en/about-unodc/speeches/2007-11-13.html>. Site visited 24-07-2014.

²⁰⁷⁶ JONES Nick and OSUNTOKUN Segun, The Crude Cost of Nigerian Oil Theft, African Law and Business (ALB), 24 January, 2014. Available at <http://www.africanlawbusiness.com/news/4718-the-crude-cost-of-nigerian-oil-theft>. Site visited 24-07-2014. See as well, DONOVAN John, Defiant Shell Unwilling to Quit Crime-Hit Niger Delta, The Telegraph Online, 30 September, 2013. Available at <http://www.royaldutchshellplc.com/2013/09/29/defiant-shell-unwilling-to-quit-crime-hit-niger-delta/> . Site visited 24-07-2014.

²⁰⁷⁷ MURDOCK Heather, Oil Theft Dilemma Stymies Nigeria's Niger Delta, Voice of America News/Africa Online, 27 March, 2014. Available at <http://www.voanews.com/content/oil-theft-dilemma-stymies-nigerias-niger-delta/1880431.html>. Site visited 24-07-2014. See also, ROSS Will, Nigeria's Booming Illegal Oil Refineries, BBC News Africa, 26 July, 2012. Available at <http://www.bbc.com/news/world-africa-18973637>. Site visited 24-07-2014. See further, PUREFOY Christian, Death and Oil in Niger Delta's Illegal Refineries, CNN Online, 4 August, 2010. Available at <http://www.edition.cnn.com/2010/WORLD/africa/08/03/nigeria.oil.niger.delta/>. Site visited 24-07-2014.

²⁰⁷⁸ FARINA Michael F., Flare Gas Report: Recent Global Trends and Policy Considerations, GE Energy, January 2011, p.45. available at <http://www.genewscenter.com/ImageLibrary?DownloadMedia.ashx?MediaDetailsID=3691>. Site visited 28-06-2014.

²⁰⁷⁹ STEMPEL Jonathan, U.S. Appeals Court Says BP Bound by Gulf Spill Accord, Reuters Online, 4 March, 2014. Available at <http://www.reuters.com/article/2014/03/04/us-bp-idUSBREA230IR20140304> . Site visited 24-07-2014.

FLETCHER Philippa, Insight: Compensation Battle Rages Four Years After BP's U.S. Oil Spill, Reuters Online, 18 April, 2014. Available at <http://www.uk.reuters.com/article/2014/04/18/usa-spill-aftermath-idUKL5NOKY2TC20140418>. Site visited 24-

as sustainable development, participation, precautionary, prevention, and the likes which form the hallmarks of functional climate regulation.

Nigeria could use its enormous influence in the sub-region as well as in the continent to rally a proper harmonisation of the REIOs in Africa, in the pattern of the EU and wrest the continent from the grips of foreign interests pilfering its resources to develop and create employment in their respective countries and regions while Africa remains poor, backward and neglected to sulk in its poverty as the least developed continent of the entire world and the poorest.²⁰⁸⁰ Its multidimensional poverty stands at 65 per cent relative Europe's 3 per cent. Out of the world's 46 poorest countries in 2013, Africa has a whopping 38.²⁰⁸¹ Africa must all within its reach to source technology, capacity building and research and development, though not cheap, yet we have what it takes to acquire them. We could trade our resources in exchange for these, else we remain perpetually backward while the rest of the world jet away at an increasing velocity. The continent could use its resources to make deals that give it an in-road into the economies of other parts of the world. Projections from the World Bank predict steady growth for some countries in the SSA for a couple of years, which advantage should be taken of, to open up the economies of the sub-region to better trading relations of other regions of the world. The bottom line is to realise that in many respects, climate change has determined what a sustainable development approach to growth implementation would look like. The IPCC has stated that, "It is no longer a question of whether climate change policy should be understood in the context of sustainable development goals; it is a question of how."²⁰⁸²

The EU would be greatest loser if the Paris 2015 treaty should fail. Reason being that the Union would have lost all the human, economic, resources and others it has since invested into climate change all through the past decades, when it has been forced by leadership burden to take measures that had impacted somewhat

