



**THE EFFECTS OF NDIEGORO FLOODPLAIN ON THE SOCIO-ECONOMIC
CHARACTERISTICS OF RESIDENCE IN ABA SOUTH LOCAL GOVERNMENT AREA, ABIA
STATE, NIGERIA**

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Abstract

The Floodplains are reckoned to be vital in the biological diversity, maintenance of river productivity and provisions of ecosystem services that are directly and indirectly profitable to human being. The project was intended at evaluating the effects of Ndiegoro floodplain on the socio-economic characteristics of residence in Aba South Local Government Area, Abia State, Nigeria. The study employed questionnaires for data collection; analysed using Statistical Package for the Social Sciences (SPSS) and the result presented using simple descriptive statistics, particularly frequency and percentages. The research hypotheses were tested through inferential statistics; Chi-square and Students T-test at 95% level of significant. The participants were majorly represented by male (59.80%), age ranges of 30-40 (35.2%), married (58.9%), Christian (73.70%) and salary worker (27.90%). Furthermore, the study revealed that the major land-use was subjected to industrial and housing activities and it has impacted loss of farm siltation to the floodplain. The problem associated with unsustainable use of floodplain resulted to flooding. The various land-uses have impacted both floodplain and the residents. Also, revealed was problem connected with the unsustainable uses of the floodplain in the study such as flooding. The study concluded that unsustainable usage of the floodplain led to flood disaster. Therefore, recommended effective land-use planning and buffer zones regulation must be adhere to.

KEYWORDS: Floodplain, Flood and Disaster

1.0 Introduction

In the past millennium, exploitation of floodplains have been intensive for its vital roles in settlement and in agricultural practice, although, numerous floodplains

still provides such functions to many locations. Over the years, floodplains have gained the intention of many scientists and applied researchers and many asserted the vital constituents of such fluvial ecosystem.

Research on such ecosystem is now regarded as extremely important as ecosystem, material fluxes activities, storage contaminate and the encompassing riverine habitat. Robertson et al., (1999 as cited in Nanson and Croke, 2002) asserted the serviceability of floodplain in carbon cycling and water storage. According to Leong (1978 cited in Uchegbu, 2003), sediments are deposited to floodplains over time affect their morphology but naturally, floodplains are flat. But what is certain about floodplains generally is their constantly interact with water; hence, floodplains areas are **has** susceptible to flooding. Flooding's correlated with rivers, where the river volumes are increased by increased precipitation.

The Floodplains are known as the lateral constituents of river component reckoned to be essential in the biological diversity, sustenance of river productivity and provisions of ecosystem services that are

directly and indirectly profitable to human being (Junk et al. 1989, Mitsch and Grosselink 2000, & Bornette 2002 as cited in Ickes, Vallazza, Kalas and Knights, 2005). Most biological productivity, ecosystem diversity on earth is found among various natural floodplains. Floodplains are recognised to be among the productive ecosystem on earth, due to constant enrichment through importation and retention of sediments from the headwaters and lateral reservoir which is nutrient-rich. This somewhat make floodplains greatly productive than their main river adjacent uplands. Riverine floodplains cover over 2 000 000 km² worldwide; as ecosystem, floodplain are endangered ecosystems (Tockner and Standford, 2002). According to Junk and Welcome (1990 as cited in Ishaku, 2015) Floodplains are referred to areas of low lying land that are subjected to continuous in-flow and out-flow of water from the lateral over-flow water from

parents rivers or nearby lake that they are connected with. According to Tadaferua (2003 cited in Ishaku, 2015) the important part of rivers ecosystem that function as flood-buffer, water filtration, nursery for biological reproductions and provision of freshwater for wetlands is known as floodplain.

