

Assessing the Impacts of Flooding on Economic Activities in Aba North LGA, Abia State, Nigeria

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Abstract

The research examined the effects of flooding on the economic activities in Aba North Local government area section of Aba urban. Four hundred and fifty-six respondents were purposively selected and supplied with copies of questionnaire. Among all the economic activities observed in the area, commercial activities were greatly affected, 19.29%, followed by transportation, 10.75%, telecommunication, 10.75% and hospitality business, 10.31% it was recommended that resilience to flooding activities in the area is a key strategy in overcoming the consequential impacts of flooding on economic activities in the area.

Keywords: *Impacts, Flooding, Economic activities*

Introduction

Flood is a body of water which rises to overflow land and later submerges it (National Environmental survey/Action Team, NEST 2001), Flood is a common environmental problem in Nigeria 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), Floods are as a result of excess water flowing on land that used to be dry (Djimesah, Okine Mireku, 2018), It is an environmental hazard that occurs regularly every year in different parts of the country especially during the rainy season. Flood water overflow expanse of land, submerging the land. Flood occurrence is usually due to the increase in the volume of water within the water body such as rivers and lakes. The water exceeds the drainage channel capacity and overflows its bounds. In recent times, many urban areas in Nigeria have been facing series of environmental problems especially, flooding which has constantly caused the destruction of properties, and discouraged socio - economic activities in the affected urban centers (Blaikie, 2004). Urban areas in Nigeria have a very high population which has increasingly intensified human activities in the areas. The increasing persistence of flood occurrences in recent time has undoubtedly generated public outcry on the need to combat this environmental hazard and then improve the economic viability of the Country. It is also expected that drainage channels still under construction would supplement the already existing ones in these commercial cities. Inability of the government to effectively control indiscriminate dumping of waste in the drainage channels through provision of incinerators coupled with the poor drainage constructions, further worsen the flood situation in Nigeria (Okechukwu, 2008). Floods are caused by rainfall, melting snow or ice or by structural failure of water containing structures, including subterranean Structures. Floods can happen during heavy rains, when ocean waves come on Shore, when snow melts too fast, or when dams or levees break. Flooding may happen with only a few meters of water upsurge, or it may cover a house to the rooftop. They can occur

quickly or over a long period and may last days, weeks, or longer. Floods are the most common and widespread of all weather-related natural disasters. Flood occurrences in Nigeria, are always in the rainy season especially from July to October. Natural disasters like earthquake, volcanic eruption and landslides also contribute to flood outbreak by disrupting the normal balance of nature. This creates many health problems, like food and water supplies can become contaminated by parasite and bacterial when essential systems like those for water and sewage are destroyed. Developing countries are disproportionately affected because of their lack of resource, infrastructure and disaster preparedness systems. In newly affected areas, outbreaks of diseases may occur during any season and affect all ages equally. People acquire its infection by consuming contaminated water, seafood, or other foods. Once infected, they excrete the bacteria in stool. Thus, the infection can spread rapidly particularly in areas where human waste is untreated. In 2012, Nigeria experienced its worst flooding in recent history (Henah, & Ojeh, 2013:). More than 2.3 million people were displaced, 363 lost their lives and another 16 million people were impacted in various ways and years of development gains were reversed (Oladokun & Proverbs, 2016; Nwigwe & Emberga 2014). Total losses were put at US\$16.9 billion (Security, 2013). In reality, the extent and nature of Nigeria's flooding are such that the actual figures for displacements, losses, and fatalities cannot be truly ascertained (Cirella & Iyalomhe, 2018; Nkwurionwo, 2015).

