Critical Assessment of Urban Residents' Perception of Disaster Risk Management in Obio/Akpor Local Government Area of Rivers State, Nigeria

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Abstract: - This study scrutinized urban residents' perception of Disaster Risk Management (DRM) in Obio/Akpor Local Government Area (LGA) of Rivers State, Nigeria. The study randomly selected five (5) urban settlement zones, arbitrarily selecting eighty (80) respondents from these zones. A well-structured questionnaire was employed to elicit information on the perception of disaster risk management by residents of the LGA. The study revealed that the incidence of flooding is a common disaster attributed to climate change. Evidence from the investigation shows that the perceived human cause of the prevalent disaster is urbanization. Further evidence shows that respondents have never responded to disaster; hence the absence of Community Emergency Response and Recovery Team, thus increasing the reliance on government and other concerned agencies. The study, therefore, recommended radical awareness programs on disaster risk management and mitigation by government and non-government agencies, the inclusion of DRM concepts and practice in nations education curricula in addition to the adoption of "integrated approach" towards urban infrastructural development planning.

Keywords: **Disaster, Management, Perception, Risk, Urban Residents, Vulnerability**

I. INTRODUCTION

Disaster risk arises when hazards interact with the physical, social, economic, and environmental vulnerabilities and exposure of populations (UNISDR 2013b). Many of the destructive hazards are natural in origin and include earthquakes and extreme weather events resulting in floods and droughts. Disaster risk management policy is largely event-driven. Therefore, the attention of the policy community has naturally fallen on the hazards and the related physical processes that result in disasters (Aitsi-Selmi *et al.*, 2015). Progress in disaster risk reduction (DRR) research has shown that it is often not the hazard that determines a disaster, but the vulnerability, exposure, and ability of the population to anticipate response to, and recover from its effects. A shift from pure hazard response to the identification, assessment, and ranking of vulnerabilities and risks (including their unequal distribution in populations) became critical (Department for International Development, 2006). This shift in focus takes into account social factors shaping local populations' interpretation of risks and their thresholds for

action (Eiser *et al.,* 2012). The implication is that social determinants of risk (through individual or collective agency and with the assistance of science and technology) can be identified and influenced to achieve better economic and social development trajectories (Scott *et al.,* 2013). The Sendai Framework for Disaster Risk Reduction 2015–2030 (SFDRR) was born from the need to ensure DRR policy reflects our evolved understanding of the complexity of disaster risk in the twenty-first century. Implementation calls for closer collaboration among all sectors including the health sector in order to prevent, prepare for, respond to, and recover from disasters that result from the highly interdependent and evolving risks to which we are exposed (Aitsi-Selmi *et al.*,2015). DRM involves related activities capable of reducing DR for strengthening long term disaster resilience. Often time, the effective and efficient way to reduce chances and high impact of a disaster-related event is through risk reduction which is cost-effective with significant yield returns as an indication for the low impact of disaster (Benson, 2016). Another crucial aspect of risk reduction is to see that every infrastructure is built to the required standard that will ensure evacuation of people without harming them. Also, there is a requirement for financial support to manage uncovered reduction risk, for the recovery and reconstruction from the resulting effect of disaster and for relief materials, all these do tell on the socio-economic status of a country (Benson, 2016).

Disaster vulnerability represents a serious disruption of the normal functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community/society to cope using its own resources. A disaster vulnerability is a function of the risk process, and results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures or even interest to reduce the potential negative consequences of risk, and exposure (Alik *et al.,* 2015). According to Kumar (2013) as cited in Abdalla (2016), various organization and/or sectors involved in DRM usually seek to distinguish and find the eminent-risk factors through Community Perception Data and Vulnerability Maps to develop GIS frameworks information, and at such, spatial analysis is important and GIS Technology has the capability

of filling the gap and exploration of imitating DRM modelling demonstrating various scenarios and their temporal attributes (Abdalla, 2016).

Agusomu and Paki (2011) reveal in literature the riverine community perception towards the prevalent disaster, learning programs available to improve the perceptions of such disaster and the intent of the decision-makers in improving awareness. The study showed insufficient intellect of the prevalent hazards, lack of educational programs both for the public or academic syllabus and residents' unfamiliar with any government's roles towards disaster management, information and education. Ezemonye and Emeribe (2014) asserted that preparedness is a perfect measure towards flood disaster palliation, and yet the flood-prone area in Benin City does not practices such. Instead, the residents rely on disaster recovery methods including engineering and non-engineering approach. Such a measure required intensive financial support and its post-disaster measure. The study highlighted religious belief, lack of funds and inability to save as factors militating against disaster preparation and thereby increase the flood vulnerability. The study asserted that disaster preparedness can reduce the consequence of flood disasters in flood-prone areas. Similarly, Yusufu (2016) examined the risk of flooding perception in Lafia Local Government Area, Nasarawa State, Nigeria. The study asserted increased awareness among the study participants about risk connected with the area before they choose to move there and many perceived consequences of the flooding are inadequate to force out of the area. As deduced from the study, residents have never received any post-disaster relief materials and expect no external support or help during disaster events. From the study, it was deduced that low level of understanding of effective coping and adaptation strategies to minimize the consequence of flood event among the participants and they are constantly loss their valuables to the resulting flood event. Oyatayo *et al.*, (2016) studied public knowledge and perception on flood management towards the establishment for an efficient flood extenuate strategy. The study reveals that the degree of awareness about flood disaster is satisfactory, and influenced by other factors that exclude literacy level and disaster have resulted in evacuation from the resident, shops and obliteration of properties. Although there is a higher degree of flood awareness, an individual's reaction to flooding as means to flood management is very poor.

Although, many studies were conducted on specified disaster vulnerability (including flood vulnerability assessment) in some states in Nigeria using different approaches (Akukwe & Ogbodo, 2015, Wizor & Agbabou, 2014, Aderoju, 2014, Week et al, 2019). Hitherto, none of these studies offers a background understanding of the residents' perception of integrated DRM in Nigeria. It is on this note that this study tends to assess the residents' perception of disaster risk management in various towns/communities in Obio-Akpor LGA in Rivers State, Nigeria.

