



Research Article

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Flood disaster and national security: A criminologist`s exploration of Lagos metropolis, Nigeria

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Abstract

The global disaster trends are worrisome to all stakeholders. The ugly consequences of flood disasters include loss of lives and property, disruption of economic activities, creating insecurity like theft, robbery, and many more.

The consequence also puts pressure on the government to spend limited resources on rehabilitation and compensation of flood victims. Hence, this paper addresses flood-disaster preparedness and flood control in Nigeria through the criminological exploration of Lagos metropolis. The study applied exploratory and descriptive methods and relied on data generated through content analysis of books, journals, and online materials. This paper adopted the social control theory by Hirsch and broken window theory by George Kelly. The finding showed that people lack preparedness for the disaster events; they break urban master plans and structures to obstruct to flood. The anti-social attitude like indiscriminate dumping of solid wastes into drainages and carnal and weak enforcement of environmental laws. Also, undue cutting down of trees, lack of environmental policy and lack of political will to implement the existing ones, poor attitude to social and environmental policies are among the factors that are responsible for poor preparedness for flood disaster in Lagos Metropolis. The paper recommends effective public enlightenment, public advocacy on environmental safety and health security, rigorous enforcement of environmental laws, and an urban renewal scheme. This paper will benefit the ministries of environment and physical planning, the state, and the federal emergency agencies, non-governmental agencies, and researchers in the security and emergency studies.

Keywords – Criminologist, Disaster, Emergency, Flood, Lagos, Metropolis, Security

1. INTRODUCTION

Flood disaster is one of the global environmental challenges. According to the Organization for Economic Cooperation and Development, over 40 billion Dollars are being lost annually to floods globally (Kamrava, 2018). The United States of America loses over \$6 billion to flood disaster. In the United States (US), the State of California is the worst-affected in 2018, China`s Yellow River Valley is a threat to its environmental sustainability (Klein &

Zellmer, 2014). In Nigeria, 34 out of the 36 states, including the Federal Capital Territory, under flood threats. There have been consistent calls through conferences workshops and seminars on the danger of depleting ozone layers and concerted actions to prevent and alleviate its occurrences, flood disaster is natural occurrences, but it takes human interface with the environment to instigate it.

The depletion of the ozone layer has been attributed to inconsistent weather conditions, which caused excess rainfall that result in flooding. In 2018 more than 441,250 people were affected by the flood as confirmed by the National Emergency Agency (NEMA, 2020). The impacts of the flood disaster are enormous on the socio-economic development of the Nigerian state. (Briaud & Maddah, 2016) In the same year, more than 141 369 people were displaced; this worsened the existing housing deficit in Nigeria; similarly, 108 deaths were recorded, 192 injuries were recorded, 13,031 houses were destroyed. The worst affected states were Adamawa, Anambra, Bayelsa, Delta, Edo, Kebbi, Kwara, Niger, and Rivers State. The insecurity issues created by flood disasters include deaths of human beings, injuries, destruction of farmland (Nwigwe & Emberga 2014).

Thereby aggravation of the food shortage will stimulate anger among the citizenry. There have been many studies on flood disaster; Olarenwaju, Chitakira and Louis (2019) assessed the impact of flood disaster in Nigeria; a critical review of health implications and management. Also, Nwigwe and Emberga (2014) carried out a study on an assessment of causes and effects of flood in Nigeria also, Sidiq, Sulaiman and Muhammed (2019), conducted a study on an assessment of substantive causes, effects and mitigating strategies of flood disaster in Yola South Local Government Area in Adamawa State, Nigeria. To the best of the author, research has focused on the flood disaster and national security using criminological models. Hence, this paper fills the knowledge gap by achieving the following research objectives; to address flood-disaster preparedness and flood control in Nigeria through the Criminological exploration of Lagos metropolis, specifically; this study intends to examine the various types of flood disasters, causes of floods, the obstacles to flood control, the security issues in flood disasters and solutions to flood disaster.