Flooding are common features in some Nigerian urban centers. Flooding occurs in towns such as Aba urban, which is 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 and eroded soil sediment (Folorunsho & Awosike, 2001). Flooding cannot be completely avoided, but damages from severe flooding can be reduced if effective flood prevention scheme is implemented. It is high time Nigeria government decided on how to make the urban areas functionally efficient by the use of proper legislative act and policies. The knowledge of remote sensing and geographical information systems (GIS) is a tool which can be used to investigate and map areas that are less or more vulnerable

Economic Impacts of Flood

Eni (2011), in the paper observed that flooding has significant impacts on global and regional flood production particularly the stable flood crops performance in tropical sub- humid climatic zone. Aderoju, (2014), stated that flooding in 2010, affected 178 million people. Urban settlement as indicated by Kesiena (2011), encompasses the major economic and social hubs of any national population. Urban flooding is often regarded as devastating than rural floods and typically causes massive damage and disruption beyond the scope of the actual flood waters. A report by the World Bank (2011), pointed out that developing countries are presently characterized by rising flooding events, one of the effects of increasing urbanization which ultimately alters the fluvial process of the area, because urbanization increases surface runoff due to increase in relative proportion of impervious surfaces.

The Area of Study

Aba Urban is located in southern part of Abia state in south eastern Nigeria. Aba urban is located within latitude 5° 02'N to 5° 10' N and longitude 7° 17'E to 7° 25' E. Aba urban is bounded by the rural communities of Osioma on the West and North, bounded by Obingwa rural communities on the East and Ugwuagbo rural communities on the south (Fig 1 and 2) Aba is highly populated, with an average population density of 3000 inhabitants per square kilometer. The people are predominantly traders. Aba is a city and in the southeast of Nigeria and the main trading centre in Abia State. Upon the creation of Abia State in 1991. Aba was

divided into two Local Government Areas namely; Aba South and Aba North. Aba south is the main city centre and the commercial heartbeat of Abia State, South-East Nigeria (see Fig 3). Aba is made up of towns such as; Umuokpoj, Ezeukwu Aba, Obuda- Aba, Aba Ukwu and other villages from Ohazu which merged together due to administrative convenience. Aba was established by the Ngwa Clan of Igbo people of Nigeria as a market town and then later a military post placed there by the British Colonial Administration in 1901. It lies along the west bank of Aba River, and is at the intersection of roads leading to Port Harcourt, Owerri, Umuahia, Ikot Ekpene, and Ikot Abasi. The city became a collecting point for agricultural products following the British made railway running from Port Harcourt to Kaduna. Aba urban area population history had a population of 1,081,000 in 2020 based on a 2.85% annual growth.

Methodology

Sampling Size and Technique

The sampling technique that will be adopted in this study is the stratified random sampling technique. It involves the division of a population into smaller groups known as strata. In stratified random sampling, the strata are formed based on members shared attributes or characteristics. A random sample from each stratum is taken in a number population to the stratum's size when compared to the Population. These subsets of the strata are then pooled to form a random sample. A stratified random sampling technique is suitable for this research as it is superior to random Sampling because it reduces sampling error. For the purpose of this research work the strata identified as Local government areas, are Aba North LGA, Aba South LGA, and Osioma LGA. Stratum is a subset of the population that share at least one common characteristic, with each stratum having the same climatic characteristic, (The 3 LGA's have the same geology and climatic condition). In each stratum, actual respondents were purposively taken. The respondents identified for this research are traders, residents and Landlords. A total of three thousand, seven hundred and fifty-four respondents were selected from distribution of questionnaire.

Table 1: Selection of Respondents

Strata	No. of Respondents selected
Aba North LGA	537
Aba South LGA	2119
Osioma LGA	1098
Total	3754

In Table 1 each stratum was allocated with 0.05% of the population size of each local government area purposively as presented in Table 1. A similar work was carried out by the use of 0.05% as a yardstick for selecting respondents is based on the statistical testing valuation of results, with values like 0.05%, and 0.01%.

Hence, the choice of 0.05% is statistically significant.

The respondents identified for this research are traders, residents and Landlords; hence 3,754 respondents were selected for distribution of questionnaire.

Method of Data Collection

Sources of Data

The data for this study were obtained from two major sources' the primary source and secondary source. The primary data were collected through, reconnaissance survey and questionnaire administration. The secondary data were gathered from journals, researched

works, government records, internet and maps.

