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CLIMATE CHANGE IN SOUTH-EAST NIGERIA: LOSING HOMES AND FARMLANDS, CHANGING SETTLEMENTS AND THE FUTURE

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Abstract

The study is an assessment of the effects of climate change in South Eastern region. Apart from struggling with the scars of a civil war, the region is experiencing exponential increase in industrialisation, manifesting in a number of industrial clusters which has given rise in the level of industrial gas emissions, establishment of housing estates, resulting in large scale deforestation in a region already threatened by floods, and gully erosion. The study examined the trend in erosion and flooding in South East region of Nigeria, the effects of erosion and flooding in the region, the constitutive efforts of governments to address the effects of erosion and flooding, the implications for regional and national development as well as a conclusion. The findings show that the people of the South East have had their fair- share of the devastating impact of the Climate change, as manifested in the apparent changes in general weather pattern, increasing level of erosion menace in many States across the region, poor yield in agricultural produce, resettlement of residents as a result of flooding, among others. The paper concludes that community based interventions are relevant to sustain government initiatives to mitigate the effects of climate change, especially erosion and flooding in Southeast, Nigeria.

Keywords: South-East Nigeria. Farmlands. Climate change. Flooding. Sustainable livelihood.

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1 Introduction

Essentially, the discourse and debate for climate change started over four decades ago at Geneva, Switzerland in 1979. The conference attracted scientists across the world. It organized groups into climate data, the identification of climate topics, integrated impact studies and empirical researches on climate variability and change (Bornmann, Haunschild, Boyack, Marx & Minx, 2022). It was the conference that brought about World Climate Programme (WCP), World Climate Research Programme (WCRP) and Intergovernmental Panel on Climate Change by United Nations Environmental Programme (UNEP, 1988). The second conference held on 29th October, 1990, Geneva. This second conference was an essential step towards a global climate treaty and seems more political than the first conference. The World Climate Programme (WCP) and the Intergovernmental Panel on Climate Change (IPCC) which had concluded her reports were reviewed in the 1990 conference. The landmark of the 1990 conference was that the Scientists and Technology experts issued a strong statement on the risk of climate change, perhaps, this informs why media portrayals of climate change have had a strong impact on personal and global efforts to mitigate it through data production, individual media consumption, and personal troth (Swain, 2021). However, the outcome of the conference didn't go down well with the participants because, it failed to offer over-the-odds level of commitment.

It ended with the establishment of the United Nations Framework Convention on Climate Change (UNFCCC) and Global Climate Observing System (GCOS). It did not end there because, between 1979 up till date, a total 24 Conference of the Parties (COP) of the United Nation has been held.The most significant as it were, was the Third Conference which held in Geneva, on August 30th – 4th September, 2009. Its focus was on climate prognosis, augury and forecasts since the 1990 conference (Uprety, Palamanit, & Techato, 2023). The goal again, was to create a global framework that will link scientific advances in the prognoses and other related predictions and for the decision makers in various countries to be better informed. It also aimed to increase commitment to, and innovations in climate observations and monitoring to better provide climate information and services worldwide. It was the 2009 conference that contributed immensely to the United Nations Millennium Development Goals and broadened UN-Climate goals (Uprety, Palamanit, & Techato, 2023). The conference theme was in line with the global work on how to help Nations adapt to climate change.

However, the outcome of the conference formed part of the World Meteorological Organization (WMO) input to the 2009 United Nations Framework Convention on Climate Change (UNFCCC COP-15) meeting for climate mitigation in Copenhagen, Denmark in December, 2009. It is worthy of note that, since 1979, a total of 25 COPs has been held in different member States and continents of the United Nations (Orlove, Heather, Grete & Alessandra, 2015).

