

The Effectiveness of Disaster or Emergency Communication Tools in the Management of Disaster risk incidents in Port Harcourt Metropolis, Rivers State, Nigeria

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Abstract: Apart from the traditional media such as television, radio and newspapers, other sources of information dissemination are smartphones and tablets which enable immediate mobile access to digital and social media platforms for information dissemination in crisis situation. The study examined the effectiveness of disaster and emergency communication tools in crisis situation in Port Harcourt Metropolis. The study method was the cross sectional survey involving the administration of questionnaires. A total number of 400 questionnaires were distributed to the sample population to elicit answers from respondents. The data collections were primary data. The data were analysed and presented in tables. Frequency counts of agree and disagree responses were obtained and mean scores used for data analysis. Table 3 in the research, the total sum for agree is 120, with a mean score of (24), while the total sum for Disagree is 280 and the mean score is 56. This result shows that the respondents admit strongly on the non-availability of the modern emergency communication tools, and also strongly disagrees on the effectiveness of the available tools in the management of disasters incidents in Port Harcourt Metropolis, Rivers State. Table 4 from the research also shows that residents are not aware of some of the modern emergency communication tools as presented by the agencies and how they are to be used during disaster situations in the Metropolis. The study suggests that emergency management agencies should improve on the communication level with the public to bridge the poor communication gap between the agencies and the public. This will improve on the level of helplessness and hopelessness of the residents on information dissemination during disasters. This assertion agrees with the study by (USCDC, 2013) that the most valuable way of information transformations and dissemination are based on a new key player in emergency management, 'the public'.

Key-Words: Effectiveness, Disaster-Communication-Tools, Port Harcourt-Metropolis.

1. Introduction

Effective communication and information management are obviously critical to the overall process of managing and reducing the risks of disaster, (Samuel, 2007). Information is the most valuable commodity during emergencies or disasters. It is what everyone needs to make decisions. It is an essential aspect in an organization's ability to gain (or lose) visibility and credibility, above all, it is necessary for rapid and effective assistance for those affected by a disaster, (Farnham, 2013). Information is the main element in the damage and needs assessment process and is the basis for coordination and decision making in emergency situations (PAHO, 2009). Effective communication has a powerful impact on how national and international resources are mobilized. It is essential for after-action analysis, evaluation, and lessons learned. Moreover, public and social communication and media relations have become key elements in efficient emergency management, (Tinker, Dumlao & Mclaughlin, 2009). Technical operations in highly charged political and social situations must be accompanied by good public communication and information strategies that take all stakeholders into account (WHO, 2008). The following are aspects of information that are important in the context of emergencies and disasters: During an emergency, timely and transparent production and dissemination of information generates trust and credibility. National authorities, international agencies, humanitarian assistance organizations, the affected population, and the communication media will demand information in the form of data, figures, reports, and situation analysis or recommendations. These stakeholders depend on this information to guide their work and to translate their interest and concern into concrete action. Information in emergency or disaster situations comes from many sources; it represents different points of views and serves a wide range of interests and needs (PAHO, 2009). For example, following an earthquake, scientific, technical, and operational information will serve decision makers, the affected population, and the international community involved in response efforts. Clearly, the type of information provided reflects the multi-disciplinary nature of emergency and disaster response and the ever-growing number of specialists and organizations from different technical disciplines who are involved in disaster response. The participation and effectiveness of national and international actors will be beneficial to affected populations to the extent that they have precise, timely, and relevant information, (Tinker & Vaughan, 2012). This applies to communication channels and tools that can facilitate dialogue and build

partnerships. The challenges are to show how communication and information management contribute to more effective and timely response, and therefore to saving lives, and how these activities can lessen the impact of disasters and emergencies and improve the quality of life of affected populations, (Reynolds & Seeger, 2012). It is against this backdrop that this paper seeks to examine the effectiveness of emergency communication tools in the management of disaster risk incidents in Port Harcourt Metropolis, Rivers State, Nigeria.

2. Aim and objectives of the Study

The aim of this research is to examine the effectiveness of disaster or emergency communication tools in the management of disaster risk incidents in Port Harcourt Metropolis, Rivers State, Nigeria.

The objectives of this research are as follows to:

1. Identify the various emergency or disaster management agencies in Port Harcourt Metropolis.
2. Evaluate the emergency communication tools that are available to these agencies in the management of disasters or emergencies in Port Harcourt Metropolis.
3. Ascertain the effectiveness of these disaster communication tools in the management of emergencies in Port Harcourt Metropolis.
4. Assess the level of awareness of residents of Port Harcourt Metropolis of these disaster or emergency communication tools for effective disaster management in the Metropolis.
5. Suggest ways to improve the effectiveness of the emergency communication tools in the management of disasters in Port Harcourt Metropolis.

