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INFLUENCE OF FLOODING ON SOCIOECONOMIC ACTIVITIES AND MITIGATION MEASURES IN DESIGNATED COASTAL COMMUNITIES IN AKWA IBOM STATE

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Abstract: Influence of flooding on socioeconomic activities and mitigation measures in Obianga, Emereoke, Inua Eyet Ikot and Iwuo Okpom Opulom Communities of Eastern Obolo and Ibeno Local Government Areas, Akwa Ibom State was evaluated. The study employed cross-sectional survey with sample population consisted of inhabitants in the coastal communities and was found using purposive and random sampling techniques via by Godden formula. Data were collated from both primary and secondary sources. The participants were requested to indicate their sex and perceived influence of flooding on socioeconomic activities such as types of housing lived in, assets lost, sources of drinking water, health and educational facilities and crops, and sanitary facilities they have, and mitigating measures to lessen flooding effect. Ethical issues were duly addressed and the instrument (questionnaire) was tested for both face and content validity, and consistency before administered and retrieved for analysis using Microsoft Excel 2016. The results recorded a total of 287 participants. Majority (61.7%) were males. Their main source of drinking water was unprotected well/spring water (70.1%) and most of the health facilities were not available which gave rise to some significant diseases such as malaria (42.2%), cholera/typhoid (27.2%) and cough/ARI (24.7%). Greater number of respondents confirmed the availability of educational facilities (90.9%) but sometimes damaged (70.7%), and school disrupted due to flooding (73.0%). This had led to finance crisis (53.7%), hunger (44.3%) and road submersion (2.1%) in the areas.

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Their staple crops (cassava, maize and fluted pumpkin) (88.1%) are always damaged by flooding. Open defecation (70.7%) was the most common type of sanitary facilities found whereas the least was VIP toilet (2.9%). Majority of the inhabitants received financial aids from their social network and some credit facilities/ insurance to lessen the effect of flooding.

It appeared that Iwuo Owo Opulom and Emereoke Communities were more liable to flooding in terms of assets / property destroyed. It was recommended that drainage systems should be constructed and accurate flood warning system should be amounted mostly in the flood prone regions through various agencies and NGOs.

Keywords: *Flooding, socioeconomic activities, coastal Communities, mitigation measures*

INTRODUCTION

One third of West Africa's coastal regions 'population has the capacity to produce 56% of its GDP. These regions are wetlands and are characterized by oil and gas reserves, fisheries, and tourism potential [1]. But these regions are affected by climate variation and catastrophe risks. Consequently, the coastal areas are subjected to natural threats, especially flood. This is due to rising sea level which floods the wetlands and dry lands, and erodes the seashores. This could lead to loss of property and human life [2, 3]. For instance, after the 2004 floods in Bangladesh, unfortunate homes devastated by the flood lost more than twice as much of their total income as non-poor homes [4]. Besides, other consequences of flood include devastation of crops [5], destruction of educational infrastructures [6] and illnesses [7]. Crops such as rice paddy, fruit trees and vegetables were lost due to flood and the farmers were in no doubt lost also huge income that would have been generated after sales [8]. Sometimes, communication and power infrastructures, bridges and roads are damaged [6]. Some economic activities may be brought to a halt, forcing people to abandon their homes [1]. Meaningfully, flood catastrophes may result from human creation which is a consequence of our interrelationship with the environment. For instance, in the design and location of our amenities, exploitation of natural resources, urbanization, etc. [9, 10]. The coastline is in a continuous fluctuation, thus causing ostensible muddle which makes poor people more vulnerable to disasters which may affect their socioeconomic activities such as living conditions, education, resources, opportunities, etc. [3]. The most vulnerable are the aged, women and children [11]. The unceasing and increasing incidence of flooding often poses applicable danger to the attainment of both workable development and poverty-reduction programmes [12]. Several works were carried out in other regions of the world [5, 13, 14]. So, the present work focused on the influence of flooding on socioeconomic activities and mitigation measures in designated coastal communities (Obianga, Emereoke, Inua Eyet Ikot and Iwuo Okpom Opulom Communities of Eastern Obolo and Ibeno Local Government Areas) in Akwa Ibom State. The study would show the most vulnerable regions and give significant inputs regarding mitigation measures to minimize the influences of coastal flooding in Akwa Ibom State.