To this end, the Nigeria's Federal Government keyed into the United Nations Framework Convention on Climate Change (UNFCCC) by organizing several conferences, funding empirical researches so as to development a proper documented impact assessment report in a sectors of the country's economy. This brought about the First Biennial Update Report (BUR1) of the Federal Government of Nigeria, 2018, under the United Nations Framework Convention on Climate Change (UNFCCC). The document worked with all industry stakeholders such as; - Department of Petroleum Resources, - Energy Commission of Nigeria (ECN), - Federal Ministry of Agriculture and Rural Development, - Federal Ministry of Budget and National Planning, - Federal Ministry of Transport, - Federal Ministry of Water Resources, - Federal Ministry of Power, Works and Housing, - Federal Ministry of Education, - Federal Ministry of Environment, - Federal Ministry of Finance, - Federal Ministry of Foreign Affairs, - Federal Ministry of Health. Beyond these robust moves, other efforts such as sponsoring of Bill on Climate Change at the floor of the National Assembly by the political actors, has been made but, yet the ravaging impacts of climate change is still far from the solution. In 2011, Nigeria witnessed the biggest flooding in history. Till date, that degree of flooding is still growing from bad to worst with the usual warning from the Nigeria's Meteorological Agency (Ishaq & Elsa, 2022).

What has been unclear is the suspicion that, the Nigeria's Federal Government's look worm approach to the impacts of climate change is probably because it's not affecting all regions of the country at a time. In the North, there are obvious impacts as manifested in the ravaging desert encouragements. According to Sayne (2011), Nigeria's climate is likely to see growing shifts in temperature, rainfall, storms, and sea levels throughout the twenty-first century. Poor adaptive responses to these shifts could help fuel violent conflict in some areas of the country (Sayne 2011) In the South, is the issue of flooding orchestrating population displacements, lose if farm produce-thereby causing hunger, ocean over-flow and erosion menace. South Eastern Nigeria alone has many active erosion sites which gulped billions of Dollars in the past two decades.



Figure 1. The map of South East region in Nigeria. Available from: https://theconversation.com/election-violence-in-nigerias-south-east-is-threatening-to-derail-voting-in-the-region-198610

2 Methodology

The study adopted qualitative research design including field observation, key informal interview (KII) and rapid review of literature. It assesses the effects of climate change in South East region of Nigeria. The region lies within Awka-Orlu uplands and Enugu-Awgu-Okigwe escarpment where gully erosion is a general problem. Figure 1 shows the map of South East region in Nigeria. The remaining parts of this study are discussed under the following themes: Conceptual explanation of climate change, flooding, settlement and sustainable livelihood; trend in erosion and flooding in Southeast Nigeria; effects of erosion and flooding in South East Nigeria; constitutive efforts of governments to address the effects of erosion and flooding in Southeast Nigeria and prescribed policy options on the implications for regional and national development.

3 Conceptual explanations

Climate Change

The Amnesty International (2018) while attempting an explanation of the meaning and devastating effects of climate change, referred to it as the biggest inter-generational human rights violation in history. Amnesty International (2018) argues that millions of people are already suffering from the catastrophic effects of extreme disasters exacerbated by climate change – from prolonged drought in sub-Saharan Africa to devastating tropical storms sweeping across Southeast Asia, the Caribbean and the Pacific.

During the summer months for the northern hemisphere in 2018, communities from the Arctic Circle to Greece, Japan, Pakistan and the USA experienced devastating heat-waves and wildfires that resulted in the deaths of hundreds of people. While we largely understand climate change through the impacts it will have on our natural world, it is the devastation that it is causing and will continue to cause for humanity that makes it an urgent human rights issue. It will compound and magnify existing inequalities. And its effects will continue to grow and worsen over time, creating ruin for current and future generations. This is why the failure of governments to act on climate change in the face of overwhelming scientific evidence may well be the biggest inter-generational human rights violation in history.

