

ESTABLISHING THE NEXUS BETWEEN CLIMATE CHANGE, FORCE MIGRATION AND FOOD PRODUCTION/SECURITY IN NIGERIA: RESEARCH OBSERVATIONS OF HISTORIAN AND AGRICULTURIST

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Abstract

This research tries to interrogate the readiness of Third World countries for the challenges facing climate change, the consequences of this climate change will affect more than 200 million people which make fish resources severely reduced and other species migrate which makes inhabitants even more miserable. Coastal communities can also be displaced by rising sea levels and will be forced to find new housing and new livelihoods. This will pose new risks to food security, food security and human health. Using a qualitative approach and historical research methods to find past experiences to solve this problem. This research results that most of the damage to the ecosystem is done by humans to survive without paying attention to environmental factors and we also find history. Experts have realized the importance of forests as an antidote to climate change, but the implementation in the field of protection is still lacking.

Keywords: Climate Change, Coastal Communities, Food Production, Nigeria

Abstrak

Penelitian ini mencoba untuk menginterogasi kesiapan negara-negara Dunia Ketiga dalam menghadapi tantangan perubahan iklim, akibat dari perubahan iklim ini akan mempengaruhi lebih dari 200 juta orang yang menyebabkan sumber daya ikan berkurang drastis dan migrasi spesies lain yang membuat penghuninya semakin sengsara. Masyarakat pesisir juga dapat terlantar karena naiknya permukaan laut dan akan terpaksa mencari perumahan baru dan mata pencaharian baru. Ini akan menimbulkan risiko baru bagi ketahanan pangan dan kesehatan manusia. Menggunakan pendekatan kualitatif dan metode penelitian sejarah untuk menemukan pengalaman masa lalu dalam memecahkan masalah ini. Hasil penelitian ini bahwa sebagian besar kerusakan ekosistem dilakukan oleh manusia untuk bertahan hidup tanpa memperhatikan faktor lingkungan dan juga kita temukan sejarahnya. Para ahli telah menyadari pentingnya hutan sebagai penangkal perubahan iklim, namun implementasinya di bidang perlindungan masih kurang.

Kata Kunci: Perubahan Iklim, Masyarakat Pesisir, Produksi Pangan, Nigeria

INTRODUCTION

Food Production and Security is used in this paper to refer to human activities tied to agricultural practices aimed at providing for the human society. It is in line with this that the paper defines Food Production The art and science of soil cultivation, livestock production, livestock feed preparation, human processing of crops and livestock, and the process of selling excess crops and livestock. This ensures adequate production and equitable distribution of food, as well as the establishment of a national food production and distribution system, regional and household food security system that will guarantee availability of, and reasonable prices for food at all times, irrespective of periodic fluctuations and vagaries, of weather (Ikymbe, 2012). In Nigeria, this process contributes 40 percent of the Gross Domestic Product (GDP) of the nation, which, in practical terms, means contributing more than oil, construction, banking and

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tourism to the nation's total production wealth. Experts have argued that oil contributes only 15% to the nation's GDP in economic terms., while food production industry/production make up for the rest (Okogie, 2012).

Studies have shown that climate change is a normal part of the natural variability of the Earth, which is linked to atmospheric, ocean, and land interactions, as well as changes in the amount of solar radiation that reaches the Earth. This has been going on for decades, but what is alarming is the speed at which it happens. This has affected agriculture and other related economic activities worldwide in multiple ways. In the case of Nigeria, the situation is alarming due to people's neglect of early warning signs due to high-level corruption, neglect, poverty and lack of political will. The result is that while other nations have been able to experience the minimum impact through investment and control, Nigeria and Nigerians have been made aware of it, threatening not only food security, but also human existence (Emmanuel Osewe, 2012). This is because since the 2012 flood incident, the aquatic resources have become less abundant, while professionals complain that important species have moved to other areas where they are less available to the fishermen. Apart from this, livestock and other aquatic resources are exposed to new pest and diseases that flourish only at specific temperature and humidity

Several previous studies on food security in Nigeria have been studied by Adebayo & Ojo (2012), Eme et al (2014) and Matemilola (2017) has provided the initial foundation in the development of research in this field. However, no one has yet conducted an analysis through the history and phenomena of agriculture in Nigeria, for this reason this research will focus on these two things in analyzing the readiness of Third World countries, especially Nigeria to face the challenges of climate change that can affect national food security. This research can have an impact on Nigeria's food security and as a solution to dealing with extreme climate change.