METHODOLOGY

Study Area

The study regions were few coastal communities (Obianga, Emereoke, Inua Eyet Ikot and Iwuo Okpom Opulom) in Eastern Obolo and Ibeno Local Government Area (LGA) of Akwa Ibom State (AKS), Nigeria as shown in Figure 1. Nevertheless, Eastern Obolo LGA lies between latitudes 4°28' and 4°53' and longitudes 7°50' and 7° 55' East while Ibeno LGA lies between 4°33'N and 8°4'E. The chief occupation of the populaces is fishing. Therefore, majority of them are fishermen. However, crop farming and petty trading are also found [15].



Fig. 1. The location of the study, [15].

Research Design, Sampling Method, Population and Sample Size

Research design implemented was cross-sectional survey. The sampling procedures used were being purposive and random sampling procedures. The population were the inhabitants in the coastal regions in Akwa Ibom State. The sample size (n) was computed using Z (1.96 for 95% confidence level), % population (P= 75%) [16] and C (0.05 for confidence interval) in Godden formula given in Equation (1):

$$n = \frac{Z^2 \cdot P \cdot (1-P)}{C^2} \quad (1)$$

Sources of Data and Data Collation Methods

The study data were got from both primary and secondary sources. A researcher-made questionnaire was employed. It had either closed-ended or open-ended items or both. The secondary data were collected from archives [16] and United States Geological Surveys [USGS] [17].

Nevertheless, the participants were requested to indicate their sex. In terms of impact of flood on socioeconomic activities in their communities, they were asked to specify:

1. the types of housing they lived in and assets they normally lost to flood;
2. common sources of drinking water;
3. their degree of access to health facilities, damages to health facilities and health status resulting from flooding;
4. their extent of access and damages to educational facilities, and school disruption due to flood;
5. their perceived degree of damage to crops and main staple crops; and
6. the nature of sanitary facilities common in the study areas. Based on items on the questionnaire, they were also requested to specify coping approaches to mitigate the effect of flooding in their communities.

Ethical Issues, Instrument Validation, Consistency and Administration

Relating ethical issues, the participants were told of the intention of the study before copies of questionnaire were administered by qualified research assistants. However, the instrument was tested for both face and content validity using Equations 2 and consistency using Pearson's Product Moment Correlation Coefficient (r) embedded in Microsoft Excel 2019. However, content validity index (CVI) and correlation coefficient (r) greater than 0.7 is recommended [18].

$$CVI = \frac{\text{Total number of valid items (TNVI)}}{\text{Total number of items on the instrument (TNI)}} \quad (2)$$

Method of Data Analysis

The data got from the questionnaire were analyzed using Microsoft Excel 2019. The results were presented in table, percentage and chart for quick understanding.

RESULT AND DISCUSSION

Results

(a) Sample Population, Content Validity, Consistency, Response and Return Rate

The calculated least sample population, content validity, instrument consistency, response and return rate are presented in Table 1.

Table 1. Sample population, content validity, consistency, response and return rate

Item	Quantity
Minimum population computed using Godden formula	288 respondents
Content validity index (CVI)	0.996
Copies of questionnaire printed	300
Copies of questionnaire used for consistency test	4
Instrument consistency (r)	0.970
Copies of questionnaire administered in the field	295
Copies of questionnaire responded	287
% Return rate	97.29

From Table 1, the computed least population and content validity index were 288 respondents and 0.9960 respectively.

Once more, a sum of three hundred (300) copies of the questionnaire were reproduced, four (4) were employed for instrument consistency test (0.940) and two hundred and ninety-five (295) copies of questionnaire were administered in the field. Only two hundred and eighty-seven (287) copies were responded. Therefore, 97.78% of the copies of questionnaire were retrieved which is viewed as response and return rate.

(b) Sex of the Respondents

The sex of respondents is presented in Figure 2. There were fewer female respondents than males. Approximately 61.7% were males, while 38.3% were females.

