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Climate Change in the Niger Delta: Implications for Food Security

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Abstract

This paper examines climate change manifestation in the Niger Delta and its implications on food security. It recognises unpredictable rainfall patterns and flooding as major manifestations of climate change in the region. The paper is based on the Marxist theory of Ecology. The theory is an integration of Marxist ideas and ecology; it attributes contemporary global ecological changes on the advanced capitalist societies of the world and holds that capitalism cannot be reformed along ecological lines. The paper generates data from primary and secondary sources like focus group discussion, key informant interview, journal articles, book and book chapters, among others. It argues that the flaring of gases and deforestation feature prominently among the anthropogenic factors that contribute to climate change in the Niger Delta. This manifests in flooding and unpredictable rainfall patterns. Since agriculture is climate-dependent, crop yield is threatened.In addition to the fear among farmers owing to the frequent violent contestations among farmers and herders who had been forced to migrate because of climate change manifestations in the North. The paper recommends that mass enlightenment programmes are required to discourage people from engaging in acts that contribute in the emission of greenhouse gases (GHGs) in the region.

Keywords: Climate Change, Food Security, Greenhouse Gases, Niger Delta

Introduction

The recognition of climate change dates back to about the year 1850, following the accumulation of greenhouse gases (GHGs) into the atmosphere(FAO, 2008). Researchers have shown that the causes of climate change are both bio-geographical and anthropogenic; however, a larger amount of the alterations is credited to humankind (Bello et al., 2012; Ladan, 2014; Nzeadibe, et al., 2011). Thus, the activities of man have increased the emissionof GHGs into the environment, with the earth's temperature having increased by over 0.74 degree Celsius within the last century(M. S. Islam & Wong, 2017).

Whereas, globally, emissions had amplified from 15.3 billion tons in 1970, to 22.5 billion tons in 1990, and further to 33 billion tons in 2012 (Vogler & Lamy, 2013), the augmentation in carbons into the atmosphere is not only liable for climate change, but also for the co-operations among international actors with the aim ofcuttingits rise. Thus, in 1992 the United Nations Framework Convention on Climate Change (UNFCCC) was signed in Brazil, resolving to cut the emissionof GHGs (Vogler & Lamy, 2013). They further argue that part of the challenge that has negated the alleviation of climate change is the character of global politics, but warned that despite being a shareddilemmait is distinct from priorworldwide challenges as it influences all aspects of human life.The problem with climate change is that it is not just ecological, butthreatensvariousfacets of life(Bello et al., 2012; Ibaba, 2014). Ibaba (2014) argues that it has caused not just environmental, but also socio-economic and political challenges across the globe.

In the Niger Delta, rainfall is unpredictable with recurrentproblem of flooding, while, in Northern-Nigeria there is reducedrainfall, thus, desertification and drought (Ladan, 2014). The environment in the delta is essentially coastal, with enormous deposits of oil and gas, unfortunately most of which is flared (Nzeadibe, et al., 2011, Uyigue & Agho, 2007). Thus, leading to the emission of carbon dioxide (CO_2) and other GHGs, validating the position of McGregor (2008, p. 286) that "a further issue to be confronted is the rise in atmospheric CO_2", which is regrettably the reality in the area. The aim of this paper is to examine climate change in the Niger Delta, and the implication it has on the security of food in the region.

Theoretical Underpinning: The Marxist Theory of Ecology

This paper adopts the Marxist theory of ecology as the theory of choice. The Marxist theory of ecology is a union of Marxist ideas and ecology, thus, an integration of class relations, as well as, man and his environment. The theoryobjects to the capitalist positionthat the environment (nature) should be treated as a 'resource heaven' monopolised for private benefits. Marx wrote about 'alienation', basically alienation of labour which is inseparable from the alienation of man from the environment (Foster, 2015).

Marx argued truly that man is a product of his environment and as such, how man handles and manages his ecological space determines what is gotten from the environment (Foster, 2000). The Marxist theory of ecology therefore, emphasizes that the environment must not be exploited and destroyed. The theory insists on the respect and due care for the environment.

It is an environmental critique of capitalism, a criticism of capitalist exploitation of the environment. Whereas, capitalism brought about growth, this growth and the ecosystem tend not to be having a meeting point (Aswathy, et al., 2018). The Marxist theory of ecology draws from traditional Marxist ideas. Marx's idea of ecological crisis, which he termed the metabolic rift, is the foundation upon which the theory rests. The foremost advocates of this theory are Foster, who pointed to the metabolic rift which exists between man and nature, others are O'Connor, Clark.

The perspective holds that the foundation for today's ecologically problematic world rests with the advanced capitalist societies of the world; and that capitalism cannot be reformed along

ecological lines because environmental degradations are results of capitalist production (Konak, 2008).