RESEARCH METHOD

This research uses a qualitative approach with historical research methods (Law, 2012), this method is taken to find solutions for the future by looking at the habits of the past. besides this research also takes data from literature studies and cites various kinds of arguments from experts and government agencies to be used as primary data in this study (Creswell, 2014), besides that triangulation techniques are used to ensure that the data the author gets are facts and analyzed with analytical techniques content. Taking the object of research in the country of Nigeria because, this country has lost a lot of forest with a fast intensity of time and is expected to result in extreme climate change.

RESULTS AND DISCUSSION

History of Climate Change in the Nigeria Area

Available historical evidence suggests that climate change is not alien to the Nigerian area as evident in historical and archaeological relics pointing to this fact. One of the most significant of this evidence is as established by discovery of an ancient canoe dating back to over three thousand years (3000) located in about six hundred kilometers (600) away from the present day bank of the Lake in the Nigerian Territory (Kwanashie et al, 1988). Historians have argued that the result of the relics shows that it coincided with the period marking the beginning of the drying up of the Mega Chad. Smith (as cited in Kwanashie et al 1988), argued :

“Available historical documents have argued that the area under study, during the last 20,000 years or so, though free from tectonic movements, has been subject to sensational climate changes, and these have in turn brought about radical modification in the conditions of human life in the area, flora and fauna configuration of the region. Then after about 7,000 B.P., dramatic changes in climate appear to have begun in this region: changes which brought about not only a substantial alteration in the distribution of surface water, but also a series of revolutionary modification in the fauna and flora and consequently the conditions of human life. This process has continued down to recent time and may still be going on”

This view has been supported by recent report on the entire area by scholars, The report established thus:

“Africa's Sahara may have been 'the most dangerous place in the history of planet Earth', a palaeontological study has concluded. A team of international researchers found that what is today the famous desert region was home to 'ferocious predators' around 100 million years ago. At this time, the Sahara was a vast river system that played host to flying reptiles and crocodile-like hunters. The team reviewed fossils from a set of Cretaceous-age rocks in south-eastern Morocco referred to by experts as the 'Kem Kem Group'. They found that three of the largest predatory dinosaurs of the time lived in the Sahara at that time. These included the sabre-toothed *Carcharodontosaurus*, which was more than 26 feet (8 metres) long with enormous jaws and long serrated teeth each of which is up to 7.8 inches (20 centimetres) in length. Also living in the region was the 26 feet-long *Deltadromeus*, a member of the raptor family with long, slender hind limbs — as well as the predatory flying reptiles pterosaurs, and crocodile-like hunters. 'This was arguably the most dangerous place in the history of planet Earth,' said paper author and palaeontologist Nizar Ibrahim of the University of Portsmouth. The Sahara of 100 million years ago was 'a place where a human time-traveller would not last very long.' What did live in abundance in the region, however, was fish — on which the predators would have relied for food, paper author David Martill of the University of Portsmouth explained. 'This place was filled with absolutely enormous fish, including giant coelacanths and lungfish (Chadwick, 2020)”

The above is well supported by Archaeological findings which indict well watered and rich agricultural heritage of the area. According to lead author Sam Coatham of University of Bristol's School of Earth Sciences.

