

An Evaluation of the socio-cultural effects of Climate Change on vulnerable Africa: Making a case for urgent action towards Adaptation in Nigeria.

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Abstract

The enigma, Climate Change is no longer an illusion but a reality; a major crisis taking prominence as the *numero uno* threat ravaging the entire globe. The recent flooding episodes in Lagos, Ibadan, Kaduna, and recently, Kogi, to mention a few, have devastated farmlands, houses, drainage systems, caused the overflow of dams and countless loss of lives. This sets off warning signals on the economy of the country. The vulnerable majorities in Africa are the womenfolk which form the least educated, immobile, weak or easily affected sect in any society, because they hold up the home-front and are thus restricted to their domains. The focus of this paper is to make a case for immediate actions for measures of Adaptation by which the vulnerable people, especially women, could be made resilient in the face of this crisis thereby reducing significantly the risks of climate change. The methods used by a group of research students and a Lecturer were community mapping survey and interviews, where Makoko is the subject community. The survey comprised of 5 focus groups of ten respondents each which were set up to gather information on the effects of Climate change on the livelihood activities, namely fishing, lumbering, trading and roasting of fish products, weaving of nets and baskets, etc and related resources to determine adaptation strategies appropriate for this community. NEST(2011) opines that the use of local and traditional knowledge of community members in the selection of Adaptation options is very vital. Finally, it concludes with recommendations to the Government, Private and stakeholders to help reduce vulnerability and increase capacity to adapt while suggesting the need to integrate Climate Change sensitivity into all training, planning and implementation, whether it be Infrastructure, Education or Health sectors.

Keywords: Socio-cultural, Resilient, Adaptation, Vulnerable, Womenfolk

1.0 Introduction

Nigeria's climate is surely changing!

The realities of climate change are surely hitting home now, as they are evident in the variations in rainfall patterns, increase in droughts, flooding episodes, heat waves, sea-level rise and overflow of dams, etc. Amongst these series of catastrophes, the most prevalent is the flooding episodes which result from high river levels, concentrations of overland flow following heavy rainfall, limited capacity of drainage systems and blockage of waterways and drainage channels,

N.O. Adeoye, A. Ayanlade and O. Babatimehin,(2009). Some problems can be isolated to a single cause but more often it is a combination of factors which causes the worst flooding cases.

Recent occurrences include the flooding of Edo, Nasarawa, Plateau to Kogi , Benue and Bayelsa. The floods devastated the coastal villages, destroyed food crops and animals were not spared. The level of water now compels the use of boats across the ravaged areas. Several food crops destroyed were yams, rice, maize, guinea-corn, beans, soy-beans, and sugarcane.

According to NAN, News Agency of Nigeria, the root cause was the over flooding of the River Lille, bounding Kaduna and Nasarawa states, after a heavy rainfall. Over 60 farmers were affected in one instance while the sole occupation of the community is farming. 10,000 people were also displaced from their homes. These people are now taking refuge in four camps provided by NEMA, National Emergency Management Agency were relief materials are deployed to them.

The effect of this occurrence on structures cannot be over emphasized. Most of these submerged houses may become too weak and no longer safe for habitation in addition to the potential health hazards incurred from the disaster.



Source: Sahara reporters(2012)



Source: Sahara reporters(2012)

The displaced people are now taking refuge in relief camps. According to The Sun Newspapers, the rate of rape and molestation in such camps is on the increase and police

forces are being deployed to camps to keep them secure. It was advised that male and females be kept in separate locations to prevent such occurrences. Such is the pathetic situation of the lives of the refugees.

Climate change being a long term shift in the Climatic pattern of an area as a result of man's activities and natural variability, is here to stay. It is now being felt by most countries all over the world and affecting significantly, vulnerable communities in Nigeria: Hence the need for a move towards Sustainable Development requiring Energy Efficiency usage which can be achieved either through mitigation or adaptation (RIBA publications, 2011). Nigeria with its varied climatic zones ranging from the large arid North to long coastal south, experience peculiar aftermaths due to the changes in rainfall patterns thereby upsetting the various communities and social livelihood that have sustained these regions over time. These communities therefore will require various adaptation measures that would help them become strengthened in resilience and adapt to these changes and such actions would be relative to their location and their means of livelihood. Such communities have to be encouraged to identify their own vulnerabilities and assess the best adaptation options to test in their communities. Adaptation measures which can be introduced are to increase food security by introducing improved crop varieties; testing alternative livelihood options such as aquaculture in order to provide a means of income and to reduce the reliance on declining forest resources; providing fuel efficient wood stoves; improving access to water sources to deal with water scarcity; and tree planting for ecosystem rehabilitation.

