Current Journal of Applied Science and Technology

40(23): 41-48, 2021; Article no.CJAST.54307
ISSN: 2457-1024
(Past name: British Journal of Applied Science & Technology, Past ISSN: 2231-0843, NLM ID: 101664541)

Paris Agreement Implementation in Nigeria: Compliance Level, Constraints and Possible Ways Forward

B. C. Anwadike[1*]

[1]College of Education, Warri, Nigeria.

Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

Article Information

DOI: 10.9734/CJAST/2021/v40i2331491
Editor(s):
(1) Dr. Orlando Manuel da Costa Gomes, Professor of Economics, Lisbon Accounting and Business School (ISCAL), Lisbon Polytechnic Institute, Portugal.
(2) Dr. Kleopatra Nikolopoulou, Professor, School of Education, University of Athens, Athens, Greece.
(3) Meng Ma, Associate Professor, Anhui University Hefei, Anhui, 230001 China And Icahn Institute for Genomics and Multiscale Biology Icahn School of Medicine at Mount Sinai, New York.
Reviewers:
(1) Agu Eensaar, Tallinn University of Applied Sciences, Estonia.
(2) Asti Meiza, Indonesia.
(3) A. Massawe, University of Dar Es Salaam, Tanzania.
(4) Peter Stallinga FCT-DEEI, University of The Algarve Faro, Portugal.
(5) Jeetesh Rai, University of Delhi, India.
Complete Peer review History: https://www.sdiarticle4.com/review-history/54307

Policy Article

Received 20 December 2019
Accepted 24 February 2020
Published 14 September 2021

ABSTRACT

Nigeria has traditionally been an active participant within the United Nations (UN) systems and ideals enshrined in their conventions and treaties by being a signatory to various environmental treaties and conventions notably the United Nations Framework Convention on Climate Change (UNFCCC). Nigeria signed the Kyoto Protocol and more recently the Paris Agreement on climate change alongside other 140 countries in December 2015 to mitigate the effects of global warming caused by the uncontrolled emissions of greenhouse gases (GHG). Nigeria is seriously impacted by climate change with consequences that includes vulnerability to drought, famine, flooding due to variability or change in rainfall pattern especially in the humid south and decreased rainfall in the savana region, soil erosion, sea level rise causing coastal areas to be submerged, declining surface and subsurface water etc Nigeria being a signatory to the Paris Agreement says she is committed to reducing GHG emissions by 20% relative to a business as usual (BAU) of economic

**Corresponding author: E-mail: anbenj@yahoo.com;*

an emissions growth by 2030. As much as her good intentions abound, there are obvious constraints to the implementation of the Paris Accord and these include; institutional deficiencies and failure, ambiguos environmental legislation and laws, lack of policy framework, paucity of fund, fear of revenue loss from oil, lack of political will to diversify the economy, climate change has not been integrated into the development plan, paucity of GHG emission data etc.

Keywords: Paris accord; climate change; environ.

1. INTRODUCTION

Historically,Nigeria became an active member of the United Nations (UN) as an independent and sovereign nation in October, 1960 and since then has actively participated in their treaties and conventions especially those related to the environment Aliyu Ahmeed [1]. She signed a treaty under the UNFCCC called the Kyoto Protocol which was agreed to and ratified by 33 industrialized nations in 1997 in Kyoto, Japan and later signed by 191 countries as at the year 2011 to reduce greenhose gas (GHG) emission to pristine values as it was during the pre industrial periods in Europe .Nigeria signed the protocol in 2004 and submitted its First Nationl Communication in 2003 while the Second National Communication was submitted in 2014. The Kyoto Protocol came to an end in 2012 and this event culminated in the signing of the Paris Agreement which is a continuation of the UNFCCC solemn aim to reducimg GHG emission to values as low as 2 percnt The Paris Agreement is a historic one was signed by more than 140 countries including Nigeria in Paris, France in December, 2015 and entered into force on October 5, 2016. At the COP22 Conference of the Parties to the UNFCCC in Marrakech, Morocco, world leaders formally adopted the action proclamation which recommitted parties to the full implementation of the Paris agreement. There is palpable fear that the global average temerature will increase by more than 20 degrees Centigrade by the end of the 21st Century and this could rise to 60 degrees by the year 2100 likely capable of making the earth unihabitable Mora [2]. The accord deals with GHG emission reduction, mitigation, financing and this is expected to start in the year 2020. The devastating effects of climate change are obvious such as rising sea level, off-season rainfall, desertification, poor crop yields, acidification, flooding, pollution etc Of the 143 countries that signed the agreement, 33 of them are in Africa and since then many countries have been making efforts towards the implementation with activities that will enable them adapt to the harsh changes that include fulfilling a key requirement in the agreement through the formulation of their Nationally Determined Contributions (NDCs).