“A *Titanichthys* fossil that was found in the Sahara Desert confirmed the creature had a narrow lower jaw without the sharp edges needed for cutting. ...A giant fish that lived around 380 million years ago fed in a similar way to basking sharks, the second-largest living shark in the world today. The *Titanichthys*, from the class of pre-historic fish called the placoderm, was a suspension-feeder — it captured and ingested food particles suspended in water. The fossils also showed the creature's jaw wouldn't have supported the mechanical stresses needed to chew and bite. *Titanichthys* jaws were less resilient than those of other placoderm species that fed on large or hard-shelled prey during the so-called Devonian period — 140 million years before the first dinosaurs roamed Earth (Chadwick, 2020)”

From the account above, it is clear that the issue of climate change is actually not new to the area, what is however new is the rapidity at which it is taking place. According to experts the impact has a wide ranging effect such as direct-acting effects (e.g., heat wave-related deaths, weather disasters) or disturbances of complex ecological processes (e.g. changes in patterns of infectious diseases, in fresh water supplies, and in food production). It is in line with this that The United Nations Intergovernmental Panel on Climate Change (IPCC) in its fourth assessment report (Onwuliri, 2011), have submitted thus :

“globally the health status of millions of people is projected to be affected through, for example, increases in malnutrition; increased deaths, diseases and injury; increased burden of diarrheal diseases; increased frequency of cardio-respiratory diseases due to higher concentrations of ground-level ozone in urban areas related to climate change; and the altered spatial distribution of some infectious diseases”

It is thus clear that this changes brought about by climatic change, affects not only man but his environment, which is central to human continued existence. In this way, changes in the environment (both natural and man-made) affect his activities either to his the benefit or detriment. However, as far as the food production/security is concern the recent occurrence indicates that the nation may be heading for problem, especially owing to the level of erosion/flooding and subsequent lose of soil fertility.

Climate Change and Threat to Food Production

Agriculturalists have argued that climate and climatic conditions has a double effect on soil. Ahn (1970) opined that it has a direct influence on weathering, leaching and soil development, and it has indirect effects on soils through its influence on the nature of vegetation. From the study of the soil in the Nigerian area, Ahn (1970), argued that the impact of climate change affect it capacity to support food production adversely, due to excessive lose of soil nutrient which is necessary for bountiful production. In a more specific term, Ahn (1970) Continued thus

“Slightly to moderately leached soils may thus have lost all the more mobile elements, those which are removed in stages one and two, but retain all or most of their combined silica and sesquioxides. In extreme conditions, however, the silica is removed more than the sesquioxides. Further weathering, leaching and translocation therefore have the effect of reducing the quantity of silica in the soil and thus of causing the proportion of iron and aluminium sesquioxides left in the remaining material to increase. For this reason a very broad, general characteristic of highly weathered soils developed under hot, wet climates is a relatively high content of iron and aluminium. Soils of this broad type have often been referred to as latosols”.

All these in the opinion of the scholar takes place as a result of leaching which will occur due to heavy flood and excess water in the area over a period. In a more explicit form, Ahn (1970) wrote;

“Leaching means washing and this washing or leaching caused by a temporary excess of water percolating down through the soil profile may occur relatively seldom, perhaps only after occasional, particularly heavy flood or falls of rain or only in the wettest few weeks of the year. Through-leaching depends on whether there is at any time an excess of water which can remove weathering products in solution and suspension right out of the soil profile. Heavy concentrated rainfall in a short period is more likely to achieve this than the same amount of rain spread evenly over a longer period”

Early Warning Signs in modern Nigeria and its Impact

As noted earlier, the issue of climate change is not new, however the activities of man in the region over the years have led to a more dramatic dimension with even more devastating effect. In the case of the Nigerian area it has been established that gas flaring as well as the massive felling of trees and destruction of the vegetation is impacting negatively on the area. As it concerns the activities of flaring, Ojeh (2012), argued thus:

“The main component of flared gases includes carbon dioxide (CO₂), methane (CH₄), nitrous oxide (NO₂), water vapour and Sulphur dioxide (SO₂). The low combustion efficiency of Nigeria flare stack (60-80%) results in a large portion of the gas emitted being methane and since methane has a higher global warming potential ...The role of methane in global atmospheric changes has received increasing attention recently....Although the actual emission is estimated with a great deal of uncertainty, yet methane has a global warming potential up to 63 times to that of carbon dioxide (depending on the time horizon) and accounts for about 15% of the global warming due to anthropogenic emission”.