Agreeing to that, Reidy (2018) explained that, climate is the average of the weather conditions at a particular point on the Earth. Typically according to him, climate is expressed in terms of expected temperature, rainfall and wind conditions based on historical observations. Going further he noted that, “Climate change” is a change in either the average climate or climate variability that persists over an extended period. The Earth’s climate has always changed. Changes in the Earth’s orbit, the energy output of the sun, volcanic activity, the geographic distribution of the Earth’s land masses and other internal or external processes can influence climate. Scientists refer to this type of long-term climate change as “natural climate change” (Reidy, 2018).

Similarly, Olufemi, Okocha & Olufemi (2014) noted that, Climate is a complex and interactive system.

It consists of the atmosphere, land surface, snow and ice, oceans and other water bodies, and living beings. Among these, the first component, atmosphere characterizes climate. To them, the various external factors influence the internal dynamics of the Climate Systems and these include natural phenomena such as volcanic eruptions and solar radiations, as well as human-induced changes in atmospheric composition.

They observed that the entire climate system gets the power and energy from the Sun. Thus, the radiation balance of the Earth gets modified by three fundamental ways: 1) by changing the incoming solar radiation; 2) by changing the fraction of solar radiation that is reflected (called "albedo"); and 3) by altering the long wave radiation from Earth back towards space Climate, in turn, responds directly to such changes, as well as indirectly, through a variety of feedback mechanisms. In its simplest form, Uejio, Tamerius, Wertz, & Konchar, (2015) as cited in Public Health Institute/Center for Climate Change and Health (2016) defined climate change as a systematic change in the long-term state of the atmosphere over multiple decades or longer. As clearly seen, Uejio, Tamerius, Wertz, & Konchar, (2015), Olufemi, Okocha & Olufemi (2014), Reidy (2018), Amnesty International (2018) etc, are all in agreement that the term climate change by its manifestations and effects, has pushed the world into acceptance of the "new normal". What is still worrisome till date is the obvious negligence of the phenomena.

Flooding

Doswell (2003) explained that, flooding is arguably the weather-related hazard that is most widespread around the globe. It can occur virtually anywhere. According to him, a flood is defined as water overflowing onto land that usually is dry. Explaining further, he observed that, flooding is often thought of as a result of heavy rainfall, but floods can arise in a number of ways that are not directly related to ongoing weather events. Thus, a complete description of flooding must include processes that may have little or nothing to do with meteorological events.

Perhaps, that was why Agnone (1995) argued that flooding has some large negative impacts on humans; it is also part of the natural processes shaping the Earth. To him, floodplains along rivers and streams are among the most fertile regions known. Most of the so-called 'cradles of civilization' are within floodplains for this very reason (e.g., the Nile River, the Tigris–Euphrates River, among others). Hence, humans have been affected by flooding both positively and negatively since before historical times, whenever they find themselves in the path of these natural events. Evidently, the above expose indicated a sharp nexus between climate change and flooding as its attendant consequences.

Sustainable livelihood

As documented by Krantz (2001), the sustainable livelihoods idea was first introduced by the Brundtland Commission on Environment and Development as a way of linking socioeconomic and ecological considerations in a cohesive, policy-relevant structure. He noted that, the 1992 United Nations Conference on Environment and Development (UNCED) expanded the concept, especially in the context of Agenda 21, and advocated for the achievement of sustainable livelihoods as a broad goal for poverty eradication. It stated that sustainable livelihoods could serve as 'an integrating factor that allows policies to address "development, sustainable resource management, and poverty eradication simultaneously".

Krantz (2001) opined that, a livelihood is sustainable when it can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term.

Agreeing to that, the Asian Development Bank (2017) stressed that, a livelihood comprises the capabilities, assets, and activities required for a means of living. To them, it is deemed sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities, assets, and activities both now and in the future, while not undermining the natural resource base.

Copiously seen, a livelihood is sustainable when it recovers from shocks, stress, unforeseen attacks while sustaining the opportunities for the next generation. This implies that an attack on such indicators that will deprive it from maintaining its sustainability is an enemy that must be paid close attention. Unfortunately, that is the reality in the contemporary discourse on climate change and its impacts.

