



The Management of Responders during Urban Search and Rescue in Mombasa and Nairobi City Counties, Kenya

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ARTICLE INFO

Article history:

Received: 12 July 2015;

Received in revised form:

29 October 2015;

Accepted: 04 November 2015;

Keywords

First response organizations,
Human capacity,
Urban search and rescue,
Collapsed buildings,
Disaster response.

ABSTRACT

First line response organization personnel are critical during urban search and rescue because they rescue people trapped in collapsed building structures. Having highly trained and motivated human resource is essential in these situations as they are relied to search and rescue people. The aim of this study was to determine the human resource capacity of first line response organisations during urban search and rescue in Nairobi and Mombasa City Counties that have in recent past witnessed residential and commercial buildings collapsing with many lives lost and huge losses in investment. Findings revealed that majority of responders did not have formal technical expertise in urban search and rescue.

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Introduction

First line response organizations that are involved in urban search and rescue play a critical role in the aftershock of disasters by saving people from the debris and reducing pain to affected families (1). Empowered with the right skills and equipment, members of these teams are the first help that make a difference in life and death situation. Therefore, first line response organizations provide medical emergency and disaster response search and rescue with the aim of helping others, reducing suffering and supporting life. However, even those who offer help need to be assessed on whether they are professionally trained and equipped to offer the quality of care they provide or they aggravate the already precarious situation.

Urban Search and Rescue, abbreviated as USAR, is an evolving field within disaster response which entails looking for and saving people in pain, potential distress or lost in buildings and collapsed structures and delivering them in place of safety. USAR is usually classified into 4 categories or levels of basic, light, medium and heavy which represents the capacity required by responders to conduct safe and effective urban search and rescue operations at structure collapse or structure failure incidents and other emergencies where specialized rescue equipment and technical expertise are required (2). Hazards that might cause structural collapse include earthquake, human activities such as bad workmanship or intentional destructive acts such as terrorism, the changing climatic conditions such as strong winds combining with heavy rainfall causing structural damage and weakening of foundation due to sustained flooding which eventually result in structural instability or collapse (8&1). Therefore urban search and rescue is a complex multi hazard response component due to its unique working and safety environment.

First line response institutions that are involved in urban search and rescues are the Police, Fire brigade, Voluntary Organizations and Ambulance Services who offer specialized assistance to people from collapsed buildings and other similar situations (7). Therefore, USAR is considered a multi-hazard discipline, as it may be needed for a variety of emergencies or

disasters, including earthquakes, floods, technological accidents or terrorist activities. According to (3) first line response organizations need to have trained personnel that are functional for urban search and rescue to be effective. During this research, no data was found that showed that there have been studies on the human capacity of first line response organizations during urban search and rescue or any other institutional first line response capacity intervention in Kenya. This indicates that there is need for scholars to focus on this important component in future investigations.

Human resource capacity is the availability in an organization to have a sufficient number of qualified personnel with the right skills and knowledge in the right place at the right time to achieve its objectives (12). Consequently, organizations that are deficient in human resources capacity will be incapable to provide services and perform certain tasks. Whenever USAR situation arises in country, the crucial responsibility for the response is taken up by the responders available on the scene. National Disaster Operation Centre (NDOC) that is located within the Ministry of Interior and Coordination of National Government has the mandate to coordinate disaster management activities in collaboration and networking with disaster management actors and stakeholders (5).

Study area

This research was conducted in Nairobi and Mombasa City Counties. Nairobi County is the capital city of Kenya while Mombasa is the second largest city in Kenya. Nairobi and Mombasa have a population of 3,138,369 and 938,370 respectively (6). The research was conducted between May-December 2014.

Research design and Sample size

Cross-sectional descriptive research design was used for this research for the reason that it facilitates a detailed description of the problem in the study population as it “involves a close analysis of a situation at one particular point in time to give a snap shot result” (9 p.8). The study population was drawn from first line response organizations drawn from both government organizations and non-government organizations

namely, Kenya National Disaster Operations Centre, Kenya Police Service, National Youth Service, Kenya Red Cross Society, St John Ambulance, Ministry of Defense and Nairobi and Mombasa City County Fire Brigades that are involved in urban search and rescue in Nairobi and Mombasa counties.