07-2014. See also, BARRETT Paul M., BP's Big Payouts Amid Other Oil Spill Liability, Bloomberg Business Week Online, 27 June, 2013. Available at <http://www.businessweek.com/articles/2013-06-27/bps-big-payouts-amid-other-oil-spill-liability>. Site visited 24-07-2014. See further, BARRETT Paul M., How BP Got Screwed on Gulf Oil Spill Claims, Bloomberg Business Week Online, 27 June, 2013. Available at <http://www.businessweek.com/articles/2013-06-27/how-bp-got-screwed-on-gulf-oil-spill-claims>. Site visited 24-07-2014.

²⁰⁸⁰ President Obama of the US in a recent visit to South Africa said: "[Y]ou produce the raw materials, sold cheap, and then all the way up the chain somebody else is making the money and creating the jobs and the value..." See, FELSENTHAL Mark and MASON Jeff, Obama to Unveil Broad African Electric Power Initiative, Business Day Online, 30 June, 2013. Available at <http://www.bdlive.co.za/national/2013/06/30/obama-to-unveil-broad-african-electric-power-initiative>. Site visited 01-07-2013. See also, KAY Chris and MAZEN Maram, Nigeria's Central Bank Governor Won't Seek Second Term, Bloomberg Online, 20 March 2013. Available at <http://www.bloomberg.com/news/2013-03-20/nigeria-s-central-bank-governor-won-t-seek-second-term.html>. Site visited 17-07-2014. See as well, SMITH Nicky, Gigaba Urges Caution on China in Africa, Business Day Online, 17 July, 2013. Available at <http://www.bdlive.co.za/africa/africanbusiness/2013/07/17/gigaba-urges-caution-on-china-in-africa>

²⁰⁸¹ Infoplease, World's Poorest Countries, 2013. Available at <http://www.infoplease.com/world/statistics/poorest-countries.html>. Site visited 24-07-2014. See also, CHUHAN-POLE Punam et al, Africa's Pulse: An Analysis of Issues Shaping Africa's Economic Future, The World Bank, Vol.8, October 2013. Available at http://www.worldbank.org/content/dam/worldbank/document/Africa/Report/Africas-Pulse-brochure_Vol8.pdf. Site visited 24-07-2014. See further, Rural Poverty Portal, Rural Poverty in Africa, International Fund for Agricultural Development (IFAD), sine die. Available at <http://www.ruralpovertyportal.org/in/region/home/tags/africa>. Site visited 24-07-2014.

²⁰⁸² See, DREXHAGE John and MURPHY Deborah, Sustainable Development: From Brundtland to Rio 2012, Background Paper for High Level Panel on Global Sustainability, 19 September, 2010.

negatively on the region's economies. While it does these, the other parts of the world, the US and especially the new advanced economies comprising the BASIC+R (Brazil, South Africa, India, China + Russia) rapidly expanded their economies at the expense or otherwise of the EU's climate change measures which had inhibited the region's economic and industrial growth as witnessed since the end of the WW II, before the need for environmental concern took the center stage. This means that even in the face of the new world order, the EU cannot afford to leave the center stage of environmental and particularly, climate change to countries whose domestic interests are far more paramount to them than the larger world interests in climate change solution. The EU should therefore re-strategise, use its economic and trading as well as other interests to getting these new entrants to come to terms convincingly on climate change mitigation through sustainable development. Nothing short of this could serve the interests of the EU and the world in general.

