The Effect of Environmental Factors in Teaching and Learning in Primary and Secondary Schools in Edo State of Nigeria

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Abstract
This paper x-rayed the importance of environmental factors in every human endeavor especially as it relates to the teaching and learning environment in Edo state primary and secondary schools. It examined environmental factors to determine the outcome of teaching and learning at all times and in all places. Environmental factors consist of external factors that impinge on the learner including people, objects, perceptions, climate, aesthetics, noise, flood, building, interactions, socio-economic status, laws etc. This paper presents flood as a natural occurrence which often leads to disasters as a result of human-created vulnerability, which is a consequence of human-environment interactions. This paper concludes that the more enriched the learning environments is, the greater and more widespread are the benefits for academic performance and other student outcomes. It was therefore recommended that since the Nigerian learning environment is deplorable at some levels with particular reference to secondary schools; the educational institutions that are in flood ravaged communities be given serious attention as regards flood disaster and early management by government and other stakeholders in the educational System, so as to encourage sustainability and development.

Keywords: environmental factors, schools, flood, performance, teaching and learning.

INTRODUCTION
Teaching means imparting knowledge or skills to someone as to how to do something or cause to learn or understand something by example or experience; while learning refers to acquiring new information. Puja, (2012) identified seven environmental factors that may affect the teaching-learning process and one of these environmental factor. Environmental factor is any factor, whether biotic or abiotic that influences living organisms (Wikipedia, 2015). These environmental factors include flood, amongst others. One of the outstanding features of the environment today from research evidence is the speed at which it is deteriorating. (Blaikie, Cannon, Davis, and Wisner, 1994). Although environmental problems are not new they are simply enlarging and threatening to become uncontrollable phenomena.

Physical conditions needed for learning is under environmental factors. One of the factors that affect the effectiveness of learning is the condition in which learning takes place. This includes the road, pathway to school, classroom, textbook, equipment, school supplies, and other instructional materials. In the school and at the home, the conditions for learning must be favorable and adequate if teaching is to produce the desired results. It cannot be denied that the type and quality of instructional materials and equipment play an important part in the instructional efficiency of the school. It is difficult to do a good job of teaching in a poor environment and type of building and without adequate equipment and instructional materials.

Disaster is a serious disruption of the functioning of a community or a society. Disasters involve widespread human, material, economic or environmental impacts which exceed the ability of the affected community or society to cope using its own resources. Alan (2015).

Types of Disasters
There is no country that is immune from disaster, this vulnerability to disaster varies. There are four main types of disasters:
1. Natural – flood, earthquakes
Disasters have major and long lasting impact on the people long after the immediate effect has been mitigated. Poorly planned relief activities/actions can have a significant negative impact on the disaster victims. Therefore, this study will be of immense benefit to policy makers, Administrators, planners, school heads and stakeholders.

Environmental factor is any factor, whether biotic or abiotic that influences living organisms (Wikipedia, 2015). These environmental factors include flood amongst others. One of the outstanding features of the environment today from research evidence is the speed at which it is deteriorating (Muyanda-Mutebi and Yiga-Matov, 1993). It is not that environmental problems are new but they are simply enlarging and threatening to become uncontrollable phenomena.

A common environmental problem in Nigeria is flood and it is said to occur when a body of water moves over and above an area of land which is not normally submerged. It could also be seen as the inundation of an area not normally covered with water, through a temporary rise in level of stream, river, lake or sea, (Nelson, 2001). Sada (1988) defines flooding as unusually high rates of discharging; often leading to inundation of land adjacent to streams, and it is usually caused by intense or prolonged rainfall. The occurrence of flood represents a major risk to riversides populations and floodplains, in addition to causing substantial impacts on the environment, including aquatic fauna and flora, and bank erosion. Flooding is becoming an increasingly severe and more frequent problem in Nigeria. Unfortunately, the impact is more felt by the urban poor in such a way that recovery is unlikely to be achieved without external aid (Blaikie, 1994). In other words, urban poor are most vulnerable to impact of flood because they set up homes in the floodplains. Flooding is one of the most devastating hazards that are likely to increase in many regions of the world partly due to global climate change and poor governance.