Trends in erosion and flooding in Southeast Nigeria

In Sub-Saharan Africa, soil erosion accounts for about 77% of land degradation and threatens about 22% of arable land. Soil erosion has also degraded nearly 70% of Uganda's land, devastated grazing areas in the Maasai landscape in Tanzania and caused average national soil loss rates of 29 tonnes per hectare annually in Malawi (Unah, 2020). The Southeast region of Nigeria, especially the communities situated very close to water bodies suffer from many impacts of climate change especially flooding and erosion (Nnadi et al, 2019; Egbueri. and Igwe, 2020). Despite the observed persistent problems of erosions and floods In southeast Nigeria, the region produces most tropical food crops like yam, cassava, vegetables, rice, and livestock production (Nwaiwu et al., 2014; Nnadi et al, 2019).

Table 1: Distribution of Erosion sites in South-Eastern Nigeria.

S/N	States	Number of Gully Sites	Condition	Control Measures
1	Anambra	700	Mostly active	Not successful
2	Abia	300	Some active/some dormant	Not successful
3	Ebonyi	250	Mostly minor gully sites	No records
4	Enugu	600	Some active / some dormant	None
5	Imo	450	Some active / some dormant	Not successful

Source: (Okorafor, Akinbile and Adeyemo 2017).

Gully erosion is pronounced in southeastern Nigeria with high population densities (Onu, 2006; Oguike and Mbagwu, 2009; Ume et al., 2014). Erosion predominates in areas which have been subjected to bush burning, continuous cultivation and mining on hill side slopes, all of which are common and long-term traditional practices in southeastern Nigeria, (Nwachukwu and Onwuka, 2011). Table 1 shows that at least 1600 gully erosion sites exist in southeast region and this occupies about 36.4 km2 of areas that would have been used for agriculture.

Anambra state has the highest number of gully erosion in Nigeria. In fact, Anambra State is adjudged to be the most erosion-prone and erosion devastated landscape in the world (Vanguard News, 2020). At least 10 % of Anambra state is occupied by gully erosion of all types and due to increased environmental and human activities the gullies are still on the increase (Okorafor, Akinbile and Adeyemo, 2017). KII with the President General Nanka Town Union revealed that the gully erosion in Nanka has eaten away his hometown, Nanka as well as other towns in Anambra including Ekwulobia, Agulu and Oko.

The erosion has forcefully dislocated people from their ancestral homes and destabilized farming which the source of livelihood of many people in the area. In the commercial city of Onitsha, erosion submerged the multi-million naira Nkisi water project, which is why the water scheme begun several years ago has not been completed (Vanguard News ,2020).

Similarly, KII with a community leader in Isuikwuato area in Abia state in May, 2020 revealed that the gully erosion is a major public challenge in the whole Southeast. He explained that the erosion which is a major threat to lives and properties has sliced across many highway in Abia and other Southeast states. Many communities in Enugu state are also under severe erosion attacks. They include many communities in Ezeagu and Udi councils as well as Alor-Unor, Olido, Amube and Ogbodu. In fact, Aku-Nkpologwu road in Uzo-Uwani Local Government Area of the state has been cut into two by erosion (Vanguard News, 2020). In Imo State, erosion is menacing Ogirike-Obohia Ihitte-Afo-Ukwu in Ikeduru and Ahiazu Mbaise Local Government Area; Amakohia-Ubi gully erosion in Owerri west local government area; Obowo/Ihitte Uboma and Umukaku/Ihim autonomous community in Isiala Mbano. There is also the Obibi/Ochasi gully erosion in Orlu local government area as well as Ezemazu Urualla gully erosion in Ideato North local government area (Vanguard News, 2020).

Field observation and secondary literature (see Grove, 1951; Abdulfatai et al., 2014) show that the major causes of soil erosion in southeastern region of Nigeria include heavy rainfall, soil nature, topography and human factors such as overgrazing, excessive farm activities, tillage, clearing of bushes, extractive industries, road construction, bush burning, over-population, lumbering, residential buildings, development of urban centres, industrialization, fumigation with pesticides and mining (Okorafor, Akinbile and Adeyemo, 2017). Figure 2-4 shows the major erosion sites in Anambra State.