II. MATERIALS AND METHOD

The survey research method was adopted for this study. The survey research method is a suitable and most efficient way of studying a large population. It allows only a sample population to act as the whole population. For proper coverage, samples for the study were collected in a systematic random sampling (SRS). The systematic random sampling is a sampling technique adaptable when the study population is known and for this study, the statistical population was 464,789 persons (NPC, 2006). To obtain the sample size for the study, the Taro Yamane (1967) formula for sample size determination was used and the sample size for the study was deduced from the population sample of 464,789 (NPC, 2006).

$$n = N$$

$$1 + N\,(e)^2$$

Where: e= Level of precision (0.05)

N= Population

n= Sample size

1= Constant

n= 464,789

$$1+ 464,789\,(0.05)^2$$

n= 400

A total sample size of 400 was therefore used for the study. Five (5) zones representing towns/communities of the study area was randomly selected for equal and unbiased representation. The randomness of the sampling was accomplished through sampling without replacement in which every selected respondent has only one chance of selection. The data was collected from both primary and secondary sources. The study employed a well-structured questionnaire to elicit information on the perception of disaster risk management by residents of Obio-Akpor Local Government Area; Rivers state, Nigeria. Section A: Questions collected information on demographic characteristics of respondents as a means to describe respondents based on gender, age, occupation, income, ethnicity and religion. Section B: Questions was aimed at gathering information on the perception of disaster risk management by residents of Obio/Akpor LGA. The questionnaire was administered to the residents of the five (5) sampled towns in Obio/Akpor LGA (See Figure 1). The sampled towns/communities include Rumuodara, Choba, Iwofe, Rumodumaya and Rumuokoro. The questionnaires are both the Open-ended and Closed-ended. The retrieved questionnaire was sorted and coded. It was then subjected to (SPSS) for proper analysis. Secondary data, however, included international and national literature on disaster risk management and risk perception was reviewed as means to identify various natural disasters perception among the residents of Obio-Akpor Local Government Area; Rivers state, Nigeria and efficient disaster risk management (DRM) practice. The objectives of the investigation were

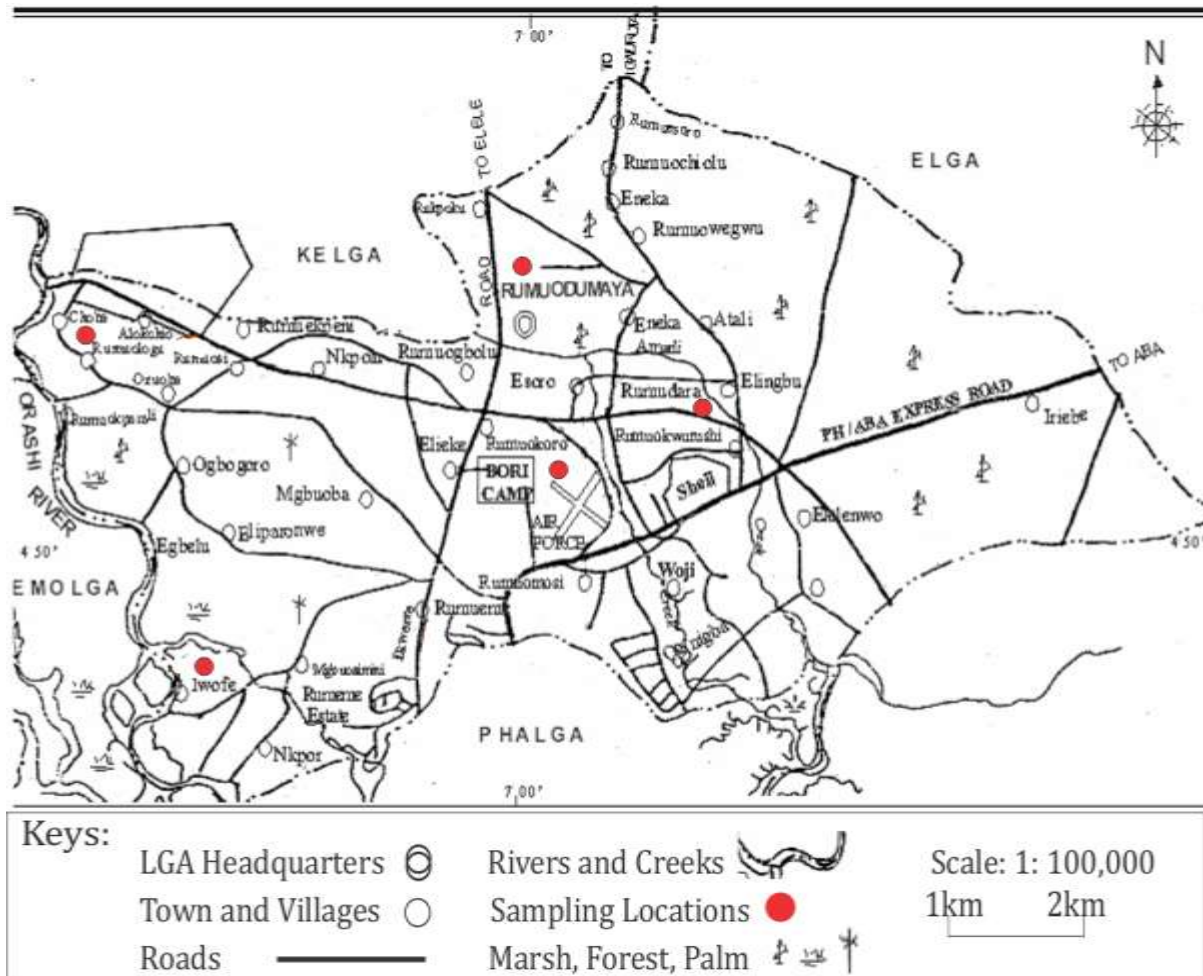analyzed through descriptive statistics and the outcome displayed in the rate of counts and percentages.