Presently Nigeria is considerably impacted by climate change with the north of the country, for example being highly vulnerable to drought. A recent Pew Research Center global attitudes survey found that 65% of Nigerians are very concerned about the threat climate change portrays. President Buhari stated in his inaugural speech that Nigeria is committed to tackling climate change and Nigeria's INDC demonstrates its determination to contribute to the success of the Paris Accord signed in December 2015 with a view to grow its economy sustainably while reducing carbon pollution.

2. GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE IN NIGERIA

There is a widely held view that human or anthropogenic activities are largely responsible for most of the observed increment in global mean temerature rise since the mid 20th Century and this is an accurate reflection of arrant scientific thinking which is expected to continue into the 21st Century. The Inter-Governmental Panel on Climate Change (IPCC) produced a range of projections of what the future increase in temperature might be as between 1.1 and 6.4ºC [3]. The main greenhouse gases in the atmosphere includes carbon dioxide, water vapour, methane,ozone and nitrous oide. It is of note that the burning of both fossil and biomass fuel for various sector activities has elevated the atmospheric concentration of CO_2 in spite of the carbon sink according to Bridges and Smithson [4] raised concerns about the possible change in the West Africa climate due to global warming. Carbon dioxide level in the atmosphere has increased from 280 ppm to 390 ppm from the industrial revolution period. The burning of fossil and biomass fuel for such sector/activities has increased its concentration in the atmosphere in spite of the carbon sink. Human or anthropogenic activities such as deforestation, bush burning

increases CO_2 concentration in the atmosphere and it varies slightly with atmospheric Levels being regulated by the Carbon Cycle. Atmospheric lifetime or residency time is 30-95years Kyoto Protocol .Water vapour is the gas phase of water produced from the evaporation or boiling of liquid water and are removed by condensation. The level or concentration in the atmosphere varies from trace in the desert to about 4% over the oceans. The water vapor in the atmosphere is depleted through precipitation and replenished by evaporation from oceans, seas etc. Although being the most potent GHG in the atmosphere but has the lowest residence time of 9 to 10 days [3]. Methane (CH_4) is the main component of natural gas and it is a potent GHG and the concentration in the earth's atmosphere in 1998 was 1745 ppb but its level increased in 2008 to l800 ppb NASA [5]. Naturally occurring methane is produced by the biological process called "methanogenesis" which is a process some microorganism use as an energy source and is a form of anaerobic respiration used by microbes that live in landfills, in the gut of ruminants and rice paddies. Nitrous oxide (N_20) otherwise known as "laughing gas" or "sweet air", is a colourless, non-inflammable gas with sweet odor and taste. It is used in surgery and dentistry as analgesic and anesthetic. It is known to react with ozone causing its depletion. It has 298 times more impact per unit weight than CO2. This gas is emitted by bacteria in soils and oceans with agricultural nitrogen fertilizers being a notable source. Industrial sources make up about 20% of the total source. Ozone (03) otherwise called triatomic oxygen, fluorinated gases (sulphur hexafluoride, chlorofluorocarbon, hydrochloro- fluorocarbon are major greenhouse gases UNFCCC [6]. The CFC is used as refrigerant, fire suppression and manufacturing process. The volume of CFC is 533ppt. while the proportion of hydrochloroflourocarbon (HCFC) is 69ppt IPCC [7].