According to Action Aid (2006) four types of urban flooding can be recognized:

a) Localized flooding which occurs many times in a year due to few and blocked drains;

b) Small streams in urban areas rising quickly after heavy rains, but often passing through small culverts under roads;

c) Major rivers flowing through urban areas;

d) Wet season flooding in lowland and coastal cities.

Floods are the most recurring, widespread, disastrous and frequent natural hazards of the world. It is worthy to note that all floods are not alike, while some floods develop slowly and last for a period of days; flash floods can develop quickly, sometimes in just a few minutes and without any visible signs of rain. Urban flooding has resulted in major loss of human lives; destruction of economic and social infrastructure such as water supply, electricity, roads and railway lines (means of livelihood). According to UN-Water (2011), worldwide, there has been rapid growth in number of people killed or seriously impacted by flood disasters. Indeed, the amount of economic damages affects a large proportion of people in low-lying coastal zones or other areas at risk of flooding and extreme weather condition. UN-Water (2011) also clarified that floods, including urban flood is seen to have caused about half of disasters worldwide and 84% disaster deaths in the world was attributed to flooding.

Flood is the most common and re-occurring disaster in Nigeria (Nigeria post-disaster needs assessment 2012 flood). The frequency, severity and spread of these floods are increasing. Wikipedia (2015), defined flood as an overflow of water that submerges dry land. It is an extreme weather event naturally caused by rising global temperature which results in heavy downpour. Flooding is the most common of all environmental hazards and it usually claims over 20,000 lives per year and adversely affects around 75 million people worldwide (Smith, 2012).

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Causes of Flooding In Nigeria

Generally, causes of flood in Nigeria could be as a result of natural cause or human cause. Viz are:

- Natural Cause in form of Heavy or torrential rains / rainstorm
- Oceans storms and tidal waves usually along the coast.
- Or Human Causes; which may be characterized by: Burst water main pipes, Dam burst levee failures and Dam spills.
- Flooding occurs throughout Nigeria in the following forms: Coastal flooding, River flooding, Flash floods, Urban flooding and Coastal flooding occur in the low-lying belt of mangrove and fresh water swamps along the coast.
- River flooding occurs in the flood plains of the larger rivers
- Flash floods are associated with rivers in the inland areas where sudden heavy rains can change them into destructive torrents within a short period.

Urban flooding occur in towns located on flat or low lying terrain especially where little or no provision has been made for surface drainage, or where existing drainage has been blocked with municipal waste, refuse and eroded soil sediments. Extensive urban flooding is a phenomenon in every rainy session in Lagos, Maiduguri, Abuja, Warri, Benin and Ibadan, (Etuonovbe, A.K). Factors generally responsible for flooding are numerous. Notable among them are heavy rainfall, blockage of drainage systems, irregular topography, urban encroachment, soil type and geological formations. Flood in Edo state are caused by some environmental causes like heavy rainfall, lack of adequate town planning techniques, poor drainage system, high level of illiteracy, ignorance of dropping refuse on flood paths etc (Igbinoba, Omorodion, Aniebenomo and Nathaniel, 2014).

Floods have also been blamed for loss of learning hours affecting the quality of education. In-depth interviews indicated that most teachers are failing to cover the school syllabus both at primary and secondary schools. This was said to affect the performance of the children in their areas, as they will sit for the national examinations with other pupils whose learning was never interrupted. This is in line with Amer (2007) and Okuom, Simatwa, Maureen and Wichenje (2012) research findings that disasters result in teachers failing to complete the syllabus, leading to poor performance. Flood in Edo state is caused by some environmental causes like heavy rainfall, lack of adequate town planning techniques, poor drainage system, high level of illiteracy, ignorance of dropping refuse on flood paths etc.

