

Poverty Implications on Natural Disasters Occurrence in Nigeria

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ABSTRACT

Poverty in all ramifications is more than lack of income and decent standard of living as it equally borders on other aspect of deprivations, particularly in the area of lack of access to essential services that promote healthy environment. This actually contributes more to man assault on physical environment which has strong relationship with natural disaster. Available data revealed that the world has witnessed an increase in the frequency and severity of natural disasters in the last two decades particularly in developing countries. This has manifested by way of destroying crops and livestock, reducing incomes and consumption, and forcing households to liquidate assets. Against this background, this paper aims to answer if natural disasters occurring across the country over the years for which there are records actually affected poverty. The result of findings revealed that natural disasters reduce human development and increase poverty in term of human and materials loss. A proactive natural disaster preventive management measures are finally recommended as lasting solution to the occurrence of disasters in Nigeria to ameliorate poverty.

KEY WORDS : Deprivation, Development, Disaster, Environment and Poverty.

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I. INTRODUCTION

Poverty is a plague, afflicting people all over the world in many aspects of human conditions both physically, morally and psychologically. Poverty is equally defined as increased vulnerability to environmental degradation or loss of access to natural resources, employment, property and essential services [1]. This assertion creates a link between natural disasters and poverty at the same time suggests that natural disasters are forces that can aggravate poverty. Amongst the natural disasters that ravage the nations of the world are severe droughts, fire outbreaks, devastated floods, earthquake, windstorm and hurricane. Most of these environmental disasters take place in developing countries of Asia, Latin American and Africa where there is inadequate risk management mechanism. The situation makes these poor countries to experience heavy casualties with disproportionate numbers of deaths, displacements and damage to infrastructure [2]. The adverse impacts also ranged from human casualties, epidemics, disabilities, dislocations and direct damages on critical infrastructure and physical capital to potential losses in income, drops in consumption and reductions in human capital [3].

The vulnerability and fatality of natural disasters depend on the location of the occurrence, the type of structure affected and the level of response to disaster management. The vulnerability of those living in risk prone areas as pointed out in “[4]” is perhaps the single most important cause of disaster casualties and damage. The fact that the poor live in areas that are at high risk to natural disaster, they also live in poorly built shelters that are easily damaged in the event of a disaster and live with few or no early warning programmes contribute to the severity of disaster casualties and damages. There is no doubt that the complex nature of environmental problems in Nigeria which include oil spillage at coastal area of the south; the deforestation and desertification from the north and the various forms of pollution in the country have led to natural disasters such as flooding, droughts, famine, fire outbreaks and wind storms being experienced in the country. The situation does not only make the paper to determine the level of various forms of disasters in the country but equally to know how they are correlated.

II. REVIEW OF LITERATURE

Poverty is a cankerworm and economic scourge that has its tentacles all over the world and which the manifestation of the evils threaten man's dignity and life in various dimensions and forms. For instance, in 2007 less than 30 percent of the world's extreme poor lived in Low Income Countries and more than 70 percent of the world's income poor lived in Medium Income Countries [5]. The data as in “[6]” equally shows that about 20 percent of the world population approximately 1.2 billion people live on less than \$1 a day while almost half of the world population 2.8 billion people lives on less than \$2 per day.

The geographical distribution of National Poverty Line shows that South Asia is the region with the highest proportion of world poverty (30.4%), followed by Sub-Saharan Africa (23.8%) and East Asia and Pacific (17.2%) [7]. There is no doubt that this level of poverty has put the world under serious threat of the environmental problems, making the world to be getting close to extinction through natural disasters which appeared to be on a steady rise with signs too apparent to be ignored and calling for immediate actions [8], [9]. For instance, as pointed out in “[10]”, between 1994 and 2003 the world witnessed a total of 3,561 major disasters, ranging from ecological and industrial cataclysms to health epidemics. In fact, the regional breakdown of this figure suggests that Asia recorded the highest incidence of 1,309 events (36.75%), followed by Africa with 814 (22.9%) while America had 637 (17.9%) events of natural disasters. Likewise, disasters affected 4.4 billion persons, killed 1.3 million people and resulted in economic losses valued at over 2 trillion dollar of which there were 3455 flood cases, 2689 storms, 470 droughts and 395 extreme temperature cases occurred between 1994 and 2011[11]. Available data revealed that 106 million people were affected by disasters in 2012, a significant drop from 209 million that were affected in 2011. At the same time, the largest number of people were affected by floods (62.3 million), followed by drought (24.9 million) and storms (16.4 million). [12]