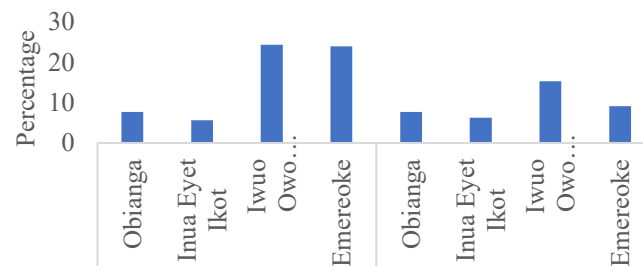


Fig. 2. Sex composition of household heads in each location

Influence of Flooding on Socioeconomic Activities in the Coastal Communities

(a) Types of Housing and Asset Loss

Tables 2 and 3 show types of housing and assets loss found in the study area.

Table 2. Types of housing

Type of Housing	Location	%	Total %
Mud and wattle	Obianga	11.1	74.5
	Inua Eyet Ikot	7	
	Iwuo Owo Opulom	40	
	Emereoke	16.4	
Blockwork	Obianga	4.2	25.5
	Inua Eyet Ikot	4.9	
	Iwuo Owo Opulom	0	
	Emereoke	16.4	

Table 3. Percent of loss of household property or assets

Assets	Location				Total %
	Obianga	Inua Eyet Ikot	Iwuo Owo Opulom	Emereoke	
Boat/ canoe	8.3	3.1	10.5	13.5	35.4
Fishing net	2.4	2.1	11.1	6.7	22.3
Chairs	2.4	2.1	11.1	5.6	21.2
Television	0.0	2.1	4.2	2.1	8.4
Radio	0.0	0.3	1.4	1.7	3.4
Hoe	0.0	1.0	0.0	0.0	1.0
Others	0.0	1.0	5.6	1.7	8.3
Total	13.1	11.7	43.9	29.9	100.00

From Table 2, 74.5% of the respondents lived in mud and wattle house. This was mostly seen in Iwuo Owo Opolom (40%), which is made up of sticks from the bamboo and thatch from the oil palm tree or raffia palm whereas 25.5% of the respondents that built block house were predominately seen in Emereoke (16.4%). However, to buttress flood menace as captured in Table 3, pictures of household property or assets lost are shown in Figures 3.



Fig. 3. Catalogues of household property or assets lost by flood

Table 3 revealed that a substantial number of productive and non-productive assets were damaged or lost by the floods. Of the productive assets which were lost, 35.4% were boat/ canoe mostly in Emereoke (13.5%), while 22.3% were fishing nets majorly in Iwuo Owo Opolom (11.1%) which contributed to 57.7% of properties destroyed by coastal flooding which are required to meet up with their daily livelihood. Again, 21.2, 8.4, 3.4, 1.0 and 8.3% of chairs, television, radio, hoe and others as non-productive assets, respectively were lost to flooding. In a nut shell, Iwuo Owo Opolom Community (43.9%) had the highest % household property or assets loss.

(b) Sources of Drinking Water

Common sources of drinking water are presented in Table 4.

Table 4. Common sources of drinking water

Sources	Location	%	Total (%)
Borehole	Obianga	1.0	9.3
	Inua Eyet Ikot	5.2	
	Iwuo Owo Opolom	3.1	
	Emereoke	0.0	
Protected Well	Obianga	2.6	14.3
	Inua Eyet Ikot	3.6	
	Iwuo Owo Opolom	4.6	
	Emereoke	3.5	
Unprotected Well / Spring	Obianga	13.6	70.1
	Inua Eyet Ikot	7.4	
	Iwuo Owo Opolom	25.8	
	Emereoke	23.3	
Rainwater	Obianga	0.0	6.3
	Inua Eyet Ikot	0.0	
	Iwuo Owo Opolom	0.0	
	Emereoke	6.3	

From Table 4, the survey further established that 70.1% of household whose main source of drinking water was unprotected well/spring water. The percentage of household that used protected well, rainwater and borehole as their main water sources were 14.3%, 6.3% and 9.3% respectively.

(c) Health Status

The summary of the responses by the participants relating access to health facilities, damages to health facilities and health status resulting from flooding are presented in Tables 5 and 6.