The socio-economic impacts refers to all changes in the way of everything and every activity that makes mankind (e.g. way of live, work, relate and organize), and the manner at which such activities directly and indirectly influence their livelihood, productivity, purchasing-power, migration and agricultural and other related activities. Awopetu, et al (2013) highlighted various resulting impact of social and economic concerns and asserted that such concerns can be hard to measure in pecuniary footing and when such socio-economic concerns brings about degradation in a society lit leads to various of vulnerability and social unrest.

2.0 Literature Review

Floodplain is among the important landscape with great diversify and provides both services functions in its natural state. As a system, floodplains are dynamic in nature which they are constantly eroded, sediment depository, in-flow of water during high tide bring about ground and surface water-exchange process. Such dynamic nature of floodplains has rendered them as highly biological productivity and diversity on earth (Tockner & Stanford 2002). In the early civilizations, floodplains, through history, have served people and they learned to cultivate and use their rich resources from floodplain. These imply that floodplains also serve the purpose of cultural and economic importance.

Tockner, et al, (2008) reviewed floodplains as critically threatened ecosystems. The review described floodplains as unparalleled and dynamic ecosystems that connect rivers with their

catchments. Tockner, et al, (2008) attested floodplain to be productive environments with high biodiversity but subjected to intense agricultural and urban development function among human. The review asserted the need for floodplain conservation of those that are still in their natural state and rehabilitation for that are already degraded but in both cases, floodplains ecosystem must be protected and should be sustainably used among the local communities, particularly in developing countries.

Furthermore, floodplain ecosystem must be duly understood in order to manage effectively between conservation and resource usability. Chapman and Canaan (2001) highlighted the aftermath of improper floodplain management. Such aftermaths include the socio-economic loss. The study asserted for proper understands in change in land-use on floodplain. Such understanding is important for floodplain and flood management, prospect of

hydrological mechanism, infrastructural planning and urban extension. The study suggested accurate and updated floodplain mapping as a means to manage ecosystem.

Tockner and Stanford (2002) examined the alteration in rivers floodplain. The study revealed that degradation of floodplain is connected to declivity in rivers bio-abundance as a result of habitat alteration, contamination, flood and flow control. Furthermore, the study ascertains many floodplains **is** are already cultivated and can't provide any of its ecosystem services in developed nation's while floodplains are vanishing at a very accelerating rate in the developing nations caused by the change in hydrology system. The study concluded that there's a pressing demand for preservation of floodplain such to maintain natural resources globally, maintain hydrological activities, sediment deposition and vegetation retention otherwise the world will witness

unprecedented extinction of riverine floodplain in few decades to come.

According to Ickes, et al., (2005) floodplains play significant part in existence of many environmental systems but have been substantially impacted by anthropogenic activities resulted to isolated floodplain from their connecting river. The reviewed literatures exerted that floodplain function had been limited by the inconsistent in the in-flow and outflow of water into the ecosystem, therefore, there's need for impoundment and channel training.

Floodplain gravel on river stability was reviewed by Ladson and Judd (2014). According to Ladson and Judd (2014), gravel mining from floodplain can affect the river system nearby and/or off the mining site, both in short and long term. During flooding, gravel pits provide increased conveyance to flow and often a shortened flow path for floodwaters causing high velocities and scour. Gravel mining

activities can modify river channelization due to floodplains pits produce in the process which will also affect the erosional. This change in morphology can cause riverbed degradation, riverbank erosion and channel expansion. The study highlighted pit capture, change in river channel as the common aftermath of floodplain gravel mining.