On the other hand, the excessive dependence on wood in the forest for fuel as well as the indiscriminate felling of trees in Nigeria has not help matters. This can be better understood when seen in the light of the position of the US Weather Service 2014, which posited thus;

“Deforestation is an important factor in global climate change. Climate change is because of a build up of carbon dioxide in our atmosphere and if we carry on cutting down the main tool we have to diminish this CO₂ build up, we can expect the climate of our planet to change dramatically over the next decades. It is estimated that more than 1.5 billion tons of carbon dioxide are released to the atmosphere due to deforestation, mainly the cutting and burning of forests, every year”.

On the need to preserve the vegetation and forest, it wrote

“Forests are vital for life, home to millions of species, they protect soil from erosion, produce oxygen, store carbon dioxide, and help control climate. Forests are also vital for us to live as they provide us with food, shelter and medicines as well as many other useful things. They also purify the air we breathe and water that we need to survive. Deforestation by humans is causing all of these necessary functions to be lessened, and hence damaging the atmosphere even further. Forests play a huge role in the carbon cycle on our planet. When forests are cut down, not only does carbon absorption cease, but also the carbon stored in the trees is released into the atmosphere as CO₂ if the wood is burned or even if it is left to rot after the deforestation process. Smaller crops e.g. plants and agricultural crops also draw in carbon dioxide and release oxygen, however forests store up to 100 times more carbon than agricultural fields of the same area. Over 30 million acres of forests and woodlands are lost every year due to deforestation; causing a massive loss of income to poor people living in remote areas who depend on the forest to survive”

Presently it is estimated that Nigeria is losing about 351,000 hectares of its landmass to desert conditions annually, and such conditions are estimated to be advancing southwards at the rate of about 0.6km per year. This is due to the indiscriminate extension of farmland, overgrazing, bush burning, cutting of trees to use for firewood and other domestic purposes, deforestation, over cultivation, poor irrigation practices, and inappropriate land use. These result to loss of biological and economic productivity of the land (Polasky et al., 2005). This was the core of the message of the Nigerian Ministry of Environment while celebrating 2014 Environment Day. The Ministry underscored the importance of intensified sensitization campaign programmes on issues of bush burning, clearing of gutters, cutting down trees, use of generators and refuse management. The ministry also discouraged the use of candles and lanterns, vehicular emission and use of dangerous chemicals.

The impact of the above is that it gradually exposed that area to erosion and other agents of flood and leaching. This situation continued such that by 2007, evidence has started manifesting in most parts of the country especially in the rural areas for detail see table 1.

Table 1. Selected States which manifested symptoms

s/no	States	Year	Effect on Agricultural Land and Manpower
1	Abia	2007	Over 20,000 persons in the six communities swept away by gully which grows at 500 meters yearly and 20,000 persons.
2	Anambra	2007	All 177 communities have erosion/flooding problems as 1,000 feet deep, 3,000 ft wide and about 30,000 – 40,000ft long gully crisscrossing Nanka, Agulu, Awgbu, Ubaha and Enugu villages. More than 1000 person and well over 4000 families lost their land
3	Borno	„	21 villages in Gwarzo L.G.A flooded, unspecified number of people killed
4	Calabar	„	Minimal
5	Delta	Uptill date	Most of the farming areas have always witnessed flooding
6	Ebonyi	2006/07	Landslides and gullies rendered many homeless
7	Edo	Till Date	Illushi and parts of Anebette area have always been flooded
8	Enugu	2006/07	Several homes, farmlands, churches and roads washed away. More than 250 families, numbering close to 1,500 rendered homeless.
9	Gombe	2004	Over 20 people died and thousand rendered homeless, a situation that has not changed much.
10	Imo	Up to 2007	Had over 34 gully erosion sites ravaging the area (as at 2007 N3 billion was set aside to combat erosion)
11	Kaduna	2003	Close to 10,000 people were reported drowned in different parts of the state in 2003. The problem of flood has not been fully combated till date.
12	Kebbi	2007	Flood rendered more than 3000 people homeless. Farms and animals lost
13	Kogi	Till Date	Areas around the River Niger have always experienced this flood leading to loss of live, farmlands and properties.
14	Lagos	Up till date	It is a yearly issue. Apart from the popular beach surge, areas like oloosa and Idi Araba in Mushin, Ilaje in Bariga, Shomolu, Orile Iganmu, Amukoko, Itire, Illasamaja, Ijeshatedo, Agbado Crossing, Ijora Badia, Isheri-Oshun, Ajegunle in Kosofe and Adeniran Ogunsanyan in Surulere as hot spots.
15	Plateau	2007	47 died in five Local government along Wase Basin, over 200 other settlements on the basin under threat.
16	Rivers	2007	Animals (piggeries and poultrys) destroyed, Homes always flooded and about 350,000 hectares of farmlands affected annually
17	Sokoto	2007	Over 5000 people rendered homeless and settlements destroyed
18	Zamfara	2006	Hundreds of settlements washed away and thousands rendered homeless.