Table 5. Health status of the respondents

Statement	Yes (%)	No (%)	Undecided (%)
(a) Access to health facilities	35.1	64.9	0.0
(b) Damages to health facilities due to flood	34.8	40.1	25.1
(c) House member sick due to flood	92.7	7.3	0.0

Table 6. Major disease outbreak due to flooding

Malaria (%)	Cholera / Typhoid (%)	Cough / ARI (%)	Measles (%)
42.2	27.2	24.7	5.9

Table 5 revealed that the sampled household (64.9%) indicated that health facilities were not available in their communities. Furthermore, 34.8% of the household had indicated that health facilities had been damaged by flooding in their communities, while 40.1% disagreed. The study further revealed that out of the 287 sampled household, 92.7% indicated having at least one member of their household getting sick due to floods.

Again, from Table 6, the most significant diseases experienced among the household members were malaria (42.2%), cholera/typhoid (27.2%), cough/ARI (24.7%) while measles had 5.9% due to the floods.

(d) Education

The extent of access and damages to educational facilities, and school disruption due to flood as perceived by the respondents is presented in Table 7.

Table 7. Access and damages to educational facilities, and school disruption due to flood

Statement	Yes (%)	No (%)	Undecided (%)
(a) Access to educational facilities	90.9	8.7	0.3
(b) Damages to educational facilities	70.7	11.8	17.4
(c) School disruption due to flood	73.0	11.5	15

Table 7 revealed that majority of the household (90.9%) indicated that there are educational facilities in their communities compare to 8.7% and 0.3% who disagreed and undecided, respectively. Furthermore 70.7% of the household had indicated damaged to educational facilities compared to 11.8% and 17.4% disagree and undecided respectively. The study further revealed that 73% of the respondents (household heads) indicated school disruption due to flood while 11.5% disagreed and 15% were undecided. However, impact of school disruption due to flood as perceived by the respondents is presented in Figure 3.

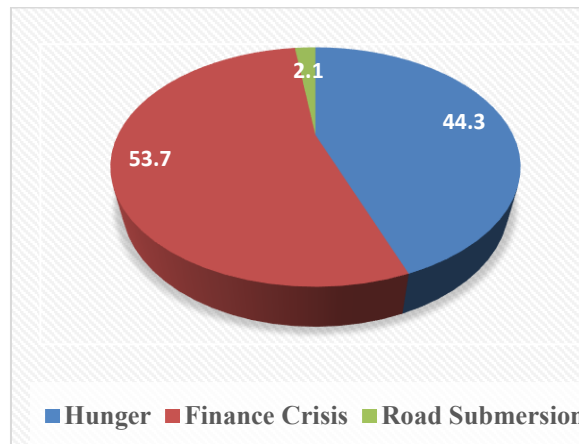


Fig. 4. Impact of school disruption due to flood

From the Figure 4, majority of the household (53.7%) indicated finance crisis as impact of school disruption due to flood, whereas 44.3% and 2.1% indicated hunger and road submersion respectively.

(e) Crops Damage

The degree of damage to crops experienced by household and the main staple crops damage during flood as perceived by the respondents are summarized in Table 8.

Table 8. Summary of damage to staple crops experienced by household

	Statement	Yes (%)	No (%)	Undecided (%)
(a)	Household experience to crops damage due to flood	88.1	11.0	0.9
		Cassava	Maize	Fluted Pumpkin
(b)	Main staple crops damage during flood	62.0%	25.0%	13.0%

About 88.1% of most of the sampled households indicated that their crops were damaged by flood, 11.0% did not affirmed whereas 0.9% were undecided. Most staple crop damaged by flood was cassava (62.0%), followed by 25.0% and lastly fluted pumpkin (13.0%).

(f) Sanitary Facilities

The nature of sanitary facilities used in the study areas are shown in Table 9.