Concerns have been shown about the possible change in West Africa climate due to global warming which have been of concern to scientists in the sub region [4]. Analysis of temperature and rainfall showed that the monthly average temperature data for a period of 40 years and rainfall for a period of 70 years in some areas in Nigeria increased with a general mean increase in minimum temperature of 3ºC per decade Fasehun, et al. [8] This rate of change showed latitudinal variations with the highest of 6ºC per decade occurring as the figures of the Saharan region and 2ºC per decade at the coast Adeyefa and Olowu [9]. The result equally showed a marked downward trend in rainfall amount, the number of rainfall days and lengths of planting season. Similar result and trends were observed by Adejuwon, et al. [10].

Nigeria is known for her bourgeoning population and tropical climate and is a place where the temperature is expected to increase faster than the global average. This has the effect of leaving its local ecosystems vulnerable to climate change. From estimates, Nigeria has been reported by various authors to be responsible for 490 metric tons of GHG emissions in CO_2 equivalent which is estimated to be over 1 percent of global production, 0.39% of this comes from land use change and forestry, 0.3% from energy production from oil and gas extraction, 0.14% from incineration of municipal waste and 0.13% from agriculture and 2% from industries. As part of the Paris Agreement, Nigeria is committed to the reduction of GHG emissions by 20% relative to the business- as –usual (BAU) scenarios of economic and emissions growth by 2030 and will pursue a 45% reduction if given sufficient international support and assistance. This can be achieved by ending gas flaring, increasing the use of renewable energy, promoting reforestation efforts etc. Although, significant challenges are facing Nigeria today such as high unemployment rate, food insecurity, uncontrolled population growth, poor access to energy, monolithic economy but the country is heavily impacted by climate change which remains a serious issue as many believe that it is the origin of the constant herdsmen farmers' clash which has taken a devastating toll on the nation's population.

Table 1. Key data Information on yearly emissions

Historical emissions	Value	Source
1990 emissions	1850-2010)2,564.02 million tons (MT)	CAIT database Resources
2000 emissions	163.91 MT Nigeria's	Second National l Communication
2010 emissions	214.21 MT Nigeria's	Second National Communication
2015 emissions	263.0 MT	Energy Commission of Nigeria

(Source: Second National Communication) [12]