Source : processed by researchers (2020)

2012 Flood Disaster and its implication for Food Production/Security

Scholars have argued that the negative impact of the emerging climate change in the country became more evident in the colossal loss of lives and properties due to flooding in 2012. Ikelegbe (2012) posited thus :

“The 2012 rainy season in Nigeria has been worst than earlier years, and heavy heavy rains at the end of August and the beginning of September led to serious floods in most parts of the country leading to destroyed river banks. Over 3 million people are affected by floods in West Africa and central Africa this year. Out of these number, Nigeria has 1,440,986 internally displaced persons. The Integrated Regional Information networks comments that this is the worst flooding in 40 years with heavy rains submerging much of Anambra, Delta, Bayelsa, Cross Rivers, Ebonyi, Rivers, Akwa Ibom. In Bayelsa State, virtually all the communities along the river Niger such as Sagbama, Adagbabiri, Peretorugbene, Agbere, Ofni, Ayamasa, Sabagriea, Igbedi, Famgbr, Yenaka, Ogu, Fortorugbene, Aguadama-Epetiama, Oporoma, Ndoro, Tombia, Peremabiri, Elemebiri, Asamabiri, Anagalabiri, Opokuma, Odi, Kaiama, Biseni, Gbarantoru, Tombia Amassoma and Ekeremor among others were submerged”

In line with Ikelegbe’s position, Onoyeme J (2012), gave his account thus:

“Sabagriea community is over run by the over flowing Nun River. In Rivers State, communities such as Obrikom, Ebocha and Okwuzi Egbema, Kala, Opuogbogolo in Omuku and Ahoada Local Government Areas, were all ravaged by the flood and not less than 100 communities have so

farbeen taken over by flood in Rivers State. In this way the over 50% of the fish consumed in Nigeria and produced in the Niger Delta is affected”

This situation was also replicated in various parts of the country, especially the rural areas leading to loss of crops and animals. According to the National Emergency Management Agency, the flooding has destroyed about 152,575 hectares of farmland. This orchestrated hikes in foodstuff during the harvest season. The Agency continued thus:

“the challenge was two fold, First, is how the supply of foodstuff demand regions will be met considering the immature harvesting that has occurred; secondly, is that relating to the farming activities. In their view, Soils have been flooded and most top soils as well as nutrients have been leached with consequent soil impoverishment. At present, there exists a separation of farmers and their farmlands which is their main source of income and sustenance”.

As a confirmation to the National Emergency Management Agency report, Anaro & Idowu (2012) described the situation thus:

“Many farmlands that ought to be either in planting or harvesting season are now many feet under water. Germinating crops have been overtaken by water and are presumably rotting away, while soil nutrients are being flushed away. The lives of some farmers are being saved, though some were lost, their farms and investments are already laid to waste. Properties and investments may be lost, but lives are important and must be rescued”.