Table 9. Nature of latrine

Type of Sanitary Facilities	Location	%	Total (%)
Open defecation	Obianga	9.7	70.7
	Inua Eyet Ikot	7.0	
	Iwuo Owo Opulom	33.4	
	Emereoke	20.6	
Traditional latrine	Obianga	3.5	20.8
	Inua Eyet Ikot	1.7	
	Iwuo Owo Opulom	3.1	
	Emereoke	12.5	
Pier latrine	Obianga	3.5	5.6
	Inua Eyet Ikot	0.0	
	Iwuo Owo Opulom	2.1	
	Emereoke	0.0	
VIP toilet	Obianga	0.0	2.9
	Inua Eyet Ikot	2.9	
	Iwuo Owo Opulom	0.0	
	Emereoke	0.0	

In terms of sanitary facilities as shown in Table 9, 70.7% of the sampled household had no sanitary facilities, but resort to using sand/ ocean bank as alternatives to defecate openly, with Iwuo Owo Opulom (33.4%) being the highest whereas Inua Eyet Ikot recorded the least (7%). About 20.8% and 5.6% used traditional and pier latrines. However, traditional latrine was found mostly in Emereoke (12.5%) while pier latrine was mostly seen in Obianga (3.5%). Furthermore, VIP toilet (2.9%) was recorded in Inua Eyet Ikot.

(g) Coping Measures to Lessen Influence of Flooding on Socioeconomic Activities

Figure 5 shows coping measures adopted by the inhabitants in each community and their strength to lessen the effect of flood on their socioeconomic activities.

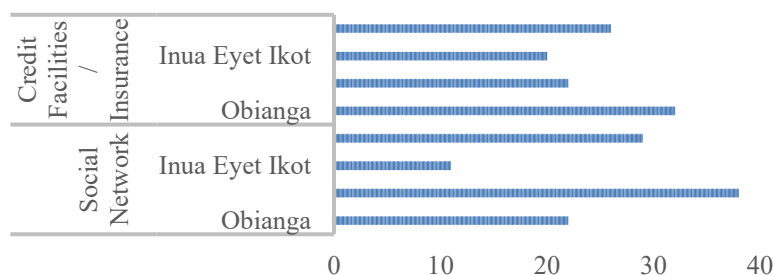


Fig. 5. Coping measures to lessen effect of flooding

From Figure 5, Obianga community had the highest (32%) coping measures, in terms of credit facilities/insurance, where they normally receive financial aids to lessen the negative impact of flood. This was followed by Iwuo Owo Opulom (26%) whereas the least was found in Inua Eyet Ikot (20%). However, in terms of social network, Emereoke community recorded the highest (38%), followed by Iwuo Owo Opulom (29%), and lastly Inua Eyet Ikot (11%).

Discussion**(a) Sample Population, Content Validity, Consistency, Response and Return Rate**

As observed in Table 1, the total number of the participant involved were 287 which is just one less than the least population (288) required. This suggests a well-meaning sample population to begin the study. Also, CVI of 0.9960 infers that statements or items on the questionnaire were 99.60% exceptionally structured to deal with the research objective. Instrument consistency test of 0.970 submits that the instrument (questionnaire) structured helped the participant(s) to answer the research items with 95% uniformity and only 5% contradiction. So, the instrument was dependable. Moreover, out of 295 copies of questionnaire taken into the field, 287 were answered, and this denotes the questionnaire response and return rate of 97.29%. A questionnaire response and return rate of 50% is adequate to commence a study successfully [19]. In this work, the response and return rate was outstanding because it exceeded the required least return rate by 47.29%. This suggests a good response and return rate and that the respondent(s) were willing to participate.

(b) Sex of the Respondents

From Figure 2, more households were ruled by men, and this may be due to nature of the livelihood prevalent in the study areas. For example, fishing is always dominated by males. It was well-known from a significant informant that majority of the occupants of the areas were immigrants from the adjoining local government area who came to search for cheap labour.

Influence of Flood on Socioeconomic Activities in the Coastal Communities

Most houses built with mud and wattle (74.5%), seen in Iwuo Owo Opolom (40%) and Emereoke (16.4%) Communities must have been attributed to the reoccurring effect of coastal flooding which destroys houses and make the people retreat inland. This implies that Iwuo Owo Opolom and Emereoke Communities must have been the epicenters of flood disaster. Key informant also revealed that some years ago their houses were located in the area now taken by coastal flooding which also discourages them from building a permanent shelter. This has become a setback, affecting their economic realities (income). Most houses built with block-work are farther away from the seashore which may not easily threaten by the coastal flood. Some household assets or property, representing 8.3%, such as cooking pots, beds and clothes must have been lost too. Most of the losses were attributed to households' proximity to coastline or water bodies. This is in line with the comment of one of key informants who revealed that he indirectly lost some household assets, including income sources, due to flood incidence and subsequent collapse of his house. Generally, Iwuo Owo Opolom Community (43.9%) appears to be the most predominant flood threatening location in the study. In a similar study, Rakiba *et al.* [6] observed the devastation of infrastructural prospect, in their study area, as a consequence of flood hazards. This agrees with the findings of Hossain *et al.* [20] where health facilities and houses were damaged by flood and the major socio-economic activities were negatively impacted with severe implications.