A disproportionate share of the deaths caused by environmental shocks such as earthquakes, floods, cyclones, hurricanes, and extreme temperature events are borne by people in developing countries. Reports indicated that, 65 percent of world deaths from natural disasters between 1985 and 1999 took place in nations whose incomes were below \$760 per-capita; while more than 90 percent of all deaths caused by natural disasters were from droughts, floods and windstorms [13]. In 1999 the US reported two to three times as many disasters than Bangladesh; yet in Bangladesh disasters caused 34 times more deaths [14]. It was noted that the most prolonged and widespread droughts occurred in 1973 and killed 100,000 people in the Sahel, while in 1998 many parts of East Africa experienced increase in rainfall (up to ten times the usual percentage of rainfall) leading to disastrous flooding which affected over 10000 people in Uganda alone.[15] At the same time, in 2010, floods in Pakistan affected 20 million people [16]. The economic cost associated with natural disasters has increased 14-fold since the 50s. During the last decade, disasters caused damage of an estimated US\$67 billion per year on average, with a maximum of US\$230 billion and a minimum of US\$28 billion. He further explained that in comparison, the record of year 2011 saw massive disaster losses of over \$360 billion, especially in developed countries; however, losses in 2012 were about \$160 billion, a staggering amount which is almost equivalent to the GDP of Zealand and the seventh highest annl total of direct losses since 1980[16]

III. STUDY AREA AND METHODS

The study covers the six geo political zones with population of 140 million within which the 36 States and the 774 Local Government Councils of the country are distributed, see fig 1. It has a land extent of about 923,769 km² between latitude 4° N to 14° N; and longitude 3° E to 15°E with north-south length of about 1,450-km and a west east breadth of about 800 km.



Figure1. The 36 States of Nigeria Source: Ekiti State Library

It is a country with diverse biophysical characteristics. Hence, Nigeria's climate is characterized by strong latitudinal zones which become progressively drier as one moves northwards from the coast. The annual rainfall total decreases from over 3,800 mm at Forcados on the coast to under 650 mm at Maiduguri in the

extreme north-east of the country. The length of the rainy season also shows decrease from nearly 12 months in the south to less than 5 months in the north. Nigeria has a climate, which is characterized, by relatively high temperatures throughout the year. The average annual maximum varies from 35 °C in the north to 31 °C in the south, the average annual minimum from 23 °C in the south to 18 °C in the north. The major hazards being experienced in Nigeria includes land degradation, flooding, erosion, deforestation, desertification and climatic drought. In most cases, it has been due to natural and artificial factors that claimed many lives in Nigeria and rendered many homeless. In general, Nigeria has a relatively weak economy with an under protected and expansive environment. The contribution of these characteristics make Nigeria's environment especially vulnerable. The study by design adopts explorative survey of which compilation of data for the paper was through secondary source. The data collected which actually take sample from the six geo-political zones of the country focus on the level of poverty, the extent of flooding and severity of drought and famine as well as windstorm across the selected areas. The compiled data were subjected to both simple descriptive and inferential analysis. The descriptive analysis is by percentage presented in table formats while the inferential analysis is by simple ranking method.

IV. RESULTS OF FINDINGS

For proper understanding and clarity of purpose, the result of findings are divided into three sections, namely Profile of poverty and natural disaster in Nigeria; Regional dimension of poverty and natural disaster in Nigeria and the correlation analysis of poverty and natural disaster.

