CLIMATE CHANGE AND THE NIGER DELTA EXPERIENCE

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Abstract

Prior to the discovery of oil in commercial quantities in 1956 at Oloibiri in Rivers State and its subsequent production on a commercial scale in 1958, Niger Delta states, especially Rivers and Bayelsa, were the home of many immigrants. Rich natural endowments in the states were the main source of attraction that prompted the migration of people to the Niger Delta region in search of arable land for arable framing, trade, and jobs (Obodoegbulam, Kpe, Amadi, & Ngbara 2019). Regrettably, the reverse is now the case, as the Niger Delta communities are forced to migrate to other regions and countries as a result of gross environmental damages and ecological disasters occasioned by oil spill, gas-flaring and greenhouse gas emissions arising from indiscriminate oil and gas exploitation in the region. The main thrust of this paper is to demonstrate the impacts of climate change on Niger Delta region. Attempts are made to suggest measures to be taken to rise to the challenge of climate change in the region. To this end, the rest of this paper will conceptualize climate change and explain its causes and effects. It will thereafter show the impacts of climate change on Niger Delta region. Finally, the paper will give concluding reflections.

Keywords: Climate Change, Niger Delta, Nigeria, Africa, Environment

Introduction

Climate change is a global phenomenon that poses an impending danger to humanity. It is human made and its impacts are global in scale, affecting global stability. It occurs when there is a rise in atmospheric temperature precipitated by the cumulative level of greenhouse gas concentrations and emissions. Greenhouse gases (GHGs) are gases in an atmosphere that "absorb and emit radiation within the thermal infrared range" (Nwaonicha, 2018, para 1.). They absorb infrared radiation from the earth leading to rise in atmospheric temperature.

Although GHGs occur naturally and are indispensable for the survival of human and millions of other living things since they block out some of the warming of the sun from being thrown back in the space, and make the Earth liveable, their quantities have risen to an unprecedented scale in three million years as a result of industrialization, deforestation, and large scale agriculture (United Nations, n.d.). Increase in average global temperature was observed since the mid-twentieth century in the wake of increasing concentrations of greenhouse gases. Since the emergence of global warming, atmospheric temperature has risen between 0.4 and 0.8℃ in the last 100 years (IPCC, 2005).

Prior to the discovery of oil in commercial quantities in 1956 at Oloibiri in Rivers State and its subsequent production on a commercial scale in 1958, Niger Delta states, especially Rivers and Bayelsa, were the home of many immigrants. Rich natural endowments in the states were the main source of attraction that prompted the migration of people to the Niger Delta region in search of arable land for arable framing, trade, and jobs (Obodoegbulam, Kpe, Amadi, & Ngbara 2019). Regrettably, the reverse is now the case, as the Niger Delta communities are forced to migrate to other regions and countries as a result of gross environmental damages and ecological disasters occasioned by oil spill, gas-flaring and greenhouse gas emissions arising from indiscriminate oil and gas exploitation in the region.

The main thrust of this paper is to demonstrate the impacts of climate change on Niger Delta region. Attempts are made to suggest measures to be taken to rise to the challenge of climate change in the region. To this end, the rest of this paper will conceptualize climate change and explain its causes and effects. It will thereafter show the impacts of climate change on Niger Delta region. Finally, the paper will give concluding reflections.

Meaning of Climate Change

Climate change is a periodic modification of Earth's climate system occasioned by interaction between the atmosphere and other factors, especially chemical and geographic factors, within the Earth system (Jackson, 2019). Climate change occurs when there is a long-term change in typical weather patterns in a place. It is a variation in general weather conditions over a long period of time in a particular area, resulting in an increase in average temperature of the Earth's surface and of the Earth's near-surface air.

Climate change refers to "seasonal changes over a long period with respect to the growing accumulation of greenhouse gases in the atmosphere" (UAE

Government, 2019, para. 1). Climate change can sometimes be called global warming – the rise in average global temperature.

Causes of Climate Change

There is a consensus among the scientists that climate change is mainly precipitated by the burning of fossil fuels such as coal, oil, and natural gas. Burning of fossil fuels emit carbon dioxide (CO_2) and methane (CH_4) and other harmful greenhouse gases such as water vapour, nitrous oxides, ozone, and fluorinated gases (halocarbons) which include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride. Scientists have established that CO_2 which is largely the product of burning fossil fuels accounts for about two-third of GHGs (United Nations, n.d.).