(a) Water Source, Health Status and Education

Finding from the field data showed a lot of diversity on the type of drinking water sources they had. It was evident that unprotected well/spring, protected well and borehole were the most common water sources that communities used for drinking. The community with the highest unprotected well/spring was Iwuo Owo Opolom (25.8%) followed by Emereoke (23.3%). This means that households in these communities would continue to be vulnerable to increased disease outbreak as long as the unprotected well / spring continues to be their main source of drinking water, which is as a result of increased contamination that occurs during flooding. In a similar work, Okaka and Odhiambo [14] showed that household characteristics water and sanitation had greater impact on household vulnerability to contamination due to flood. Besides, a larger number of the inhabitants (64.9%) not having access to health facilities must have lived farther away or their relief (topography), being close to flood prone areas, must have not permitted the establishment of these facilities. Those that did not decide must have not experienced flood menace. Sickness in the household is an indication that the flood water was contaminated with pathogens or disease-causing organisms. The most common disease that attacked the inhabitants was malaria (42.2%). Female anopheles' mosquitoes do breed in an area where there is stagnant flood water. There is an urgent call to institute preventive measures such as sleeping under mosquito treated nets or regular check up to ascertain its level and adhere to doctors' prescription after test results. Result of the present study is in line with the study of Toufique and Yanus [7] who opined poor access to health facilities which could result in illnesses may be attributed to inhabitants' higher vulnerability to natural catastrophe and climate change, for example, flood. This implies that greater number of the inhabitants must have been interested in education and would like their wards to take another trade apart from fishing or trading.

Damaged to educational facilities may likely subject the learners to lousy or uncondusive environment which eventually bring about drop in school attendance. Disruption of school due to flood may trigger delay in school calendar. This means that some trading activity must have been disrupted too, and those who worked in the surrounding schools may not have been paid for months, especially those in private sector. Again, transportation of food materials to market and other businesses would have been hindered due to road submersion in flood water; hence, putting many households in financial stress. In line with the present work, Rakib *et al.* [6] reported of the destruction of educational infrastructure as a consequence of flood.

(b) Crops Damage and Sanitary Facilities

The higher affirmation (88.1%) of crops damage due to flood in the study area is an indication of the severity of the flood incidence in the area. This situation might have led to hunger. The main staple crops (cassava, maize and fluted pumpkin) are mostly carbohydrate and minute vitamin / mineral giving foods. Seafoods (mainly protein) obtained from fishing could supplement the inhabitants' diets, improving their health if other factors are healthily regulated. The present study in consonant with Tuwilika [5] work, which revealed that flood had a great impact negative on animals and plants. Besides, Week and Wizer [21] showed that lack of basic food and crops due to flood caused food insecurity in core Niger delta. It is worthy to note that sand/ocean banks in the context of sanitary facilities are usually regarded as no sanitary facilities even though they are used as an alternative for excreta disposal. This implies that the scenario could aid spread diseases rapidly. The presence report is in agreement with the work of Toufique and Yanus [7] who maintained that lack of sanitary toilets in the coastal regions is as result of inhabitants' higher vulnerability to natural disaster and climate change, for instance, flood. Again, Okaka and Odhiambo [14] held that sanitation could also have influence on household vulnerability to diseases due to flood.

(c) Coping Measures to Lessen Effect of Flooding on Socioeconomic Activities

Social networks found in the study area were associations, village savings and loans associations (VSLAs), unions, cooperatives, etc. They also received some credit facilities / insurance to cushion the effect of flood menace. In Emereoke community, households had very useful strength in their social networks. For instance, they often times respond to disease outbreaks like cholera, typhoid, malaria, and so on by utilizing funds from cooperatives and VSLAs to cater for health emergencies.