It was also revealed that a poor learning environment is the highest contributing factor to school dropouts and absenteeism. Children highlighted that some of the classes are conducted outside and therefore it is impossible for such classes to be conducted during the rainy season. As a result, some children choose to be absent from school, whilst others end up dropping out.

Children always face challenges to access schools during the rainy season because of road damages. Floods are barriers to students who need to get to their respective schools and these were also mentioned as a contributing factor to a poor learning environment. It was indicated that students who cross floods to arrive at school get wet and untidy making them uncomfortable to learn with others so they end up dropping out or staying at home. Interviews revealed that the rate of absenteeism is high in families where there are food shortages as a result of flood.

Floods damage school infrastructure and property such as furniture, books, classrooms and toilets if it occurs in the school premises. It was reported that every time schools experience floods, some classroom walls and toilets collapse with roof tops blown off. This poses a danger to children who spend most of the working hours in school. Children highlighted that because their classrooms have cracked walls they are always afraid and feel insecure. This is supported by Simatwa, Maureen and Wichenje (2012) research findings that fear, insecurity and general high alert during floods reduced student’s attention to learning, resulting to poor performance. The collapsed toilets forced some children to resort to bush toilets, leading to a high prevalence of cholera in schools as a result of water contamination. These unfavorable learning conditions have forced some children to drop out from school whilst others choose to stay away. This was said to increase the number of dropouts in the area and compromise the rights of children to education. Therefore, the researcher’s worry is that flood disaster has effect in teaching and learning in primary and secondary schools in Edo state?

The purpose of this paper therefore is to find out the effect of environmental factors in the teaching and learning in Edo State primary and secondary schools in flood ravaged areas as well as taking a look at the devastating impacts, remedial and management strategies at curbing flooding in Nigeria.

This study will be of immense benefit to policy makers, Administrators, planners, school heads and stakeholders for early warning and appropriate action for flood disaster management and sustainability.
The value of damage was estimated based on the number of different types of schools (primary and secondary) that were partially or totally destroyed by the floods, combined with the unit values of repair and construction prevailing in the period just prior to the flood disaster, plus the cost involved in replacing destroyed furniture, equipment and education materials. Flood affected 4,646 schools across the 11 states concerned which included Adamawa, Anambra, Bayelsa, Delta, Edo, Jigawa, Kebbi, Kogi, Nassarawa, Rivers and Taraba states. Available data shows that 2,478 primary schools were partially damaged, while 727 were totally destroyed. Also 794 secondary schools were partially damaged and 200 totally destroyed.

Flood in Edo State Primary and Secondary Schools and Its Effects

The incidence of flood in Edo state pertaining to primary and secondary schools is not really a new societal problem but its rate of increase on yearly basis (rainy season) calls for immediate attention. The damages and hindrance to effective teaching and learning that has been caused by flood can’t be undermined. The community of Aibotse/Igbei in Estako West Local Government Area of Edo State is being threatened by gully erosion. Some of the residents have even made appeal in separate interviews with the News Agency of Nigeria in the community (The Eagle Online, 2015). NAN checks in the area indicated that the end of the Aibotse/Igbei Road was almost washed off by erosion, thereby inhibiting vehicular movement. It was also observed that some perimeter fences around some of the buildings in the area had been pulled down by erosion. According to The Eagle online (2015), a resident of the community said that ‘the heavy rains have continued to wreck havoc on portions of the roads, which have already developed into a gully. Another resident added that the present state of the area had posed a serious danger to the residents, especially the pupils of Aibotse, Igbei primary school.

Thousands of residents in Edo State have been displaced following the rising tides of the river Niger. The affected local Government includes Etsako Central Local Government, Etsako East Local Government and Esan South East Local Government Area of Edo State. The ravaging flood which took over 20 communities in the area with a population of over 500,000 people, destroyed buildings, food crop, farmland and schools (channels television, September 25, 2012).

