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EFFECT OF GLOBAL WARMING ON BIODIVERSITY: NIGERIA'S EXPERIENCE

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ABSTRACT
Disturbed by the plethora of factors that aggregate together to destroy the beauty of the biodiversity and generally the ecosystem and make it unhealthy owning to heating up of the surface; the paper discussed to an extent the resultant effects of global warming on Nigeria and related problems and mitigating steps has been presented and similarly recommendations has been adduced which among others includes the Government of Nigeria should acknowledge the importance of developing a national response to climate change, and taking steps to build a governance structure and technologies for adaptation and mitigate the attendant effects of global warming.

Keywords: Global warming, Biodiversity, climate change, Nigeria

INTRODUCTION
Global warming is real and well established that the world is heating up. Global warming is a major causes of climate change particularly the depletion of the ozone layer by greenhouse gases (Aluko, Pyeleye, Suleiman and Ukpe, 2008) On the other hand, it is the observed century-scale rise in the average temperature of the Earth's climate system and its related effects. The direct effect of global warming is climate change, which means the disruption of climate pattern, and consequent impact on the environment and human life and socioeconomic activities caused by increasing concentration of greenhouse gases (heat-trapping gases) in the Earth's atmosphere such as methane, water vapor, nitrous oxide, Ozone and carbon dioxide (CO_2) and other fluorinated industrial gases: hydroflourocarbons , perfluorocarbons and sulphur hexafluoride. The effects of such a temperature increase might include:

a. More frequent extreme high maximum temperature and less frequent extreme low minimum temperature.
b. Rising sea levels;
c. An increase in the variability of climate, with changes in both the frequency and severity of extreme weather events and
d. Alterations to the distribution of certain infectious diseases.

Biodiversity: What is it, where is it, and why is it important?

Biodiversity reflects the number, variety and variability of living organisms. It includes diversity of species in the ecosystems and this concept also covers how this diversity changes from one location to another and over time. The convention on Biodiversity finds that "the current levels of human impact on biodiversity are unprecedented, affecting the planet as a whole, and causing large- scale loss of biodiversity" (CBD, 2007). In its most recent assessment, the IPCC (2007) reiterates that 20-30% of species assessed so far are likely to be at increased risk of extinction if increases in global average warming exceed 1.5-2-5^{0}C (relative to 1980-1999) and as global average temperature increase exceeds about 3.5^{0}C, model projections suggest significant extinctions (40-70% of species assessed) around the globe. Global warming does not only make vegetation "gasp for air" but also leads to animal habitat loss. This is an especially big problem for sensitive species.

The loss of these habitats leads to extinction of the animals that depends on these forests for their survival. Many species may be seriously affected by the spread of viruses and bacteria which normally thrive in warmer conditions. This, among many other things, may push these animals even closer to the brink of extinction. It is not only the habitat loss and spread of diseases that may cause animal extinction. It is also the availability of food and water for animals that will likely be made scarcer as a result of global warming. Thus are just some examples of animals affected. The water level has risen considerably resulting in frequent floods, eroding of riverbanks and mingling of fresh water and seawater sources thus leading to the extinction of several marine

species. The shift in climatic conditions has an adverse effect on sea levels, availability of food, amount of rainfall, the composition of an ecosystem and temperature levels. In fact, early instances of life extinction have been attributed to climate change.

In the past, many species have managed to thwart the risk of extinction by migrating to greener pastures. But given the current scenario, it is extremely difficult to tackle the consequences of global warming, since human beings have made it all the more difficult by splitting up, transforming and at times obliterating the existing habitats and thereby leaving no scope for migration. As far as different species are concerned, the effect of global warming is clearly visible with some of them shifting their habitats. Moreover, it is also becoming more difficult to preserve huge land tracts, which is affecting the chances of preserving biodiversity of a particular region. It is believed that if the situation is not taken stock of immediately, then around 2050 species will disappear as a result of global warming. The list of animals at risk of climate change will of course, be longer and longer as everywhere gets hotter and hotter. Without deceiving ourselves, it's obvious that there has been a decline in Biodiversity in recent years in overall abundance of wildlife in many parts of the Nigeria as a result of "heating up" the sun is eating our land and inadvertently uninhabitable. It is against this background that we must appreciate the magnitude of degradation of land and progressive deterioration of the fertile land and loss of its productive capacity renders it unsuitable for human and animal habitation through the impact of climate change and man - made causes in various parts of Nigeria.

Global warming effects on Nigeria Climate

Developing countries like Nigeria are least prepared for the impact of global warming. Global warming is real and evidence abounds despite that the country has been lucky not to have experienced major climate change induced natural disasters, the effect of climate change is evidenced by rise in sea level and erosion along the nation's coastline; the weather pattern is no longer distinct in the country, we have

witnessed very hot weather conditions and high precipitations leading to flooding which ruined crops in parts of the country creating food scarcity, The year 2017 witnessed series of climate- related disaster in Nigeria, ranging from biodiversity loss, gully erosions in many communities especially in Edo, Enugu and Anambra States; as a result of persistent drought, the Lake Chad has almost dried up, while there had been persistent desert encroachment in the north, loss in agriculture and food supply, flooding and erosion, health risks diseases spread, depletion of water resources, dramatic reduction of wildlife, astronomic increase in the level of CO_2 emission and its attendant upsurge in temperature , and consequently deteriorating social life of humans.