2. LITERATURE SURVEY

According to Clusca (2015), a flood is the overflowing of a body of water to a place that is normally dried before the incidents. As noted by Briaud and Maddah (2016), flood as the buildup of surface water. Flood is normally caused by the consistent rainfall that is beyond the level that land in a given location could absorb. Water is one essential resource either in natural or artificial forms. But, one area where water causes a security threat to human social existence; however, when its quantity is beyond human control, in security parlance, flood is a large quantity of water on the earth's surface that threatens lives and property destruction. (Sadiq, Sulaiman & Mohammed, 2019).

2.1. Types of floods

The following are the various types of floods by various scholars.

- 2.1.1 Coastal Flooding:** As confirmed by Roker (2018), coastal flooding occurs when the seawater level is beyond its carrying capacity. This may result from prolonged rainfalls leading to excess water in the seas. The neighboring communities are at the risk of a flood when it's not timely control; they may lose their lives and property to this type of flood.
- 2.1.2 River Flooding:** As argued by Nkworonwo, Whiworth and Bally (2015), river flooding occurs when rivers over-flown their banks, causing security threats to lives and property of people in the riverside, Lagos is surrounded by water, over 80% of the landmass in Lagos is water when the river overflows the inhabitants in the surroundings are in a serious state of fear and instability.

- 2.1.3 Flashing Flooding:** Aside from river flooding, another variety of flooding is flash flooding, this types of flooding occur as congestion of surface water, it takes place over a short period, the duration depends on the source of water, if it is rainwater and the rain is continuous, the flooding may be disastrous as established by Xie and Weing (2016), this type of flood could be prevented by the effective and connected drainage system and limiting building on flood paths.
- 2.1.4 Groundwater Flooding:** In addition to flash flooding, another type of flooding is groundwater flooding. This type of flood results from persistent and heavy rainfall, leading to groundwater saturation to the extent that it could not absorb water, hence, sending the water to the surface area. This occurs in waterlogged areas, especially during rainy seasons. Many areas were prone to flooding in the Lagos metropolis, causing serious security risks to the residents (Zou, Liao, Ding & Qin, 2019).

2.2. Cause for flood disasters

According to Orsi (2015), the following are the rationale for flood disaster in Lagos Metropolis. One is a poor drainage system; most of the drainages have been blocked with solid wastes like disposed of plastic bottles, sachets, and other waste materials. Another factor that is responsible for this is indiscipline on the part of residents; some dispose of refuse in unauthorized places, illegal structures along the drainage has been identified as a determinant factor for drainage in Lagos, some highly placed individuals use their political and economic influence to erect structures on the drainage plains thereby cause serious environmental havoc to residents of a particular area, lack of waste recycling processes have been identified as a major cause of flood disaster in Lagos metropolis (Scott, 2015). The state relies on the Lagos State Waste Management Authority services for waste disposal. This body applies odd techniques in refuse collection and disposal; this slows waste management exercise, resulting in piling up of wastes that will be washed away into drains (Klein & Zellmer, 2014). In addition to that, not adherence to weather forecast is another factor; both print and electronic media announce weather warnings based on the release from the Nigerian Meteorological Society; sometimes, this organization gives strict warnings to residents of specific places to relocate to minimize the effects of flooding (Clusia, 2015). The era of attributing human problems to spirits and deities is over, everybody must be responsible for his or her actions in the technology age (Chuckwuere, 2020).

Some stubborn individuals ignored the warnings and got trapped in flood. Improper physical planning, people build houses without obeying town planning rules and regulations; despite the existence of government agencies like Lagos State Building Control Agency (LASBCA), Lagos State Ministry of Physical Planning, and other related agencies, the state master plans are flouted with impunity, the unapproved structures create environmental menace. Torrential rains as a result of depletion of ozone-layers have also been responsible for flooding, inconsistent government policies and programs are also linked to flooding in the state, there are drainage and bridge projects that have been abandoned by the past government. The prominent in these road projects that have been abandoned by the government or those under construction but the progress on the project is sluggish and uncoordinated; these worsen environmental decency and safety. As argued by Jha, Lamond and Bloch (2016) collapsed dam is one of the factors that are responsible for flooding in Nigeria, whenever there is damage to dams, they release water to the public in an uncontrolled manner, thereby creating problems to people and their environment.