When GHGs are released into the air, they trap heat energy from the sun or above the Earth, leading to the gradual rise or warming in the temperature of the Earth's atmosphere and oceans. This is known as greenhouse effect. Therefore, climate change is caused by increase in atmospheric temperature in the wake of increased amounts of greenhouse gases around the Earth or in the air. Thus, a steady rise in greenhouse emissions and concentrations leads to global warming or an increase in average global temperature.

Climate change can also be caused by other human activities such as industrialization, deforestation, and large scale agriculture which contribute to increased quantities of greenhouse gases in the atmosphere. GHGs that emanate from industrial activity are mainly sulphur hexafluoride, HFCs, PFCs, and nitrous oxides. Agricultural activities such as clearing of land, the combustion and decay of organic matter increase atmospheric CO_2. Thus, climate change is predominantly caused by anthropogenic (human-induced) greenhouse gas emissions.

Effects of Climate Change

Climate change has deleterious effects on ecosystem – all the animals and plants in a particular area together with the complex relationship that exists between them and their environment. Its effects include, but not limited to, rising sea levels, extreme heat and cold, harsh weather events like severe drought and additional rainfall. An increase amount of carbon dioxide in the atmosphere results in ocean surges and acidification. Rising sea levels are precipitated by

melting of the polar ice caps caused by warm climate. Rise in sea level changes the amount and pattern of precipitation, including expansion of subtropical deserts, changes in frequency and intensity of severe weather events, changes in agricultural yields, and species extinctions (Nwaonicha, 2018).

When the ocean temperature is warm, it could engender frequent severe storms leading to catastrophic flooding, displacement of people from their homes, destruction of lives and property, destruction of natural habitat, and so forth. Besides, plants and animals are deprived of sufficient water needed for survival when there is severe drought, thus exposing them to wildfire. Hence, the United Nation's Intergovernmental Panel on Climate Change (IPCC, 2014, as cited in Vanguard Nigeria, 2014, para. 6) warns that "rising greenhouse emissions will 'significantly' boost the risk of floods while droughts will suck away sustainable water supplies."

Nwaonicha (2018) summarily states that seven indicators that would increase in a warming world are sea level, humidity, tropospheric temperature, sea surface temperature, temperature over oceans, ocean heat content, and temperature over land, while three indicators that would decrease in a warming world are sea ice, snow cover and glaciers. By International Energy Agency's assessment (as cited in Nwaonicha, 2018) greenhouse gas emissions will be up to 130% by 2015 if the alarming rate of the emissions is not reduced.

The Impacts of Climate Change on Niger-Delta Region

Climate change presents a serious threat to life, property, security, peace, and development in the Niger Delta Region. Niger Delta has had more than its fair share of adverse effects of climate change due to enormous oil spillage, excessive gas-flaring and the proliferation of greenhouse gas emissions arising from oil and gas exploration and production. Excessive greenhouse gas emissions arising from burning of fossil fuels warm the earth surface (land and oceans) of the region which has deleterious effects on crop production, livestock rearing, fisheries, and forestry. Anthropogenic distortion of climate has thus brought ecological disasters for the coastal region. Niger Delta region has the highest kilometre (km) of coastlines in Nigeria. Bayelsa/River States (390km), Delta State (126km) and Akwa Ibom/Cross River States (108km) constitute 712 km of 960 km of coastlines in the coastal states of Nigeria (Ayansanwo, 2003).

Fishing and farming are the major sources of livelihood for many people in the region. Increased amount of carbon dioxide in the atmosphere arising from the burning of fossil fuels in the region causes ocean acidification – decline in the pH

of oceans due to high temperature. Atmospheric carbon dioxide dissolves into oceans, rivers and lakes, and reacts with water to form carbonic acid, resulting in carbonic acid molecules. Some molecules split into bicarbonate ion and a hydrogen ion which cause a surge in ocean acidity. Consequently, aquatic life of organisms and the entire marine ecosystems are threatened. In the long run, aquatic organisms are decimated.