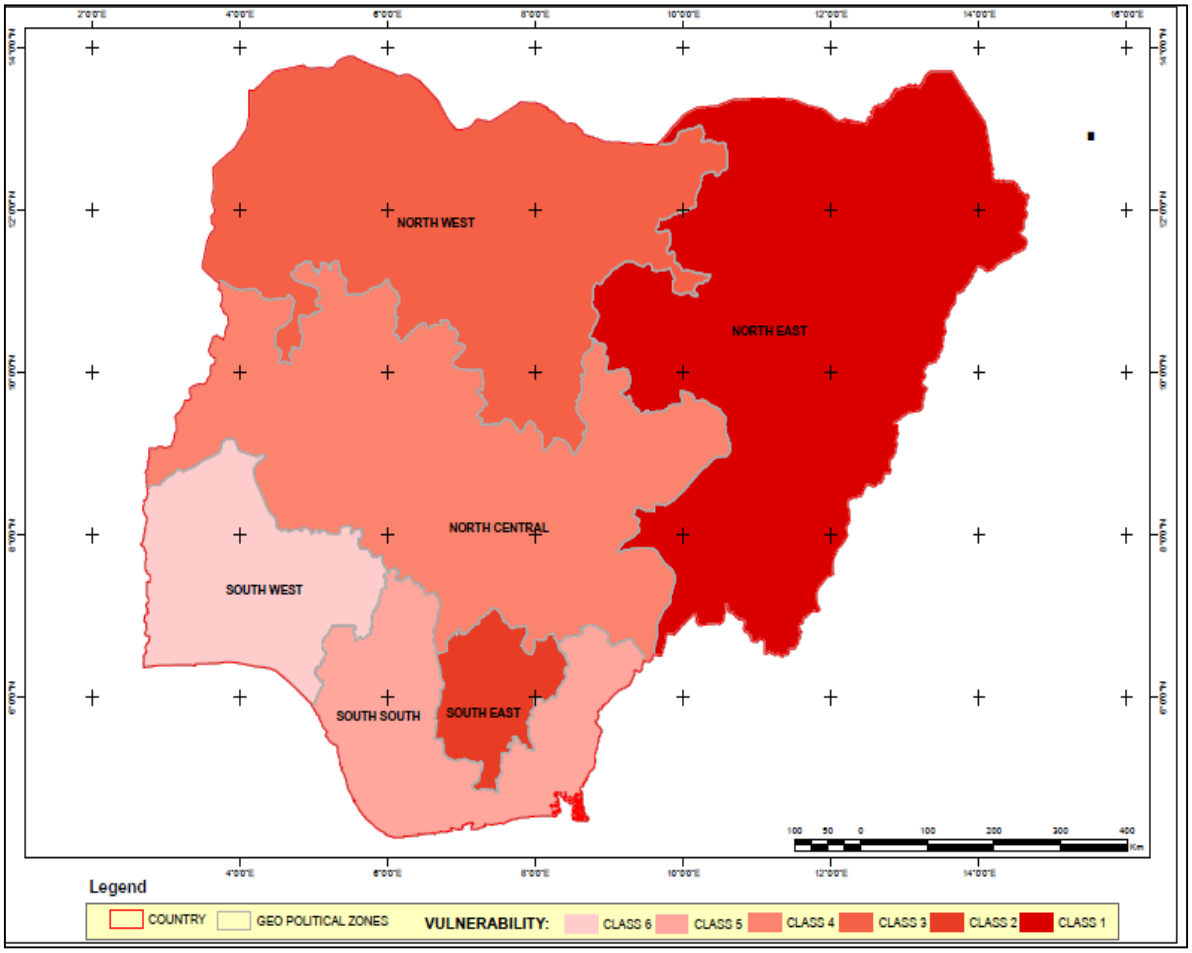

Fig. 1. Map of Nigeria showing different climatic zones influenced by climate change
(Source: Second National Communication) [11]

3. GOVERNMENTAL ACTION, LEVEL OF COMPLIANCE AND CONSTRAINTS

Nigeria's response to climate change has focused on increasing resilience and managing the unavoidable impacts. The National Adaptation Strategy and Plan of Action for Climate Change Nigeria (NASPA-CCN) prescribes the adaptation priorities. The 2011 NASPA-CCN Vision is a Nigeria in climate change adaptation with an integrated component of sustainable development, which reduces the vulnerability and thus enhancing the resilience and adaptive capacity of all economic sectors and people – particularly women, children, and resource-poor men to the adverse impacts of climate change, while also capturing the opportunities that arise as a result of climate change. The goal is to take action to adapt to climate change by reducing vulnerability to climate change impacts and increasing the resilience and sustainable wellbeing of all Nigerians; and to reduce or minimize risks by improving adaptive capacity, leveraging new opportunities and facilitating collaboration inside Nigeria and with the global community. To this end, a set of thirteen sector-specific strategies, policies, programmers and measure undertaken by the Federal, State and Local Governments, civil society, private sector, communities and individuals, including measures that will:

1. Improve awareness and preparedness for climate change impacts.
2. Mobilize communities for climate change adaptation actions.
3. Reduce the impacts of climate change on key sectors and vulnerable communities.
4. Integrate climate change adaptation into national and sect oral activities.