Attitude and cultural factors are also responsible for flooding; people are bent on disobeying the laws of the land; they dumb refuse indiscriminately. Security, according to Gribbs (2018), is the state of protection from harm or danger. Security cuts across every activity of human commitment and flooding results in various security challenges. According to the National Emergency Management Agency, one insecurity created by flooding is the loss of lives. According to the National Emergency Management Agency, some people have lost their lives to flooding, and 13 013 people lost their lives to flooding in 2018. This portends great security risks to the nation. In Lagos State alone, over 27 lives were lost to flooding in 2018. Another security issue created by flooding is lost washing away from livestock and agricultural land, this affects most agrarian states like Adamawa, Kogi, and Benue, this plunges the nation into



food crises those result in hunger and poverty (David, 2015). It causes health insecurity; flood disaster leads to the spread of disease like cholera, typhoid, diarrhoea, malaria, dysentery and guinea worms. This may result from the washing of dirt to people's sources of drinking water.

The loss of lives as results of flooding could be direct or indirect, direct is a situation where victims submerged in water and died instantly, on the other hand, indirect arise from taken contaminated water from flooding. Loss of property is another insecurity situation created by flooding, valuables property like cars, furniture, electronics, clothes that have been destroyed by flood (Lavis, Comes & Baharmad 2017).

2.3. Solutions to flood disasters

The lives of people are in danger, including the children who are the future leaders. As noted by Watson and Adams (2010) and Ren and Niphil (2019), one of the ways for overcoming solving flooding is to embark on public sensitization through which people could be educated on the need to embrace tree planting to save the ozone layers from destruction and maintenance of the green environment. The importance attached to tree planting at the international level could not be over-emphasized; this motivated the United Nations Organizations to set aside July 12 every year as the National Day for Tree Planting (Farm, 2019; Nada & Edrisi, 2017).

Most of the citizens are yet to realize the importance of planting trees. Another solution to the problem of flooding is by enforcing the environmental protection laws and bringing culprits to justice; one of the criminal justice system's challenges is the weak enforcement of laws and the creation of secret cows in the system, thereby undermining the supremacy of the law. Also, in Cities like Lagos, there must be proper waste recycling systems to commercialize the wastes in the populace's interest. Also, the flood victims should be adequately rehabilitated and giving a sense of belonging (Rivling, 2015; Price & Vojinovic 2008).

2.4. Theoretical framework

To further buttress the topic, the broken windows theory by George Kelling and James Wilson, this theory was formulated in the 1980s. According to this theory, in a society where there are signs and opportunities for anti-social behaviour, and there seems to be any check on them, these activities will generate to major crimes that may threaten the corporate existence of the social structure. In relation to the flood disaster in Lagos, people have been perpetrating anti-social behaviour as indiscriminate dumping refuses into canals, unauthorized felling of trees, building on drainage channels, these unacceptable attitudes instigate flooding eventually threatens their existence. In addition to the broken window theory, is the social control theory by Ives Nyan in 1958; according to Daramola and Osho (2017), social control theory is based on the following principles; activities, commitment, involvement and belief.

Activities are the daily events that people are engaged over a period of time, commitment is the dedication to the values and norms of a society, involvement is ability of people to put into practice the norms and values of a given society and finally belief is the confidence people have in the social system. When these variables are positive the propensity of people to indulge in anti-social acts like indiscriminate dumping of solid wastes into drainages and other activities that might result in flooding will be minimised. However, there is a strong relationship between cultural background and criminality. Those attitudes that instigate flooding like unwarranted dumping of refuse, disobeying environmental laws by erecting structures in unapproved locations emanated from the poor commitment to societal values (Cretacci, Rivera, Goa & Zheng, 2018).

3. PROBLEM STATEMENT

In the US, the State of California is the worst-affected in 2018, China's Yellow River Valley is a threat to its environmental sustainability (Klein & Zellmer, 2014). In Nigeria, 34 out of the 36 states, including the Federal Capital

Territory under flood threats. There have been consistent calls through conferences workshops and seminars on the danger of depleting ozone layers and concerted actions to prevent and alleviate its occurrences, flood disaster is natural occurrences, but it takes human interface with the environment to instigate it (Jha, Lamond & Bloch, 2016). The depletion of the ozone layer has been attributed to inconsistent weather conditions, which caused excess rainfall that result in flooding. In 2018 more than 441,250 people were affected by the flood as confirmed by the National Emergency Agency (NEMA, 2018). The impacts of the flood disaster are enormous on the socio-economic development of the Nigerian state. (Briaud & Maddah, 2016).