Again, flooding in South east Nigeria destroys farms and properties and increase disease conditions. High intensity rainfall, erratic/torrential rainfall, flash flooding, rainstorms and gustiness exacerbated flooding and erosion in the area resulted in landslides and loss of lives and properties (Ezeano and Albert, 2012).

For instance, flooding is one of the most serious environmental problems pervasive in Anambra state and over 30% of the inhabitants of Anambra state live along the riverine area and survive mainly on fishing and agriculture (Onwuka et al., 2015).

The 2012 flood was believed to have resulted from the combination of Lagdo dam effect and rainfall intensity. It was excessive water due to heavy rains that forced the Cameronian government to open the spillways of Lagdo dam having sent warnings to Nigeria for the release of the water. About 14 states that border the Niger-Benue River were severely affected. The worst affected state includes Kogi, Edo, Anambra and delta states.

This flood incident has been characterized as the most devastating since the last 40 years. The flood submerged houses, severed transportation routes throughout the affected areas (Udo et al, 2015).

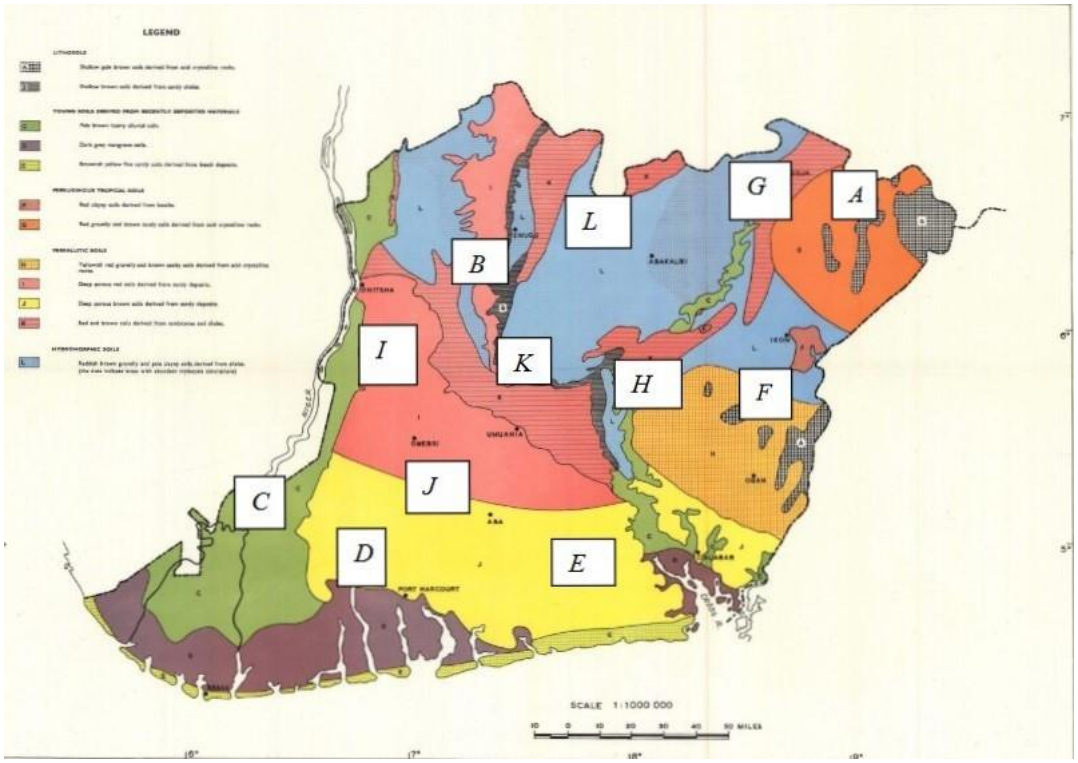

Figure 2. Soil Map of South-eastern Nigeria (Source: FDLAR, 1990). **Key/Legend**. A- Shallow Pale brown soils from acid crystalline rock. B- Shallow brown soils from sandy shales of deposited materials. C- Pale brown loamy alluvial soils. D- Dark grey mangrove soils. E- Brownish yellow fine sandy soils from beach deposits of tropical soils. F- Red clayed soils from basalts. G- Red gravel brown sandy soils from acid crystalline rocks. H- Yellowish - red gravel and brown soils from acid crystalline rocks. I- Deep porous red soils from sandy deposits. J- Deep porous brown soils from sandy deposits. K- Red and brown soils frm sandstones and shales hydromorphic soils. L- Redish brown gravel and pale clayey soils from shale.



Figure 3. Nanka complex gully erosion, Photo credit: Chuku Una.



Figure 4. Erosion breaks inter-community road in Anambra, Nigeria. Photo Credit: Linus Unah.

Flood menace has become a perennial occurrence in Southeast Nigeria, especially in Anambra State and the battle seems endless. Whenever the rainy season approaches, various communities, especially those around the lower River Niger, become apprehensive due to the havoc wrecked by ravaging flood.