The study area map was sourced from Abia State Ministry of Trades and Surveys. The population of the area was sourced from the information provided by the National Population Commission Abia State Office. Information on effect of flooding on commercial activities was sourced from resident traders' commercial bus drivers and landlords.

Method of Data Analysis and Presentation

Data retrieved from the field were presented with the aid of percentages, tables and graphs. The frequency corresponding to the responses were converted into percentage using the following formula

Percentage = $(N/Y \times 100)$

Where N= frequency of responses

Y = total number of responses 100 = constant

Statistical techniques include; descriptive statistics such as mean and standard deviation, given as:

Mean = $\sum x/n$ -----1 Standard Deviation = $(\sum (x - \bar{x})^2/n)^{1/2}$ -----2

Result and Discussion of Findings

Rating of Questionnaire Responses and Socio-economic Characteristics of the Respondents.

Return of copies of questionnaire by the Respondents in the study area

Location (LGA)	Copies questionnaire distributed	Copies of return questionnaire	Copies of questionnaire not returned	TOTAL
Aba North	537	456	81	537
Aba South	2119	1785	334	2119
Osisioma	1098	880	218	1098
Total	3754	3121	633	3754
Percentage value	100	83.14	16.86	100

From Table 2, questionnaire distribution was significant; this is due to the fact that the study covered three local government areas with more emphasis on the areas that fall within the Aba Urban. For local government area like; Osisioma, locations selected for questionnaire distribution were within the Aba Urban as duly designated by the Aba Urban Planning Authority, based on this, three thousand one hundred and twenty-one copies of questionnaire were returned, representing 83.14% of responses. Only 16.36% copies of questionnaire were not returned.

Table 3: Classification of Respondents from Aba North Local Government Area

Location	Artisans	Traders	Civil servants	Business professionals	Transport operators	Planning authorities	Others	Total
Eziama	9	10	10	14	8	5	18	84
Brass St.	6	10	12	8	7	2	10	55
Nicholas Rd	4	8	12	6	4	2	12	48
Faulks Rd	13	28	8	22	4	2	21	98
Eziukwu Rd	8	12	10	10	8	2	17	62

Immaculate Rd	8	18	9	15	6	2	10	78
Margret Avenue	5	10	5	5	5	2	43	31
Total	53	96	76	80	40	15	196	456
Percentage	11.62	21.05	16.67	17.54	8.77	3.3	21.05	100

From Table 4, out of 456 respondents that returned their questionnaire in Aba North Local Government Area, 21.05% of them were Traders; 16.67% Civil Servants, 11.62%. Artisans and 17.54% Business Professionals. Those classified as others were 21.05%, which represented various types of jobs and professions that exist in small portions like; barbing and Hair saloons (for men and women), radio electricians, shoe cobblers, motor cycle mechanics and watch repairs. roads constructed in the area, 13.86%. Others include: no damage system provided in the area, 7.39%, nonfunctioning drainage system, especially where it is provided, 6.14% and blocking of the existing drainage channels with discharge materials, as well as building across the drainage channels, 5.91%. Other factors that were relevant include: indiscriminate unapproved places like; open spaces, buffer zones and green belts, 5.79% and the low land nature of Aba. These factors are also in trader with the conclusion reached separately by Akintoye et al (2015) and ogbonna et, (2015).

General Consequences of Flooding on the Economic Activities of the Inhabitation of the Area

There are various economic activities engaged by the inhabitants of Aba Urban, they include, commercial, industrial, transportation, insurance, agriculture recreation, banking and hospitality business. These economic activities were affected by flooding in the area, as the respondent clearly declared. The results are presented in subsequent tables, for the three local government areas located in Aba urban, Economic activities discussed in the work are any aspect of human activity that there is exchange of services or product for money. In the classification of economic activities, any form of activity that generates income is equally described as economic activities.

