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FLOODING IN SECONDARY SCHOOL STUDENTS IN OGBA / EGBEMA / NDONI LOCAL GOVERNMENT AREA IN RIVERS STATE, NIGERIA

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Abstract
This study dwells on flooding in Secondary School Students in Ogba/Egbema/Ndoni Local Government Area of Rivers State, Nigeria, which occurred in October 2012. The result of review showed that floods in Omoku occurred mostly at the event of rainfall intensity and amount and especially at rainy season but this particular flood occurred in October 2012 after the main rainy season (August/September). Factors other than rainfall identified to substantially influenced flooding in the study are: lack of good drainage network, dumping of wastes / refuse in drainage and water channels, topographic characteristics, overflowing of riverbanks, low infiltration due to high water table and degree of built up areas leading to increased runoffs, and climate changes. Despite the flood hazards, occupants in flood prone area have remained on the basis of no alternative, cultural ethnic affinity, schools, family home, place where students stayed used to flooding as the whole area suffered from flooding nature of occupation, and cheaper houses to rent, animals, and farm lands which will lead to hunger in the future in those affected areas, personal properties and public infrastructures also suffered all forms of flood damages. Flood mitigation measures also include river rechannelisation, raising school foundations, use of sand bags bridges and neighbor community efforts. Public enlightenment and necessary legislation and enforcement are recommended to checkmate activities aiding flooding.

Introduction: The review of literature is made under the following:

1. River Floods
2. Coastal Floods
3. Devastating effect of Floods
4. How to Control Floods
5. Flood Damage
6. Summary of Literature Review

1. River Floods: River floods may occur in any season, but they are more likely in rainy season. In the spring, the two chief causes of flooding are heavy rains and a marked rise in temperature; floods during winter and spring occur on major rivers and affect large torrential rainstorms and therefore occur on the smaller streams. River flooding occurs in the flood plains of the larger rivers Encyclopedia Americana (2000).

The magnitude of a rainstorm flood depends chiefly on the amount and rate of rainfall and the ability of the soil to absorb and retain the rainfall. If the soil is wet from previous rainfall or if it is frozen, the amount of water that runs off into the streams is increased. An extraordinarily high flood usually
occurs as a result of a combination of substantial rainfall and a cool sodden from previous rains. When lubricated by rains, soils in mountainous may slide into the valley bottom and dam a river. When the river washes out the soil that dams it, the rapid release of the impounded water may cause floods. A flood also can occur when earth slides into a reservoir of a man-made dam, causing an over flow.

When a dam breaks, the sudden release of impounded water may be devastating. Perhaps, the worst disaster of this type was the Johnstown, Pa flood of 1889, which was caused by the breaking of a neglected earth dam on the South Forth, a tributary of the little Conemaugh River. Approximately 2,100 persons lost their lives as the floodwater swept into Johnstown. There is a little danger of such a disaster occurring to dams built to modern engineering standards. Levitan (2009). River flows may rise to floods levels at different rates from a few minutes to several weeks, depending on the types of river and the source of the increased flow. Slow rising floods most commonly occur in large rivers with large catchment areas. The increase in flow may be the result of sustained rainfall, rapid snow melt, monsoons, or tropical cyclones. Localized flooding may be caused or exacerbated by drainage obstructions such as landslides, rapid flooding events including flash floods more often occur on smaller rivers, rivers with steep valleys or rivers that flow for much of their length over impermeable terrain. The cause may be localized convective precipitation (intense thunderstorms) or sudden release from an upstream impoundment created behind landslide or glacier. Dam-building beavers can flood low-lying urban and rural areas, occasionally causing some damage.

2. Coastal Floods: According to Ramsay and Bell (2008) floods along coasts are of two kinds, some are caused by meteorological disturbances, such as hurricanes and other storms at sea; others by seismic disturbances, such as submarine, earthquakes, landslides and other disturbances of the sea bed. Both kinds of disturbances have preferred locations. Coastal flooding occurs in the low-lying belt of mangrove and fresh water swamps along the coast.

Hurricanes and typhoons commonly occur in the West Indies and the East Indies, respectively, and extra tropical cyclones occur in the Atlantic. Sea waves of seismic origin, called tsunamis, are most destructive tsunamis struck Lisbon after an earthquake. Koukoulas (2009).

Flooding in estuaries is commonly caused by a combination of sea tidal surges caused by the wind and low barometric pressure, and they may be exacerbated by high upstream river flow. Coastal areas may be flooded by storm events at sea, resulting in waves over-topping defenses or in severe cases by tsunami or tropical cyclones. A storm surge, from either a tropical cyclone; falls within this category.

In Nigeria, the flood is seriously and negatively affecting education because there are many schools in Omoku especially in the submerged councils that have been shut down due to the effect of flood; many of these students are disadvantaged, especially those sitting for WASSCE. (The Guardian, October 9, 2012).

The primary effects of flooding include loss of life, damage to buildings other structures, including schools, bridges, sewerage system, pipe borne water, roadways and canals. Infrastructure damage also frequently damages power transmission and sometimes power generation; which then has knock-on effects caused by the loss of power. This includes loss of drinking water treatment and water supply, which may result in loss of drinking water or severe contamination. It may also cause the loss of sewage disposal facilities. Lack of clean water combined with human sewage in the flood waters raises the risk of water borne diseases, which can include typhoid, giardia, cryptosporidium, cholera and many other diseases depending upon the location of the flood.