Often, heavy flooding submerges several communities in Ogbaru, Anyamelum, Anam and other areas of the lower Niger River. The incessant flooding in these areas are often blamed on poor management of the environment, poor building structures and felling of trees on flood plains. It was gathered that felling of trees on river plains, construction of structures on water ways are major impediments to the free flow of water, thereby causing siltation. In 2018, over 375, 142 people were affected by flood disaster across 10 local government areas of the state. Out of the numbers, about 18, 144 people were in the category of people in need, while 973 were either injured or sick as a result of the disaster. Investigation further revealed that Ogbaru Council Area has the highest number of affected persons with 131, 175, followed by Anambra West with 100, 775 while Onitsha South has the least with 1, 005 people (Eleweke, 2019).

Figure 5 shows a flooded area in Ogbaru local government, Anambra State, Nigeria in 2018.

Beyond Anambra state, the university town of Nsukka and other six local government areas in Enugu North Senatorial District of Enugu State under the heavy impacts of flooding. Thus, Iheaka-Uhunaowerre-Ibagwa Aka Road in Igbo-Eze South Local Government Area of the state has already taken the life of a catechist and another victim as a result of flooding which eroded the road (Vanguard News, 2020).

Effects of Erosion and Flooding in South East Nigeria

The impacts of flooding can be direct or indirect (Umar & Gray, 2023). Climate change which largely manifest in erosion and flooding is aggravating is wrecking buildings, roads and croplands/farmland. The gully erosion in Nanka Anambra State started forming around 1850 and it is one of the largest in Nigeria at 66 metres deep, 2,900 metres long and 349 metres wide (Unah, 2020). The economic damage brought by gullies, mainly in Nigeria's southeast, could be up to $100 million every year, with an agricultural yield losses of 30 to 90% in some areas (Unah, 2020). Field observation and secondary literature (see Abdulfatai et al.2014; Okorafor, Akinbile and Adeyemo, 2017) shows that the major effects of soil erosion in southeast Nigeria include reduced agricultural output, unavailability land for of agriculture and infrastructural development, destruction of soil structure, depletion of soil volumes, deposition of pollution/contamination of aquatic ecosystem, reduction of the life expectancy of dams and storage dams, destruction of life and property.



Figure 5. Erosion sweeps building in Agulu, Anambra State, Nigeria. Photo Credit: Linus Unah.



Figure 6. Erosion sweeps building in Awgbu, Anambra State, Nigeria. Photo Credit: Linus Unah.



Figure 7. Nnobi-Ideani erosion menace visited by the Governor of Anambra State. Photo credit: Charles Soludo (Facebook wall, Sept. 5. 2023).