Figure 1: Overview of Obio-Akpor LGA showing Five Sampling Locations

III. STUDY AREA

a. Location / Extent

Obio/Akpor LGA is located in Rivers state, a maritime state in the southern geopolitical region of the country. It is situated between latitudes 4°30'0"N and 5°30'0"N and longitude 6°30'0"E and 7°30'0"E (Figure 2) with inhabitants of 464,789 (NPC, 2006). Obio/Akpor LGA has its centre of operations at Rumuodumaya. The landmass is about 311.71km2 and bordered by many LGAs and approachable through the land, water and air (Wokocha and Omenihu, 2015). Obio/Akpor is majorly housed by Ikwerre ethnic nationality comprising of; Akpor, Apara, Evo and Rumueme Kingdoms. Due to its proximity to the state's capital, it is most times regarded as Port Harcourt.

Obio/Akpor appreciate tropical hot monsoon climate as a result of her latitudinal position. The daily tropical monsoon climate is characterized by heavy rainfall and high temperature all year round (Mmom, 2003). The study area experiences lengthy and heavy rainfall season and very short dry season. Rainfall in Obio/Akpor is heavy and more persistent as a result of the strong influence of the southwest trade wind. In Obio/Akpor LGA and its adjoining neighbour, rainfall is almost predictable and follows a sequence of increase towards the month of July-August before decreasing in the month of November - February (Mmom, 2003; Wizor and Wali, 2019a). Rainfall is at its peak in July and September with a little dry season occurring in August, although the period of the break has been fluctuating in recent times. Obio/Akpor LGA also experience a double maximum rainfall between July and August. Although there might be rain during the months of December, January and February, most of the rains received are unreliable and spotty (Osuiwu and Ologunorisa, 1999 Wizor and Wali, 2019a). Rainfall in the study area occurs over a long duration of usually between 2-4 hours and it is high intensity (Osuiwu and Ologunorisa, 1999).

The temperature, on the other hand, is high and fairly constant throughout the year in the LGA. February is the warmest of

all the months of the year with an average temperature of 32°C at noon, the month of July is the oldest. Like Port Harcourt Metropolis which include Obio/Akpor, mean annual temperature in the study area is 280C while the mean daily maximum temperature is about 300C. The months of February, March and April records the highest mean maximum temperature. The maximum temperature also exhibits the same sequence (Osuiwu and Ologunorisa 1999; Wizor and Wali, 2019a). Furthermore, Obio/Akpor LGA communities experience seasonal variation in relative humidity. This is mainly due to the seasonal variation in the amount of isolation receives. The rainy season months records the highest value. These months are very cloudy due to the strong presence of the south-westerly wind (Osuiwu and Ologunorisa 1999; Wizor and Wali, 2019a).

Generally, the land surface of Rivers state slopes gently in the North West (NW) and South East (SE) direction. The state's northern quadrants characteristically have planes rolling gently. The southern part has sand bars, mudflats and swamp tidal basin predominating in that part of the state (Oyegun & Adeyemo, 1999 as cited in Obianuju *et al.*, 2017). The lower Niger Delta floodplain is more prone to annual river flooding because of the clay and silt in its foundation. In the North East, there is an upward appreciation to about 45 meters and more than 9 meters in the north-eastern part where the zones of beach ridges are found to the south-west. The geology of Rivers state, where Obio-Akpor is found, is made of fluvial sediments. The fluvial sediments are made up of the ones carried by the newly River Niger and some other rivers. The elements are gathered as regolith over the burden of about 0-30m thicknesses are different soil profile. The series of deposition alters clays and sandstones which are marginal of marine origin.
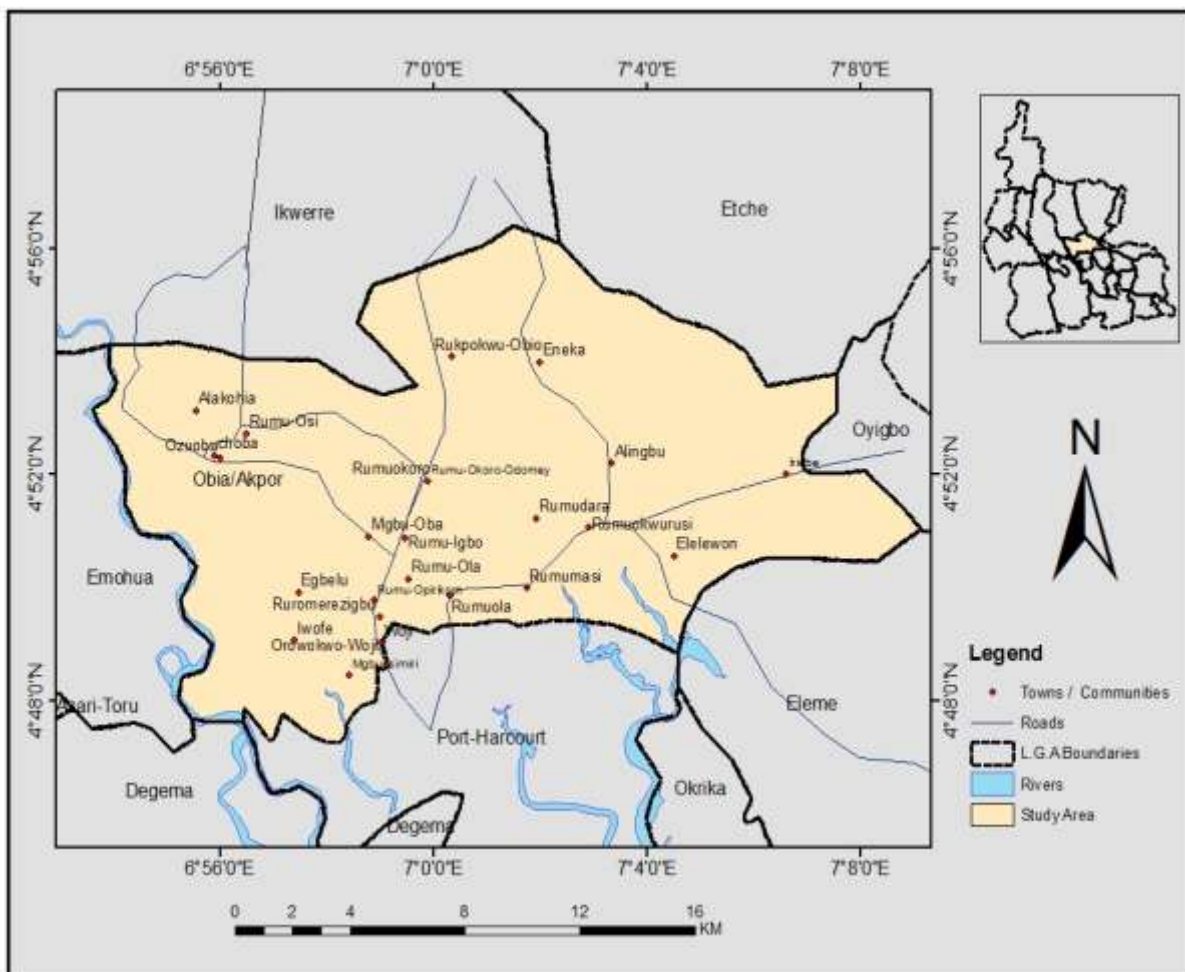

