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NEMA'S ROLE IN FLOOD RESPONSE: A STUDY OF COMMUNICATION APPROACHES WITH SOUTH-SOUTH NIGERIA RESIDENTS IN 2019

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Abstract: This assessed the communication strategies between NEMA and residents of South-South Nigeria in managing 2019 flooding. The main aim of the study was to find out the communication strategies that were employed by the National Emergency Management Agency in communicating flooding information to the target audiences in 2019 in South-South Nigeria. To direct the course of the study six research questions were formulated. Participatory communication theory, protection motivation theory and diffusion of innovation theory were used for the theoretical framework. The study employed the survey research design and the research instruments were questionnaire and interview guide. The study population comprised of residents of South-South Nigeria, within the age category of 20 to 84 which was 14,180,716 and using the Keyton's Sampling Technique, the sample size of 384 was drawn from the population. Data was analysed using descriptive statistics with frequency table of values and measures such as: weighted mean score. The study found out that residents of the affected communities in South-South Nigeria did not communicate adequately to NEMA during the flooding in 2019 and the most used of all the modes of communication indicated was through the community leaders. The study concluded that the communication strategies of NEMA were not sufficient enough to stimulate the residents to carry out the agency's recommendations in 2019 flooding, but the mobilisation efforts of the leaders and the eagerness of the residents as a result of their previous flooding experiences aided in flood management. The study recommended that NEMA needs to take advantage of the experiences, skills, self-mobilisation efforts of the leaders and eagerness of the residents of the affected communities in South-South in managing flooding and improving them for effective flood disaster management.

Keywords: Communication, Strategies, NEMA, Managing, 2019 Flooding, Residents of SouthSouth

Introduction

Flood can be described as an enormous volume of water that has overflowed from its original source such as a river, lake or ocean to submerge a usually dry land. The overflow could result from heavy or prolonged rainfall causing the volume of water in the river to rise above the normal level, thereby escaping its normal boundaries to inundate the dry land around the river. Flooding can also be seen as an overflow of water from the drainage system into the streets and the nearby compounds and houses during torrential rainfall.

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Flooding can be mild or so heavy in such a way that it can cause massive destruction to the affected areas. It has been globally recognized as the most frequent natural disaster that results in destruction of lives, environment and the economy of the affected places. The United Nations Environment Programme UNEP (2006) views flooding as one of the major environmental crises ravaging the universe within the century and the millennium. Jato-Espino, et al (2019) point out that flooding is one of the most common and destructive natural disasters worldwide, especially in the urban areas, due to the high concentration of people and goods in these areas.

During the 2019 Annual Flood Outlook (AFO) presentation on 30th April 2019, the Director General of the Nigeria Hydrological Services Agency (NIHSA) predicted that all the 36 states of Nigeria, including the Federal Capital Territory (FCT) should anticipate flooding, but at different magnitude. He therefore, advised that the residents of the flood prone communities should commence preparation for the looming flooding by unclogging their drainage systems and also vacating the floodplains. According to the report, the Minister of Water Resources advised that the AFO presentation also served as an early warning to the public and the affected communities. The Director General of Nigerian Meteorological Agency (NiMet) also cautioned that there could be some climate change that could consequently lead to changes in the annual flood prediction, and for that reason the authorities were required to be on the alert for any eventuality.

NiMET predicted that the states in the coastal region of the country, particularly Bayelsa, Rivers and Akwa Ibom will continue to experience rainfall till late November and early December. This was of great concern because of the excessive amount of flooding observed in Niger Republic by the Niger Basin Authority (NBA) on August 31, 2019 which, in addition to the rainfall, could result in heavy flooding in the states along the course of River Niger.

The report of Agbede, et al. (2019) also shows that NIHSA provided update on flood incidents in the country, which showed that by 19th October, 2019, fifteen states and the Federal Capital Territory had already experienced flooding with about a hundred deaths recorded. This is an indication that the early warning of April 30, 2019 Flood Outlook by NIHSA might not have elicited the required actions to mitigate the effect of the flooding.