3. Research Questions

1. What agencies are involved in disaster and emergency management in Port Metropolis, Rivers State?
2. What are the various emergency communication tools that are available in these agencies for the management of disasters incidents in Port Harcourt Metropolis, Rivers State?
3. What is the level of effectiveness of the emergency communication tools in the management of disasters in Port Harcourt Metropolis, Rivers State?
4. What is the level of awareness and utilization of these communication tools by residents of Port Harcourt Metropolis in the management of disasters incidents in the Metropolis?
5. What ways can these communication tools be improved upon for better management of emergencies and disasters in Port Harcourt Metropolis?

4. Scope of Study

This study is centered on the effectiveness of disaster or emergency communication tools in management of disaster incidents in Port Harcourt metropolis, Rivers State, Nigeria.

5. Method of the Study

This study was carried out using the cross-sectional survey research method. This will include using questionnaire to elicit responses from the target population (the agencies involved in emergency management in Port Harcourt Metropolis include; The National Emergency Management Agency (NEMA), The Red Cross Society, The Federal and State Fire Services, Federal/ State Ministries of Health, and Federal/State Ministries of Environment, and Multinational Agencies, etc.

6. Sample Population

The sample population includes;

- i. Staff of the agencies, both management & field staff.
- ii. Residents of the Metropolis who have experienced the disaster incidents and others.

7. Sample and Sampling Technique

A sample is a small group of element or subject that represents the entire population. A random sampling technique was used to select twenty five (25) key informants from the identified (5) emergency agencies, in addition to the total population of male and females in Port Harcourt local government as recorded by (National Bureau of Statistics, 2006) of 1,382,592 persons which was used to estimate the Sample Size.

Sample Size was estimated at 95% confidence interval using the *Taro Yamane equation*; $n = \frac{N}{1+N\alpha^2}$

Where;

n= sample size

N= total number of teachers in primary and secondary schools across port

Harcourt city

$\alpha = 0.05$

$$n = \frac{1,382,592}{1 + 1,382,592(0.05)^2} = 400.00$$

8. Instrumentation/Data collection

Questionnaire was administrated using random method in the selected communities in the Metropolis. A total number of 400 questionnaires were distributed to the sampled communities to elicit answers from respondents. The author developed a well-structured questionnaire as the instrument for collecting relevant data. The questionnaire for respondents was of two sections. Section A, was on the personal data. Section B, was framed alternatively – Responses pattern i.e. Agree or Disagree was used to elicit the opinion of the respondents.

9. Method of Data Analysis

The data collections were grouped according to research questions. The data were then organized and presented in tables. Frequency counts of agree and disagree responded were obtained and mean scores were used for data analysis.

The formula used for calculation is

$$X = \frac{\sum fx}{N}$$

N, where:

X = Mean Score

\sum = summation

fx = Frequency of scores or responses

N = Total questionnaire items of the group thereof.

10. Results

Questionnaire items 1, 5, 9, 12, and 15 were used for answering research question one.

Table 1: Are Residents awareness of activities of agencies involved in Disaster management in Port Harcourt?

S/N	NEMA	Red Cross	Fire Service	Federal/State Health	Responses Agree/Disagree	
1.	Are you aware of these emergency /disaster agencies operations in Port Harcourt?				45	25
5.	Are these agencies regularly seen at the scene of disaster/emergency in Port Harcourt?				15	35
8.	Are these agencies equipped to respond to emergency situation in Port Harcourt?				55	45
12.	Are these Agencies very prompt when disasters occur in Port Harcourt?				87	35
15.	Is there hope for improved performance by the agencies?				33	25
Total					235	165

Total for sum for Agree = 235

$$X = 235/5 = 47$$

Total sum for Disagree = 165

$$X = 165/5 = 33$$

Table 1 shows the questionnaire items and data collected for answering research question one. Data in Table 1 show that the total sum for agreed responses for the five items is 235, while the mean score is 47. The total sum for disagree responses for the five items is 165 while the mean is 33. Since the mean score (47) for agreed responses is higher than mean score (33) for disagree responses, it was concluded that the research question was answered in the affirmative of question 1, 8, 12 and 15, which attest to the fact that the emergency agencies are known by the residents in the Metropolis. They have some of the equipment needed for the execution of their job in Port Harcourt.

Table 2: What are the various emergency communication tools available for disaster management in these agencies?