Figure 2 Obio-Akpor Local Government Area showing Communities

IV. RESULTS

a. Questionnaire Analysis

This was done to satisfy the aim of study which was the spatial analysis of the perception of disaster risk management among residents of Obio/Akpor LGA. 400 copies of questionnaire were administered and 371 of them were retrieved for analysis. This represents 93% of the copies sent out.

Table 1: Analysis of the Number of Questionnaires Administered

Zones	Number Sent Out	Number Retrieved
Rumuodumaya (A)	80	76
Rumudara (B	80	73
Rumuokoro (C)	80	77
Choba (D)	80	71
Iwofe (E)	80	74
Total	400	371

Figure 3 presented the literacy level. From the result, 39.78% and 39.68% for secondary and tertiary levels respectively. 10.32% had primary education while 10.46% had no education. A greater percentage of the respondents are literate and therefore understand the subject matter.
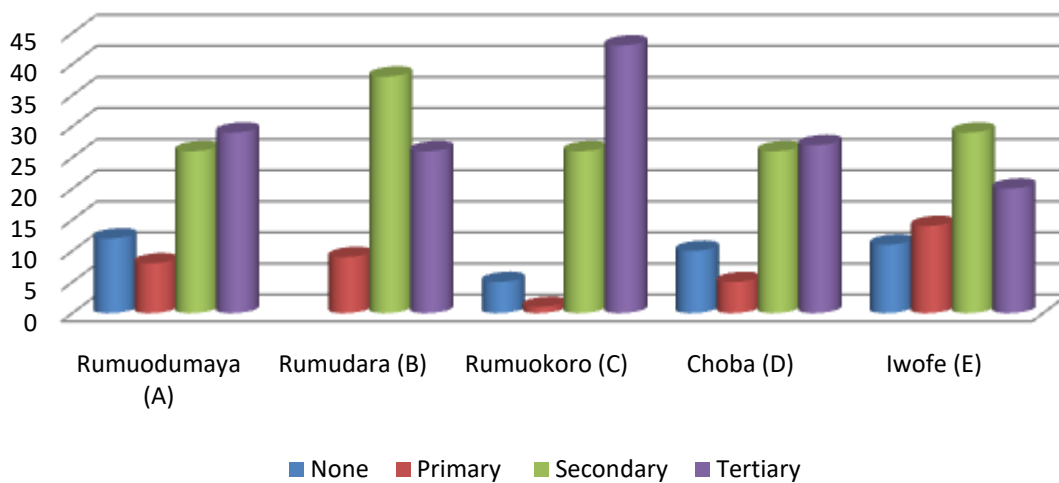

Figure 3: Level of Education among Respondents

Figure 4 depicts the primary occupation of the respondents. From the result, 26.83% of the respondents claimed to be self-employed, 24.12% are civil service, 21.95% claimed to be traders while 20.87% of the respondents claimed to be involved in other occupation.
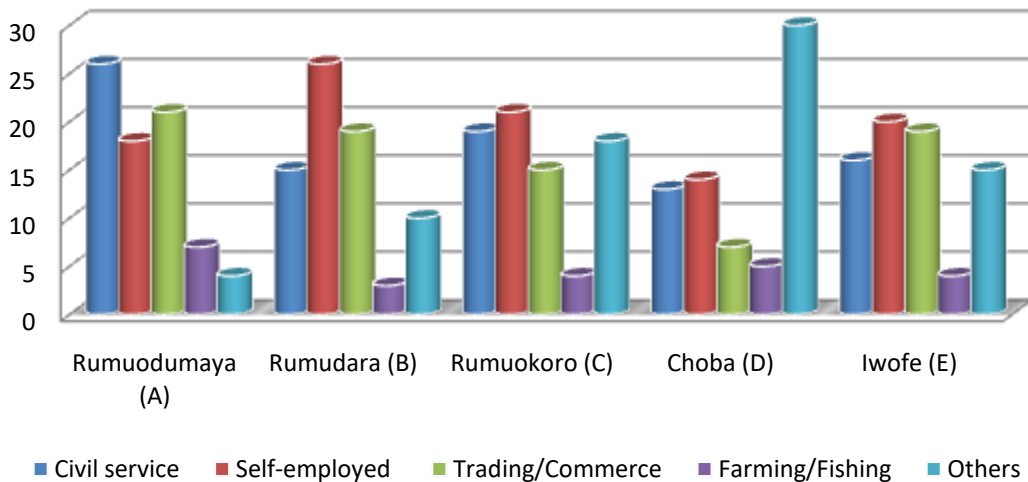

Figure 4: Primary Occupation of Respondents

Table 2 presented the respondents' perception of the most prevalent disaster in the area. Most of the respondents claimed that flood is the most prevalent disaster in the investigated area and it accounted for 53.26% of the sampled population.