Adaptation refers to long term, sustainable solutions that build the resilience of women and men to face the challenges brought about by climate change, while at the same time, protecting and sustaining the ecosystems that women and men depend on for their everyday life and livelihoods. Building 'adaptive capacity' in communities depends on integrating local and traditional knowledge of women and men with new and innovative ideas and strategies. These can include such things as income diversification, improved disaster and risk management, forging links with decision makers for better support for adaptation, (BNRCC report, 2012).

Also IPCC states that adaptation to climate change refers to adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC,2001).

This paper is making a case for urgent actions towards methods of Adaptation by facilitating an assessment of the awareness of rural women and men's' knowledge of their vulnerability status and so that adaptation options peculiar to them can be discovered and implemented by them, so that the Nigerian populace, will be equipped, toughened against the challenges of living with Climate change. Though, this community is small compared to the whole nation, issues discovered here could apply to similar communities scattered across the nation and be of relevance to policy makers and respective stakeholders.

2.0 Study area: Nigeria.

Nigeria lies on the south coast of West Africa. It has a total landmass of approximately 925,796 km². The climate of Nigeria varies more than any other country in West Africa due to its great length from the south to the north (1100 km). This results in virtually all of the climatic belts of West Africa being included within Nigeria's borders. The climate is dominated by the influence of three main wind currents: the Tropical Maritime (TM) air mass, the Tropical Continental (TC) air mass, and the Equatorial Easterlies (EE) (Ojo, 1977). The Nigerian climate is humid in the south with annual rainfall over 2000 mm and semi-arid in the north with annual rainfall less than 600 mm. Generally speaking, there are three climatic zones which cover the north, middle and southern areas of the country: Sahel, Savanna and Guinea zones. Rainfall commences in approximately March/April in the

southern coastal zones, spreads through the middle zone in May/June, and reaches the northern zone in June/July, reaching its peak over middle and northern zones between July and September. The rainfall retreat period follows a reverse of this progression (Ojo, 1977).

Climate plays a significant role in the distribution of vegetation and agriculture in Nigeria. The ecological zones of the country are grouped into seven zones: from south to north these are Mangrove, Freshwater Swamp, Rainforest, Woodland (or Tall Grass Savanna), Montane, Short Grass Savanna and Marginal Savanna. Approximately two-thirds of the agricultural area of Nigeria occurs in the north, with the remaining one-third of the agricultural area distributed between the middle and southern zones. Nigeria is the most populous country in Africa with over 140 million people and a population density of 138 people per square km, according to the 2006 census. Over seventy percent of Nigerians are classified as poor and thirty-five percent live in absolute poverty (IFAD, 2009). As the increasing population puts more pressure on diminishing resources, escalating environmental problems further threaten food production. Land degradation as a result of deforestation and overgrazing is already severe in many parts in the country. Drought is a common problem in the north, while heavy rains and floods are major problems in the south and southeast (IFAD, 2009).

Climate change is likely to further aggravate these environmental problems in the future.



Source: Topography of Nigeria (source: wikipedia.org/wiki/Geography_of_Nigeria)

2.1 The people and occupation

Nigeria has a population of more than 160 million which is the largest in Africa – and a fast-growing economy with Agriculture as its the mainstay. It contributes about 40 % of its GDP. The agriculture sector employs approximately two-thirds of the country's total labour force and provides a livelihood for about 90% of the rural population. Nigeria is the world's largest producer of cassava, yam and cowpea – all staple foods in sub-Saharan Africa. It is also a major producer of fish. The largest group of the poor live in the rural areas where 80% of the people live below poverty line, (IFAD,2012). Yet 90% of the food cultivated in Nigeria is grown by small scale farmers who cultivate small plots of land and depend on rainfall rather than irrigation systems. Women play a particularly major role, especially in production, processing, and marketing of food crops. Yet women and households headed solely by women are often the most chronically poor members of rural communities. Men have higher social status and, as a result, more access to schooling and training. In recent decades, the number of men migrating from rural areas in search of employment is on the increase due to climate change and its attendant effects, the number of households headed solely by women has grown substantially. Since the provision of infrastructure i.e potable water, good roads, schools, health centres, etc, is focused largely in the urban areas, the neglect of rural areas affects the profitability of agricultural yields and the bad roads further impedes the marketing of the yields leading to larger quantities of losses and spoilage.