From the reviewed literature in the cause of this work, it was clearly observed that flood is an environmental disaster which is one of the most occurrence disasters in Nigeria states of which Edo state is not an exemption. Primary and secondary schools in flood prone areas in Edo state suffers greatly from the attack of flood. The entrance to these schools is often a problem due to gully erosion/flood and thereby creating difficulty in assessing the schools by both teachers and students. Cases abound that teachers with vehicles can’t drive straight to their school premises because of damaged roads and have resort to packing their vehicles distance away from school and walking down to school on foot. The situation is worst that sometimes, when there is heavy rainfall at the school in these flood prone areas; the students may not come to school because of the difficult. The situation is even made worse by the fact that the students are scared to allow their children/ward to go to school. From the interviewed students that when there is heavy rain fall parents are scared to allow their children/ward to go to school. Vanguard (February 19, 2014), reported a case of a JSS 3 student of Useh secondary school simply identified as...
Osamudiamen that got drown in flood and his body was found in a pool of water.

Amadi (2013), in a study investigated the evaluation of flood on secondary school students in Ogba/Egbe/Ndogbo Local Government Area of Rivers State, Nigeria. The survey method was used and a total of 90 respondents drawn from the residents in flood prone areas, were sampled for the study. The instrument used to collect data for the study includes questionnaires, interview, newspaper reports and personal observation. The findings showed that the members of staff were not happy being at home as a result of the flood as they were not paid for three months. It was also recorded that the flood destroyed important documents in the school and moreover, the flood affected the foundation of the school building which could probably lead to the collapse of the building and thus will result in extra cost for the management in future if adequate measures were not taken to reinforce the school building foundation. The case of that of Ogba/Egbe/Ndogbo Local Government of Rivers State is not so different from that of secondary schools in flood prone areas in Edo state.

Olaore and Aja (2014), asserts that the effect of the 2012 flood disaster on education “Educational activities were grounded in about nine local government areas and about three hundred and thirty-two communities in Kogi state. Over 54,000 pupils in about 270 schools in the councils were affected by the closure of schools. (Punch Nigeria Limited, 2012). The Commissioner of Education stated that the flood would affect the performance of some of the pupils eligible for the West African Senior Secondary Certificate Examinations the following year. Even Schools that were not directly affected by the flood were used as relief camps for flood victims obviously with no other alternative for pupils and students to learn. It has been projected that students from regions affected by the floods who will also write standardized external examinations may perform poorly when compared to other students in other part of the country where education or learning activities were not disrupted. Therefore students in the flooded regions are disadvantaged. Thus the ability to obtain certifications for skill and knowledge-base is required to compete for gainful employment in the already saturated labor market is jeopardized. Consequently the capacity for earning an income in order to meet basic for needs for food, health care, shelter and clothing is compromised”.

These discussed cases are not far from that of Edo State; hence, if proper measure is not taken to curb the flood disaster in the state it will render the goals of secondary education useless. One of the goals of secondary education which includes preparing the citizens for useful living within the society; providing all primary school leavers with the opportunity for education of a higher level, irrespective of sex, social status, religious or ethnic background; offer diversified curriculum to cater for the differences in talents, opportunities and future roles; provide trained manpower in the applied science, technology and commerce at sub-professional grades; develop and promote Nigerian languages, art and culture in the context of worlds cultural heritage; inspire students with a desire for self improvement and achievement of excellence; foster national unity with an emphasis on the common ties that unite us in our diversity; raise a generation of people who can think for themselves, respect the views and feelings of others, respect the dignity of labour, appreciate those values specified under our broad national goals and live as good citizens and to provide technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development (Federal Republic of Nigeria (FRN), 2004), and without effective teaching and learning in primary and secondary schools, the realization of these goals will be threatened.

**Flood Disaster Management**

A change of proactive management of natural disaster requires an identification of the risk, the development of strategies to reduce that risk and the creation of policies and programs to put these strategies into effect. Risk management is a fundamental activity geared to the evaluation of schemes for reducing but not necessarily eliminating the overall risk, as in many cases risk cannot be entirely eliminated.