7.5 Summary

Climate change is the single most vexed concern mankind contends with this century. This stems from the upsurge of climate-related occurrences being experienced in different parts of the world. Science has been at the forefront of climate change for a couple of decades followed by the social and economic concerns and the legal aspect almost coming up the rear. This research takes a look at the issue of climate change mitigation and adaptation in the sub-Saharan Africa from the myopic view of a small part of it- Nigeria. The situation in Nigeria would best suit a good understanding of the entire sub-region's, hence its choice, and for the obvious reasons of its sheer size, influence and the fact that it pictures a mini of whatever is the situation in the sub-region. Nigeria is a prominent oil-producing country, a member of the organisation of petroleum exporting countries (OPEC), and a country known too well for its gas flaring. The consequence of gas flaring to climate change cannot be overestimated, yet the country flares 17.2 billion m³ of natural gas annually, but this arbitrary wastage of expensive and highly essential energy resource has continued for decades, dating back to the discovery of oil in Nigeria in the late 1950s. Various agencies of the government operating in, or regulating the industry have done little or nothing to bring about a change of the situation. Nigeria has set flare-out dates a couple times that has never for once been effective, with the government cooperating with the oil multinationals to scuttle what should have brought order into the industry and beneficial to the country, as the oil TNCs would have had no option than to either convert the gas being flared off into power for the country or re-inject it. Either way is beneficial to the country, but because the government blew the opportunity of taking the right step, it has been business as usual for the TNCs. Power supply in the country is so inadequate that more than half of its about 170 million population do not enjoy power supply at all, while the other percentage that have power supply in any capacity have very epileptic supply that it is almost a curse to depend on public power supply for a meaningful life. This means converting its gas to power would have been most beneficial not only to the people, but also to the economy of the nation and the world would have saved of the horrors of its flares.

Not only gas flaring is wrong, also worrisome is the orgy trend of oil spillage by the operators in the oil industry. This has been due to the fact that there has been no standard measure by which the government knows how much oil is explored and lifted by the TNCs, it relies on what information provided by these operators. The resultant effect being large-scale fraud both on the part of the operators and government officials in the affected departments of the administration. Concomitant to this are the problems of oil theft popularly called smuggling, which has reach a height that more than one hundred thousand barrels of oil are stolen daily, and there is no end in sight to this in the near future. Most gruesome is the extent of pollution of the entire land

area of the Niger Delta. The UNEP special report on the Ogoniland states that it will take 25-30 years to restore the environment. That is the result of decades of incessant and arbitrary oil spillage in the area. The people dared not complain, when they dared complain, government extra-judicially killed their leaders in 1995. And ever since it has been restiveness in the Ogoniland, until Shell was forced to quit production in the Ogoniland area of the Niger Delta region. The situation has been so bad with the environment generally and climate change in particular, because the country has no adequate legal and policy frameworks on these. It only woke up to its environmental concerns around 1988, and the entire legal framework for the regulation of operations in the oil industry never envisaged climate change ab initio, hence might not fix issues arising thereon.

The research is meant to present the essential and vital irreplaceable position and role of law, particularly one which cuts across borders in tackling climate change as the surest way forward. It considers the indispensable position of sustainable development in resource application and usage in seeking climate sustainability. It draws its conclusion on this from the level of success in the EU which has proved that it is not only a possibility, but the best and shortest means to climate change resolution. The research laying a basic foundation for the study examined the meaning of basic terms and issues in climate change in the first chapter and traced briefly the evolution of climate change. It goes on to look at climate change in Nigeria among other relevant issues as the nation's legal and policy frameworks and formulations, concluding that the nations tardiness and non-chalant attitude to its laws in relevant areas is influencing negatively its dispensation to climate change. This has adversely affected and still impacting on climate change globally, being a high gas flaring nation. It considers in detail different perspectives to this such as the desertification in the northern parts of the country and lately, incidents of flooding in the coastal southern parts and the threat of ocean surge to one of its most vital cities among many other, Lagos a burgeoning megacity of an estimated 21 million inhabitants, regarded as one of world's fastest growing megacities.²⁰⁸³ This is a picture of the entire country whose population is growing at a geometric rate, as with the SSA generally. This will largely have a decisive impact on climate change. It is a factor in the Agenda 21- a key aspect of the Rio Earth Summit discussed in the study. Sustainable development and other related concepts like the precautionary principle, principle of participation, principle of prevention and how these have influenced the European climate change to make it attain a level of success, forming the core factors of the environmental discourse. The research considered sustainable development in a little detail, its place in international law and how it has influenced global climate change affairs, and the outcome of the Earth Summit and subsequent summits in its follow-up. The research opines that because of the non- adherence of