Brouwer, Remco, Boeters, and Bouma (2006) which examined the substitute approach to flood prevention strategies in Netherlands through land-use changes and floodplains. The study assessed socio-economic effect of modifying land-use activities and conceives other means to floodplain restitution as another means to prevention of flood. The study adopted various approaches for their assessments and evaluation process to backup policy formulation as it involves flood protection. The result of the adopted policy shares similarities with hydrological policies.

a. Floodplain in Nigeria: Assessment of Various Uses and Management

Because of change in land-use patterns, floodplains are highly endangered as such patterns derail the balancing of ecosystem. Modernization, developmental growth and urbanization contributed immensely to menace of floodplains in the developing nations as a result of urban areas expansion primarily for livelihood, development and environment. Many floodplains are disappearing or transformed in an alarming rate for various purposes

Ezekiel, et al (2013) examined the consequence of flood on Amassoma floodplain sediments in Niger Delta, Nigeria and liken the result obtained with previously obtained. From the study, Water Absorbency, Bulk Density, Silt, Clay, Particle Density, Porosity and Sand were all higher post-flooding than before flooding. The soil textual class change from sand to silt after flooding and there were substantial

deviations in sediment particle size pre-flooding and post flooding. Also, the research asserted that all tested sediment physiochemical characteristics tested values were higher after flooding than before flooding except for Salinity and Temperature values which were lower after flooding than before flooding. However, there was significant difference in mean Sediment Physical and chemical characteristics values between the pre and post flooding.

Assessment of land-use changes impact along the floodplains of river Lamurde, Jalingo LGA, Nigeria was examined by Oruonye (2015). The major land-use includes rain-fed agriculture and irrigation farming, grazing, development of residential, commercial and institutional buildings, also refuse dump while the observed land-use activities include, pumping out of excessive water, deforestation, chemical fertilizers and poor

agricultural practices. The land-use activities have impacted negatively on ecosystem. The study suggested policies that will ascertain sufficient preservation of aquatic organisms and water supply through efficient land-use activities and conservation of vital ecosystems.

The climate change consequences on Ogbaru wetland as it affects the immediate people was studied by Ezenwaji, Orji, Enete and Otti (2014). The study adopted questionnaires and weather data. Various weather elements contributed about 43% of overall climatic change of the wetland. The study discussed various adaptation measures towards the unfavourable impact of climatic change on the ecosystem.

Using various mapping instruments and extraction process, Ndabula, Jidauna, Oyatayo, Averik, Iguisi (2012) analysed the urban floodplain encroachment as an approach towards conservative practise of floodplain. The study was done within

Kaduna metropolis, Nigeria. From the study, the result showed the level and pace of encroachment which unveiled that encroachment is within Central Business District (CBD). The study recommended the need for intuitional approach towards floodplain conservation.

3.0 Methodology

The researcher's plan was used for obtaining resolution or outcomes to the research questions guiding the study through the process of collecting, analysing and interpretation of data with the aim of understanding the phenomenon of study (Leedy & Ormrod, 2001 as cited in Williams, 2007). According to Kerlinger (as cited in Oyegun, 2003), a research design involves planning, structuring and strategizing for an investigation in order to obtain answers to the questions asked and to control variance. The questionnaire for the study was administered to the people of Ndiegoro community of Aba South Local

Government Area in Abia State, Nigeria. The researcher personally delivered the questionnaires to the respondents with the help of three (3) assistants and waited to collect the questionnaires. The questionnaire used both the Open-ended and Closed-ended questionnaire in eliciting information from respondents. The research questionnaire was subjected to Statistical Package for the Social Sciences (SPSS) for proper analysis. The study objectives **was** were analysed through descriptive statistics and the result was presented in frequency counts,

percentages and chart to show the event pattern of each of the variables.

4.0 Results

The results was generated from 349 questionnaire retrieved from the respondents used in carried out the research. Starting with the:

1. Floodplain Susceptible to Flood: 259 of the respondents claimed the floodplain is susceptible to flood, 50 claimed the floodplain is no susceptible to flood while 33 claimed not to know.