Four first line response institutions in the two counties were randomly selected to participate in the research. Research respondents were thereafter randomly picked from these institutions drawn from their institution registers to participate in the survey. In addition 8 experts within first line response organizations with special knowledge on urban search and rescue were purposively selected for key informant interviews (KII). These KII and 166 respondents came from Kenya Red Cross Society, St John Ambulance, Kenya Police Service, Mombasa and Nairobi City County fire brigades.

Data collection and analysis

Qualitative and quantitative primary data were collected through key informant interviews (KII) and questionnaires respectively. Secondary sources included organization documents and databases related to USAR. Triangulation was applied in this study as it offers a means of addressing qualitative/quantitative differences (11). Questionnaires and key informant interviews were administered personally by the researcher and occasionally with the help of research assistants. The questionnaire survey instrument had open-ended questions where respondents answered the questions in their own words and closed questions that provide respondents with a defined set of answers. Closed questions were divided into categorical or scaled responses.

Data analysis was done by use of descriptive statistics while the analysis output presented in charts and tables. Statistical Package for the Social Science (SPSS), a statistical tool, was used to analyze collected data. Qualitative data emanating from Key informant interviews were processed manually. Key points were summarized, respondents' answers compared, salient references identified and key points associated thematically.

Results and Discussions

Experience of responders

Majority of responders at 66% said that they had worked in their organizations for not more than 5 years while 35% reported that they had worked for similar period in urban search and rescue field respectively as shown in Figure 1 below. This shows that majority of responders who were sent to respond to urban search and rescue in Nairobi and Mombasa Counties were new to the organization and inexperienced.

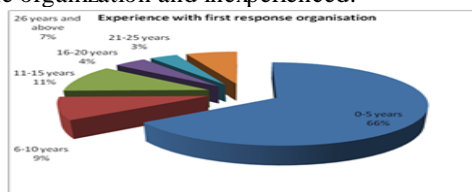


Figure 1. Experience of first line response organization personnel on USAR

Practical skills

The research revealed that first line response organizations have different levels of practical and formal preparation in urban search and rescue as summarized in the Table 1 below.

Table 1. Training by First response organizations on USAR

Training by First response organization	Yes	No	Total	Percent Yes	Percent No	Percent Total
Trained personnel in USAR	77	89	166	46.4	53.6	100
Organizations that have training program	86	80	166	51.8	48.2	100

The table above shows that majority of first line response organizations respondents (53.6%) surveyed did not have formal technical expertise in urban search and rescue yet further analysis revealed that 51.8% of respondents confirmed that their organizations have training program for urban search and rescue. This means that although majority of respondents did not have formal training in USAR, their organizations were in the process of either training them or reviewing their programs. Indeed, except for Kenya Police Service, all other key informants from Kenya Red Cross Society, St John Ambulance and Fire Brigade in Nairobi opined that their organizations were having ongoing training and capacity building programs for their respective responders at the time this research was carried out.

When Pearson correlation was conducted between trained first line response organizations responders on urban search and rescue and first response organizations that have urban search and rescue training program, a positive test score was given.

First responders having urban search and rescue training program was positively related to trained first line response organizations personnel. Positive correlation ($r = 0.34$) indicates in this case that those organizations that have trained personnel are also the ones with training programs. Since the p-value is 0.000 (which is less than .05), we can say that there is a significant correlation between the trained first line response organizations responders on urban search and rescue and first line response organizations that have urban search and rescue training program.

In addition, respondents gave feedback regarding their technical ability which assessed their knowledge-ability of urban search rescue and whether personnel undertake USAR regular trainings. The summary of their responses are given on Figure2 below.

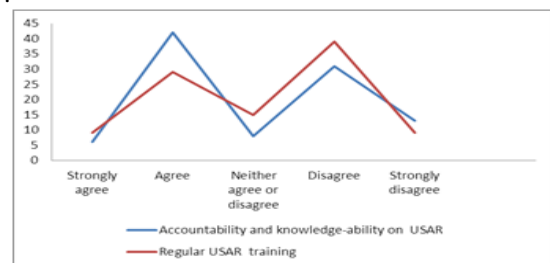


Figure 2. First line response organizations responders' technical ability during USAR

About 48% of the respondents (42% of respondents agree and 6% strongly agree) concur that managers, supervisors, staff, and volunteers within their organizations are accountable and knowledgeable on USAR matters. When the score of 48% is compared with previous score of 46.4% for respondents that replied that they were already trained in USAR, then a clearer picture of the competently trained responders who are able to apply their knowledge is formed.