Damage to roads and transport infrastructure may make it difficult to mobilize aid to those affected or to provide emergency health treatment. Flood water typically inundate farm land, making
the land unworkable and preventing crops from being planted or harvest, which can lead to shortage of food both for humans and farm animals. Entire harvests for a community can be lost in extreme flood circumstances. Some trees species may not survive prolonged flooding of their root system. The secondary and long term efforts of flooding leads to economic hardship due to a temporary decline in tourism, rebuilding lost, or food shortages leading to price increase is a common after effect of severe flooding. The impact on those affected may cause psychological damage to those affected, in particular where deaths, serious injuries and loss of property occur.

3. Devastating Effects of Floods: In the last three decades, the impacts of flooding have increasingly assumed from significant to threatening proportions, resulting in loss of lives and properties. Though detailed statistics are not available regarding the losses sustained by the urban dwellers and flood victims, it is obvious that irreparable havoc have been sustained by the citizen of Nigeria due to what has become perennial natural disaster in our cities. Apart from houses that collapsed as well. Market places and farmlands are submerged for weeks and sometimes are washed away. The devastating effect of floods was not limited to houses and people, many farm lands both arable and agro-forestry were swept away when schools and market places were submerged for weeks, many bridges collapsed and electric poles were destroyed. (FIG Working Week 2011).

Generally, causes of flood in Nigeria could be as a result of natural or human cause. Natural cause in form of heavy rains/storm. Oceans storms and tidal waves usually along the coast. Human causes burst water main pipes; dam burst levee failures, dam spills.

4. How to Control Floods: In the case of coaster flood, there is no practical way to provide full protection on most exposed shorelines. The buildup beaches and sand dunes by means of artificial barriers beauty and recreational value of beach areas. For these reasons the principal way to reduce damage from flood due to the hurricanes and other sea storms are adequate warning services evacuation plans, proper building design, and zoning of the hazardous area.

In the case of river floods, various measures can be taken to reduce flood damages, including confining the river water, or increasing channel capacity.

Confinement of floods is one of the oldest effect means of reducing flood damages. Earth levels, concrete flood walls or emergency walls made of sandbags frequently are built to confine river water; water and reduces flood damage. For instance, about 30,000 square miles (75,000 sq) of the flood plain of the Orashi River has been protected from overflow by levees and others, structures. Levees are used also to protect cities, sometimes flood – walls of reinforced concrete are used instead of earthen levees because of high value of can in urban areas. Shang (2009).

The principal way to reduce flood stages is to store floodwater in reservoirs formed by dams and releases it at rates within the capacity of downstream channels. Floodwater may be detained and then released continuously at a low rate through unrated outlets. They may be held for longer time; depending on the downstream flood situation, or sometimes held for release during the dry season. The reservoirs that help to reduce flood flow are also used to provide water for homes and industry, generate power, reduce stream pollution, and provide opportunities for recreation.

According to Burges (2002) another way to reduce flood stages is to enlarge the channels of rivers; this usually is accomplished by dredging or excavation to increase the channel depth or width channel capacity also can be increased by reducing the flow resistance of the channel; this is accomplished by removing snags and other obstructions, providing a more uniform cross section, and eliminating meander. The resistance to flow can be reduced further by providing a smooth concrete lining for a channel, as is done to carry flood flows and its suburbs. Another means of increasing channel capacity is to provide alternative channels, called floodways that come into play only during great floods.
The belief that deforestation and land cultivation greatly increase the frequency and magnitude of floods led to the conclusion that floods could be prevented or reduced by reforestation or soil conservation. It was thought that such measures would increase the rate at which rain would infiltrate into the soil and increase the capacity of soil to retain water. Shang (2009). Research showed that such land treated measures increases the infiltration capacity of the soil. However, research also revealed that efforts of these measures are small compared with the intensity of rains that produce large floods of major rivers. Hence land treatment alone is not a feasible measure for reducing large floods. Adeloye and Rustum (2011). Excessive damage when great flood occur can be avoided by regulations that prevent misuse of floodplain lands. Measures for such control are becoming more important as floodplains are more intensively developed. These measures include zoning ordinances which specify the elevations and types of construction permitted in vulnerable areas. For example, high hazard areas frequency is zoned for uses such as riverfront parts. Powell (2009).

5. Flood Damage: The floodplain, the coastal bars, and the ocean strand invite man’s occupancy. Floodplain soils normally are more fertile and easier to till that uplands and the flatland are less costly to build on. Dyhouse (2003). The overflow of river, stream and the Orashi river destroyed crops, houses, school building and disrupt lives and properties. The government should set up a committee that will come to the aid of the people that were affected by the flood in Omoku town especially the secondary school students. (Thursday 4th October, 2012, The Guardian Newspaper)

6. Summary of Literature Review: In summary of this section on literature review, it has dealt with types of floods and the control measures. The types of flood identified here are Rainfall Floods and Coastal. The flow of a river usually is confined to a well defined channel that meanders in the course of time from one side of its valley to the other and for this reason, overflow of river to dry land causes extensive damage to the things on the dry land, when the river washes out the soil that dams it, the rapid release of the impounded water will cause a great flood. However, when there is a heavy rainfall, the river overflows into a wide flat area adjacent to the channel.

In flood protection, individuals also can play a significant role in reducing losses due to flooding. Schools, homes and other building can be designed to include provisions for movable bulkheads that can be placed in windows and doors in times of flood warning placement of electrical and plumbing systems to avoid damage by flood water; and arrangement of storage space above flood levels.

In the case of coastal floods, there is no practical way to provide full protection on most exposed shorelines. The buildup of beaches and sand dunes by means of artificial barriers may provide a partial solution, but such barriers may seriously interfere with the natural beauty and recreational value of beach areas. For these reasons, the principal ways to reduce damage from floods include adequate warning services, education plans, proper building design, and zoning of the more hazards areas.

In the case of river floods various measures can be taken to reduce flood damages, including confining the river water and increasing the channel capacity. It can only be accomplished by dredging or excavation to increase the channel depth.
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