Premium Times (November 5, 2019) reports showed yet another flooding red alert for some states in the country as published by the Nigeria Hydrological Services Agency (NIHSA) in October 2019. Among the affected states were four states in the South-South zone which were: Edo, Delta, Rivers and Bayelsa. According to the report, contrary to the Memorandum of Understanding (MoU) signed between Nigeria and Cameroon in 2015 regarding the opening of the Lagdo Dam which is managed by the Cameroonian government, the floodgate of the dam was opened from the 10th to 31st October, without properly informing the Nigerian government as stipulated in the MoU. As at November 4, 2019, the water level in River Benue measured at Makurdi and at the Confluence of rivers Niger and Benue in Lokoja had already exceeded that of 2012 that caused colossal havoc in many states in the country. The agency therefore, anticipated that the unannounced discharge of water from the Lagdo Dam was going to cause massive flooding and therefore, cautioned the relevant authorities of the affected states to be prepared to quickly relocate particularly residents of the communities close to the River Niger to safe and higher grounds, in case, the flooding occurred. Fortunately, it did not happen as was expected, probably because the dam did not remain open for a long period of time as in the case of 2012.

NEMA and NIHSA reports for 2019 flooding show that a total of 130,934 persons were affected by flooding with 126 deaths, 768 persons injured, 29, 355 houses damaged or destroyed, 48,114 internally displaced and property lost

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worth of 176 million. The prediction for the year 2019 showed that 356 local government areas will be affected, but the actual affected LGAs out of the prediction were 184. The report also showed that flooding also occurred in 78 other LGAs that were not included in the annual prediction. NIHSA explained that these flooding may have resulted from human activities because the predictions model captures only areas beside major river channels.

Flooding has other adverse effects which Magami, et al. (2014) refer to as secondary consequence of flooding. Flood water contaminates the sources of drinking water for the affected areas, thereby generating diseases and infections such as diarrhea, cholera, typhoid and other infections which could also lead to death or severe health challenges. WHO (2019) observes that flood-hit populations face increased risk of illness or death from water-borne diseases and other diseases that spread easily in overcrowded, temporary shelters - cholera, typhoid and other infectious diseases. It also creates conducive environment for breeding mosquitoes and its resultant malaria infection. Etuonovbe (2011) notes that the floods wrecking communities around Ogun and Lagos States also expose the residents to imminent epidemic of cholera, diarrhea, malaria, skin infections and other water-borne diseases. It has also been noted that flooding brings with it reptiles, snakes and other wide creatures which ordinarily should not be easily found in the same environment with human beings. Some flood victims have been attacked by these creatures. Flooding also result in ecosystem degradation and this has led to loss of natural protections.

Statement of the Problem

Flooding disaster has become a perennial disaster in South-South region of Nigeria, especially after the 2012 flooding that was viewed as the most disastrous over the past five decades. Each year comes with its own magnitude of catastrophic flooding whereby communities are submerged, buildings are destroyed, residents are displaced, bridges are broken down, roads are blocked or destroyed, lives are lost in some cases, farmlands with crops and other property worth millions of naira are destroyed. Flooding has also resulted in many other health related issues, affected the academic activities of many primary, secondary and tertiary institutions and distorted the socio-economic activities of the affected communities. This is a big threat to the sustainable development of the region that is the major oil producer of the country and consequently a threat to the country at large.

The National Emergency Management Agency (NEMA) via various communication modes conveys the annual flood predictions from NiMet and NIHSA to the state governments, local government areas, affected communities and other stakeholders, and also collaborate with them to plan and prepare on how to reduce the impact of the impending flooding. NEMA has well-established policies, strategies, and infrastructure for flood disaster mitigation and prevention.

Despite the efforts that are made by the National Emergency Management Agency, all the resources made available and the plans put in place to avert and reduce the menace of flooding, very many losses and casualties are still recorded from flooding in the South-South Nigeria. Community leaders, flood victims and other residents complain that the government do not come to their aids when their houses and communities are submerged by the flood. NiMet and NIHSA complain that the state government and the residents of the affected communities do not heed the early warning messages because they expect that the prediction may not come to pass as predicted.

For effective management of the flooding in South-South Nigeria, effective communication strategy is required. The affected individuals and communities need to receive adequate information and knowledge that will inspire their

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commitment and participation in combating the effects of the flooding. For this to be achieved there is need to identify and develop effective communication strategies for the management of flood disaster in the region.