4.1 Profile of Poverty and Natural Disaster Available records from the Bureau of Statistics of Nigeria for thirty years clearly showed that; in 1980, 18.4 million people representing 27 percent were living below poverty line. The figure rose to 67 million which was 66 percent in 1996 and jumped to 126 million of 81 percent in 2001 before decreasing to 112.5 million at 69 percent in 2011. See the fig 2 below.

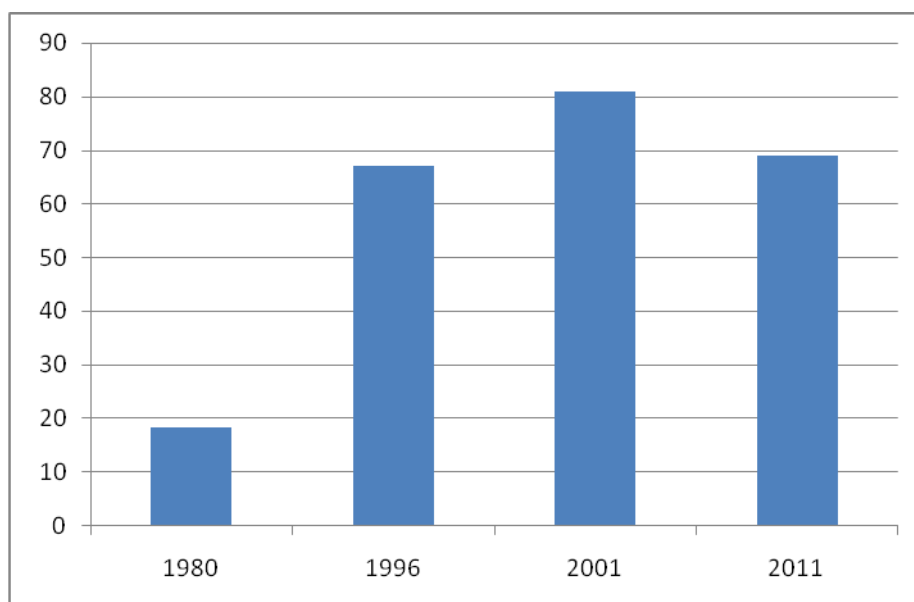


Figure2. Profile of poverty in Nigeria in percentage (1980-2011)

Source: Authors compilation(2014) from Federal Bureau of Statistics

Within the same period, affected people by flood were 3,064,265 while the number of people affected by drought was 3,000,000. However, there was no record of death casualty for drought while death recorded for flooding was not less than 3800 people. The cost implication stands at 1.2 trillion Naira for flood and 71 millions Naira-for drought. 4.2 Regional Dimension of Poverty and Natural Disaster The poverty index across the six geopolitical zones of Nigeria in 1996 revealed that North West had the highest index of 81 percent. This is followed by North East with 71.5, North Central 70.6, South West 67, South East 61 and South- South 60 percent respectively. However, in 2012 the north still maintained the lead in the average poverty rate of states in the country with North -West geopolitical zone clinching the top spot at 71.4 per cent, followed by North-East 69.1 per cent and North Central, 60.7 per cent. The record showed that poverty was least prevalent in the South-West, with an average of 49.8 per cent, followed by South-South, 55.5 per cent and South-East, 59.5 per cent. See the fig 3 below.