The Chairman of the House Committee on Climate Change, Hon. Sam Omigbe has called on President Mohammad Buhari to quickly

assent to the newly passed climate change bill as part of efforts to restore security in Nigeria. He noted and reiterated the position of environmentalists that climate change has exacerbated the problems of insecurity in Nigeria. Hence signing the bill into law will provide the legal framework to checkmate the threat of climate change to security in Nigeria. Harmful events and activities such as gas flaring, bush burning, oil spillage, drought, desertification, floods, gully and coastal erosion, famine, damage to critical infrastructure which presently occur in Nigeria destroy the environment and threaten development across all sectors of the economy. Thus the frequent clash between farmers and herders which has claimed many lives in the country in recent times with its obvious threat on food security is a consequence of the effect of climate change. Lake Chad is receding resulting from drying up and about 8 and 10 million people depend on it for their livelihood and uses. The lake has dried up from 25000 square miles in the 1960s to about 2500 square miles today. This has led to loss of livelihood and involuntary migration, low agricultural production and disturbing rise in insecurity in the North East region and across Nigeria.

In pursuit of the increasing importance of climate change issues in Nigeria, the Federal Executive Council (FEC) adopted in 2012 the Climate Change Policy Response and Strategy. The objectives of the policy include, implement mitigation measures that will promote low carbon as well as sustainable and high economic growth; enhance national capacity to adapt to climate change; raise climate change-related science, technology and research and development; to significantly increase public awareness and motivate private sector participation in addressing the challenges of climate change; strengthen national institutions and mechanisms policy, legislative and economic actions to establish a suitable and functional framework for climate change governance The adaptation priorities under the aegis of the National Adaptation Strategy and Plan of Action for Climate Change Nigeria (NASPA-CON).

In spite of the laudable plans and objectives of government towards climate change strategies implementation in Nigeria, heads of governmental agencies whose mandate relate to climate change are lax in action to address the effects of the scourge. Several of them shun invitations on public hearings so as to interface with legislative committees on climate change and other stakeholder's forum. These heads are however quick to travel with Mr. President to international climate change events for declarations and shun local discussions on what they travelled for. Mr. Omigbu is the sponsor of the bill "Act to Provide a Legal Framework for the mainstreaming of climate change Responses and Actions" into Government Policy Formulation Implementation and the establishment of the "National Climate Change Council and Other Related Matters". Thus the bill when signed into law will ensure that Nigeria meets her international climate change obligations including Sustainable Development Goals (SDG), international treaties and agreement under the UNFCCC and Paris Accord. It will also motivate the country to provide sustainable economic goals development which enhances the availability of clean energy while ensuring that climatic change responses are consistent with national development priorities in conformity with the provisions of the 1999 Constitution. This will facilitate the domestication of the agreement and enable Nigeria to effectively implement its commitment particularly the emissions reduction targets. The bill will provide a framework for the federal budget appropriation process that institutionalizes transparency and accountability of climate-related sources including international climate financing.

Mr. Jibrin stated that financing climate action by developing countries would require financial support from developed countries which is hinged on the $100bn by 2020 commitment at COP 21. He said that the country is working at its best to mobilize financial investment including committing part of the 2018 Capital Budget to it adding that they are also working to attract private sector partnership, in addition, to support from development partners. He said that Nigeria would soon launch the Green Bond to fund a pipeline of projects all targeted at reducing emissions towards a greener economy.

The NDC ambition under the climate change accord would cost an estimated $142bn to meet the 2030 target. This translates to about $10 billion per annum to meet the NDC target by 2030. Accordingly, the federal government has plans to issue a program of $150bn in green bonds over the next few months. Collaboration between the Ministry of Environment and finance continues to pull together the institutional partners necessary to achieve what would

be Nigeria's and Africa's first sovereign green bond.

The passage of the bill for the National Council of Climate Change (NCCC) will form the legal framework which will ensure that climate change issues receive a boost. This will be achieved by the passage of the bill on climate change by the House of Representatives to provide a legal framework for the mainstreaming of climate change response and action into government policy formulation and implementation. This bill also proposed the establishment of a council to coordinate climate change governance and support the adaptation and mitigation of the adverse effects of climate change in the country. This will facilitate the domestic action of the agreement and enable Nigeria to effectively implement its commitment particularly the environment reduction target.

The bill will aid the setting up of guidelines for the prescription of a range of economic instruments and regulatory techniques to reduce GHG emissions.

Thus the absence of a law that prescribes legal obligations for compliance with elements of a national climate policy and all climate related initiatives and programmers had also inhibited climate change management in the country.