²⁰⁸³ By 2006, Lagos had a population of 17.5 million people, and over 21 million by 2011, representing over 5% of the national estimate, and by the UN estimates, at its growth rate it is expected to become global third largest megacity after Tokyo and Bombay. See, Lagos State Government, Population, 2011. Available at <http://www.lagosstate.gov.ng/pagelinks.php?p=6> . Site visited 30-07-2014. See equally, DUTHIERS Vladimir and KERMELIOTIS Teo, Lagos of the Future: Megacity's Ambitious Plans, Cable News Network (CNN) Online, 22 August, 2012. Available at <http://www.edition.cnn.com/2012/08/22/business/lagos-urbanisation-regeneration-infrastructure/index.html> . Site visited 30-07-2014. See also, CAMPBELL John, This is Africa's New Biggest City: Lagos, Nigeria, Population 21 Million, The Atlantic Online, 10 July, 2012. Available at <http://www.theatlantic.com/international/archive/2012/07/this-is-africas-new-biggest-city-lagos-nigeria-popualtion-21-million/259611> . Site visited 30-07-2014. See further, UROKO Chuka, Nigeria: Update to Eko Atlantic-City of Lagos' New Global Business and Cultural Hub, Dilemma X Online, 29 June, 2013. Available at <http://www.dilemma-x.net/2013/06/29/nigeria-update-to-eko-city-of-lagos-new-global-business-and-cultural-hub/> Site visited 30-07-2014. See also, AKIYODE Oluwole Olusegun, Urbanization and Human Security in Developing Economy Mega-City: A Case Study of Lagos, Nigeria, Journal of Sustainable Development and Environmental Protection Vol.2, No.3, 2012, pp.76-82.

the SSA to the strict principles of sustainable development is why it is the more vulnerable to the climate change incidences than many other parts of the world. It goes on in the fourth chapter to examine the role of regional economic integration organisations (REIOs) in climate change. It concludes that the EU being the only REIO that is a party to the KP was able to influence its member states through a numerous key legal and policy frameworks implemented commonly through its entire member states account largely for the EUs climate change success.

A number of principles were brought into play in carrying through its common policy, such as the co-Decision, proportionality, subsidiarity qualified majority voting and some others which greatly enhanced the effectiveness of the system, operating through a number of institutions called the EU institutions, side-by-side the member states. Though not without frictions, the EU has held together the entire region through common policy and legal framework on climate change despite its heterogeneity,²⁰⁸⁴ and has ensured the smooth running of its enforcement through the regional body's legislative, executive and judicial structures. It observed the special process of its compliance and enforcement of the Community's rules above national interests. It observes that the enforcement of common policies over a wide region of member states has accounted for the EU's influence in international discourse on climate change. Such structures as the EU boasts of which are absent in virtually every other REIOs across the world constitutes a setback to them in implementing international climate change policies with the same level of success as the EU. It attempted in a little way a comparison between the EU and the Economic Community of West African States (ECOWAS), and draws the conclusion that the latter as many other REIOs would need to draw inspiration and influence from the former to enhance its performance in the environment. The extra-territoriality of the EU legal and policy system, its implementation and compliance is a core issue and perhaps the main core value of the research study. The law bringing a success which is yardstick to other regions and countries,²⁰⁸⁵ then it could similarly be replicated in other regions if a strong and effective economic and socio-political alliance could be fashioned in the manner of the EU's. A conglomeration of a number of these from different parts of the world could make an entire whole system of international legal system on climate change, with necessary modifications and adjustments, where and when the need arises. Only a consistent enforcement of a string of strong and decisively-enforced legal regulations and policies across a wide region comprising nation states, regulating economic and industrial activities like in the EU can bring about an international regime.