In line with the position of Anaro & Idowu (2012), Okogie (2012), opined that the natural disasters that befell the country due to global climate change put the food supply issue in the front burner, as apart from the production of most products, supply was also affected. It was therefore not surprising that the prices of food produce and related commodities skyrocketed. In view of the fact that supplies from states within the North-West region suggest that the South primarily relies on the North for food products, this becomes even more worrying. These areas are illustrated by indices from the Kebbi, Sokoto Zamfara, Katsina, Jigawa and Kano states as one of the main northern suppliers of assorted food products to the South. Okogie (2012), giving report on the impact of the 2012 flood disaster in Nigeria, wrote thus:

“The natural disasters that have befallen the country due to global climate change have already put the food supply issue in the front burner. If you had been out of food stock recently and had gone to some markets in Lagos and other states of the federation, you would have noticed the nominal price hike in food stock which the people have to contend.. traced it to effects of climate change... the increase to heavy rainfall and flooding of their tomato farms. Prices of beans, an important source of protein, have also increased by over 100 per cent in the South”.

The above situation is reflected in the table 2.

Table 2. Market Prices of Basic Food Items in 2012 (Flood Period)

s/no	Produce	Quantity	Price (before flood) May	Price (during flood) Aug/Sept	Major Cause
1	Fresh Tomatoes	Basket	10,000	15,000-20,000	Flood
2	Fresh Pepper	Medium size basket	5,000	6,000-6,5000	Flood
3	Beans	Bag	8,000	13,000-15,000	Flood
4	Gari	Big Bowl	2,500	4500-5000	Flood
5	Yam	Tuber	150.00	300.00	Flood
6	Palm oil	10 litre	1,500.	3,500.00	Flood
7	Cassava	Basket		100% increase	Flood
8	Rice	Bag (local)		100% increase	Flood

Source: Field research conducted by author (2012)

Apart from the rise in food price of livestock was also affected, as it became difficult to transport most of these produce across the length and breadth of the country. Okogie (2012), gave account :

“There are more than 1,000 cow dealers in Gusau Town, Zamfara state, who jointly transport to the South, an average of 30,000 cows daily; ...average daily supply from Kano and other large cities like Sokoto and Maiduguri is 100 trailer-loads, while from other towns like Zaria, Kebbi, Gusau and Katsina, an average of 30,000 cows are transported daily to the South. An estimated number of 30 trucks loaded with assorted vegetable items like onions, tomatoes, pepper and other related items are supplied to the South on a weekly interval. From Gusau major types of grains like guinea corn, maize and soya beans are supplied to the South daily. These products are cultivated in the North, more than 80 per cent of them are consumed in the South, particularly soya beans, which is used as industrial raw material for the production of powder milk, cooking oil, and many other products. From Gusau, an estimated number of 50 trucks of soya beans are supplied to the South on weekly basis, while more than 200 trailers of sorghum, used in the production of beverages by industries in the South, are also transported on daily basis”.

Although the report indicates that the climate change which resulted in the losses is an international phenomena, but its impact in our part of the world has been devastating. Even areas in the far north like Kebbi, Sokoto and Maiduguri witnessed flooding which destroyed livestock and food crops. This has been confirmed by the Family Warning Systems Network (FEWSNET) which established that the food crisis conditions in Yobe and Borno and rest states in the region. Family Warning Systems Network (FEWSNET) continued thus:

“This is mainly due to the fact that in the Northern part of Nigeria, precisely Sokoto, Kebbi, Zamfara, Katsina, Yobe, Borno, Jigawa, Kano etc, the stable ecosystem of the Sahel and Sudan Savannah are already vulnerable as a result of climate change which emphasized the existing pattern of aridity and heightened the tendencies of drought, desert encroachment, depletion of mineral and land degradation. The attendant consequences are food insecurity and declined agricultural activities, as these depend on adequate rainfall and climatic elements. This condition is further accentuated by the Boko Haram (BH) insurgency that has crippled all farming”.