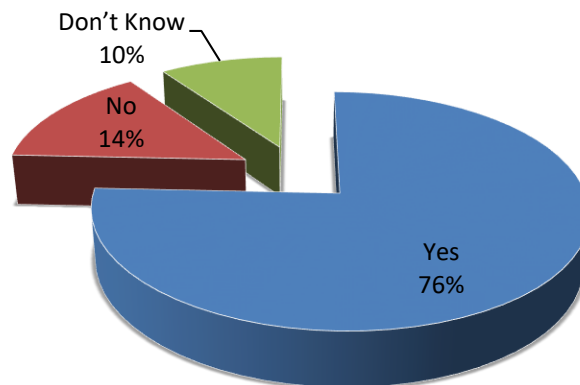


Figure 4.1: Floodplain Susceptible to Flood
(Source: Researcher's field work, 2018)

2. Period of Flooding: Table 4.1 presented the duration of flooding. The respondents claimed flooding occurred between July-September and it represents 115 of the sampled population.

Table 4.1: Period of Flooding

Respondents	Percentage (%)
January-March	9.7
April-June	25.7
July-September	34.7
October-December	29.9
Total	100

(Source: Researcher's field work, 2018)

3. Reasons for Continued Staying in Floodplain Areas: Figure 4.8 presented the reasons for continued staying in floodplain area among the respondents. from the result, 24.50% of the respondents claimed to have stayed in the area for a long time, 20.70% claimed is due to proximity to work or

business location, 20.20% claimed low cost of land and housing, 15.90% claimed area is not crowded, 15.30% claimed to have stayed in the area in order to maintain ties with family and friends and 3.40% undecided about their reason for continued staying in floodplain areas.