Climate change is a global problem and many countries are experiencing different aspects of it. The increase in rainfall in the coastal cities is partially responsible for the increasing floods devastating the coastal cities like Calabar, Port Harcourt, Warri and Lagos as observed by Ojugbo (2010). The increasing temperature and decreasing rainfall in the semi-arid regions of Sokoto, Katsina, Kano, Nguru and Maidugri have resulted in increasing evaporation, drought and desertification in Nigeria which have resulted in either reduction in water levels or total dry up of some rivers in Northern Nigeria: while Lake Chad is reported to be shrinking in size at an alarming rate since the 1970s (Ayuba, 2005). Nigeria's Section of the Chad Basin observed reduction in the size of the lake is associated with climate change and human demand for water. The climatic factors are the declining frequency and volume of rainfall received within and outside the basin. The human factors are mainly related to land use and are driven by an increasing demand for water even as its supply is decreasing (Dami et al., 2011).Andrew Bamford, a British investigative journalist, on 14th April, 2006, reported that the lake is now less than 500Square miles of water due to global warming. The attendant effects of the drying of these lakes include loss of means of livelihood of citizens that borders these lakes, which depend on it for fishing, farming, drinking and animal husbandry as well as unrest and forced migration which places

on the new location as they relocate. The occurrence of extreme weather events is one of the manifestations of climate change in Nigeria. Floods due to heavy rains have being experienced in parts of the country particularly in the southern parts and the Middle Belt in the years 2011 and 2012. In Ibadan, for example on August 28th 2011 heavy down pour in more than five decades wreaked havoc across the city. The rains that fell on that day hit an all time height of 1876.50mm accompanied by wind gust reaching 65 km/hr. The previous highest recorded was 178.30mm in September 1987 (IITA, 2011).

The worst flooding in decades was witnessed in the months of July to September 2012 which affected several states close to the major rivers, Niger and Benue that overflowed banks due to hours of incessant rains. The floods led to the untimely death of people, hundreds and thousands were displaced, schools and businesses were closed and thousands of hectares of farmlands were submerged. Thousands of people lost properties and lived in displacement camps for many months in Benue, Niger, Kogi, Edo and Rivers States. The President of Nigeria while visiting some of the affected States called the floods a national disaster (Daily Herald, 2012). Rising sea level and oceans surge as a result of global warming are evidences of climate change in Nigeria. Awosika and Folorunsho (2005) reveal that Victoria Island is one of the fastest eroding beaches as its losses about 30 meters to the ocean annually. Ugborodo/Escavors loses around 24 metres yearly and by the end of the 21st Century Lekki and Victoria Island will lose 602 and 584 square kilometers. The Niger Delta will be worse with about 15,000 square kilometers under the sea. Lagos in recent times has suffered from ocean surges and the degradation of beaches such as Alpha, Kurama and Lekki with properties destroyed and lives lost. For example, in early August 2012 the people of Lekki were displaced from their homes when the Atlantic Ocean water surged into their residences. The Lekki Beach was totally covered by debris and sand emptied into it as it remained under water for some days.

The weather condition in the Niger Delta region has presently changed primarily as a result of the activities of crude oil extraction companies that operates there. Gas flaring is the singular and most common source of global warming and contributes to the emission of carbon monoxide, nitrogen (II) oxide and methane which cause environmental pollution and ecological disturbances (Ubani and Onyejekwe, 2013). Gas flaring contaminates the atmosphere and produces emissions that cause thermal pollution as the immediate impact of gas flaring is experienced in high and rising temperature in the communities close to the flare sites and beyond, acidification of rain water and deposit of black powder cover (Alaba et al., 2013).

CONCLUSION

Global warming has cost Nigeria an increasing loss of biodiversity from which several problems have emerged, such as the destruction of marine ecosystem, loss of nature's balance, as well as destruction of marine ecosystem and fresh water resources. There are series of climate –related disasters in Nigeria, ranging from the increased health risk, declining agricultural productivity, biodiversity loss, drying lakes, farming, conflicts or social unrest, poverty, worsening food insecurity, heat stress, declining soil capacity for agricultural production, increased natural disasters, extreme events among others, unpredictable farming calendar. The usual April –October rainy season and October-March dry season is no longer as constant as it has been for some decades now and recently the issue of clashes between herdsmen and farmers which is a serious and prevailing social problem in Nigeria.

RECOMMENDATIONS

1. The Government of Nigeria should acknowledge the importance of developing a national response to climate change, and taking steps to build a governance structure and technologies for adaptation and mitigate the attendant effect of global warming.
2. Action should be adapted to climate change by reducing vulnerability to climate change impacts and increasing the resilience and sustainable well being of all Nigerians.

3. The Federal Government should make concerted efforts to reduce the impacts of climate change through adaptation measures that can be undertaken by the Federal, State and Local Governments, Civil society, private sector, communities and individuals, including measures that will:

a. Improve awareness and preparedness for climate change impacts
b. Mobilize communities for climate change adaptation actions
c. Reduce the impacts of climate change in key sectors and vulnerable communities.
d. Integrate climate change adaptation into national, State and Local Government planning and motivation of universities, research and educational organizations, civil society organizations, the private sector and the media to embark on innovative research to contribute to practical solutions.

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