In the same year, more than 141 369 people were displaced; this worsened the existing housing deficit in Nigeria. Similarly, 108 deaths were recorded, 192 injuries were recorded, 13,031 houses were destroyed. The worst affected states were Adamawa, Anambra, Bayelsa, Delta, Edo, Kebbi, Kwara, Niger, and Rivers State. The insecurity issues created by flood disasters include deaths of human beings, injuries, destruction of farmland (Nwigwe & Emberga 2014). Thereby aggravation of the food shortage will stimulate anger among the citizenry. Therefore, a study on flood disaster and national security through criminological perspective is important.

Table 1: Flood Victims in the Worst- Affected States in Nigeria in 2018

S/N	State	Number of Victims	Percentage (%)	Position
1	Kogi	118,191	26.7	1 st
2.	Kebbi	94,991	21.52	2 nd
3.	Anambra	64,331	14.57	3 rd
4.	Niger	51,719	11.72	4 th
5	Kwara	41,680	9.44	5 th
6	Delta	37,017	8.39	6 th
7	Edo	31,313	7.09	7 th
8	Benue	2,201	0.50	8 th
	Total	44,451	100	

Source: (NEMA, 2019) modified by the author.

From table 1, Kogi State has the highest number of flood disasters in 2018, followed by Kebbi State, this warrants a high level of poverty in those states couple with food insecurity and poor human capital development.

Table 2: Showing Waste Collected by the Lagos Waste Management Authority (2014–2018)

S/N	Years	Total waste collected in metric tons
1.	2014	1,771,387.30
2	2015	1,828,948.99
3.	2016	1,735,282.65
4	2017	1,249,210.17
5	2018	1,923,123.15
	Total	8,507,952.26

Source: <http://www.lawma.gov.ng/waste-statistics/> 2014-2018, modified by the author.

From Table 2, the total wastes collected from the Lagos Metropolis in the years in question was 8,507,952.26 metric tons; with an effective recycling system, this could be turned into wealth and create an additional source of income to the state and the residents. If there is a feasible program in place to commercial the wastes, people will be discouraged from dumping refuse indiscriminately to block the drains, which in turn result in flooding

Table 3: Flood Prone Areas in Lagos Metropolis, (Alaaso, 2017)

S/N	Place	Local Government	Population	Place's Population	Causes	Security Issues	Solutions
1.	Ayobo, Aborulpaja	Alimosho	5,700,714	150,833	Poor drainages,	Over-flowing of drains	Reconstruction of drainages, proper channelization
2.	Surulere	Surulere	504,407	504,407	Blocked drainages	Car Other property submerged	
3	Bariga	Somolu	403,998	123,000	Poor Drainages	Valuable washed away	
4	Anifowose in Ikeja	Ikeja	313,333	92,000	Poor Dranage	Destruction of property.	
5	Victoria Island	Eti-Osa	287,958	101,012	Poor drainage system	Loss of property, damage to vehicles	

Source: <https://tribuneonlineng.com> > Property and Environment, modified by the author/.

From Table 3, most of the victims who were the residents of the flood disaster zones attributed the cause of flood disaster in Lagos to poor drainage system. The effects of flood disaster damage to the property take lead.

Table 4: Flood Disaster in Nigeria (2016–2018).

S/N	Year	Flood Victims	Percentage Increase/Decrease	Remarks
1.	2016	250,000	-----	
2	2017	92,000	-63.2%	Decreased
3	2018	441,451	389%	Increased
	Total	783,451	325.8	Increased

Source: (NEMA, 2019), modified by the author

From Table 4, the total number of flood victims recorded for the three years was 783,451, this figure is disturbing, this shows that the previous commitment to mitigate the impacts of flood in Nigeria have not been fruitful, this is a serious security threat, no to Nigeria alone, but the committee of nations.