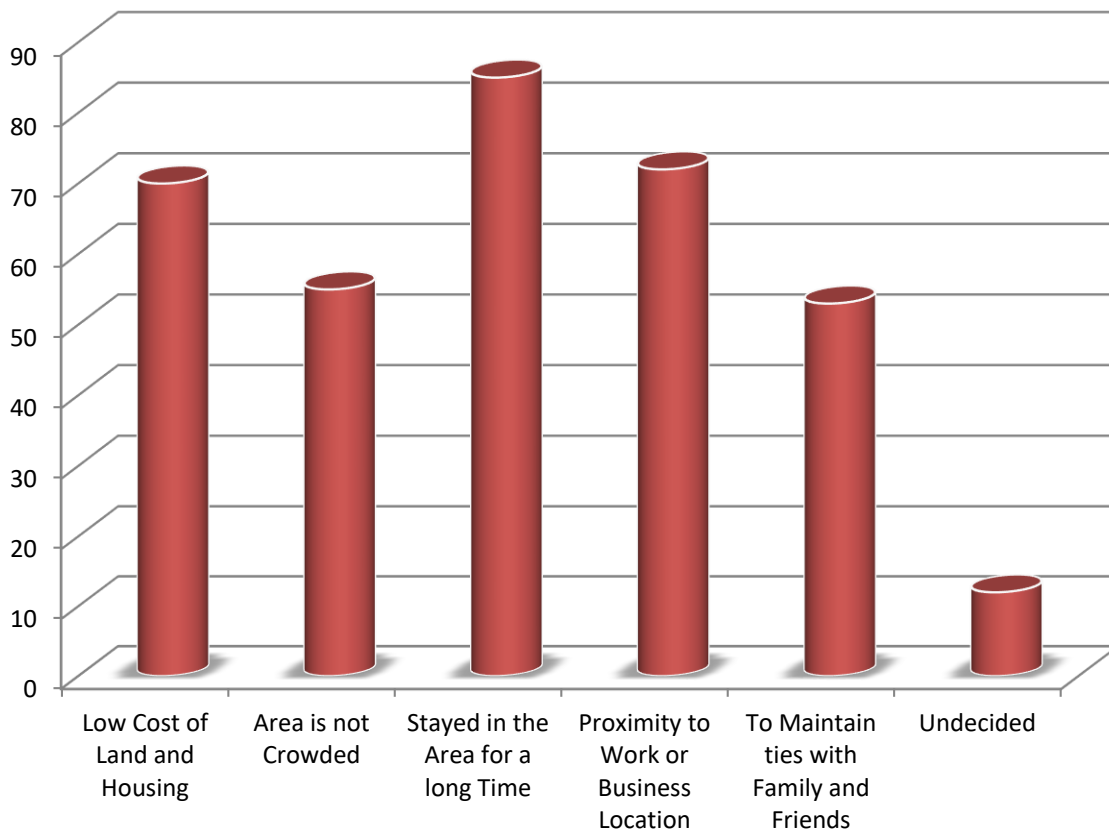


Figure 4.2: Reasons for Continued Staying in Floodplain Areas
(Source: Researcher's field work, 2018)

4. Various Land use along Floodplain:

Figure 4.3 presented the various land use along floodplain in the study area. From the result, 34.10% of the respondents claimed the land in the study area is subjected to