For flooding events, there is need to calculate the probability and likelihood that an extreme event will occur and to establish and eliminate the social, economic and environmental implications should the event occur under existing conditions. Flood Management calls for a combination of effective strategies in flood management that employ structural and non-structural measures and a pro-active and post-recovery approach to dealing with flood risk. Because absolute protection from flooding is a myth, flood emergency management is an integral part of flood risk reduction, which aims at managing and minimizing the damaging effects of flooding. Flood risks are defined as the expected losses from actual flood events over a specified period, and consist of the magnitude of the flood hazard, the exposure of human activity to flooding and the vulnerability of the elements at risk (WMO, 2006). Flood emergency measures can reduce the exposure to flooding; for example, moving individuals away from flooded areas to prevent individuals from drowning or the spread of diseases. Similarly, flood
emergency planning can contribute, when integrated into an early warning system, to the shutting down of facilities that, if flooded, are likely to have an adverse effect on the safety of the population and the environment (for example, chemical plants). It is not easy, however, to perform flood emergency planning and management properly. Early warning without appropriate action is not sufficient to ensure reduction of risk to flooding.

Flood Disaster Management Process
Disaster management involves many diverse activities. These activities can be grouped into five main stages viz: assessment, mitigation, preparedness, response, and recovery, (Lemons, 2005). The first three activities are performed before the occurrence of disaster, while the fourth and fifth take place during and after the occurrence of disasters respectively.

Assessment: This involves inventorying (identification and recording) the sensitivity and vulnerability of a region to certain types of hazards. At this stage the levels of risks, the danger to human life, environment and structures are considered and determined. The assessment will provide identification of development that increases them, thus establishing the culture of prevention.

Mitigation: This entails making necessary provisions to ensure that the region is less vulnerable to known risks and danger. Mitigation activities may include; land use and planning; moving settlement away from areas susceptible to such risks and dangers such as flood and storm areas; and the establishment and enforcement of building code etc.

Preparedness: This involves planning of emergency aid, development of scenarios and monitoring systems, and establishment of early warning system, public information and awareness of likely hazards, community involvement in disaster management programs, establishment of disaster management and reduction at local, state and national levels and establishment of proper communication channels.

Response: This happens after the occurrence of the disaster which would have caused untold human suffering and damages to the environment. At this stage rescue teams will attempt to save lives, injured people will be cured and nursed and relief will be supplied to traumatized survivors. This is the most sensational stage of disaster reduction and management system.

Recovery: This stage involves assessment of damages, rehabilitation, cleaning of the environment and social and economic reconstruction. It also entails the first three stages of disaster management process viz; assessment, mitigation and preparedness, all of which are central to strategic development aimed at preventing or minimizing the effect of future disasters.

Flood Emergency Preparedness
Flood emergency Preparedness includes the issuance of timely and effective early warnings and the temporary evacuation of individuals and property from threatened locations. Education and public awareness; coordination among governmental and non-governmental agencies; effective stakeholder participation; and early warning systems are key components of preparedness planning.

Raising Public Awareness: Awareness can be raised through education and regular training – particularly in areas exposed to infrequent hazards or within new settlements. Flood hazard maps, depicting flood-prone areas, evacuation routes and safe shelters, can play a critical role in awareness building. Women and children should be included in education strategies, as they are disproportionately affected by natural disasters. Outreach efforts should be made to minorities and ethnic groups, as their mobility may be limited or affected owing to cultural, social or economic constraints.

Emergency Preparedness Plan: The emergency preparedness planning process and its relationship with the basin planning process is outlined in Chapter 2. Preparedness plans should be adequately linked to disaster management entities at the local, district, state and national levels. This method improves the ability of a community in a vulnerable area to respond to floods and to reduce the risk. Local inhabitants should be allowed to be active in developing and enacting flood emergency plans and to implement their own measures to reflect local conditions and real needs on the ground.