Figure 1: Flood Disaster in Ajasa Command in Lagos

Source: Olowolagba (2018): <https://www.legit.ng/467163-30-flood-prone-areas-to-avoid-when-it-rains-in-lagos.html>

From the plate 1, the flood has taken over the whole area forcing people to back one and another. This situation posits serious security threats as their belonging have been submerged some has been destroyed



Figure 2: Flood Scene with distressed People and Livestock

Source: Cambell (2018): <https://www.cfr.org/blog/nigeria-struggling-cope-rising-natural-disasters>

From Figure 2, the flood has reigned havoc on the people in the community, as the rain persists, the plights of these people worsened. This is a serious security issue because it leads to death and loss of property.

4. RESEARCH METHODS

According to Kumar (2011), research methods are the processes which researchers adopt for scientific investigations. Also, Pandey and Pandey (2015), defined research method as the systematic ways of carrying out scientific findings. In line with this, the study adopted an exploratory and descriptive research method; data were sourced secondarily through content analysis of textbooks, journals, and online materials. The meanings of various independent variables like flood disaster, types, effects, and the dependent variables in question that is national security, were explored from the various sources. The systemic literature was adopted to bring out the meanings of a flood, flood types, effects of the flood, and solutions to flooding. The implications of the flood were extracted through various journals, books, and online resources.

5. DATA ANALYSIS AND DISCUSSIONS

Table 1 shows that there were 441,451 cases of flooding with attendant food insecurity and other social challenges (National Emergency Management Authority, 2018). The disastrous effects of flood extend to other critical sectors like transportation; it washes away roads, leads to the collapse of bridges, and any event that obstructs the free flow of vehicles is uncalled-for. Most of the affected states were agrarian, and a flood has destroyed their farmlands; their main source of livelihood was endangered. This worsened their plights and other people in the urban setting that relied on them for food supply. In the Lagos Metropolis, the dire consequences of flood in the worst-affected states have spill-over effects on the state as it relies heavily on the food supply from most of the affected states.

Lagos is surrounded by water; 80% of its landmass is water, so the possibility of flooding is high; most of the people living in the Lagos metropolis are affected by flood coupled with poor waste disposal schemes, overcrowding, and poor attitude of the residents to environmental laws. Despite the setting up of various agencies to manage effective waste recycling is a daunting challenge. Some of the residents in the Lagos



metropolis are forced to relocate to safer areas for the security of life and their property. There are security problems that accompany erosion in the state; property damage, loss of lives and livestock are among the security issues.

6. RESEARCH IMPLICATIONS

This study's results on the dangers of indiscriminate dumping of refuse, blocking of drainages, and illegal falling of trees will be useful to individuals on flood prevention strategies. The disaster management agencies at the state and federal level will be watchful of the flood-prone areas and plan to mitigate the effects of flood in the affected areas; the non-governmental agencies will plan relief materials to the victims in the affected areas to alleviate humanitarian crises. The researchers in criminology and social sciences can conduct empirical studies on flood and national security in the study areas to improve the study.

7. CONTRIBUTION TO SCIENTIFIC COMMUNITY AND FUTURE RESEARCH

The study leads to theory and literature on flood disasters and national security. Future researchers may consolidate on limitations of the study to investigate two or more flood-prone states in Nigeria. Another future research may also examine criminal a significant relationship between flood disasters and corruption in emergency fund management in Nigeria. The study investigated flood disaster and national security without rigorous empirical data; subsequent researchers may leverage the study's limited coverage and expand research to other states in the African Region. This will enhance comparative analysis study to come up with findings and recommendations that will be useful to the African region.

8. CONCLUSION

This study investigated the various types of flood disasters such as coastal flooding, river flooding and flashing flooding. It also examined causes of flooding and solutions to flooding. Flood disasters have disastrous effects on the nations; they kill people and destroy the environment more than terrorist attacks. The figure in the year 2018, where more than 441,451 victims were affected, was disturbing. It requires collaborative efforts from the individual, corporate bodies, and government to checkmate flooding in Lagos, particularly Nigeria.

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