Table 2: Most Prevalent Disaster

Disaster	Rumuodumaya (A)	Rumudara (B)	Rumuokoro (C)	Choba (D	Iwofe (E)
Flood	30	55	40	35	36
Rainstorm	10	10	4	7	5
Landslides	2	-	1	-	2
Riverbank Erosion	6	1	13	16	11
Drought	2	2	7	3	7
Wave Action	2	-	1	2	3
Gully Erosion	23	4	11	7	10
Total	75	72	77	70	74

Table 3 showed the respondents' perceived natural causes of disaster in the area. Most of the respondents claimed climatic change to be the chief causes of catastrophe in the study area and it represents 42.12% of the sampled population.

Table 3: Perceived Major Natural Causes of Disaster

Disaster Causes	Rumuodumaya (A)	Rumudara (B)	Rumuokoro (C)	Choba (D)	Iwofe (E)
Climatic Change	33	37	35	27	23
Volcanic activities	6	8	4	2	7
Solar activities	4	5	10	16	19
Orbit changes	7	7	5	7	11
Act of God	16	5	15	6	7
No idea	19	11	8	12	6
Total	75	73	77	70	73

Table 4 presented the respondents' perception of human causes of disaster in the area. Most of the respondents believed urbanization (22.68%) is the human major cause of disaster in the study area.

Table 4: Perceived Major Human Causes of Disaster

Disaster Causes	Rumuodumaya (A)	Rumudara (B)	Rumuokoro (C)	Choba (D)	Iwofe (E)
Burning ofFossil fuel	13	31	7	5	237
Gas Flaring	10	14	5	-	7
Urbanization	7	11	31	27	17
Deforestation	16	-	15	19	13
Ozone Layer Depletion	14	-	13	12	6
Industrialization	13	17	6	7	
Total	73	73	77	70	73

On the question of response to a disaster, table 5 revealed that 69.94% of the participants have never responded to catastrophe while 19.10% claimed to have responded voluntarily.

Table 5: Response to Disaster

Zones	No	Yes, Voluntary	Yes, Professionally	Yes, Others
Rumuodumaya (A)	41	19	7	-
Rumudara (B)	62	8	-	2
Rumuokoro (C)	52	17	6	1
Choba (D)	44	10	8	7
Iwofe (E)	50	14	7	1
Total	249	68	28	11

Table 6 highlighted the respondents' opinion on the Community Emergency Response Team. 50% of the respondents do not know about any Community Emergency Response Team.

Table 6: Community Emergence Response Team

Zones	No	Yes	Don't Know
Rumuodumaya (A)	38	9	29
Rumudara (B)	21	11	40
Rumuokoro (C)	7	24	45
Choba (D)	24	11	35
Iwofe (E)	25	14	35
Total	115	69	184

On the level of preparedness of the respondents, table 7 shows that majority of the respondents (52.83%) are not prepared.

Table 7: Level of Preparedness

Zones	Well Prepared %	Not prepared %
Rumuodumaya (A)	54.90	45.1
Rumudara (B)	25.37	74.63
Rumuokoro (C)	60.5	39.5
Choba (D)	26.5	73.5
Iwofe (E)	68.6	31.4
Total Average (%)	47.17	52.83

Table 8 shows the respondents' opinion on factor militating against preparedness. The result revealed that majority of the respondents believed Reliance on government (37.3%) is the major factor militating against preparedness for disaster

Table 8: Factor Militating Against Preparedness (%)

Zones	Lack of Fund	Religious Belief	Reliance on Government	Literacy Level
Rumuodumaya (A	46.1	5.3	27.6	21.1
Rumudara (B)	15.1	15.1	28.8	41.1
Rumuokoro (C)	40.3	1.3	36.4	22.1
Choba (D)	18.6	7.1	57.1	17.1
Iwofe (E)	27.0	2.7	36.5	33.8
Total Average (%)	29.4	6.3	37.3	27.0

Table 9 presented the respondents' chief source of information about the disaster in the study area. Majority of the respondents saw radio (26.09%) as a source of information about the disaster in the study area. This is closely followed by television (24.73%).

Table 9: Source of Information

Information Sources	Rumuodumaya (A)	Rumudara (B)	Rumuokoro (C)	Choba (D)	Iwofe (E)	%
Radio	23	29	8	11	25	26.09
Television	6	22	29	20	14	24.73
Newspaper	5	11	7	5	6	9.24
Lecture	3	4	8	7	11	8.97
Personal Experience	22	5	23	21	13	22.82
Others	16	2	2	6	4	8.15
Total	75	73	77	70	73	100

On the knowledge about the various disaster, Table 10 revealed that 38.50% of the respondents have sufficient knowledge while only 14.66% of the respondents have insufficient knowledge about the disaster in the study area.

Table 10: Knowledge about Various Disasters (%)

Zones	Very Sufficient	Sufficient	Insufficient	Very Insufficient
Rumuodumaya (A)	35.1	24.3	13.5	27.0
Rumudara (B)	42.5	35.6	16.4	5.5
Rumuokoro (C)	43.4	36.8	11.8	7.9
Choba (D)	13.2	58.8	20.6	7.4
Iwofe (E)	39.7	37.0	11.0	12.3
Total Average (%)	34.78	38.50	14.66	12.06

Table 11 below presented the emergency preparedness statement-level among respondents in Obio/Akpor LGA. 70.44% of the respondents agreed that they have sighted emergency preparedness statement while 29.56% disagreed.

Table 11: Emergency Preparedness Statement (%)

Zones	Agreed	Disagreed
Rumuodumaya (A	61.3	38.7
Rumudara (B)	69.44	30.56
Rumuokoro (C)	90.9	9.1
Choba (D)	57.35	42.65
Iwofe (E)	73.23	26.77
Total Average (%)	70.44	29.56

Figure 5 depicts the respondents' perceived potential impact of the disaster in the study area. From the result, 37.71% of the respondents saw destruction to properties as potential impact of disaster, 23.50% highlighted loss of lives, 16.12% claimed it affects socioeconomic status, 9.29% noted increased in agricultural challenges, 6.83% claimed increase in health challenges while 6.65% of the respondents saw disease outbreak as potential impact of disaster.