industrial activities, 33.50% of land subjected to Housing, 15.60% of land subjected to farming, 9.80% of land subjected to fishing while 0.90% claimed other forms land use.

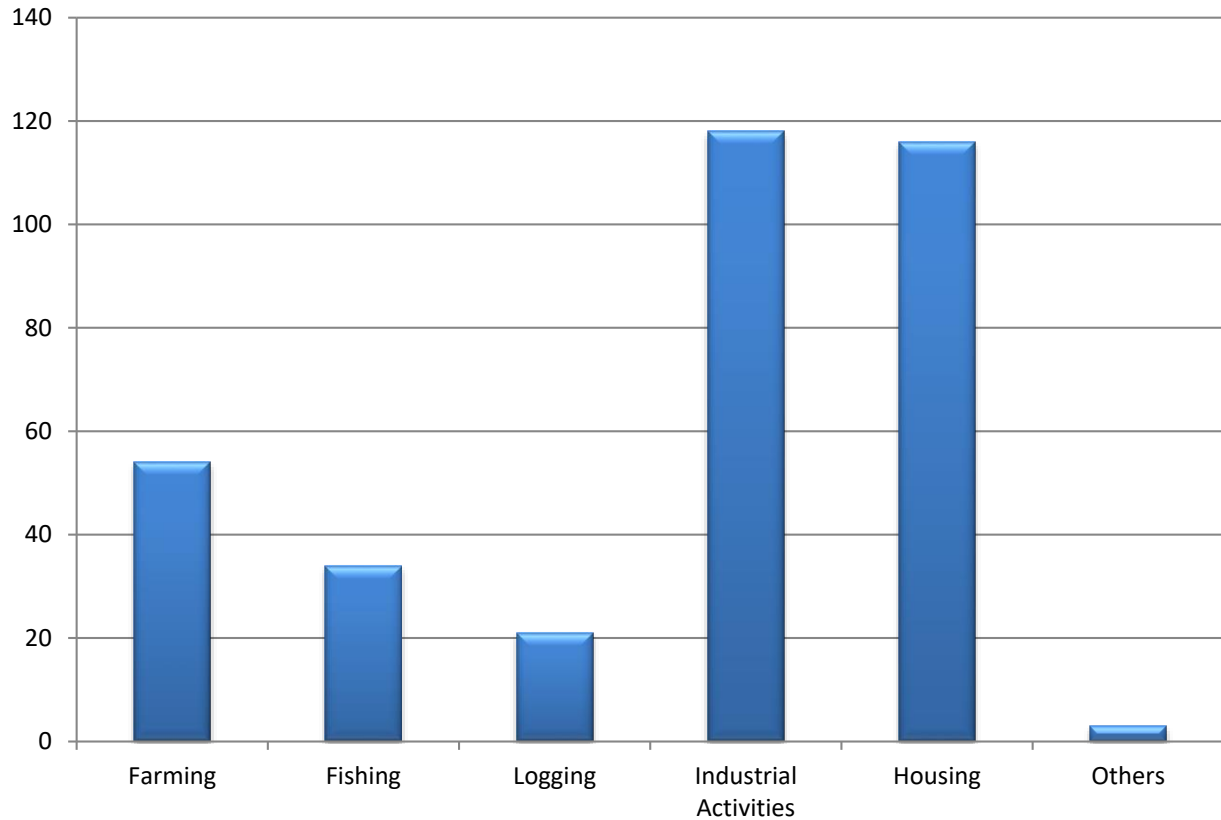


Figure 4.3: Various Land use along Floodplain
(Source: Researcher's field work, 2018)