CONCLUSION AND RECOMMENDATIONS

In this study, influence of flooding on socioeconomic activities and mitigation measures in Obianga, Emereoke, Inua Eyet Ikot and Iwuo Okpom Opolom Communities of Eastern Obolo and Ibeno Local Government Areas, Akwa Ibom State was evaluated. The results showed that the main source of drinking water was unprotected well/spring water (70.1%). Flooding had led to destruction of houses, loss of property and assets, damaged to health facilities, household members felling sick, damaged to educational facilities, disruption to school attendance, damaged to crops especially cassava and maize, lack of clean water and poor sanitation condition. It seemed that Iwuo Owo Opolom and Emereoke Communities were more liable to flooding in terms of destruction of assets.

It was proposed that drainage structures should be built and accurate flood warning mechanism should be amounted particularly in the flood prone areas through via various agencies and NGOs.

CONFLICT OF INTEREST

None is declared.

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UTICAJ POPLAVA NA SOCIO-EKONOMSKE AKTIVNOSTI I MERE UBLAŽAVANJA U ODREĐENIM PRIOBALNIM ZAJEDNICAMA U DRŽAVI AKWA IBOM

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Apstrakt: Evaluiran je uticaj poplava na socio-ekonomske aktivnosti i mere njihovog ublažavanja u zajednicama Obianga, Emereoke, Inua Eyet Ikot i Iwuo Okpom Opulom u lokalnim samoupravnim područjima Istočnog Obolo i Ibeno, lokalna zajednica oblast države Akwa Ibom, Nigerija.

Studija je koristila unakrsno istraživanje sa uzorkom populacije koji se sastojao od stanovnika priobalnih zajednica koji je utvrđen korišćenjem tehnika namernog i slučajnog uzorkovanja pomoću Godden formule.

Podaci su prikupljeni iz primarnih i sekundarnih izvora. Od učesnika je zatraženo da navedu svoj pol i prihvatljiv uticaj poplava na socioekonomske aktivnosti, kao što su: tip stanovanja gde su živeli, izgubljena imovina, izvori vode za piće, zdravstveni i obrazovni objekti i usevi, kao i sanitarni objekti koje poseduju, i mere ublažavanja za smanjenje posledica poplava.

Etička pitanja su blagovremeno rešena, a instrument (upitnik) je testiran na validnost i konzistentnost, kako u pogledu lica tako i sadržaja, pre nego što je primenjen i preuzet za analizu pomoću programa Microsoft Excel 2016.

Rezultati su zabeležili ukupno 287 učesnika. Većina (61,7%) bili su muškarci. Njihov glavni izvor vode za piće bila je nezaštićena bunarska/izvorska voda (70,1%) i većina zdravstvenih ustanova nije bila dostupna, što je dovelo do nekih značajnih bolesti kao što su malarija (42,2%), kolera/tifus (27,2%) i kašalj/ARI (24,7%).

Veći broj ispitanika je potvrdio dostupnost obrazovnih objekata (90,9%), ali ponekad oštećenih (70,7%), kada je rad škola prekinut zbog poplava (73,0%). Ovo je dovelo do finansijske krize (53,7%), pojave gladi (44,3%) i poplava lokalnih puteva (2,1%) u posmatranim područjima. Njihove osnovne kulture (kasava, kukuruz i bundeva) uvek su bile oštećene (88,1%), pojavom poplava.

Otvoreni tip sanitarno-higijenskih čvorova je bio najčešći tip i on preovlađuje (70,7%), dok je najmanje bilo VIP toaleta (2,9%).

Većina stanovnika je dobila finansijsku pomoć od svoje društvene mreže i neke kreditne linije/osiguranja, kako bi se smanjio efekat poplava.

Činilo se da su zajednice Ivuo Ovo Opolom i Emereoke bile podložnije uticaju poplava u smislu uništene imovine.

Preporučena je izgradnja sistema za odvodnjavanje, sa uspostavljenjem precizanog sistema upozoravanja na poplave, uglavnom u regionima koji su skloni čestim poplavama, putem različitih Sistema/agencija i nevladinih organizacija.

Ključne reči: Poplave, socio-ekonomske aktivnosti, priobalne zajednice, mere ublažavanja

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