Chapter five of the research dealt with climate change through international negotiations. The chapter reviews the outcomes of some major international summits on and how these have affected climate change. Beginning with the UNCED Rio Summit 1992 which most distinctively, produced the Rio Declaration, the Agenda 21 and

²⁰⁸⁴ The EU has 24 official languages and 28 Member States. Some Member States share common languages. See, European Commission, Languages, 18 July, 2014. Available at http://www.ec.europa.eu/languages/policy/language-policy/official_languages_en.htm. Site visited 28-07-2014. See also, PRI, European Union Prepares to Adopt 24th Official Language as Costs Mount, Calls for English Rise, PRI's The World, 24 May, 2013. Available at <http://www.pri.org/stories/2013-05-24/european-prepares-adopt-24th-official-language-costs-mount-calls-english>. Site visited 28-06-2014.

²⁰⁸⁵ The EU Emissions Trading System and Carbon Tax system are models in focus, being replicated in several other countries. Besides the EU, there is ETS in Switzerland, China, New Zealand, Australia, South Korea, Kazakhstan, and subnational schemes in the US, Canada, and Japan. See, TALBERG Anita, Emissions Trading Scheme Around the World, Parliamentary Library, Parliament of Australia, 6 June, 2013. Available at http://www.parlinfo.aph.gov.au/download/library/prsub/2501441/upload_binary/2501441.pdf;fileType=application/pdf. Site visited 31-07-2014.

the Millennium Development Goals, a set of measureable goals meant to touch on different aspects of life and impact directly on the environment thereby, with a number of years target delivery. Its specified development goals ascribed responsibilities to every strata of government from the national to the local government for grassroots benefit of the people. The UNCED sought to ensure a sustainable exploitation of the earth's resources such that the interests of the future generations would not be jeopardised. A major phenomenon of the UNCED however remain unsolved till the moment- poverty. A larger chunk of the world's population still live in poverty, some even pronounced. It has remained one of core concern in subsequent reviews of the results of the UNCED, that is Rio+10 and Rio+20. It is of concern as this has forced many indigenous and local peoples around the world to still depend solely and directly on natural and forest resources, which the UNCED seek to discourage. It reviewed also the United Nations Convention to Combat Desertification (UNCCD), whose activities so far has been enviable, but desert lands are increasing in parts of the especially Africa, a factor directly and indirectly attributable to man's relationship to the environment. This and a couple of other issues constitute the greatest challenge to sustainable development. It observed that a deployment of sound technology could alleviate this situation in some of the areas affected by desertification. It examines the outcomes of the Bali COP13, 2007, the Bali Road Map which has a wide variety of issues packaged in it, among which are the Bali Action Plan, laying the foundation formally for negotiations towards a new Post-Kyoto treaty. It set up ad hoc working groups to facilitate this, and also, launched the adaptation fund to cater for developing countries adaptation needs, which was established in 2001. It also enhanced the REDD to what is subsequently to be known as the REDD+, to deal more decisively with issues of deforestation. Beyond the adaptation fund, it generously enhanced the issue of funding for the benefit of developing countries. The chapter further more discussed the Kyoto Protocol flexible mechanisms, consisting of international emissions trading, the joint implementation and the clean development mechanism, which is the only Kyoto issue that concern the developing countries which were virtually left out of participation in the KP, a major sore-point of the KP. It discussed finally technology transfer and associated issues of capacity-building and research and development.

And finally chapter six, deliberated on the series of negotiations towards a new treaty to be perfected in Paris COP21 in 2015. The negotiations attained a new dimension at the Copenhagen COP15 2009, when the US and China leading a group of developing states led the direction away from the Kyoto Protocol which expectation was being hoped to be renewed for a second commitment period. Copenhagen has come to reveal that both the US and China were now willing to take over the piloting of the ship of global climate change from the EU. It however left much to be seen how they are going to go about it, for the reason that both countries have no apparatus and their national systems might not have the requisite capacity to cope with the demands of sudden global climate leadership. Not only that, these have been known to pay mere lip-service to climate or outright pitch their stand against it in international negotiations. The Copenhagen Accord was generally viewed as total failure having failed to produce an outcome worthy of the name of it and great expectation on the summit, the fact remains that it brought forth to reality the emergence of a new world order, and ushered an entire new page I climate change negotiations and direction. It also signal the welcome development of bringing erstwhile antagonists of whatever efforts were being made on climate change, into cooperating to fashion a new approach to climate change mitigation drive. The old order of top-down, command and control being replaced by the bottom-up, voluntary emissions reductions approach with a new system of assessment- Measurement, reporting and verification (MRV). The caution here is the time of entrenching the new system and monitoring to guide against a repeat of the old system under which gave room for emission leakages. The erstwhile champion