5. Impact of Various land use along Floodplain: Figure 4.4 presented the respondents claimed to the impact of various land use along floodplain. From the result, 30.70% of the respondents claimed loss of farm siltation as the impact of land use in the floodplain, 23.90% claimed destruction

of farmland, 20.10% claimed loss of drinkable water, 12.40% claimed reduction of fish catch as the impact of land use in the floodplain, 9.80% claimed loss of loss of crop while 3.20% claimed other means as the impact of land use in the floodplain.

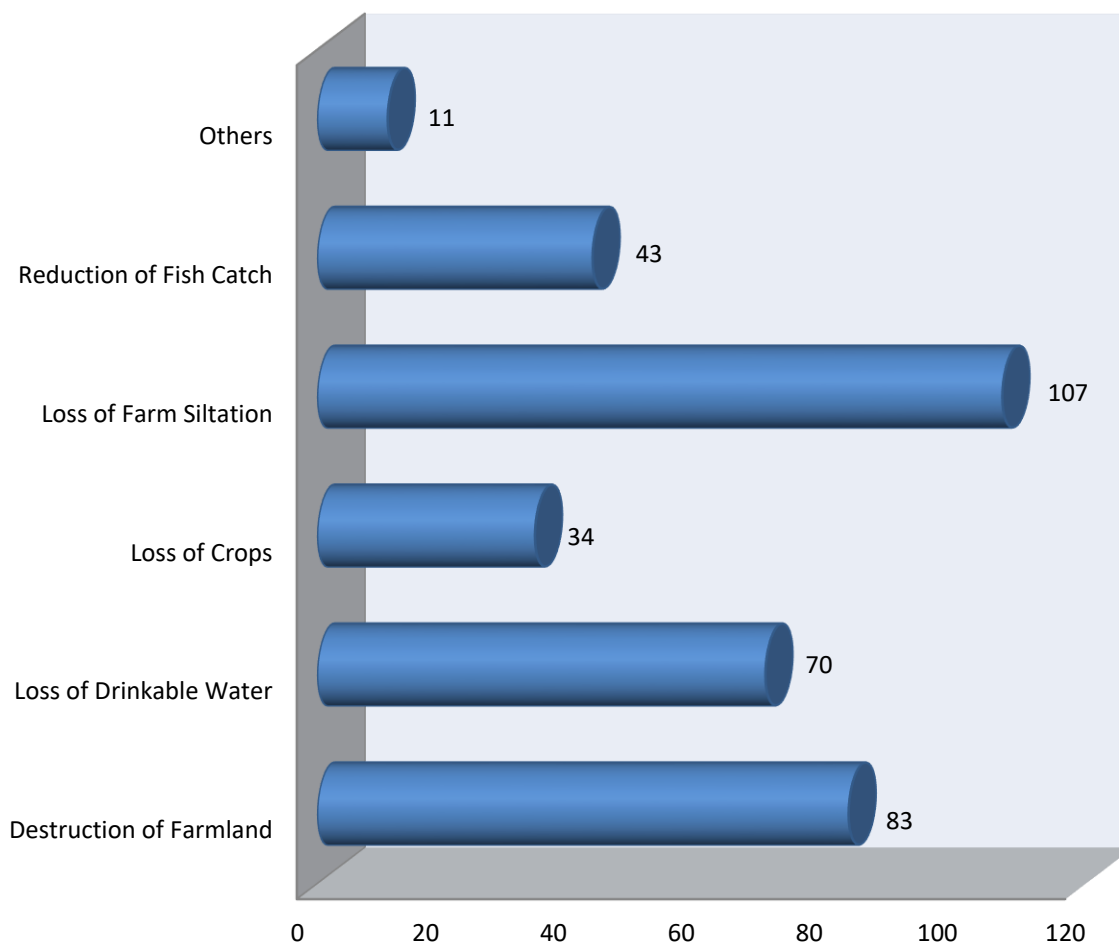


Figure 4.4: Impact of Various land use along Floodplain
 (Source: Researcher’s field work, 2018)

6. Problem Associated with Unsustainable use of Floodplain: Figure 4.5 presented problem associated with unsustainable use of floodplain in the study area. From the result, 35.60% of the respondents claimed unsustainable use of floodplain causes flooding, 24.10% claimed unsustainable use of floodplain causes contamination/pollution

of water, 13.20% claimed unsustainable use of floodplain causes reduction in agricultural yield, 12.90% claimed unsustainable use of floodplain causes drying of the rivers, 12.60% claimed unsustainable use of floodplain causes loss/reduction of fish catch while 1.40% claimed other forms of unsustainable use of floodplain.