On mitigation strategies against disaster, the result in figure 6 revealed that land-use planning (31.23%), drainage system (20.55%), tree planting (17.0%), reduction in burning of fossil fuel (14.52%), stop deforestation (9.29%) and the use of renewable energy (7.12%) are mitigation strategies against disaster
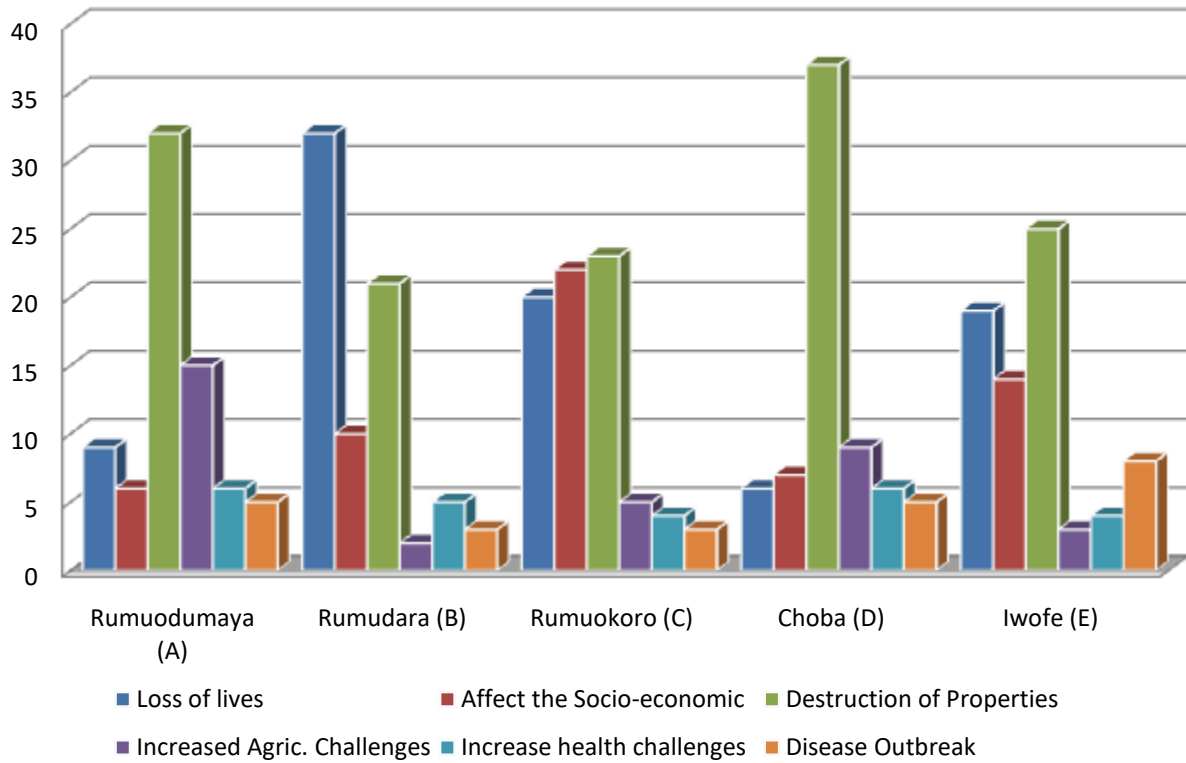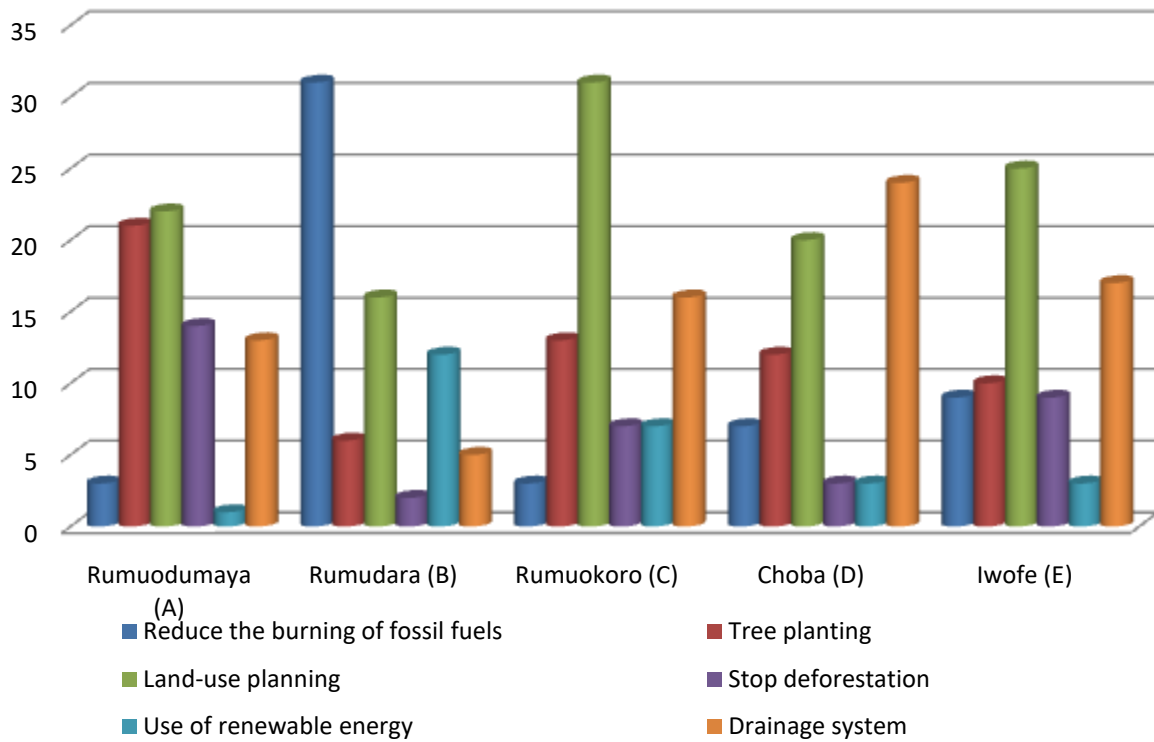
Figure 5: Potential Impact of Disaster