The concern of the study is: what were the communication strategies used by the National Emergency Management Agency (NEMA) in managing the flooding disaster of 2019 in South-South Nigeria?

Aim and Objectives of the Study

The main aim of the study is to find out the communication strategies that were used by the National Emergency Management Agency in communicating flooding information to the target audiences in 2019 in South-South Nigeria. The objectives of the study are to:

1. Find out the communication media used by residents of South-South Nigeria in reaching out to the National Emergency Management Agency during the 2019 flooding;
2. Ascertain which of the communication strategies employed by National Emergency Management Agency and residents of the affected communities for the 2019 flood management that was the most preferred by residents of South-South Nigeria;
3. Ascertain the extent to which the communication strategies used by the National Emergency Management Agency in addressing residents of South-South Nigeria aided in reducing the impact of the flooding during the 2019 flooding.

Research Questions

The following research questions were framed to attend to the objectives of this study:

1. What were the communication media used by the residents of South-South Nigeria in reaching out to the National Emergency Management Agency during the 2019 flooding?
2. Which of the communication strategies employed by National Emergency Management Agency and residents of the affected communities for the 2019 flood management that was the most preferred by residents of South-South Nigeria?
3. To what extent did the communication strategies used by National Emergency Management Agency in addressing residents of South-South Nigeria aid in reducing the impact of the flooding during the 2019 flooding?

Literature Review

Conceptual Framework

Flood and Flooding

Flooding can be described as a process whereby high volume of water escapes from a body of water such as the sea, river, stream, dam, lake and others, to submerge nearby lands which were originally dry. It could also be from overflow of drainage as a result of heavy rainfall, a broken pipe or other human activities. Ochonogor (2016) describes flooding as “a rise in the body of water above its banks and flowing into adjacent land areas not normally covered by it” (p. 63). Umar and Gray (2022) view flooding as “excess water flowing onto land which is usually dry, e.g. when rainfall exceeds absorption capacity of the soil, which in turn causes significant environmental consequences” (p. 1). Cirella et al (2019) describe flooding as the spill over or outburst of excessive volume of water on a land which was not normally waterlogged caused by momentary surge in water level of a sea, lake or river or caused by heavy rainfall that surpasses normal capacity of the drainage, for absorption and vaporisation

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Flooding is usually instantaneous and can have high level of destructive propensity depending on the volume of water, the population of the place and other things that occupy the flooded land. Hula and Udoh (2015) describe flood as a large volume of water which arrives at and occupies the stream channel and its flood plain in a time too short to prevent damages to economic activities including homes. It could result in untold devastation to various human activities and wellbeing. Cirella et al (2019) explain that “when severe flooding occurs in areas occupied by humans, it causes loss of human life and property and serious disruption to the activities of large urban and rural communities” (p. 1).

Flooding has been discovered to be the most frequent and destructive natural disaster that have been causing terrible havoc to lives, properties and the economy of many nations of the world, taking its toll on the sustainable development of such countries. In recent times as observed by Buba et al (2021), the rate of occurrence and impact of severe flooding have been on the increase, causing enormous damages on the socio-economic well-being of nations with the major impact being felt at the community level.

Risk Communication

Risk communication is communication that is intended to provide for the public the necessary information about the occurrence of life threatening incidents and the actions that should be taken to avert or lessen the magnitude of damages that may result from the event. Bradley et al

(2014) define crisis and emergency risk communication (CERC) as the use of risk communication in emergencies to inform the public about an event or issue to empower members of a community to protect themselves.

Communication normally is very crucial in daily activities and associations with other people. It has been particularly recognised as a vital tool in managing disaster and emergency situations. Haddow and Haddow (2009) note that communication is a key factor for effective management of disaster in the area of preparedness, response and recovery. From the early warning message, through the period of the disaster and after the disaster, well-designed and effective communication strategies and channels are highly needed in order to reduce the level of losses. The response of the people to the instructions and recommendations conveyed to them before, during and after the disaster period determines the effectiveness of the disaster risk communication approach employed.