Key informant interviewees from Kenya Red Cross Society, St John Ambulance and Fire Brigade had indicated that their organizations either use internal or invite international trainers to train regularly their response teams but not more than 37.9% of respondents agreed. It is instructive to note that while some of these organizations have the right equipment necessary for USAR operations, first line response organizations cannot disregard trainings because even with the best equipment in the hands of untrained and unqualified responder, it is a wasted resource.

Leadership skills

Leadership skills are essential in the management of teams and within first line response organizations, timely and strategic decisions have to be made and communicated to every responder to save lives and property. Therefore, having clear leadership structure is a necessity that is required to guide everyone during emergencies when actions and decisions are done hurriedly.

About 75.3% of respondents approved that they have a focal person in charge of urban search and rescue whereas 59.6% of respondents agreed that the current communication system used by first line response organizations is effective in relaying and informing them with well-timed reliable facts regarding urban search and rescue emergency deployment. This means that even though a higher proportion of respondents accepted that they are well coordinated by their USAR focal persons, there is need to improve the manner in which communication is done for timely deployment of responders. (10) who researched on the challenges first line response organization responders faced during the 9/11 World Trade Centre terrorist attacks, confirms the importance of having effective and reliable communication system for responders. With the exception of Kenya Police Service, other key informants confirmed that their organizations have focal persons in charge of USAR. Kenya Police Service key informants confirmed that most police would normally be informed of an USAR emergency while on duty and would simply be directed to proceed to the emergency scene by their immediate seniors.

First line response organizations that have focal person during urban search and rescue operations and have top management included in USAR, were positively correlated ($r = .28$) and significant ($p < .01$). In addition, first line response organizations that have focal person during urban search and rescue operations and the organizations that have effective communication system during deployment in USAR were positively correlated ($r = .25$) and significant ($p < .01$). Lastly, first line response organizations that have top management included in USAR and organizations that have effective communication system during deployment in USAR were positively correlated ($r = .23$) and significant ($p < .01$). These findings means that first line response organizations should focus their efforts on having focal persons during urban search and rescue operations, have effective communication system during deployment in USAR and engage their top management in USAR because there is an appreciable effect on the three variables.

Processes and systems

Processes and systems that entail formulation of strategies and plans are developed by human resources and are integral in institutions' pursuit of achieving their objectives. At least 77.7% of respondents reported that their first line response organizations have a clear management reporting structure that is essential in coordinating and disseminating information during urban search and rescue. This also supports previous assertion of 75.3% of respondents who had confirmed that they know that their organizations have a focal person in charge of urban search and rescue.

64.5% of respondents stated that there is lack of organization policy that allows for a first responder to be replaced in a timely manner should they be deemed medically unfit during USAR deployment. Although key informants countered this position by saying that first responders who were noticed to be medically unfit would be released and sent home, what was clear was that the discernment assessment would only

take place after a long time had elapsed. In addition, all key informants confirmed that not any of the first responders undergo a medical test prior to deployment.

Appropriate interaction between first responders during USAR is inevitable and organizations internal processes and systems need to be cognizant of this necessity. About 82.5% of respondents agreed that their organizations facilitated appropriate interaction with other response teams such as accepting help and requesting for specialized equipment and skills from other teams as well as internal joint efforts in undertaking specific tasks. First line response organizations that have a clear management reporting structure during urban search and rescue and responders who interacted appropriately were found to be strongly correlated ($r = .36$) and significant ($p < .01$). This means that responders who had clear management reporting structures, utilized their systems and processes to interact appropriately with other responders from different organizations during urban search and rescue operations.

At least 61.4% of respondents reported that team and personnel training records in USAR are not updated and maintained regularly. This finding is similar to the one by (4) that found in Florida that a number of first line response organizations did not maintain training records that showed the kind of training responders had undertaken. During data collection, this was also confirmed by key informants who could not recollect the precise number of trained personnel in USAR and their availability in case their services were needed urgently.