Figure 6: Mitigation Strategies against Disaster

Figure 7 shows the respondents' perception of the role of government in improving awareness of disaster in the study area. From the result, drainage control (20.99%), development of educational programs (18%), awareness campaigns (15.75%), timely dredging/shore protection (13.26%), legislation/policies (11.89%) and land-use planning (6.91%) are perceived roles of government in improving awareness of disaster.
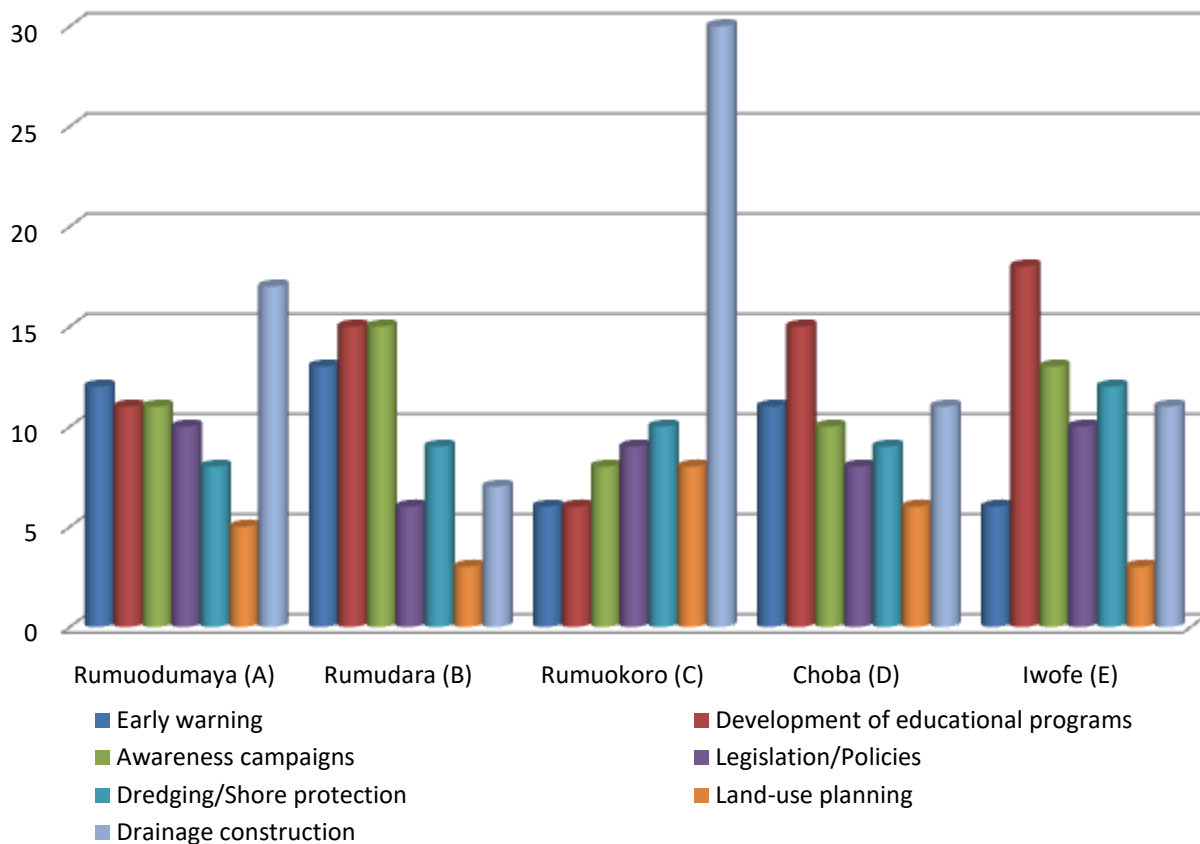

Figure 7: Government Role in Improving Awareness of Disaster

V. DISCUSSION OF FINDINGS

On the level of education, the result deduced that 39.78% of the respondents have attained a secondary level of education, 39.78% have attained a tertiary level of education, 10.32% have obtained primary education while 10.46% of the respondents had no form of education. This signifies that the investigation area has a high level of education and literates among the participants. According to Ismail and Mustaquim (2013) education is among the key indicators for socio-economic development, means to advance the professional formation of the societies and an influencing factor on both level of occupation and income. Furthermore, the primary occupation result indicated that 26.83% of the respondents are self-employed, 24.12% are civil service, 21.95% are traders, 6.23% are farmers and fishermen while 20.87% of the respondents are involved in other forms of occupation.

The respondents' responses were used to deduce their perceptions of disaster risk management. The results of the perceptions of disaster risk management in the study area revealed that the most prevalent disaster in the area is flood (53.26%) while least is landslide (1.36%). This signifies that the most prevalent disaster as perceived by the respondents is flooding. This finding is consistent with that of Agusomu and Paki (2011) where most of their interviewee identified flood as the most common event of a natural disaster. According to Agbonkhese, *et al.,* (2014) Nigeria most common environmental problem is flood and the citizenry of the Niger Delta have experienced it almost every year with varying degrees of severity (Mmom & Aifesehi, 2013).

On the perceived causes of disaster in the area, 42.12% believed that climatic change the major cause of disaster in the study area, 7.34% claimed volcanic activities, 14.67% highlighted solar activities, 10.54% attributed the cause to changes on earth's orbit around the sun, 13.32% saw it as an act of God while 12.5% do not have idea about the causes of disaster in the study area. This signifies that the cause of disaster Obio/Akpor is climate change. According to Ohwo (2015), the impact of climatic change includes prolonged flooding. Climatic change is due to a series of anthropogenic activities that affect amounts of greenhouse gases, aerosols (small particles), and cloudiness in the atmospheres (Ohwo, 2015). Furthermore, the result of perceived human causes of

disaster showed that 21.59% of the respondent attributed burning of fossil fuel as the human cause of disaster, 9.83% claimed gas flaring, 22.68% believed urbanization is the cause, 18.30% claimed it is due to deforestation, 14.21% highlighted ozone layer depletion while 13.39% indicated that industrialization is the human cause of disaster. This implies that urbanization is the perceived human cause of disaster in the study area.