The above situation becomes even more devastating when considered in the light of the fact that most of these farmers borrowed from either banks and/or some other money lenders to finance their farming projects. For example, The Central Bank of Nigeria's second quarter report for 2012 revealed that N1.591 billion was granted to 13,363 farmers under the Agricultural Credit Guarantee Scheme (ACGS), from which food crop production received 75 per cent, the largest share of the funds. It also revealed that during the period a total of 12,018 food crops farmers assessed N1.192 billion under the scheme (Central Bank of Nigeria's, 2012). It was therefore not surprising that at the end of the farming period, most areas in Nigeria recorded cases of suicide among farmers. It was later revealed that this was done by those that were affected by the flood and could not harvest their produce, hence they became indebted. In some other cases affected farmers deserted their homes and families to avoid embarrassment from their creditors.

Accessible records suggest that state government had gone to different bodies to obtain loans to fix ecological problems in their states at various times in Nigeria's history. During the eight years of the country's return to democracy, for example, President Olusegun Obasanjo's administration disbursed over N150 billion to state governors, local government chairmen and the Federal Capital Territory administration to combat environmental issues (Sophia & Ogunniyi, 2016). As early as 2007, the state of Lagos had already secured \$60 million (N7.6 billion) to boost its drainage infrastructure to mitigate flooding. During the same time, the government of Anambra raised more than N2.5 billion to reduce the danger of erosion in the state, which is one of Nigeria's food producing areas. This was because the state

had no less than 1000 erosion sites, with 500 quite involved, as at that time. Likewise, in 2007, the Kebbi state government reported that it spends no less than N400 million annually on combating desertification (desertification is the major all season environmental malaise plaguing most of the northern part of the country). All these were geared towards combating environmental degradation as well as boost crop production in the states.

Table 3: Allocation and Expenditure on Ecological / Flood Control, 1992 - 2002

No	States	Amount on Ecology	Impact of flood on food production
1	Abia	307,400,000.00	Over 20,000 persons in the six communities swept away by gully which grows at 500 meters yearly.
2	Adamawa	560 million	Large span of farmland lost to flood
3	Akwa Ibom	****	Large span of farmland lost to flood
4	Anambra	1.368 billion	Large span of farmland lost to flood
5	Bauchi	863 million (no break down)	Large span of farmland lost to flood
6	Bayelsa	299.5 million	Several farm lands
7	Benue	975,000,000	Large span of farmland lost to flood
8	Borno	183,000,000(no breakdown)	Farm land loss and later heightened the tendencies of drought, desert encroachment, depletion of mineral and land degradation
9	Cross River	717228417.00	Large span of farmland
10	Delta	****	Several farm lands
11	Ebonyi	971136760.50****	Large span of farmland
12	Edo	****	Several farm lands
13	Ekiti	270069425.00	Large span of farmland lost to flood
14	Enugu	****	Several homes, farmland washed away. And more than 250 farming families rendered homeless.
15	Gombe	78,000,000****	Large span of farmland lost to flood
16	Imo	1272551810.85	Large span of farmland lost to flood
17	Jigawa	17,517,000.00	Farm land loss and later heightened the tendencies of drought, desert encroachment, depletion of mineral and land degradation
18	Kaduna	****	Close to 10,000 people were reported drowned in different parts of the state in 2003. The problem of flood has not been fully combated till date
19	Kano	466,018,625.00	Farm land loss and later heightened the tendencies of drought, desert encroachment.
20	Katsina	236,000,000.00	loss of over 146 farmlands to the floods
21	Kebbi	71750000.00	Flood rendered more than 3000 people homeless. Farms and animals lost.
22	Kogi	672 million*	Loss of over 152,575 community farms
23	Kwara	572 million**	Large span of farmland lost to flood
24	Lagos	6,393,981,108.00**	Large span of farmland lost to flood
25	Nasarawa	258,500,000.00	Large span of farmland lost to flood
26	Niger	692,116,946.00	500 communities (over 663,000 persons displaced)
27	Ogun	34.7 million***	Large span of farmland lost to flood
28	Ondo	358,092,2035	Large span of farmland lost to flood
29	Osun	****	Large span of farmland lost to flood
30	Oyo	****	Large span of farmland lost to flood
31	Plateau	1176.686 billion*	over 200 settlements and farm lands on the basin under threat.
32	Rivers	321 million	about 350,000 hectares of farmlands lost, Animals (piggeries and poultries) destroyed,
33	Sokoto	495,150,000.00	Farm land loss and later heightened the tendencies of drought, desert encroachment, depletion of mineral and land degradation
34	Taraba	****	Large span of farmland
35	Yobe	****	Farm land loss and later heightened the tendencies of drought, desert encroachment.
36	Zamfara	****	Same as above
	FCT Abuja	111,300,000.00*	