Flood Disaster Management

Natural disasters strike yearly, in many parts of the world, during every season, and in diverse scales. They cause massive havoc in some cases, and so there is need for well-planned strategy to avert or reduce as much as possible the effects of disasters. Flood disaster is identified as the most frequent natural disaster that enormously affect lives, property, economy and the environment. Echendu (2022) observes that it is the most widely spread natural disaster and the most prevalent in Africa. Nkwunonwo, et al (2016) observe that the magnitude of flooding and its effect is increasingly becoming an issue of great concern to both the developed nations and the developing countries that are grappling with rapid urbanisations in areas that are susceptible to flooding. With the constant increase in climate change, flooding and its devastating effect is rapidly increasing. Adedeji et al (2012) argue that the sustainable development of the developing African countries is under the threat of flooding. There is need for carefully planned and effectively coordinated strategies to mitigate the impacts of flooding. Proper flood disaster management will help to reduce the damaging effects of flooding, so that loss of lives and property can be minimized.

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Disaster Management can be defined as the overall activities involved in organising and coordinating the resources and duties that are required to reduce the adverse effects of disaster on people, properties and the environment. Such activities as preparedness, response and recovery that are undertaken to avert or minimise the magnitude of the vulnerability to the disaster. Altay and Ramirez (2010) view disaster management as the integration of different groups, including the government, public and private organisations, NGOs and other stakeholders to put their efforts together for preparedness, mitigation, response and recovery from the effect of disasters. Since natural disasters cannot be stopped from occurring, the right and effective efforts can be made to curb its devastating effects. Kelly (1996) describes disaster management as the range of activities designed to sustain control over disaster and emergency conditions and to make available a framework for assisting those who are at risk to avoid or recover from the impact of the disaster. It involves activities that will be carried out before, during and after the disaster. These activities have been grouped under three main stages namely: before the disaster (pre-disaster), during the disaster (disaster occurrence) and after disaster (post-disaster). The early warning message which precedes the above three stages provides the basic information required for the planning stages.

Communication Strategies

Communication strategies are deliberately designed to communicate actions employed to relate a particular situation, issue or event to the appropriate publics in order to elicit the right response. Cook et al (2018) refer to communication strategies as the identification of suitable communication activities that are required for the set objectives of the organisation. Ekweme and Gever (2017) describes communication strategies as the blueprints for sharing information, knowledge and ideas among the target audience and collaborators of a programme. Communication process for managing flooding should not be a serendipity, but it should be essentially clearly defined and documented as part of the programme design.

Certain rudiments and steps are required in deciding the appropriate communication strategies for a programme. Government Communication Service (2014) points out that working out the communication strategies for a programme should involve knowledge of the issue it is trying to solve, the main concern in resolving it, the major drivers of the decision which should include understanding the audiences, the necessary resources for the project, the various stages the communication process should go through and the evaluation requirements. Cook et al (2018) point out that the features required include mission and goals of the organisation or facilitators, resources available and the timeline for the programme. The mission of National Emergency Management Agency is to coordinate resources towards efficient and effective prevention, preparation, mitigation and response in Nigeria. This mission is the reason for the existence of the agency and is supposed to set the background for the selection of communication strategies for managing disasters in South-South and in Nigeria as a whole. In choosing and designing communication strategy for effective flood disaster management the initial focus has to be on the mission and goal of the agency. It should also aim at gaining the support and the collaborations of the policy makers, the community and the stakeholders.

Theoretical Framework Diffusion of Innovation Theory

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Diffusion of innovation theory was propagated by Everett Rogers in his book titled, “Diffusion of Innovation in 1962. Rogers (1983) defines diffusion as “the process by which an innovation is communicated through certain channels over time among the members of a social system”

(p. 6). Singhal (2009) defines diffusion “as the process by which an innovation makes its way over time to members of a social system” (p. 307). Diffusion of innovation refers to the means by which new ideas, objects, technologies or behaviours are adopted by the people that they concern (Wolfe, 1994; Askarany, 2009). The essence of the theory is to elucidate the way by which a new idea, technology, practice, behaviour or invention is injected into a community, group or organisation and how it is accepted by the members.