According to Anwadike [13] institutional corruption and cross purpose operations of the Nigerian Customs Service (NCS) and failure of the various environmental agencies such as the Nigeria Oil Spill Detection and Response Agency (NOSDRA), Nigeria Environmental Standards Regulation Agency (NESREA), Department of Petroleum Resources (DPR) in regulating the operations of GHG generating agencies. Gas flaring that contributes significant levels of CO_2 in the atmosphere is still the usual practice of disposing gases by the oil companies in Nigeria because of the apparent lack of technology to manage it. Study was done by the World Bank [14] observed that Nigeria accounts for approximately one –sixth of the worldwide gas flaring that releases about 400 million tons of CO2. According to the World Trade Organization in 2013, Nigeria exported 79.3% of crude oil and natural gas in 2014 which are the major foreign exchange earners for the country. Meanwhile Nigeria is at a crossroad in ratifying various international treaties and conventions that recommends the lowering of crude oil output because it is the main stay of her monolithic economy as such will spell doom on her foreign exchange earnings. Such consideration and fear is founded upon large scale and unchecked institutional corruption that has always militated against diversifying the economy to another viable source of revenues such as steel and agriculture sectors.

No doubt the level of atmospheric carbon dioxide in Nigeria has risen above the pristine level owing to obvious reasons such as the epileptic power supply from the national grid, bush burning for agricultural purposes, domestic and commercial combustion of gasoline to generating electricity etc This cause a high dependence on fossil fuel usage culminating in the release of CO_2 that adds up to global mean value.

The ratification of the Paris Accord may remain a mirage and nightmare to Nigeria due to the inherent fear of sacrificing the short term economic gains on the altar of long term ecological consideration of the impact of climate change that may culminate in the adverse effects such as flooding, desertification, heat stress and wave etc. It is sad to say that environmental issues are not brought to front burners of government policies with no conscious effort to redress such attitudinal neglect of these important and pressing issues. It is an incontrovertible and known fact that the there is an increase in the global CO_2 level which is consequential on global warming and its deleterious effects on climate change. Enhanced carbon dioxide level above the pristine level is mainly caused by over dependence on gasoline, fossil fuel and natural gas usage for domestic and commercial electricity. There is epileptic supply of power from the national grid in Nigeria making people to provide their own electricity from fossil fuel combustion generating CO_2 as one of the most important GHG implicated in global warming. The World Trade Organization stated that fossil fuel accounted for 79.3% of Nigeria's export in 2014 and thus crude oil and natural gas are the major foreign exchange earners. Nigeria operates a monolithic economy with over dependence on crude oil export whose earnings are poorly accounted for coupled with the fact that the actual quantity of sold crude remains a mirage because of obvious corruption in the oil sector. The global dwindling price of crude oil has caused a decline in revenue earnings from crude in Nigeria putting government budget under serious threat and undue pressure and this over-dependence is no longer sustainable. This situation has made the

clarion call for economy diversification to hold water and shift from the mere slogan to actual realization putting political divisions aside. It is sad to mention that Nigeria's development plan is oblivious of climate change resulting from fossil fuel usage which is the main foreign exchange earner of the country. The falling price of oil in the global market should necessitate the rhetorical to actual diversification of the economy to more productive venture.

4. WAY FORWARD

Historically Nigeria is never bereft of progressive ideas and suggestions on topical issues but fall short of a concerted effort of total implementation amounting to criminal neglect culminating in the non-implementation of local and international environmental treaties and conventions. Nigeria has always remained at a crossroad of indecision involving the ratification of conventions and protocols bordering on the amelioration and reduction of atmospheric CO_2 levels because of her major foreign exchange earner. The outright ratification of the Paris Accord by the Nigerian Government will always remain a nightmare because of the inherent fear of sacrificing the short term economic gain on the altar of long term impact of ecological consideration of climate change. Sad to say that the country's development plans does not take cognizance of climate change threat resulting from over usage of crude oil for domestic and economic purposes. In a nutshell, environmental institutions and agencies must be compelled to do their statutory mandates judiciously without undue interference from government and erring officials should be sanctioned accordingly. Nigeria should have a proper and adequate record of GHG emissions and avoid depending on estimates from international agencies and institutions. Nigeria should jettison its inherent fear of losing income from the petroleum sector and hastily diversify the economy from foreign exchange earnings from the oil sector. Over-dependence on oil will spell doom for her as gasoline engines will be replaced in the nearest future by electric automobiles and since the country has other minerals, can explore and exploit them now before it will be too late.