S/N	NEMA	Red Cross	Fire Service	Federal/State Health	Responses Agree/Disagree	
2	Helicopter	Ambulances/Buses	Fire trucks	Ambulance	30	50
3	Ambulances	Fire trucks/Buses	Telephones/e mails	Telephones	25	40
4	Public address system/Satellite coverage	Observations by (Officers)Twitters/internet/ Whaps App.	Running caller office (report)/Twitter	Internet-message(what Sapp, face book	20	80
7	Trained officers	Television/newspapers	Radio	Bill-Board adverts	25	40
9	Hilux trucks	Early-warning/Raio Signals	Fire Alarms	Fire Extinguishers	30	60
	Total				130	270

From the Table 2; Totalsum foragreed = 130

$$X = 130/5 = 26$$

Total sum of Disagree = 270

$$X = 270/5 = 54$$

The Table 2, above addresses research question 2 using question; 2 3, 4,7 and 9 to elicit the various disaster and emergency communication tools that used by the agencies in Port Harcourt. From the analysis, it shows that the sum total of Disagree for the five items is 270 with a mean score of (54), while the sum total for Agree is 130 with a mean score of 26. These analysis shows that the residents of Port Harcourt Disagrees that these equipment especially the modern emergency communication tools are available in these agencies. This makes it difficult for them to attend to disasters situations in the Metropolis promptly. Incidences are only reported by the agencies when that had already occurred and caused harm and dangers to the victims.

Table 3: What is the level of effectiveness of these emergency communication tools?

Question items		Responses Agreed	Disagreed
6	The emergency/disaster communication tools are Radio, TV, Telephone, Newspapers, public address system; Social Media etc. are effectively utilized.	10	100
13	The effectiveness of these emergency tools could be enhanced when masses are properly enlightened and well mobilized	50	
14	The emergency/disaster communication tools are Radio, TV, Telephone, Newspapers, public address system, Social Media etc. are not effectively utilized	20	80
10	The emergency communication tools are obsolete and need repairs	10	70
11	The emergency communication tools need are deployed on time	30	30
		120	280

The table 3 shows the research questions 3 on the level of effectiveness of emergency communication tools. The sum total for Agree = 120

$$X = 120/5 = 24$$

The sum total for Disagree = 280

$$X = 56.$$

From the table 3, above the total sum for agree is 120, with a mean score of (24), while the total sum for Disagree is 280 and the mean score is 56. This analysis shows that the respondents admit strongly on the non-availability of themodern emergency communication tools, and also stronglydisagrees on the effectiveness of the available ones in the management of disasters in PortHarcourt Metropolis, Rivers State. This is because the easiest mode of dissemination of information to the people is through the social media. Although many households in the Metropolis may boast of possession of smart telephones. In the same vein, most residents are yet to grasp with the usage of the new technology.While those that can use the technology may be constraint by funds for data recharge on their smartphones.

Table 4: What is the level of awareness of residents and utilization of these emergency communication tools in Disaster management in Port Harcourt?

Question Items		Agree	Disagree
16	The emergency/disaster communication tools are Radio, TV, Telephone, Newspapers, public address system, Social Media etc.?	45	55
22	The emergency communication tools are; Fire trucks, early warning signals, and public enlightenment campaign Fire alarm etc.?	30	70
25	The emergency communication tools are deployed swiftly?	20	40
19	Which of these tools are at your disposal at emergency; phones, social media, television, town crier etc.	20	40
20	Which of the tools are easily responded to by the agencies; phone calls, text messages, face book what Sapp etc.	20	45
Total		150	250

The table 4, shows the research question 4 on the level of awareness of residents and the utilization of emergency communication tools in the management of disaster in the study area. The sum total for Agree = 150
 $X = 150/5 = 30$

The sum total for Disagree = 250
 $X = 250/5 = 50$.

Therefore, from the table 4, above the total sum for agree is 150, with a mean score of (30), while the total sum for Disagree is 250 and the mean score is 50. The analysis shows that residents are not aware of some of the modern emergency communication tools and how they are to be utilized during emergency or disasters situations in the Metropolis. This assertion explains the level of poor communication between the agencies and the people and the level of helplessness and hopelessness of the residents being unable to disseminate information during disasters. This assertion agrees with the study by (USCDC, 2013) that the most valuable way of information transformations are based on a new key player in emergency management, 'the public'.

Table 5: What ways can these emergency communication tools can be improved upon for better emergency management of Disaster in Port Harcourt?

Question items		Responses Agree	Disagree
17	The emergency/disaster communication tools can be improved upon by training and retraining of persons on use of state of the art equipment.	50	26
18	The emergency communication tools can be improved upon through adequate funding of the agencies by the government.	100	24
21	The emergency communication tools are obsolete and requires complete overhaul for effectiveness.	50	25
22	The emergency communication tools need to be provided at strategic areas in the state for residents to use to enhance effectiveness.	50	25
23	There is need for massive orientation on the use of emergency communication equipment to avert disasters.	25	25
Total		275	125

The table 5 shows the research question 5 which talks about the ways by which emergency communication tools can be improved upon.