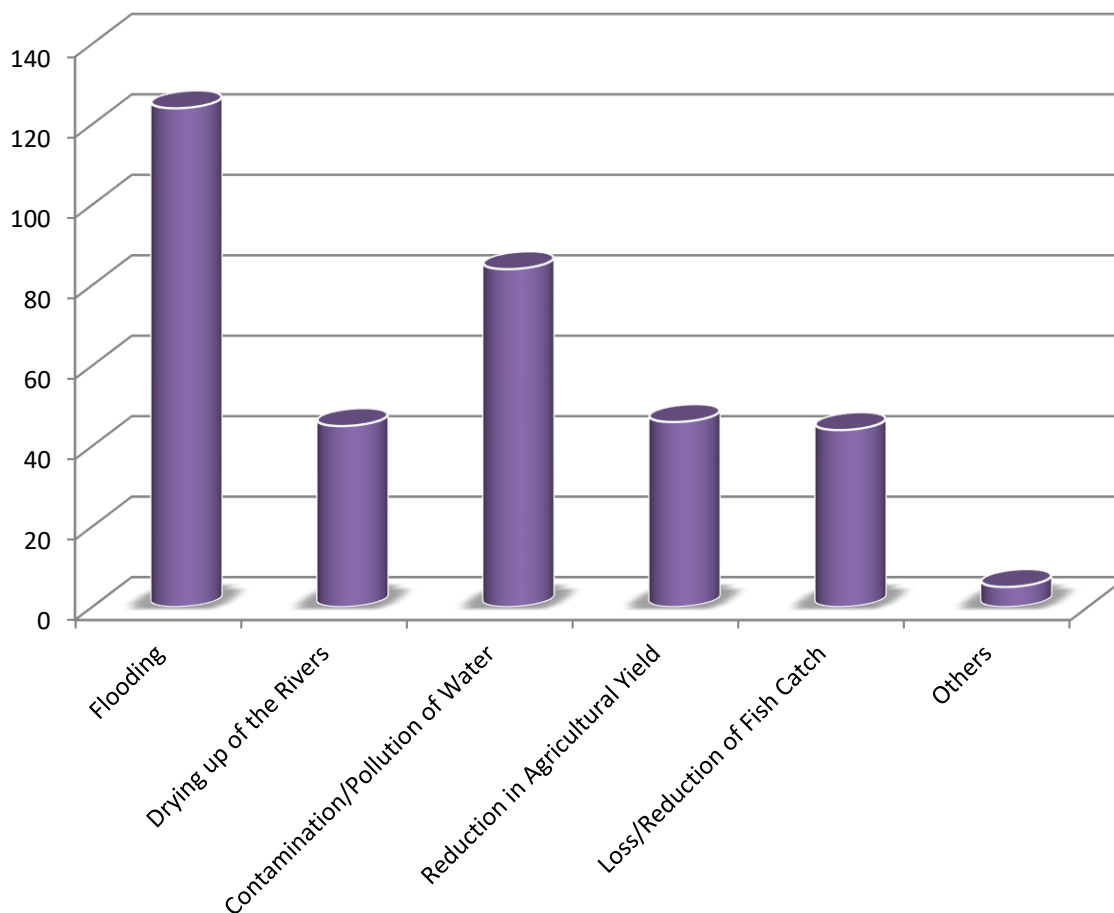


Figure 4.5: Problem Associated with Unsustainable use of Floodplain
 (Source: Researcher’s field work, 2018)

5.0 Discussions

From the results, the area is floodplain susceptible to flood with 75.70% of the respondents claimed the floodplain is susceptible to flood while 14.60% claimed otherwise and 9.40% of the respondents don’t know. Furthermore, on the period of flooding the study area, the result showed that most of the respondents have claimed

flooding occurs in the study area between July-September and it represents 34.70% of the respondents, 29.90% of the respondents claimed flooding occur in the study area between October-December while 25.70% claimed April-June and the least represented respondents claimed flooding occurs in the study area between January-March (9.70%). The result for the reasons for continued

staying in floodplain area among the respondents was presented in Figure 4.8. From the result, 24.50% of the respondents claimed their reason is because they have stayed in the area for a long time, 20.70% claimed is due to proximity to work or business location, 20.20% claimed low cost of land and housing, 15.90% claimed area is not crowded, 15.30% claimed to have stayed in the area in order to maintain ties with family and friends and 3.40% undecided about their reason for continued staying in floodplain areas. On the various land use along floodplain in the study area the result showed that 34.10% of the respondents claimed the land in the study area is subjected to industrial activities, 33.50% of land use is subjected to Housing, 15.60% of land use is subjected to farming, 9.80% of land use is subjected to fishing while 0.90% claimed other forms land use. Also, the result showed the impact of various land use along floodplain (Figure 4.10). From the

result, 30.70% of the respondents claimed loss of farm siltation as the impact of land use in the floodplain, 23.90% claimed destruction of farmland, 20.10% claimed loss of drinkable water, 12.40% claimed reduction of fish catch as the impact of land use in the floodplain, 9.80% claimed loss of loss of crop while 3.20% claimed other means as the impact of land use in the floodplain. Finally problem associated with unsustainable use of floodplain in the study area revealed that, majority of the respondents (35.60%) claimed unsustainable use of floodplain causes flooding, 24.10% claimed unsustainable use of floodplain causes contamination/pollution of water, 13.20% claimed unsustainable use of floodplain causes reduction in agricultural yield, 12.90% claimed unsustainable use of floodplain causes drying of the rivers, 12.60% claimed unsustainable use of floodplain causes loss/reduction of fish catch while 1.40% claimed other forms of

unsustainable use of floodplain. The finding of the study corroborate with the finding of Ishaku (2015) that revealed that encroachment of floodplain will resulted to increase vulnerability to flood disaster and imminent destruction, and such impact will be highly noticed during urban-typed floods as a result of various development and infrastructures on the floodplain.

6.0 Conclusion

The following conclusions were made from the study:

- i. The floodplain provides socio-economic and cultural importance to the residents in the study area.
- ii. The floodplain is susceptible to flood and the flooding event occurs between July-September of the year.
- iii. The majority of the lands around the floodplain are subjected to industrial activities and housing purpose. This has resulted to loss of farm siltation over time which somewhat will

affect the agricultural activities around the floodplain.

- iv. Flooding is in the study area is as a result of unsustainable uses of the floodplain.

7.0 References

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