Robinson (2009) on his own side identified three important insights into social change process provided by diffusion of innovation theory, which are: the attributes that drives the effective spread of an innovation, the value of discussions among peer groups and network, knowledge of the relevance of the various sections of users. Enablers of change (2021) highlights that the theory failed to recognise that some non-adoption of new behaviour/practice could be caused by inappropriate, ill-designs and strategies of the change agents. It points out that the theory ought to consider likelihood that the non-adoption of an innovation could be caused by the failure of the intervention facilitators to properly and clearly communicate and educate the people on the new practice/behaviour or that the innovation is not suitable for the situation. Enablers of change (2021) also note that there is misinterpretation on the issue of the categories of adopters. They explain that disposition to adopt an innovation does not necessarily relate to one’s personality but vary according different innovation, in which case an individual may be in the category of early adopter in one innovation and a laggard in another. **Methodology**

The research design employed in this study was the survey method which gets the views of the respondents on various issues of the study. The population for the study comprised residents of South-South, Nigeria, which are: Akwa Ibom, Bayelsa, Cross River, Delta, Edo and Rivers States. This study looked at the total population of all the six states in the South-South which is put at 21,044,081 by the National Population Census of 2006. Using the 2.5% annual growth, the total population for 2019 was projected at 27,883,407. Out of this number, Akwa Ibom has 5,170,218 (18.5%), Bayelsa - 2,258,482 (8.1%) Cross River - 3,833,209 (13.7%), Delta - 5,448,990 (19.5%), Edo - 4,284,210 (15.3%) and Rivers - 6,888,299 (24.7%). However, the age category used for the study were those within the ages of 20 and 84. This is because the people within this age range are in better position to know what actions to take during flooding. Based on this, the age distributions in the six states investigated were as follows: Akwa Ibom - 2,611,745, Bayelsa - 1,126,273, Cross River - 1,910,582, Delta - 2,749,865, Edo – 2,209,097, Rivers – 3,573,154, totalling 14,180,716. The population for this study therefore, was 14,180,716.

The sample size for this study was 384 drawn from the Keyton’s Sampling Technique (2001). Keyton (2001) proposes that the sample size for a population within the range of 100,000 and above should be 384 and the sampling technique used for this study was multi-stage. The purposive and convenience sampling technique was employed in selecting three out of the six states of South - South Nigeria based on proximity. The purposive method was also used in selecting from each of these three states, two local government areas (one rural and one urban) that experienced flooding in 2019. Data was collected with the use of the questionnaire and a total of three hundred and eighty-four (384) copies of the questionnaire was generated and administered to the study sample of three hundred and eighty-four (384) respondents who were between the ages of 20 and 84 years in South-South Nigeria. The data

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derived from the research instruments were presented and analysed using quantitative approaches. Descriptive statistics with frequency table of values and measures such as: weighted mean score (WMS) was used to address the research questions.

RESULTS AND DISCUSSION

Table : Communication media/modes used by residents of South-South Nigeria in reaching out to NEMA during the 2019 flooding

Items	SA	A	D	SD	Total	Mean Score (fx)	Decision
When the flooding occurred I reached out to NEMA	168	168	340	116	792	2.08	Rejected
When the flooding occurred I reached out to NEMA through telephone	76	33	286	211	606	1.59	Rejected
When the flooding occurred I reached out to NEMA through Radio	172	96	318	150	736	1.93	Rejected
When the flooding occurred I reached out to NEMA through television	20	27	412	164	623	1.64	Rejected

When the flooding occurred I reached out to

NEMA through the community leaders 160 168 322 127 777 2.04 Rejected

Weighted Mean Score

3534 1.86 Rejected

Table 1 contains data that addressed communication media used by the residents of SouthSouth Nigeria in reaching out to NEMA during the 2019 flooding. The majority of the respondents rejected all the items. The weighted mean score for the Table stood at 1.86 which is rejected. The data in Table 1 show that residents of the affected communities in South-South Nigeria did not communicate adequately to NEMA during the flooding in 2019.