2.2 Women and Food security

Obviously climate change affects everyone but women are the most vulnerable; rural women in developing countries are still largely responsible for securing food, water, and energy for cooking etc. Drought deforestation and erratic rainfall cause women to work harder to secure these resources. Women, therefore, have less time to earn income,(Adebamowo M.,Oduma Olugwu, 2009). In developing countries, often 70% or more of the population lives in rural areas. In that context, agricultural development among smallholder farmers and landless people provides a livelihood for people allowing them the opportunity to stay in their communities. In many areas of the world, land ownership is not available, thus, people who want or need to farm to make a living have little incentive to improve the land, (Wikipedia, 2012). The United States Department of Agriculture (USDA) defined Food security for a household as “access by all members at all times to enough food for an active, healthy life. Food security includes at a minimum (1) the ready availability of nutritionally adequate and safe foods, and (2) an assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies)”. Nigeria’s agriculture is basically rain-fed, and is dependent on rainfall, patterns making this a serious problem in these times.

Women do most of the farming in some parts of the country- rural Anambra, Benue, Cross River, Urban Lagos, Urban and rural kwara, Ogun, Imo, Ondo, Oyo and River, as well as fishing activities. Recent studies found that 90% of women involved in fish processing in urban areas use firewood or wood products in their activities. Wood for fuel is also extensively used for food processing, and domestic activities that are usually dominated by women: collection of firewood under heat stress could impact more on the health of women and children who are more involved in this activity than men, BNRCC(2008). Limits in accessibility makes it difficult for technology improvements and keeps supply of produce low. This creates a vicious cycle that keeps these regions in abject poverty especially in pre-harvest periods. With the advent of climate change, things would only grow worse.

2.3 Climate change and its effects in various Tropical countries.

IPCC (2006) report opines that deviations or rapid changes in climate will greatly impact forest distribution. Climate change is predicted to be largest at middle and high latitudes, the impacts of climate change in the tropics will also be significant and alter both the function (Silver, 1998) and distribution of forest types. With regard to the degree of climate change and the sensitivity of forests, such changes will significantly impact upon biodiversity (Markham,1996) and on a variety of ecosystem services in terms of regional carbon balance, nutrient sequestration, water quality and crop yield.

Also, according to Hilbert D.W et al (2001), the tropical forests of north Queensland are highly sensitive to climate change in a short term range, and would be soon evident in the areas and spatial distributions of all forest environments. Its effects would be on the socioeconomic and natural systems; the forest classes and landscape locations are likely to be most affected in the short term before any major changes in the extent or distribution of forests occurs. It may also be the case that extreme climatic events, especially droughts, strongly affect forest types and species distributions in the humid tropics. This would have its attendant effects on the livelihood and food security in this region. There is a need for urgent planning by conservationists and land managers who need to develop strategies to cope with the ecological changes brought about by rapid modification of climate. Also, Climate change is generating hazards that are affecting the livelihoods of communities within Nigeria. The increasing intensity of rainfall, spreading menace of flooding and soil erosion, and seriously declining productivity of farmlands are among the very obvious hazards ravaging communities in its various parts. In order to make up for the vulnerable societies, the major

source of employment for the rural masses, which is agriculture should be enhanced to adapt in the prevailing circumstances.

The key vulnerability factors that affect individuals in Nigerian communities is access to land and other natural resources, access to education, information, finance, markets and healthcare services, as well as the availability of local infrastructure for production and distribution of goods and services. The provision of roads facilitates access to markets and other services which can lead to income security and greater resilience.