In Oko community of Anambra for example deep gullies have widened into craters and dislocated over 826 families from their original settlements. In Agulu, Nanka, Alor, Nnewi, Ihiala, Obosi, Oraukwu, Ekwulobia and Umuchu communities in Anambra State, erosion has dislocated many towns and institutions cutting away one community from the other and makes communications difficult. In most of these communities, towns and villages, the people do not have access to important institutions such as schools, churches, markets, playgrounds due largely to erosion.

Similarly, Amakama, Uturu, Ekenaobizi, Ohiya, Amaokwe, Amayi, Amuzukwu, Umuajata, Okwudor, Abiriba and Ohafia in Abia State, landslides and gullies have caused untold hardship on the people of these communities which have consequently resulted in loss of financial and material resources (Ike, 2017). Other specific effects of erosion in the South East include, destruction and removal of trees and natural vegetation; removal of fertile agricultural top soil and other parts of upper top layers of soil; loss of lives of rural population; loss of hectares of valuable land and priceless ancestral properties e.g. loss of lives and ancestral land and homes at Umuachiana, Ekwulobia communities; reduction of the limited land resources; leads to destruction of farmlandmic trees as well as collapsing of buildings due to high rainfall and high soil erodibility (Obi and Okekeogbu 2017).

Gully erosion has also distorted and broken major road networks in South East such as Uturu-Isuikwuato road at Mgbelu Umunnekwu, Abia State, Orlu-Mgbee/Eziama road, Imo State, Nkporo-Oso/Amasiri road at Edda, Ebonyi State, Nanka-Ekwulobia road Anambra State.

Across the South East, flooding has led to the loss of lives, destruction of farmlands and properties worth millions of naira in Ebonyi State (Vanguard News, 2020).

Constitutive efforts of Governments to address the effects of erosion and flooding in Southeast Nigeria

Often erosion gullies in Nigeria are politicized. During political campaigns politicians either pretend to be working on the erosion site or promise to work on the sites but abandon the site once elections are loss and won (Unah, 2020). Despite that since September 2013, Nigeria's federal government has been receiving support from the World Bank to carry out remedial measures in erosion-affected states under the eight-year, $500-million Nigeria Erosion and Watershed Management Project, but much more work remains undone (Unah, 2020). Field observation and secondary literature (see Obiadi et al, 2011; Okorafor, Akinbile and Adeyemo, 2017) shows that governments have initiated several policies and programme to mitigate the effect of erosion and flooding in southeast region. Some of these programmes are aimed at reducing human activities such as bush clearing, clean weeding and tree felling that will facilitate deforestation. Governments have also led sensitization campaigns through workshops and seminars to educate rural farmers on some unhealthy farming practices that undermine yield. Governments have also been involved in repairs of erosion sites, establishment of soil erosion research centers, provision of climate data especially rainfall characteristics and support of forest regeneration. In 2017, the World Bank approved N6.9 billion for the control of erosion sites at Nnewi Ichi in Nnewi North local government area.

The project is being executed in partnership with the state government in which Governor Willie Obiano promptly paid N1 billion as the state's contribution to the project (Vanguard News ,2020). The Abia State government has reclaimed the Umuagu Isingwu, Imenyi, Umuezekwu and the 2.5 kilometre Umuakwu Nsulu erosion sites through the Nigeria Erosion Watershed Management Project, NEWMAP (Vanguard News ,2020). The state government in Imo has banned all forms of mining in the state as a way of stopping the gully erosion (Vanguard News ,2020).