Table 2: Communication strategies employed by National Emergency Management Agency and residents of the affected communities for the 2019 flood management that was the most preferred by residents of

Items	SA	A	D	SD	Total	Mean Score (fx)	Decision
South-South Nigeria							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was radio							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was television							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was Newspaper							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was billboard							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was flyers							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was Women / men community meeting							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was Age grades							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was social clubs							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was Religious gatherings							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was schools							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was Town crier							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was Town/village square gathering							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was market place							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was Social media							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was Discussions with friends							
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was family members							
820 168 102 72 1162 3.05 Accepted							
708 189 132 78 1107 2.91 Accepted							
428 180 228 103 939 2.46 Rejected							
44 0 374 186 604 1.59 Rejected							
0 3 272 247 522 1.37 Rejected							
256 144 272 136 808 2.12 Rejected							
156 177 280 146 759 1.99 Rejected							

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160 123 358 124 765 Rejected
2.00
812 138 172 49 1171 3.07 Accepted
288 117 378 84 867 2.28 Rejected
536 294 152 76 1058 2.78 Accepted
472 288 208 66 1034 2.71 Accepted
324 81 286 133 824 2.16 Rejected
588 192 192 77 1049 2.75 Accepted
684 273 122 61 1140 2.99 Accepted
928 243 78 32 1281 3.36 Accepted

My most preferred among the methods used by NEMA in sending messages on 2019 flooding was neighbours	792	270	104	44	1210	3.17	Accepted
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was Community leaders	556	210	166	92	1024	2.69	Accepted
My most preferred among the methods used by NEMA in sending messages on 2019 flooding was other senior members of the community	388	183	240	106	917	2.41	Rejected

Weighted Mean Score **18241** **2.52** **Accepted**

Table 2 contains data that addressed the communication strategies employed by National Emergency Management Agency and residents of the affected communities for the 2019 flood management that was the most preferred by residents of South-South Nigeria. The weighted mean score for the table stood at 2.52 which is accepted.

The data in Table 2 show that the majority of the residents of South-South Nigeria were favourably disposed towards ten out of the nineteen communication strategies employed by National Emergency Management Agency and residents of the communities in the 2019 flooding. The most preferred of all the communication strategies was conversation with family members.

Table 3: Extent to which the communication strategies employed by NEMA in addressing residents of South-South, Nigeria aid in reducing the impact of the flooding during the 2019 flooding

Items	SA	A	D	SD	Total	Mean Score (fx)	Decision
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The strategies use by NEMA and my community in communicating before, during and after the

flooding in 2019 helped in reducing 504 264 120 110 998 2.61 Accepted
/ preventing the effect of the
flooding because there was
noticeable reduction in the rate of
fatality

The strategies used by NEMA and my community in communicating before, during and after the

flooding in 2019 helped in reducing 268 105 272 146 791 2.08 Rejected
/ preventing the effect of the
flooding because there was
noticeable reduction in loss
properties

The strategies use by NEMA and my community in communicating before, during and after the flooding in 2019 helped in reducing / preventing

the effect of the flooding because 172 78 244 193 687 1.80 Rejected
there was noticeable reduction in
loss of farmlands with crops

The strategies use by NEMA and my community in communicating before, during and after the flooding in 2019 helped in reducing / preventing

the effect of the flooding because 96 111 310 168 685 1.80 Rejected
there was noticeable reduction in the
number of families displaced from
their homes

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3161 2.07 Rejected

Weighted Mean Score

Table 3 contains data that addressed the extent to which the communication strategies employed by NEMA in addressing residents of South-South Nigeria aided in reducing the impact of the flooding during the 2019 flooding. The weighted mean score for the Table was 2.07 which is rejected. The data in Table 3 show that the communication strategies employed by NEMA in addressing residents of South-South Nigeria was not adequate in reducing the impact of the 2019 flooding.

Discussion of Findings

Research Question One: What were the communication media used by the residents of South-South Nigeria in reaching out to the National Emergency Management Agency during the 2019 flooding?

Data presented in Table 1 was used to find out the communication media used by the residents of South-South Nigeria in reaching out to the National Emergency Management Agency during the 2019 flooding. The data in Table 1 showed that the majority of the respondents disagreed that they reached out to NEMA when the flooding occurred with a mean score of 2.08. This indicates that the level at which the respondents reached out to the agency during the flooding was low. On the media and modes of communication used, the data showed that the majority of the respondents strongly disagreed that when the flooding occurred they reached out to NEMA through telephone with a mean score of 1.59, majority of the respondents strongly disagreed that when the flooding occurred they reached out to NEMA through the radio with a mean score of 1.93, the majority of the respondents strongly disagreed that when the flooding occurred they reached out to NEMA through the television with a mean score of 1.64 and with a mean score of 2.04 the majority of the respondents disagreed that when the flooding occurred they reached out to NEMA through the community leaders. Based on the data, the most used of all the modes of communication indicated was through the community leaders.