Like other theories of Marxism, the Marxist theory of ecology provides an alternative path to development, in this case, one that is not detrimental to the environment. Significantly, the acknowledgment of environmental specifics is an added value to the theory. The environmental degradation that capital has thrown today's world into was predicted by Marx, when he asserted that the air would lose its freshness, as pollution lead, with man paying monumentally for destroying the environment (Foster, 2000).

The above assertion by Marx is the current reality of the Niger Delta, as air had since lost its freshness as people suffer from the environmental degradation linked to activities of industries. The continuous emission of GHGs has created 'enmity' among man and nature. So, as the climate crisis continue, the Niger Delta is positioned on the 'victim's seat' because agriculture (the main occupation and basis of living to the populace) is threatened severely, thus, they are left to cope amidst the sad reality that not much is done to halt the continuous mess on the environment nor to ameliorate their plight. The environment friendly view of this theory informed its adoption as theory of choice.

Methodology

The paper adopts the descriptive research design as its research design. The descriptive research design concerns the accurate measurement of events and entails the qualitative scrutiny of documentary evidence (Nwankwo, 2015). The study area is the Niger Delta, which is situated in Southern Nigeria's Atlantic Coast, where the River Niger partitions into tributaries, with a landmass of 112,110 kilometers(Ibaba, 2012, 2017). The region is made up of Abia; Akwa Ibom; Bayelsa; Cross River, Delta; Edo; Imo; Ondo; and, Rivers States(Ibaba, 2012, 2017)and several ethnic nations like the Ijaws, Ogoni, Ibibio, among others. The population of the Niger Delta based on the 2016 population projections by the National Population Commissionis 42,637,086 (NBS, 2018). Data were generated from primary and secondary sources, specifically, Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), journal articles and other documentary evidences. Samples for this paper were derived from Rivers and Bayelsa States. The purposive sampling technique was adopted as the sampling technique, which was utilized for the FGDs and the KIIs. For the FGDs, Community Development Committee (CDC) members, youth leaders, women leaders, civil society members and peasant farmers for the FGD were purposively chosen. For the KII, an official from the Federal Ministry of Environment (FME) and two environmental right activists were chosen purposively for interviews.The generated data were analyzed qualitatively.

Climate Change in the Niger Delta

Climate change is universal, yet its impacts are unique to the different regions of the world. Whereas, it threatens Northern Nigeria in desertification, the Niger Delta experiences unpredictable rainfall (Uyigue & Agho, 2007). By her geographic elements and the industrial activities (in the energy sector) which happen at a high level, the region is positioned to suffer from the ravaging impacts of climate change (Onwuenele, 2015). Prior to the exploration of oil

and gas in the region, agriculture was the main source of livelihood of the people, however, it is still the main source of livelihood as over 65% of the people derive their livelihood from the natural environment of the delta (Onwuenele, 2015). Like in other parts of Nigeria and Africa, agriculture is climate-dependent, and as such, changes in climatic conditions are bound to have implications on the growth and development of farm produces and aquaculture from the region.

Furthermore, as Northern Nigeria is plagued with desertification, owing to climate change, there has been a continous exodus of herds and herdsmen from the North towards the Delta and other areas of Southern Nigeria in search of pasture for the herds. Whereas, the migration of herds and herders from Northern Nigeria to the South is not new, recent migrations have been charcterized with violence and are no more seasonal but frequent. As herders and their herds migrate into the Niger Delta, farms and plants of indegenous farmers are not spared, as food crops are eaten and destroyed by the herds, which in most cases leads to violence. As this ugly trend continues, agriculture which is the means of livelihood to the (local) people is put in a position of vulnerability as indegenous farmers are forced to stay off the farm for the purpose of preserving their lives; and this in turn affects the availability of food crops produced from the farms and as such, creates scarcity, hence access (econmic) to food is further jeopardized.

Climate change manifesting in flood can be very devastating for farmers, as the propencity of anguish and economic losses suffered by farmers can be very heavy. Nemine (2015) argues that the flood that ravaged Nigeria in 2012 was quite devastating for the entire Nigerian State and the Niger Delta in particular, as a result, the economic losses were heavy, thus, affecting food storage, processing and marketing.

The causes of climate change in the Niger Deltaare majorly anthropogenic, its reality and manifestation are undeniable and are traceable todeforestation, gas flaring, bush burning, transport emissions and other varieties of pollution in the region. Some of the FGD participants posit that oil and gas industries activities and artisanal refining are major causes of changes in the region.They opinedthat the deforestation by state and non-state actors in the region, together with the immeasurable flaring of gas from oil and gas activitiesareresponsible for the changes noticed in the environment. They further imagined that the unhealthy disposal of solid and industrial wastes also makes serious contributions (FGD, 2021).