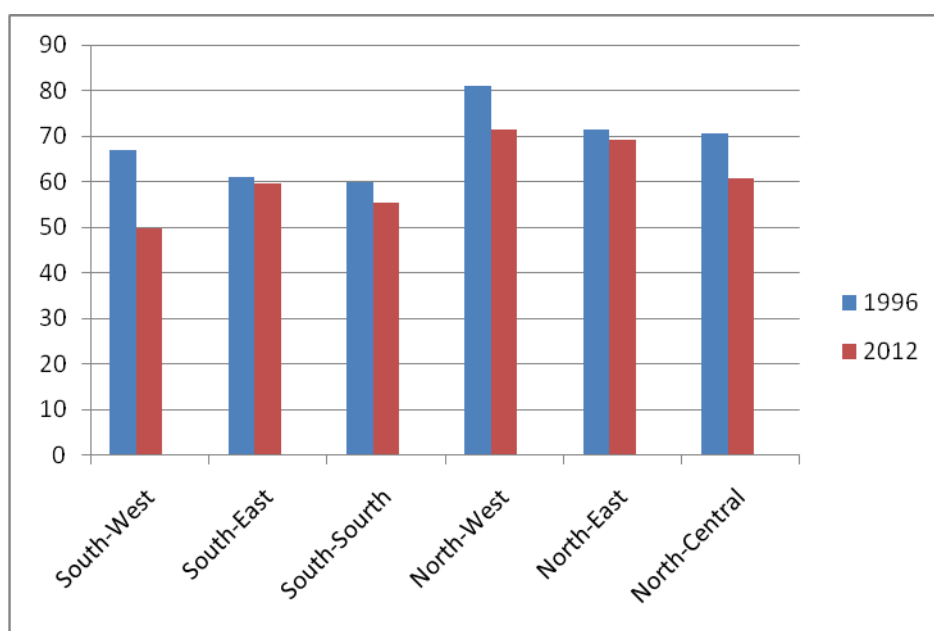


Figure 3 Poverty index across the six geo-political zones in Nigeria (1996 & 2012)

Source: Authors compilation (2014) from Federal Bureau of Statistics

It is interesting to know that Flood is the major natural and devastated disaster in Nigeria. The table below indicates the four remarkable years of floods in all the geo political zones of the country in 21st century. From the table, the flood in the 2012 affected over 3 million people with death toll of 306 where North-central region alone recorded the highest figure of 143 deaths. It is also noted that the South West led the death toll with 120 in year 2011. However, despite the fact that 2001 floods took the second position in term of people affected in the country, it recorded the least death toll of 103.

Table 1: Years of Major flooding across the six geo-political zones in Nigeria(2001 -2012)

Flood data Regions	2001		2010		2011		2012		
	Death toll	People affected	Death toll	People affected	Death toll	People affected	Death toll	People affected	
South- West	6	202000	3	105000	120	350000	3	50000	
South-South	16	1341000	8	500000	12	850000	25	2120100	
South- East	3	10500	-	-	5	60000	25	250000	
North-West	35	500000	50	140000	3	20000	50	120000	
North-Central	21	220000	45	550000	11	100000	143	907000	
North-East	24	610000	15	50000	16	70000	60	105000	
Total	103	2883000	121	1345000	167	1450000	306	3547100	
Remarks									

Source: Authors compilation (2014) from NEMA and SEMA records

Storms, particularly wind and rain storms formed another devastated natural disaster in Nigeria. The spatial variation in the cost of rain and windstorm damages across the six geo political regions of the country are presented by the pie chart shown below. Majority of the damages occurred in the southern Nigeria where the South-West has the lead with 1.2 trillion Naira worth of properties damaged. Closely followed by this, is the South-South with 1.1trillion Naira and South-East with 950 million Naira worth of properties damaged. However, for the northern regions, the North-Central has the highest record with properties damaged worth of 750 million Naira, followed by the North –West with damaged properties valued at 600 million Naira while the North-East region has damaged properties worth of 550 million Naira.