Effect of flooding on economic activities in Aba North Local Government Area

Economic Activities	Eziama	Bra ss St	Nicholas Rd	Faulks Rd	Eziukwu	Immaculate Rd	Margrat e Ave.	Total	Percentage
Commercial	20	10	7	10	13	12	6	88	19.29
Industrial	6	4	3	8	6	5	2	34	7.46
Hospitality	8	3	4	10	9	6	2	47	10.31
Health service	7	5	6	9	7	6	3	43	9.43
Insurance	4	2	3	5	4	3	2	23	5.04
Telecommunication	10	6	5	10	8	7	3	49	10.75
Education institution	8	4	6	9	8	6	2	43	9.43
Banking service	8	7	5	8	7	5	4	44	9.65
Transportation	10	5	5	10	9	6	4	49	10.75

Other service provided	3	4	4	9	7	6	3	36	7.89
Total	84	55	48	98	78	62	31	456	100

Nwanorue, 2023

Results from Aba North Local Government Area, presented in Table 4 shows that more than 19% of the respondents observed that commercial activities were higher than the other economic activities and equally affected more by flooding in the area. This should be expected giving the fact that Aba is a major commercial centre in Abia State and Nigeria. Other economic activities identified by the respondents and at the same time indisposed by flood include; industrial activities, 7.46%, hospitality services, 10.31% and health services, 9.43%. reduction in the varieties of goods offered in the market. 8.11%. Others include; loss in quality of goods, 8.33%, increase in accidents and constant damage to vehicles that are used in distribution of goods and services, 8.33%; loss of time due to blocked road network and subsequent traffic Congestions, 7.89% and decreasing number of available shops for intending Customers, 10.30%.

Table 5: Consequences of Flooding on Commercial Activities in Aba South Local Government Area

Consequences	Aziki we by Asa Rd	Park/pou nd Rd	Port Harcourt Rd	Ngw a Rd	St. Michael Rd	Milver ton Rd	Tot al	Percentag e
Reduction in sales	100	48	44	51	30	40	293	16.41
Decrease in profit	80	52	50	65	48	27	322	18.04
Reduction in the number of buyers and sellers	40	30	34	30	20	12	166	9.29
Reduction in the types of goods available	38	28	32	29	21	11	159	8.91
Loss in quality of goods	36	17	28	26	18	13	138	7.73
Increase in cost of transportation	48	21	23	22	19	8	141	7.89
Loss of goods stored in flooded shops, stores	42	21	20	20	19	9	131	7.34
Increase in accident and breakage of vehicles	40	18	30	32	25	12	157	8.93
Loss of time due to flooded areas	25	17	19	10	18	13	112	6.17

Decreasing number of available shops	36	34	22	30	24	20	166	9.29
Total	485	286	302	325	242	145	1785	100

Nwanorue, 2023

From table 5: the option of decrease in profit by business in the area recorded the highest response of 18.04%; followed by reduction in sales, 16.4%. Others include; reduction in the number of buyers and sellers, 9.29%, decreasing number of available shops, 9.29%

There are general economic consequences arising from the flooding of some areas in Aba Urban, these views were presented in Table 4. They affected economic activities include, commercial, industrial, hospitality. Health services, insurance. Telecommunications, education institutions, banking services, transportation and other service provided. Other service providers referred here include: hair and barbing saloon, shoe cobblers, wheelbarrow row/truck pushers, loaders/off loaders, roadside motor/motorcycle mechanics and vulcanizer. Specifically, commercial activities in Aba Urban are greatly hindered by flooding which occurs between July to early November each year. Some of the affected areas as revealed are unfortunately where the major commercial centers are situated.

For instance; Ngwa Rd market (Ahia ohuru) is along the always flooded Ngwa Road especially in the months of July to October. The same is applicable to Faulks Rd and Enugu-Port Harcourt Express Rd, all leading to Ariaria market. Even, the internal road networks within Ariaria market are usually flooded, like A line.

In Table 5, the respondents identified the specific consequences of flooding on commercial activities in Aba Urban. They include; reduction in sales, decrease in profit, reduction in the number of buyers and sellers as well, reduction in the varieties of goods offered.

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