The sum total for Agree = 275
 $X = 275/5 = 55$

The sum total for Disagree = 125
 $X = 125/5 = 25$.

Data in the table 5, indicate that the total sum for agree responses for the five items is 275; while the mean score is 55. The total sum for disagree responses for the five items is 125 and the mean score is 25. But because the mean scores agree responses (55) is higher than the mean score (25) for disagree responses, it was concluded that the research question was answered in the affirmative i.e. the respondents for this study perceived effects

the ways by which emergency communication tools can be improved upon include; adequate funding by the government, training of staff on modern emergencies communication tools, massive orientation of the people(education/enlightenment), and the provision of enough modern emergency communication tools at strategic places in the metropolis for the people to use and to enhance information dissemination on emergency situations.

11. Conclusion:

Based on the findings of the study, the researchers concluded as follows:

1. The respondents admit in table 4 in this research, strongly on the non-availability of the modern emergency communication tools, and also strongly disagree on the effectiveness of the available ones in the management of disasters in Port Harcourt Metropolis, Rivers State. Although many households in the Metropolis may boast of possession of smart telephones. In the same vein, most residents are yet to grasp with the usage of the new technology especially in decoding emergency or disaster information.
2. Furthermore, the analysis in table 3 in this research shows that the residents of Port Harcourt Disagrees that these equipment especially the modern emergency communication tools are not available in these agencies. This makes it difficult for them to attend to disasters situations in the Metropolis promptly. Incidences are only reported by the agencies when that had already occurred and caused harm and dangers to the victims.

12. Recommendations;

Based on the findings, summary and conclusion of the study, the following recommendations were made;

1. The government should train adequate man power to execute disaster and emergency management incidences in the Metropolis and the nation at large.
2. The emergency management agencies should be well equipped with the modern state of the art equipment and technologies used in the developed countries in the management of disaster and emergency situations in the Metropolis and the nation at large.
3. The emergency management agencies should improve on the communication level with the public to bridge the poor communication gap between the agencies and the people so as to improve on the level of helplessness and hopelessness of the residents to disseminate information during disasters. This assertion agrees with the study by (USCDC, 2013)that the most valuable way of information transformations and dissemination are based on a new key player in emergency management – ‘the public’.
4. The study suggests that adequate funding by the government, staff training on use of modern emergencies communication tools, massive orientation of the people through (education/enlightenment on emergency preparedness and responses) , and the provision of enough modern state of the art emergency communication equipment/ tools at strategic places in the Metropolis for use by the people so as to enhance information dissemination during disasters/ emergency situations.

References

- [1]. [1] Farnham, J.W. (2013) Disaster and Emergency Communications Prior to Computer/Internet: A Review.
- [2]. National Bureau of Statistics, Federal Republic of Nigeria Population (2006)
- [3]. Pan American Health Organization (2009) *.Be a Better Donor: Practical recommendations for humanitarian aid.* Panama: PAHO/WHO.
- [4]. Reynolds, B., & Seeger, M. (2012). *Crisis, emergency and risk communication* Centre for Disease Control and Prevention.
From http://emergency.cdc.gov/cerc/resources/pdf/cerc_2012edition.pdf.
- [5]. Samuel, E C. (2007) *Communicating with the public before, during and after Major emergencies: The U's ten –step cycle.* *Journal of Business Continuity & Emergency Planning.*Vol.2No.2 London, Simon Beckett.
- [6]. Tinker, T., Dumlao, M., & McLaughlin, G., (2009). *Effective social media strategies during times of crisis: Learning from the CDC, HHS, FEMA, the American Red Cross and NPR.*].
- [7]. Tinker, T., & Vaughan, E. (2012) *Risk and crisis communications: Best practices for government agencies and non-profit organisations.* New York: Booz, Allen and Hamilton.
- [8]. United State Centre for Diseases Control(ECDC2013) Centers for Disease Control and Prevention of the United States and the Pan American Health Organization (USCDC/PAHO/WHO).*Selfinstruction.*
- [9]. Wisner, B., Blaikie, P., Cannon, T. & Davis, I. 2004.*At risk.Natuaral hazards, people's vulnerability and disasters.*London and New York: Routledge.

- [10]. World Health Organization (WHO)(2008) *Manual for the care of children in humanitarian emergencies*. Geneva: WHO. Available at:
www.who.int/child_adolescent_health/documents/9789241596879/en/index.html.
- [11]. Yamane T. *Statistics: An introductory analysis* (2nd ed.) New York U.S.A. Harper and Row Inc.; 1967.

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