Early Warning System: Successful emergency operations depend greatly on the availability and reliability of flood forecasting information and the lead time provided by warning systems. Flood early warning is a message informing authorities of the impending danger of floods, that is, the water level rising above the warning level. Longer lead time will provide sufficient time to consider and affect a number of responses, whereas reliability of the warning and confidence with likely respondents determines its effectiveness. Warnings must be provided and conveyed in an unambiguous, easily understandable manner and in the local language through a legally designated single authority.
Review: In January 2015, 168 local Governments adopted a 10-year global plan for natural disaster risk reduction called the Hyogo framework. It offers guiding principles, priorities for action, practical means for achieving disaster resilience for vulnerable communities.

Flood management is very necessary in our modern society today, without which the flood disaster will continue to ravage our communities and there will be a continuous effect on the teaching and learning process in our primary and secondary schools. Management is needed in all human endeavors likewise is needed in limiting the occurrence of disaster in our societies, hence, complete eradication of disaster is a myth. To be able to achieve a sustainable development in our society flood management is an inevitable action we must take against flood disaster.

**Education for Flood Disaster Management and Sustainable Development**

Sustainable development can be defined as the practice of preserving resources for future generation without any harm to the nature and other component of it (Wikipedia, 2015). Sustainable development ties together concern for the carrying capacity of natural systems with the social, political and economic challenges faced by humanity. Education for sustainable development is the process of equipping students with the knowledge and understanding, skills and attributes needed to work and live in a way that safeguards environmental, social and economic well-being, both in the present and for future generations. Education is seen as a tool for national and economic development. Nelson Mandiba Mandela (1918-2014), ex-president of South Africa, presents education as 'the most powerful weapon to change the world'. Education is a means through which we can rebuild our own nation. The importance of education to any society or country cannot be underestimated. Education fosters the worth and development of the individual, for each individual’s sake and for the general development of the society. The national educational goals of Nigeria include, building a free and democratic society; a just and egalitarian society; a united, strong and self-reliant nation; a great and dynamic economy and a land full of bright opportunities for all citizens (Federal Republic of Nigeria (FRN), 2004). By extension, education leads to not only the individuals’ development but the development of the society as well. The importance of education in sustainable development cannot be overemphasized.

Disaster management is linked with S.D particularly in relation to vulnerable students such as those that belong to the marginalized group which hampers implementation of curriculum and strongly opposes goal actualization.

In order to realize these goals of education and sustainable development in our society, the flood disaster that threatens the realization of these goals and objectives by obstructing effective learning and teaching must be checked. Effective management in curbing flood disaster is a must for every society in order to be able to achieve its educational goals and a sustained political, economic, environmental and educational development.

**CONCLUSION**

Flooding in Nigeria is a serious issue requiring the attention of all stake holders aimed at preventing and remediying its adverse effects which threatens human existence. This paper concludes that flood disaster is prevalent in notable areas of Edo state and in Nigeria in General; although flood disaster is prevalent in notable Local Government Areas (LGA) in Edo State, the situation is not as bad as it is in other states of Nigeria. Therefore, flood management is needed to reduce the occurrence disaster of flood in our society; Flood disaster which is a threat to sustainable development in our society, when curbed can lead to a better access to effective education which in turn can go a long way in helping the society in attaining a sustained development.

**RECOMMENDATIONS**

This paper therefore was recommends:

i. That the Government should make effort to develop ‘early flood warning system’ (EFWS); rapid response mechanism and outfit; strict adherence to zoning and building principle; evacuation of waste and maintenance of drainage systems; mass awareness campaign of flooding and other environmental hazard.

ii. State government should create a canal that will enable water to flow easily.

iii. The resident in the flood prone areas should avoid dumping of refuse into the drainages and water ways.

Continuous rehabilitation and assistance of victims by the government, individuals and Non-Governmental Organizations (NGO) which is the synergy approach.

iv. Activities should be designed to provide permanent protection from disaster and provide permanent protection from disaster.
REFERENCES