Key;* - This stands for projects, whose amount were not stated; ******** - Represents unavailability of figures for such project.

Source: Abu & Obe (2012), Anaro & Idow (2012) and Chukwuma et al (2012)

From the above table 3, it is clear that although the disaster had shown early signs and symptoms, but the authorities never took the situation seriously. It is therefore not surprising that instead of accepting blames and facing the situation squarely, government have turned to propaganda which seems to place the blame at the feet of the masses. This was clearly stated in the message of the Minister of Environment ahead of the 2014 World Environment Day (WED) celebration, in which the minister urged Nigerians to make extensive use of the social media to create the desired awareness on challenges to the environment. "Especially, the need to refrain from critical actions and activities that will or likely lead to the ozone layer depletion, melting of the arctic region, increased rainfall and rising sea levels. In her opinion the major problem was issues of bush burning, clearing of gutters, cutting down trees, use of generators and refuse management. Others are use of candles and lanterns, vehicular emission and use of dangerous chemicals. These are certainly issues which could be avoided if the government lives up to its responsibility by providing the basic necessities of life.

Determination

Although the issue of climate change can be said to be an international phenomenon, people in various parts of the world can adopt various strategies to overcome these threats. In the case of Nigeria as in most of the surrounding countries, it has been established that, most of the problems associated with it are man-made (mostly due to human damage to ecosystems for survival). Agriculture accounts for about 10-12% of global greenhouse gas emissions. By transitioning to low-carbon farming techniques, farmers and those in related agricultural field can not only reduce emissions, but also increase profit and yield for farmers. In this way, the emphasis is on the elimination of agricultural practices which lead to high release of carbon. For example, Rice feeds the world, providing to humans than any other food, and more than a billion people depend on rice cultivation for their livelihoods. However, it is been rice farming releases greenhouse gasses more potent than carbon. According Kritee (2013), when organic material decays without oxygen, as it does in water-logged rice paddies, soil microbes generate methane, a greenhouse gas with 25 times more warming potential than CO₂. In India, rice methane emission account for about 10% of the nation's total greenhouse gas (GHG) emissions.

CONCLUSION

Experts have realized the importance of forests as an antidote to climate change. This is because it has been determined that Deforestation causes 12-18 percent of the world's carbon emissions, almost the same as all CO₂ emissions from the global transportation sector. Forests are home to 80% of all terrestrial biodiversity. However, we were losing the forest at a very high rate. Every year more than 13 million hectares (32 million acres) of forest are lost, an area roughly the size of the UK and humans who have the biggest role but the accelerated reduction in forest capacity, although experts are aware of this, there is still a lack of monitoring on the ground.

we suggest there is a need for the government to put in place an original regulatory agency that will examine indiscriminate land use especially with regard to contraction and extraction. Because, through this uncoordinated and haphazard exercise, there are emissions of harmful gases into the atmosphere. For example, research shows that small-scale gold mining and coal burning are major sources of anthropogenic emissions of mercury into the air. This also shows that artisanal and small-scale gold mining (ASGM) and coal burning are the largest components of anthropogenic emissions, followed by

ferrous and non-ferrous metal production, and cement production. Annual emissions from ASGM are estimated at 727 tonnes, making it the largest sector that accounts for more than 35% of total anthropogenic emissions. Large amounts of coal are burned around the world to generate electricity, to run industrial plants, and for heating and home cooking. Coal burning emitted about 475 tonnes of mercury in 2010, mostly from electricity generation and industrial use.

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