Benchmarking and learning best practices from other organizations who are engaged in similar interventions is a vital way of learning and provides immense benefits for comparisons and personal satisfaction. In assessing best practice benchmarking, respondents were asked whether their organization is affiliated or make use of ideas from a renowned international body - International Search and Rescue Advisory Group (INSARAG). Table 2 summarizes responses from the respondents.

Table 2. First line response organization best practices during USAR

Best practice and benchmarking	Score	Number	Percent
First line response organization is structured according to INSARAG	YES	24	14.5
	NO	27	16.3
	Not aware	115	69.3
	Total	166	100.0

Majority of respondents at 69.3% were not aware if their response teams during USAR are structured into four components of management, logistics, search, rescue and medical. In fact it is the volunteer organizations and in this case the Kenya Red Cross Society and St John Ambulance key informant interviewees who confirmed that their organizations are currently providing medical component although they were working towards having all the four components integrated in their response teams during USAR. St John Ambulance was also the only organization having international exchange programs for USAR responders. According to Kenya Police Service key informant interviewee, their response team specific role is to provide security and guard property during USAR while Fire brigade function is to provide search and rescue component and remotely pooling of resources that can be classified as logistics.

Conclusion and summary

While urban search and rescue is a new and evolving field in disasters response, first response organizations need to invest in training, modern technology and other practical capacity building initiatives so that their responders can be empowered to save human lives and salvage property during urban search and rescue interventions. Study findings showed that majority of first line response organization responders did not have formal practical expertise in urban search and rescue despite the fact that more than half confirmed their organizations have training programs on urban search and rescue. Further analysis revealed that all the first responders surveyed with the exception of the Kenya Police Service confirmed that they have an ongoing internal training and capacity building programs for their responders on urban search and rescue. In addition, a sizeable proportion of responders opposed that their managers, supervisors, staff and volunteers within their first line response organizations are accountable and knowledgeable on USAR matters.

On leadership ability majority of respondents were satisfied with manner in which they are coordinated on urban search and rescue. In addition, 59.6% of respondents agreed that the current communication system used by First line response organization is effective in relaying and informing them with well-timed reliable facts regarding urban search and rescue emergency deployment. In effect, majority (72.9%) reported that were satisfied with their First line response organizations relaying information in a timely manner which assists in swift deployment of response teams.

Majority of respondents reported that some processes and systems of first line response organizations were working successfully while others said needed overhaul. For instance, there is appropriate interaction between first line response organization during urban search and rescue interventions in Nairobi and Mombasa City County. Majority of respondents reported that their organizations facilitate appropriate interaction with other response teams such as accepting help and requesting for specialized equipment and skills from other teams as well as internal joint efforts in undertaking specific tasks. Likewise a big proportion reported that their organizations have a clear management structure that is essential in coordinating and disseminating information during urban search and rescue. However, there was concern by many respondents who reported that there is lack of organization policy that allows for a responder to be replaced in a timely manner should they be deemed medically unfit during USAR deployment. Correspondingly, majority of respondents reported that their First line response organization teams were not structured into the crucial four components of management, logistics, search, rescue and medical during USAR at the time of the interview. It was also established that none of the first line response organization had search dogs which is important in locating trapped people in the rubble. The Kenya Police Service clarified that they only have guarding dogs that they use to guard property during urban search and rescue.

Recommendations

There is need for researchers to conduct comprehensive studies that focus on effectiveness of collaboration between first line response organization personnel during urban search and rescue. Findings in this research have confirmed that urban search and rescue cannot be successfully handled by one single organization due to their individual lack of capacity. Similarly, it would be important for these organizations to consider forming a joint taskforce or team comprising of their skilled personnel

who will lead in USAR operations and have regular joint drills and one command of their teams.

Acknowledgement

The authors would like to acknowledge the assistance of the staff and volunteers of the St John Ambulance, Kenya Red Cross Society, Kenya Police Service, Nairobi and Mombasa Fire brigade who gave invaluable contribution through their participation during this study. Lastly they also acknowledge the role played by data collection assistants and key informant interviewees who participated in this study.

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