This shows that there was no adequate NEMA information in the community and as a result the residents did not know the right organisation to contact for the challenge. It also reveals a lack of participatory communication because the letter written to the Ministry of Works which was supposed to be among the stakeholders, would have easily reached NEMA's attention for quick intervention. As noted by Kheerajit and Flor (2013), participatory communication serves as a vital platform that avails the opportunity for all stakeholders to work together to provide solution that will eliminate environmental and social challenges that are hindering sustainable development.

Research Question Two: Which of the communication strategies employed by National Emergency Management Agency and residents of the affected communities for the 2019 flood management that was the most preferred by residents of South-South Nigeria?

This research question was addressed using the data presented in Table 2. Based on the data in Table 2, the two most preferred communication channels were the interpersonal communication modes, which comprised conversation with family with a mean score of 3.36 and conversation with neighbours with a mean score of 3.17, the next was the traditional communication mode, which is religious gathering with a mean score of 3.07, followed by a mass medium, which was the radio with a mean score of 3.05.

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The communication preference as presented in Table 2 indicates a blend of communication media/modes used in 2019 flooding and this aligns with diffusion of innovation theory which Robinson (2009) notes that the mass media play the primary function of disseminating the information about an innovation, while the interpersonal/direct communication mode accelerates its acceptance by the people. To effectively diffuse new information, idea or behaviour into a social system, the communicators of the project need to find out the channels of the various communication media/modes that are suitable for the particular situation.

Research Question Three: To what extent did the communication strategies used by National Emergency Management Agency in addressing residents of South-South Nigeria aid in reducing the impact of the flooding during the 2019 flooding?

Research question three was addressed using the data presented in Table 3. The data showed that out of four items in Table 3 that were used in addressing the research question, three were rejected by the majority of the respondents, while one was accepted by the majority of the respondents. With a mean score of 2.61 the respondents agreed that the communication strategies use by NEMA and their communities in communicating before, during and after the flooding in 2019 helped in reducing or preventing the effect of the flooding because there was a noticeable reduction in the rate of fatality. The respondents disagreed that the communication strategies used by NEMA and their communities in communicating before, during and after the flooding in 2019 helped in reducing and preventing the effect of the flooding because there was a noticeable reduction in loss property with a mean score of 2.08. The respondents strongly disagreed that the strategies used by NEMA and the communities in communicating before, during and after the flooding in 2019 helped in reducing or preventing the effect of the flooding because there was a noticeable reduction in the loss of farmlands with a mean score of 1.80 and a noticeable reduction in the number of families displaced from their homes with a mean score of 1.80.

Conclusion

The study stipulates that the communication strategies of NEMA were not sufficient enough to stimulate the residents to carry out the agency's recommendations in 2019 flooding, but the mobilisation efforts of the leaders and the eagerness of the residents as a result of their previous flooding experiences aided in flood management. Flooding occurs annually in many communities in South-South Nigeria and as a result residents of the affected communities always expect flooding and prepare towards it before it occurs.

The study highlighted that on the preference of the residents of the communities in South-South Nigeria the interpersonal media/mode of communication (conversation with family and conversation with neighbours) were the two highest and therefore the need for more focus on enhancing and using them by NEMA and affected communities in flood management.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. NEMA needs to take advantage of the experiences, skills, self-mobilisation efforts of the leaders and eagerness of the residents of the affected communities in South-South in managing flooding and improving them for effective flood disaster management.

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2. NEMA needs to ensure that leaders and residents of the affected communities have the appropriate and adequate contact information and direct access of the personnel that should be reached before, during and after the flooding.
3. NEMA needs to engage in the interpersonal communication modes to effectively evaluate and communicate to the residents about the extent of their vulnerability, their self-efficacy and the efficacy of the recommended preventive measures. NEMA's improvement in their communication strategies is required to be able to convince the residents to adopt the recommendations that are new to them, such as relocating to the internally displaced persons (IDP) Camp.

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