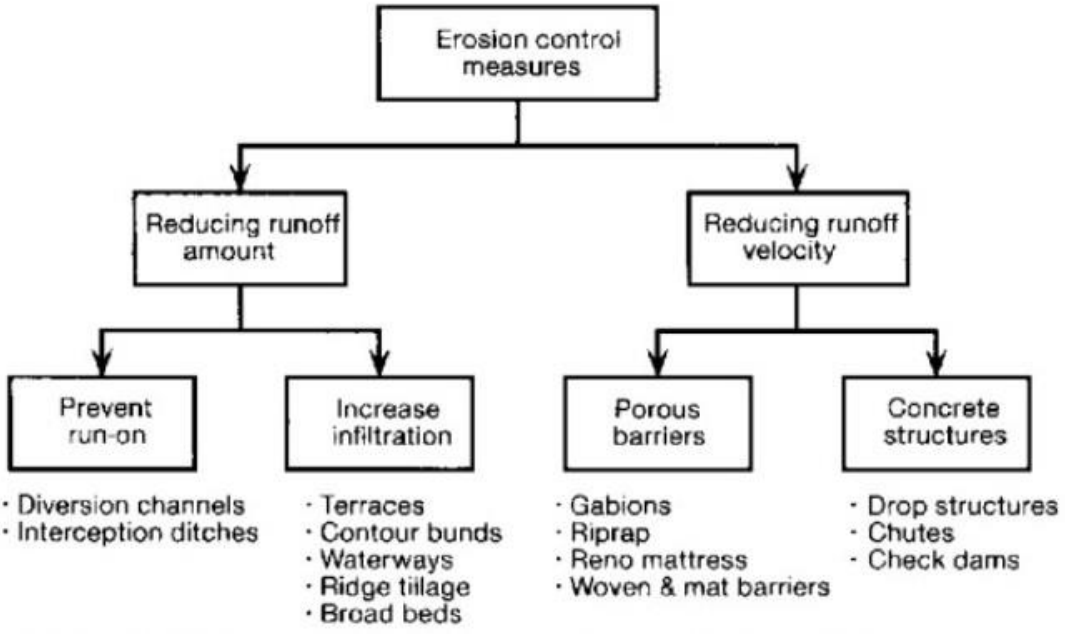

Figure 8. Schematic illustration of the dynamic mechanisms of soil erosion control (Nnabude, Onunwa, & Madueke, p. 35, 2022)

Work is currently ongoing at Iyi-Okwu/International Market flood site, Iyi-Udele flood site, Odunukwe-Nkaliki-Hatchery road flood site and Ebia River, Egu-Ugwu Agbaja flood site at the tune of N13.76 billion. According to the Programme Coordinator, Ebonyi State, Philip Echiegu, the agency had resettled over 900 flood victims in Abakaliki, saying that the agency had created over 1, 500 direct and indirect jobs in the state (Vanguard News, 2020). Since 2013 that Nigeria Erosion and Watershed Maintenance Project (NEWMAP) intervened on flood crisis in Ebonyi, it has created over 1, 500 direct and indirect jobs in the State and resettled a total number of 900 flood affected persons within the corridors of the four ongoing intervention sites in Abakaliki capital city including Iyiokwu, Odunukwe, Iyiudele, Ebyia River with the sum of N405, 635, 000 (Vanguard News, 2020).

3 Conclusions

Soil erosion and flooding in south East Nigeria are caused predominantly by climatic factors especially rainfall, human interference and activities, poor nature of the soils, topography and geology of the area. He effects of these climate change induced menace include loss of homes and farmlands, population displacements (changing settlements), hunger and health hazards. Notably, erosion and flooding are manifestations of climate change which pose a major threat to achieving the SDGs in Nigeria.

The findings show that the people of the South East have had their fair- share of the devastating impact of the Climate change, as manifested in the apparent changes in general weather pattern, increasing level of erosion menace in many States across the region, poor yield in agricultural produce, resettlement of residents as a result of flooding, among others. The paper concludes that community based interventions are relevant to sustain government initiatives to mitigate the effects of climate change, especially erosion and flooding in Southeast, Nigeria.

CREDIT AUTHORSHIP CONTRIBUTION STATEMENT

All the authors contributed with the conceptualization, study design, and manuscript writing.

DECLARATION OF INTEREST

The authors disclose that they have no known competing financial interests or personal relationships that could have appeared to influence the study reported in this manuscript.

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