This accounts for drastic reduction in fish catches which means decline in fish production or supply of fish from the region with its concomitant loss of income and widespread poverty in the region. Salt water intrusion coupled with flooding pollutes streams and make water unsafe for drinking, thus leading to portable water shortage. Sample water examined in April 1997 which was taken from water used for drinking and washing by villagers in Luawii in Ogoniland, Rivers State revealed that water contained 18ppm of hydrocarbon which was 360 times the level allowed in drinking water in the European Union (Nnoli, 2006). Again, an analysis of a sample of drinking water taken from Ukpeleide, in Ikwere Local Government Area in Rivers State showed that the water contained 34ppm which was 680 times the European Union standard (Human Rights Watch, 1999, as cited in Akpuru-Aja, 2007, p. 103). Therefore, pollution of stream water does not only destroy aquatic life of organisms and deny fishermen their source of livelihood, but also make water unsafe for drinking.

Besides, excessive greenhouse gas emissions and gas flaring, which released methane that has a higher warming potential than carbon dioxide, make the Niger Delta region most vulnerable to the potential effects of rising sea levels (Akpuru-Aja, 2007). Ocean surges as a result of a surge in atmospheric carbon dioxide and warm climate lead to catastrophic flooding, erosion of farmlands, salination of irrigated farmlands, sand deposition, and damage to general soil fertility (Idowu et al, 2011). Frequent severe storms occasioned by ocean surges in the wake of warm climate often result in loss of housing units, farmstead stores, post-harvest sheds, poultry/piggery sheds, forest resources, and so forth (Idowu et al, 2011).

Flooded farmlands or wetland expansions lead to loss of arable land for crops within the areas with limited crop facility capacity, thereby reducing vegetable or root crops production (Idowu, Ayoola, Opele, & Ikenweiwe, 2011). Related to this are the excess rainfall, high temperature and high humidity due to climate change. Variations in the pattern and frequency of rainfall and flood precipitated by greenhouse gas emissions increase the incidence of pests and diseases, which go haywire under severe weather events, resulting in decline in crop harvests.

Thus, high rate of growth of parasites living in or on livestock due to climate change has led to an increase in livestock mortalities and a reduction in the volume of livestock production in the region.

Destruction of farmlands, soil fertility, marine ecosystems, biodiversity, housing, and natural ecology in the region have brought about the displacement of the Niger Delta communities and forced migration, while the remaining poor masses are plunged into misery on a vast scale. Alade (2019, as cited in Olowale, 2019) notes that over 14 million people have been displaced in Nembe, Eket and other coastal settlements in Bayelsa, Delta, Cross River, Rivers and so forth, on account of climate change. The remainder of poor inhabitants in the Niger Delta region are being ravaged by extreme hunger due to food insecurity. Water scarcity exposes them to water-borne diseases, while severe rainstorm and wind have killed hundreds of people and destroyed property worth billions of naira (Alade, as cited in Olawale, 2019).

The above-stated deleterious effects of climate change on the Niger Delta region combined with decades of developmental neglect by the forces (state officials and petrobusiness actors) that control the Nigerian State are responsible for the eruption of conflict and violence in the region as well as a struggle for resource control over time. The crisis is compounded by political posturing and egocentricity of petrobusiness actors (the petrobusiness class, the middle class and foreign capitalists) created during years of military rule (Nnoli, 2006). While the foreign capitalists invest in the petroleum sector, the petrobusiness class and the middle class "use the state to get and execute public contracts" (Akpuru-Aja, 2007, p. 108).

Akpuru-Aja (2007) notes that it is widely speculated that the petrobusiness actors play double standard to preserve the parochial lines of petrobusiness activities in the region. On the one hand, they provide the community militant youths with arms to support the youths' demands from the government and multinational oil companies. On the other hand, they allegedly hire armed youths to safeguard the activities of the multinational oil companies against hostility by the community militants youths (Akpuru-aja, 2007).The petrobusiness actors therefore seems to perpetuate violence in order to protect their private interests and ensure continuous exploitation of oil and gas in the region, mindless of the plight of the host communities.