Further evidence from the investigation revealed that 69.94% of the respondents have never responded to a disaster, 19.10% claimed to have responded voluntarily, 7.87% claimed to have responded as professionals while 3.09% claimed to have responded through other means. Also, the outcome of the community response team showed that no such team exists in the study area (31.25%), there is community emergency response team in the study area (18.75%) while 50% of the respondents claimed not to know about such team in the study area. The result deduced that 52.83% of the respondents do not prepare for disaster while 47.17% insisted that they were prepared towards disaster. On the factor militating against preparedness, 29.42% of the respondents claimed lack of fund is the factor militating against disaster preparedness, 6.3% claimed is due to their religious belief, 37.28% claimed reliance on government is the factor militating against disaster preparedness while 27.04% attributed it to their level of literacy. This signifies that the factor militating against disaster preparedness is attributed to the reliance on government by the residence of the study area. The spatial variation identified showed that except for Zone C (Rumuokoro) that claimed a lack of fund as the factor militating against preparedness other zones revealed a reliance on government as the factor militating against preparedness.

The result on the major source of information about disaster in the study area showed that 26.09% saw radio as source of information about disaster in the study area, 24.73% indicated television as their source of information, 9.23% claimed Newspaper, 8.97% claimed their source information is through lecture, 22.83% said their source information is through personal experience while 8.15% (30) revealed that their source information is through other means. The spatial variation identified showed that except for Zone D (Choba) which claimed personal experience as their major source of information other zones relied on radio device for their information. Furthermore, knowledge about various disasters showed that 34.78% claimed their knowledge about various disasters is very adequate, 38.50% claimed adequate, while 14.66% and 12.06% claimed their knowledge about various disasters is inadequate and very inadequate respectively. This indicated that knowledge about various disasters is adequate. The finding agrees with that of Ohwo (2015). Although, the fraction records for "very adequate" in Ohwo (2015) study is lower measure up to the one recorded for this study. Furthermore, emergence preparedness statement, emergency preparedness and response to disaster involve adequate plan to prevent an occurrence; the outcome revealed that 70.44% of the respondents' agreed with emergency preparedness statement while 29.56% disagreed with emergency preparedness statement.

From the result, 37.71% of the respondents highlighted destruction to properties as the potential impact of the disaster, 23.50% claimed loss of lives, 16.12% maintained that it affects the socio-economic status, 9.29% saw an increase in agricultural challenges as the potential impact of the disaster. 6.83% of the respondents nevertheless, saw an increase in health challenges and disease outbreak (6.65%) also as potential impacts of disaster. This signifies that destruction to properties is a major potential impact of the disaster in the study area. According to Ijigah and Akinyemi (2015), the ensuing shock of flooding in coastal cities such as Port Harcourt, Lagos, Calabar, Uyo, Warri, Lokoja and Kaduna has resulted to various degree of challenges including loss of lives, obliteration of material goods, collapse of infrastructure and socio-economic activities, and destruction of agricultural produce. Such events have claimed many lives and destruction of properties worth millions of Naira.

Also on mitigation strategies against disaster, facts from the investigation point out that 31.23% of the respondents revealed land-use planning as mitigation strategies against disaster, 20.55% highlighted drainage system, 17.0% noted tree planting, 14.52% claimed reduction of the burning of fossil fuel, 9.29% highlighted stopping of deforestation while 7.12% of the respondents claimed the use of renewable energy as mitigation strategies against disaster. This signifies that land-use planning is the perceived mitigation strategies against disaster among the respondents. This claim is consistent with that of Adedeji et al., (2012) which asserted that ineffective spatial planning and natural resources management conjugated by the unwillingness of the administration to offer effective urban administration aggravated the event of flooding in Nigeria cities. Finally, government role in improving awareness of disaster in the study area showed that 20.99% of the respondents saw drainage construction as government role in improving awareness of disaster, 18% highlighted development of educational programs, 15.75% claimed awareness campaigns, 13.26% claimed early warning and dredging/shore protection respectively, 11.89% noted legislation/policies while 6.91% of the respondents claimed land-use planning as government role in improving awareness of disaster. The spatial variation identified showed that Zone A (Rumuodumaya) and Zone C (Rumuokoro) supported the claim to drainage construction while Zone B, C and E (Rumudara, Choba and Iwofe respectively) supported the claim of development of educational programs as government role in improving awareness of disaster.

VI. CONCLUSION AND RECOMMENDATIONS

Perception towards Disaster Risk Management is relatively adequate in the study area such that the respondents were able to identify the prevalent disaster in the area, the natural cause

and human activities that influence the occurrence of such disaster. Disaster Risk Management practice is not effective due to lack of pre-disaster preparedness, lack of emergency response and recovery team and over-reliance on government. Although the knowledge about various disasters is adequate, the source of information might not be effective in the dispersion of information due to various factors such as lack of electricity, allotted time and accessibility to the device. The perceived requirement toward Disaster Risk Management practice and government roles among the zones of the study showed the spatial difference.

Arising from the findings above, these suggestions are made:

1. Emphasis should be on an integrated approach towards urban infrastructural development planning and review of on-going and planned facilities development setting with the aim of maximizing the Disaster Risk Management potentiality without compromising the set-out objectives.

2. Disaster Risk Management concept and practice should be promoted and included in the nation's educational curricula.

3. Awareness programs on disaster risk management and mitigation should be established and promoted by the governmental and non-governmental organization (NGOs) for the society at large.

4. The government should encourage the maintenance of a green environment and come up with policies and regulations to reduce anthropogenic activities that contribute to climate change activities.

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