3.0 Methodology

Tools for assessment of vulnerable groups within communities were community mapping, oral interviews and data analysis and documentation. A basic understanding of the context of each community is required. For example, in the Sahel communities of Nigeria, recurrent droughts is a predominant occurrence and are vulnerable as a result. Other communities are at a high risk of flooding. The community mapping exercise was carried out in Makoko community. Information on the main livelihood activities of the people and resources that these activities depend on were gotten. Their main activity is fishing and lumbering (sawmill), roasting of their fish products, weaving of nets, baskets and related crafts, etc. A direct impact of climate change on this region is flooding which will wash all out roads and accesses to markets for trading. Focus group discussions were done to determine the effects on the various livelihoods in this community and how they are impacted to determine the appropriate adaptation strategies. Five main focus groups were chosen with respect to the main source of livelihoods prevailing in the area. This study was carried out as a series of 5 focus groups survey in the fringes of Lagos with the aim of examining how best to engage the Nigerian populace in the adaptation awareness and implementation.

The objectives of the survey were to:-

1. Determine the extent of awareness on climate change
2. Determine the perception of the impacts
3. Determine means of adaptation relevant to this region

A total of 50 respondents were involved comprising of 10 each from the 5 focus groups in the community. The 5 focus groups represent 5 livelihood options prevalent in the area, namely: fishing, lumbering, weaving, roasting of fish products, and traders of sea foods. Women primarily carry out most of these activities except lumbering.

4.0 Results & Discussions

From the survey and personal interviews, it was revealed that on a scale of 1 to 5, 1.5 votes had an inclination to climate change though its impacts were widely felt and recognized. 4.5 had a perception of its effects and almost all of them had ideas of means by which they could thrive in this scenario.

Though climate change may be a relatively new term in these parts, rural men and women are those who are resource dependent and are those who see the changes first hand and know the problems that occur as a result of these changes. The continually struggle to make adjustments to their lives to survive as best as they can. Ways of improving and empowering the vulnerable, specifically the women, are as follows:

- Land reclamation by using sandbags, adhoc wood bridges for access to flooded market plains, and clearing of blocked drainages and creation of new drains around market places,
- Improving on environmental management and sanitation,

- Providing fuel efficient wood stoves; improving access to potable water sources to deal with water scarcity,
 - Empowering small-scale farmers, landless and rural women to generate sustainable incomes from farming and other activities,
 - Support local initiatives in sustainable livelihood improvement, natural resource management and the provision of small-scale community infrastructure,
 - Ensuring enhanced primary healthcare, as the advent of climate change will bring about the outbreak of malaria, tse-tse fly epidemics and many more diseases which could reduce the efficiency of women,
 - Ensuring that they gain access to financial services and can invest in improving productivity in agriculture and small scale businesses,
- Assistance should be made through Microfinance institutions, including the Nigerian Agricultural Cooperative and Rural Development Bank, the National Poverty Alleviation Programme, and microfinance banks and NGO microfinance institutions operating in rural areas. Such programmes would help strengthen rural outreaches and improve services to the most vulnerable groups, notably households headed by women,
 - Developing agricultural markets and increasing market access for smallholder farmers and small to medium-scale agro-processors,
 - Reducing tensions and conflicts by improving employment opportunities for young people and channeling their energies into the development of sustainable livelihoods and natural resource management activities.
 - Empowering the young with education which makes them resilient in the face of changing economies,
 - Increasing food security by testing alternative livelihood options such as aquaculture in order to provide a means of income and to reduce the reliance on dwindling water and forest resources.

5.0 Concluding Remarks

Nigeria is a developing country faced with the menace of climate change and its attendant effects; hence it is not well equipped economically to mitigate fully, but rather adaptation is best as it has short run advantages and will help make the nation resilient in the face of changing circumstances. Its women are the most vulnerable, especially those dependent on rain-fed agriculture as their means of livelihood as well as its associated resources; they are the rural based folks that are restricted to their domains as they hold up the home-front, they are immobile, least educated, and they do not take decisions without their husbands' consent, as such, they are most vulnerable to changing situations.

Empowering them, means empowering the nation, as they alongside the young and the youths, are the larger percentage of the population, with respect to the men. Attention should be focused on them to help the country become resilient in these times.

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