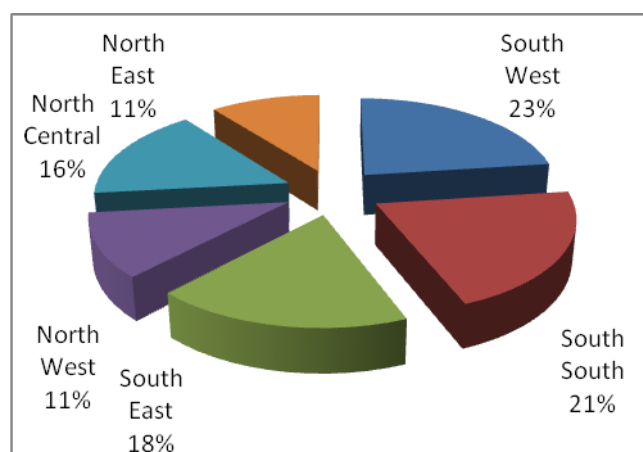


Figure 4 Cost of wind and rainstorms damage in the regions

Source: Authors compilation (2014) from NEMA and SEMA records

4.3 Correlation Analysis of Poverty and Natural Disaster From the simple ranking correlation, the coefficient of correlation between poverty index of 2012 across the six geo-political zones of the country and the people displaced by flood in that particular year, clearly showed a negative coefficient of $r = 0.03$. This revealed that disaster occurrence, particularly flooding has a strong significant impact on poverty.

V. DISCUSSION OF FINDINGS

5.1 The Major Disasters Generally there are three major categories of flooding in Nigeria, namely coastal, river and urban flooding. The fact that the majority of the people in the South-South region particularly in Rivers, Delta and Bayelsa States are living in the coastal flood plain, actually made most of the people to be affected by floods. In fact, because of its disposition as flat, low-lying swampy area of alluvial deposition across which the tributaries of the Niger meander, the Niger Delta is by far the largest single area subjected to annual flooding in Nigeria. The flooding being experienced in the northern regions is mainly due to river and flash flooding. For instance, the flooding in the North Central region is around the flood plain of river Niger and Benue. At the same time the flood plain of river Taraba and river Benue together with the low lying area around Lake Chad contribute to flooding in the North East region while the influence of river Sokoto, Kaduna and Haldeja constitute flooding of the North West. Likewise, urban flooding remains the major flooding in South West region.

Wind and rain storms are products of wind speed and rainfall. As a matter of fact, the wind storm in the northern regions is as a result of sparse Sudan and Sahel savannah vegetation with little frictional force on the wind which eventually resulted in the high wind velocity experienced in the northern Nigeria. However, the high rainfall and relative humidity in southern Nigeria made the atmosphere to be damp and the associated heavy air slowed down the wind velocity. The fact that Large areas of Northern Nigeria fall within the Sahel and Sudan ecological zones, between latitude 9-14oN where there is protracted absence, deficient or poor distribution of precipitation or insufficient rainfall to meet the socio-economic demands of the region in terms of water supply for domestic and industrial uses, agriculture and ecosystem, actually made the three northern regions to be prone to recurrent droughts in one form or the other. At the same time, it is imperative to know that drought operates over an extended period – a season, a year, or several years – of deficient rainfall relative to the long constant reoccurrence decimal of the beginning and end of season. 5.2 The Responsible Factors Basically, there are two factors responsible for natural disasters, namely: human activities and natural process. Although there are some occasions when one factor has contributory effect on the other, yet the nature of disaster always dictates the factors involved.

For instance, majority of flooding being experienced in Nigeria is due to human factors, particularly in urban setting. The factors include bad planning and development of townscape in term of siting and development of building structure along the river course; using of sub standard materials for various development, absent of green areas or open space in our cities and lack of proper drainage and channelization. The natural factor which is more rampant in rural environment is attributed to excessively prolonged rainfall which is equally a function of climate change. However, excessive felling of trees by the rural dwellers expose buildings to destructive windstorms; such as typhoon, tornados and hurricane. As for the drought, the underlying

causes of most droughts can be related to changing weather patterns, manifested through the excessive build up of heat on the earth's surface, which result in a reduction of rainfall, and reduced cloud.