Similarly, the key informants share the opinion that climate change in the Niger Delta is primarilycaused by anthropogenic factors. For instance, Dr. Patterson Ogon of the Ijaw Council for Human Rights saidit is caused by gas flaring, industrial wastes, bush burning and farming. Friday Ikomah of the Federal Ministry of Environment thinks that deforestation and illegal bunkering activities in the delta is guilty for it. Nnimmo Bassey of the Health of Mother Earth Foundation (HOMEF) argues that its causes are universal; with transportation, deforestation, agriculture, and gas flaring which all leads to the discharge of GHGs. Ikomah summed up that “the totality of human activities arising from deforestation, from conventional and unconventional (illegal) industrial activities in the region is what causes climate change in the Niger Delta.” Since gases are flared uninterruptedly in the Niger Delta in particular and Nigeria in general, the Department of Petroleum Resources (DPR) report (2018) shows some measure of progress as the proportion of flared gas tend to reduce as the year goes by. However, the

percentage of flared gas(es) is still highin the region. The table below reveals the percentage volume of flared gas (2010-2018).

Table 1: Flared Volume as a Percentage of Associated Gas (AG) Production

Years	AG Production, Mscf	Total Gas Flared	
		Mscf	**%**
2010	1,865,159,719	544,728,832	29.21
2011	1,839,230,068	503,944,277	27.40
2012	1,872,875,894	465,256,639	24.84
2013	1,786,603,702	427,971,368	23.95
2014	1,880,374,658	393,839,836	20.94
2015	1,740,550,000	330,933,000	19.01
2016	1,517,667,415	288,917,198	19.04
2017	1,700,929,721	324,192,401	19.06
2018	1.716,822,031	321,290.35	18.71

Source: DPR (2018, p. 54)

The total GHGs emitted in Nigeria in 2014 was 492.44 metric tons of CO_2 equivalents ($MtCO_2e$) which was 1.01% of the global total (48,892 $MtCO_2e$). Interestingly, the national figure comprised of 38.2% from land use change and forestry, 32.6% from the energy sector, 14% from waste, 13% from agriculture and 2.1% from industrial processes. However, the 38.2% of emissions from land use change and forestry were mainly from degradation and loss of the forest (Climatelinks, 2019).

According to Kaddo (2016) the causes of climate change are GHGs, which are mainly from human activities, also called anthropogenic factors. Although emissions also arise naturally, but most of the emitted GHGs into the atmosphere are traceable to man's actions. Interestingly, GHGsemissions have been constant and without any measure of restraints, thus,heat is trapped in the ambiance following the unhindered flaring of GHG (in the regions). According to the Federal Ministry of Environment (2010) Nigeria's (and indeed the Niger Delta's) GHGsemission involvement is small, if compared to those of other countries. However, these emissions are chiefly from the energy and industrial sectors, with the Niger Delta hostingmost of such activities.

This paper reveals that the causes of climate change in the Niger Delta are mainly anthropogenic. Specifically, deforestation, bush burning, gas flaring from the energy sector, poor waste management patterns and transport emissions contributes to it. This finding is in harmony with Egbivwie et al. (2017) whose study on environmental implications of climate change on coastal areas of the Niger Delta found that flared gases and other forms of carbon emission are the major contributors to climate change in the region

Climate Change in the Niger Delta: Implications on Food Security

Scientists hold that climate change will continue to ravage the world; as a result, local communities of the Niger Delta will experience further dwindling production of food, which is an obvious threat to the security of food as hunger and malnutrition would prevail and food prices moving beyond the reach of the indigenous people (Onwuemele, 2015). This is because as the climate changes, agriculture though a major contributor to climate change, is severely impacted, particularly in regions whose agricultural practice is still climate-dependent.

Furthermore, whilst the impact of climate change could differ from one place to another, with Northern Nigeria being plagued with drought and desertification, the Niger Delta despite not experiencing drought nor desertification becomes a casualty as the nomadic farmers from the North are forced towards the delta in search of pasture for their herds (Ojuederie & Ogunsola, 2017). This migration had since brought about mass killing of farmers on their farms as it tends to create competition for land between cattle herders and indigenous farmers (Lebari, 2018), therefore, making farming in the region fearful, as the safety of the farmers seem far from guaranteed, whereas, herders carry weapons around in the farms/bushes. The above trend jeopardizes the food security ambition of the Niger Delta, particularly in the manifestation of climate change, as farmers are forced to abandon their farms to preserve their lives, therefore reducing the quantity of food produced and making too many persons chasing quite a few produced foods.