Political and ruling elites of the Niger Delta region, who are part of the petrobusiness and middle classes, are also complicit in the impoverishment of

the masses in the region. They exploit the youths' struggle for resource control to negotiate a good deal with the government on resource sharing and get public works contracts, while the issue of environmental degradation, displacement, and ecological disasters with all their concomitant widespread poverty and endemic diseases are left unattended. There is a general feeling that the ruling elite of the region collude with the government officials to embezzle funds earmarked for the development of the region, as they have privatized the instrument of the state to pursue their selfish interests "through public works contracts and outright misappropriation of public funds" (Ibeanu, 2009, p. 22).

The findings of a study of oil revenue governance in the Niger Delta region by Ibeanu and his colleagues indicate that development has failed in the region due to lack of accountability, transparency, public participation in development programmes and spending, and so forth (Ibeanu, 2008, pp. 32-33). It is paradoxical that oil wealth has created poverty in the region – the major source of oil wealth – and the economic growth achieved through oil wealth has underdeveloped the region (Ibeanu 2009). In this regard, Nwosu (2009, p. 546) laments that "the oil which has brought so much wealth to the multinational oil companies and the Nigerian State has at the same brought to the people of the Niger Delta untold poverty, disease, persistent pollution, ecological and environmental degradation."

The impacts of climate change on Niger Delta region as a result of indiscriminate oil and gas exploitation can be summed up in the following words of Gewirth (1984, pp. 560-561):

> The poor are made to pay for the advances in technology over which they have had no control, while the controllers of industry and enterprise who have created and understandably used these advances have been freed from all responsibility for the resulting deprivations. In this regard, the deprivations are what economists call 'externalities', which also include the air and water pollution and other harmful effects produced by the unregulated operation of large-scale industry.

Concluding Reflections

We have stated in this paper that climate change is precipitated by too much concentration and emissions of greenhouse gases in the atmosphere as a result of human activities, especially fossil-fuel combustion. We argue that the burning of

fossil fuels arising from oil exploitation in the Niger Delta region is mainly accountable for environmental degradation, desertification, widespread soil erosion, destruction of aquatic life of organisms as well as farmlands and, above all, destruction of ecosystems of the region, resulting in shortage of food and water supply, displacement of the host communities, forced migration, economic, conflicts and violence.

For ecosystems to adapt naturally to climate change and to ensure that food and water are not shortened further, Nigeria government must minimize the proliferation of greenhouse gas emissions at a threshold that would forestall indiscriminate human-induced interference with the climate system (UNFCCC, 2019). This can be achieved by formulating and implementing effectively climate change policies, and taking measures to clampdown indiscriminate and mindless exploitation of oil in the Niger Delta. As the nation strives to industrialize by means of burning fossil fuel, gas flaring, and agriculture, it must tread cautiously and properly to preserve ecosystems in the region and save the community from imminent decimation. In the light of this, Bello rightly states that an approach to climate action should be guided by this consideration: "the need to be pragmatic and sustainable: we bear in mind the costs and the trade-offs involved and thereby adopt policies that balance both economic growth and sustain the environment (2013, para 7.)

The major challenge of transforming the Niger Delta narrative is treading on the toes of corrupt and self-serving government officials and Niger Delta elite who are complicit in the impoverishment of the Niger Delta communities. However, it is expedient to fight systemic corruption and unbridled greed in the exploration of petroleum in the Niger Delta region which violate the communities' sense of fair play and engender their growing clamour for resource control. Niger Delta communities are in dire need of long-term prospects for food and water security. The current amnesty granted to all former militants is just a short term palliative that only brings a fragile peace in the region. The emergence of new militant youths demanding for amnesty or resource control is looming on the horizon and another group is bound to emerge thereafter. The trend will continue unabated with all its attendant conflicts and violence.

As a matter of great urgency, the government needs to focus more on introducing, developing and promoting renewable energy sources like solar, domestic waste management, water management and purification, and climate-smart agriculture (Alakija, 2019) to ensure environmental sustainability and arrest the worsening food and water shortages in the region. Beyond this, given

that climate change is a global phenomenon that poses a global security threat, it requires global and multilateral cooperation from all relevant stakeholders. In this regard, Yusuf urges "world leaders, policy makers, governments and corporate organisations to work together in a bid to tackle the threat posed by climate change" (2019, as cited in Adegboye, 2019, para. 1.). Nigerian government must remain open to international cooperation and assistance in mitigating the deleterious effects of climate change in the Niger Delta region.

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