would have to re-strategise to ensure the workability of the new system, so the result would not be worse than the situation that efforts are being made to redeem. Coming in the wake of the Copenhagen Accord was the Cancun Summit which produced the Cancun Agreement, which sought to put issues in proper perspectives, and forge a new path to the negotiation process for a Post- Kyoto. The Cancun Agreement was quite explicit on different issues such as the MRV, funds for developing countries, technology transfer and capacity building, reducing emissions from deforestation and forest degradation in developing countries REDD+. The Agreement brought forth provision requiring more scrutiny to developing countries reporting system and more regularly than of the developed countries reporting. The chapter further more examined in critical details the decision on green economy, intergovernmental process among others, leaving further actions on these to the UN General Assembly. The chapter rounds off with an examination of efforts and preparations at reaching a deal for a new climate change agreement by 2015. It outlines activities by countries and the EU reaching out by way of alliances, as well as international bodies like the World Bank factoring sustainable development and climate into their activities and programmes.

The places of alliances among Parties and regions cannot be overemphasised if we must have a new agreement by 2015, to do less is to risk a gruesome repeat of Copenhagen failure, when the high hopes of the world was blown off in the open air. It was a disappointment too many to be experienced a second time. Parties are expected to be up with their different plans and options by the first quarter of 2015, preparatory to the Paris Conference, it is pertinent to point out that this is indeed a time for the EU and its Member States, most especially countries like Germany, the Netherlands, the UK, Sweden, Austria, Finland, Belgium, Denmark, Spain and a host others at the forefront of environmental consciousness should guard-up their loins to save the situation by working in strong affiliations with other Parties like the US, and China leading the BASIC countries to ensure that 2015 does not fail.²⁰⁸⁶ The KP presented the EU as a virtual lone-ranger in climate change, thus calling the shots while the first commitment period lasted, which hunted the KP eventually, urgent steps must be taken to forestall a repeat of this. Justifiably, the EU has taken the issues of environmental and climate change with due consciousness, with policies thereon experiencing astonishing developments since the 1970s.²⁰⁸⁷ The EU could use its budget and trade relations with other countries and regions to broker a more reaching agreement on climate change come 2015. The EU remains a most perfect example of REIO for the rest of the world, particularly the developing world to copy from and bring about a radical change in their perception and disposition to the changing climate if international regulation would provide the much needed truce.

²⁰⁸⁶ SZIGETI Cecília, Environmental Tax Revenue and Environmental Consciousness in the European Union, *Gazdálkodás-és Szervezéstudományi Doktori Iskola*, 2005. Available at [http://www.ageconsearch.umn.edu/bitstream/54343/2/Szigeti_2005_12\(k\)_37_40.pdf](http://www.ageconsearch.umn.edu/bitstream/54343/2/Szigeti_2005_12(k)_37_40.pdf) . Site visited 01-08-2014.

²⁰⁸⁷ GERHARDS Jürgen and LENGFELD Holger, The Growing Remit of the EU in Environmental and Climate Change Policy and Citizens' Support Across the Union, *Berliner Studien zur Soziologie Europas*, No. 11, February 2008, Freie Universität Berlin. Available at http://www.polsoz.fu-berlin.de/soziologie/arbeitsbereiche/makrosoziologie/arbeitspapiere/pdf/BSSE_11_The_growing_remit_of_the_EU_in_environmental_and_climate_change_policy.pdf . Site visited 01-08-2014.

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