Human activities such as deforestation, bush burning, overgrazing and poor cropping methods, which reduce water retention of the soil, and improper soil, equally contribute to drought in Nigeria. Likewise, it is important to note that the causes of the damage experienced by wind and rain storms across the country are attributed to four basic factors. These include the population and housing density, the building design, position of the inter-tropical convergence zone and urban forestry. The impact was severest in Lagos State, which had the highest housing and population density among the states studied. There is also one strong latent factor which actually influenced other factors and this very factor is poverty..This is because only those who are financially poor built with poor building material while lack of proper education on land use matters, make many to mis-used land by carrying out haphazard development and other activities that can aggravate degradation of land. The poor in the rural and urban settlement as in "[17]" are compelled to exploit environmental resources for survival; therefore, making the degradation of the environment not only the uncontrolled urbanization that swallow open space, agricultural land, interrupt natural drainage in pursuit of new urban land but also of the breakdown in the ability of local population and their government to manage arable and urban land effectively.

5.3 The major impact Nigerians suffer significantly from various types of disasters, amongst the three natural disasters under consideration, floods is the most deadly and destructive disaster of immediate action. For instance, in Nigeria, floods claimed an average of 120 lives and displaced not less than 2 million people annually with properties worth several million of Naira destroyed every year. The most devastating floods in the last 40 years hit the country between July and October 2012, causing the world's second largest disaster induced displacement event of the year when over 3 million people were displaced and properties worth billion of Naira were destroyed. See plate 1 below

Plate 1 Some displaced people in Balyesa State



Source: Social Briefing www.saction.org (2012)

Likewise, the wind and rain storm have very short time duration of disastrous effect to economic and social infrastructure such as building, water supply, electricity and roads network with little or no dead casualty. The total cost of damage to properties (buildings, vehicles and social infrastructures) was valued at eighty five billion and three million Naira (N 85.03b) (\$720.6 million) within the 16 years [18]. That amounted to an average of N 5.31 billion (\$45 million) per year. However, unlike the previous disasters, drought operates over a long period of time. This extended period could be a season, a year, or several years – of deficient rainfall relative to the long term average rainfall for a region. The impacts of drought are mass starvation, famine and cessation of economic activity especially in areas where agriculture is the main stay of the economy. Drought is the major cause of forced human migration and environmental refugees, deadly conflicts over the use of dwindling natural resources, food insecurity and starvation, destruction of critical habitats and loss of biological [19]. Since it has been ascertained from the correlation analysis derived from the findings, it could be deduced that, all the impact of disasters contributes to poverty level in one form or another.

VI. DISASTER MANAGEMENT MEASURES

In order to reduce or avoid losses from hazard, ensure prompt assistance to victims and achieve rapid and effective recovery, the paper therefore recommends a disaster management measures that will not only

prevent and mitigate but also prepare and response to disaster. The strategic action which usually presented as requirements before, during and after a disaster occurrence always put into consideration, the human element.

- The first thing to prevent disaster is to reduce poverty through various poverty alleviation programmes such as financial empowerment and provision of housing and necessary infrastructure.
- For flooding and rainstorm prevention, the requirements demand for the use of strong structural materials, provision of adequate open green space.
- the prevention of drought called for the use of drought tolerant and early maturing crop varieties by farmers
- In term of preparedness; flooding and rainstorm equally called for concerted efforts that must be geared towards adequate city planning, policy formulation, enhanced public enlightenment programmes, integration of environmental planning and education into curriculum of schools at all levels, capacity building towards adaptation and mitigation of climate change.
- At the same time, for quick response to disaster in Nigeria, government at all levels should ensure proper and effective use of ecological fund; and encourage the integration of environmental disaster insurance to take care of the fall out of flood menace.
- Finally, national disaster and emergency policies should be strengthened to facilitate effective disaster response. This approach will not only save lives and livelihoods, but it will equally reduce vulnerability to disaster menace.

VII. CONCLUSION

Environmental disasters, be it natural or man-made are threats to national development and growth. Disasters have ravaged several towns and many farm settlements in Nigeria for decades. The situation has resulted to loss of lives and properties worth trillion of Naira destroyed. In fact, to ameliorate this situation, call for proactive measures from government and collective participation of all people in the community.

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