The FGD participants argued that their people put in so much effort to grow food, but despite their efforts, crops struggle, therefore making farming less attractive and lucrative, thus most young people are exiting the farming profession and indigenous people are struggling to eat foods that are alien to them; most of which are unaffordable to most of the local farmer and people. They further observe that the living of some people rests on fishing, but their livelihood option had been exposed to huge threat because of climate change and environmental degradation in the region; insisting they were self-sufficient (years back) in their fish and other sea-food needs, but are now left to the mercy of supplies from elsewhere (FGD, 2021).

Ikomah opined that climate change has altered the land tenure system in the region, and this is manifest in unpredictable patterns that rainfall had since assumed in the region and the heat component that makes farmers spend less amount of time on the farm, he explained that it affects food security in the sense that “the rains have been quite unpredictable and the interface between the raining and dry season are closing gaps. Also, the heat component affects the quality of time that the local farmers can put in on their farms; as they suffer from dehydration arising from the heat waves from the ozone layer depletion” (KII, 2020). Ogon observed that climate change and pollution are liable for the unavailability of certain food crops and fish species local to the natives of the region and they are left without choice other than accepting alternatives brought as replacements for their local species. Also, he furthered that “because the flooding occurs and tends to stay for a longer period, crop production and fish farming are most often put on hold, or leaves the farmer with limited than usual time for sowing, as well as, creates a situation in which

local farmers are left with no option but to harvest their crops before they are due for such harvests" (KII, 2020).

Similarly, Bassey observed that climate change has brought about loss of land, and due to the distinctive setting of the region, "it has been established that the region is sinking" which means reduction of required land for cultivation. He further observed that deforestation goes on unabated, therefore, mix cropping which is the popular farming method is affected, and this is happening alongside the devastation of the Niger Delta ocean, which affects the people as they have affinity with the water as their livelihood is tied to the sea foods from the water. He stated that "communities that use to grow their food and harvest their sea foods from the water around them, now have to depend on imports to meet their food needs". This situation has madethe people to eat certain foods, such as noodles which use to be alien to them. Furthermore, Ogon observed that as climate change ravages, "the rich get the gains, while the poor bear the pains".

The FGD participants and the interviewees agree that climate change affects food security and that the poor are the most affected of the impacts thereof. To buttress the point above, FAO (2008:) hold that the 'risk absorption capacity' of the underprivileged people globally (and indeed the Niger Delta) is at a limited level, thus, "they are unlikely to be able to cope with the added risk of climate change", therefore the poor are faced with more uncertainties and they and their source of revenue are vulnerable. The IPCC (2014) argues that socially disadvantaged people, like those who suffer class discrimination are negatively hit by this impact. It affects the class of rich and poor differently, mostly in the rural communities because the underprivileged only own a handful of farms meant for their subsistence; hence, they suffer more when food is inaccessible, expensive or poor in nutritional value. Meanwhile, the rich own most of the land, meaning they own the surplus crops that make their way to the market, therefore profiting from the hike in food prices and food scarcity.Islam and Winkel (2017) observe that in emerging economies, the poorest family units spend over 60% of their earningson foodstuffs, whereas, the rich and wealthy spend only about 25% on same. In the Niger Delta, Onwuemele (2015) submits that food prices are rising alarmingly to heights unaffordable for the family units. Similarly, the poor peasants and farmers in the Niger Delta struggle daily to meet their food needs, yet, climate change further worsens their ugly situation.

Conclusion

Climate change and its risks on food security in the Niger Delta is deep-rooted in the capitalist character of the world in which the desire for profit is ranked above other concerns like the health of the people and the environment. So, whereas the emission of GHGs in the region continues, the interest of the people is forced under the capitalist interest of profit. Deeply-rooted here is the underprivileged and oppressedwho do not control the means of production being endangered from the continuous flaring of gas in the region, yet, the state has remained indifferent despite her rhetoric about climate change, as the emission of GHGs continues on a daily basis, with the state supporting tacitly, therefore, exposing the region further to the dangers of climate change, particularly, as it links to food security.

The causes of climate change in the region are mainly anthropogenic. Specifically, agricultural practices like bush burning, and deforestation; gas flaring from the energy sector, poor waste management patterns and transport emissions contributes to it. As these factors continue, the farming and food sector is threatened and weakened.

Recommendations

The paper recommends the following:

1. The government should introduce the orientation of farmers on the import of discontinuing certain farming practices like bush burning in the region. These practices are normal among farmers and they happen at significant levels.
2. The government should be committed to ending gas flaring or reducing it to a bearable minimum. This is achievable considering the financial benefits the state stands to gain from the gas that is wasted daily through flares, as it will become a commodity and the Niger Delta people and environment would be better as well.
3. The government should support and train local farmers in region with the right (modern) tools (local and international) and technology to cope with the challenge.
4. The government and communities should deliberately undertake a massive reforestation drive in the region.
5. The need for mass enlightenment to discourage people from engaging in acts that contribute in the emission of GHGs in the region.

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