5. CONCLUSION AND RECOMMENDATIONS

It can be concluded that Nigeria is under the threat of climate change resulting from enhanced CO2 level above the pristine pre industrial level. Her economic mainstay which is crude oil production remains the major source of CO2 in the atmosphere in which the country develops goose pimples on hearing of reducing the export. For this reason alone she cannot be wholeheartedly committed to ratifying treaties and conventions that bother on reducing crude oil production to ameliorating GHG in the atmosphere.

It can be recommended that the Nigerian economy diversification existing only on paper should be immediately diversified to other revenue generating sources such as steel production and export, ecotourism etc. Secondly there should be a conceited effort on the part of government and stakeholders towards a positive attitudinal change and legal framework should be put in place to ratify and enforce various treaties and conventions on the environment. Governmental agencies in charge of the environment should be strengthened with enabling laws and program 2s aimed at GHG reduction and the laws should be strictly enforced. Other environmentally friendly alternative energy sources such as nuclear and solar should be considered and implemented. Massive forestation and re a forestation programs should be done by creating more forest reserves and artificial forests while bush burning, overgrazing should be highly discouraged.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Aliyu Ahmeed –Hameed. The challenges of implementing international treaties in Third World Countries: The case of maritime and environmental treaties implementation in Nigeria. Journal of Law, Policy and Globalization. 2016;50.
2. Mora C. The protected timing of climate departure from recent variability. Nature. 2013;502(7470):183-187.
3. Inter Governmental Panel on Climate Change. Projected climate change and its impact. In core writing team (eds). Summary for Policy Makers. Synthesis Report. Contribution of Working Groups 1, ii and iii to the Fourth Assessment Report, Cambridge University Press; 2007.

4. Bridges D, Smithson P. Fundamentals of physical geography. Butter and Turner Ltd. London; 1995.
5. NASA. Greenhouse gas proportions. Microsoft Encarta; 2010.
6. UNFCCC. Kyoto protocol reference manual on accounting of emissions and assigned amount (PDF), Bonn, Germany Climate Change Secretariat (UNFCCC); 2008.
7. Inter Governmental Panel on Climate Change (IPCC). Projected climate change and its impact. In core writing team (eds). Summary for Policy Makers. Synthesis Report. Contribution of Working Groups 1, ii and iii to the Fourth Assessment Report, Cambridge University Press; 2007.
8. Fasehun TA, Eme OAU, Ahmed AB. A case of climate change in Nigeria in: Ebun OA. (ed) Advances in Geodesy and Geophysics Research, Second Regional Geodesy and Geophysics Assembly in Africa, Ibadan, Nigeria; 1994.
9. Adeyefa DZ, Oowu EA. The potential impact of global warming and climate change on savanna crops. Pollutants and their effects on Terrestrial and Aquatic Ecosystem. Edited by Badejo MA and Vanstraalen; 1994.
10. Adejuwon JO, Balogun EE, Adejuwon SA. On the annual and seasonal patterns ofrainfall in Sub-Saharan. West Africa, Int. J. Climate. 1989;7:840-847.
11. Second National Communication, Publication of the Nigerian Government; 2013.
12. Second National Communication, Publication of the Nigerian Government; 2013.
13. Anwadike BC. Kyoto protocol and the challenges of implementation in Nigeria. Journal of Geography, Environment and Earth Science International; 2017.
14. World Bank Development and Climate Change : A Strategic Framework for the World Bank Group Technical Report, Washington DC, USA, 2009

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle4.com/review-history/54307