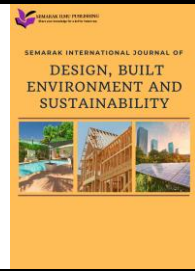




## Semarak International Journal of Design, Built Environment and Sustainability

Journal homepage:  
<https://semarakilmu.my/index.php/sijdbes/index>  
ISSN: 3083-9025



# The Role of Communication in Strengthening Emergency Preparedness and Response Plans

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### ARTICLE INFO

#### **Article history:**

Received 10 December 2024  
Received in revised form 21 January 2025  
Accepted 16 February 2025  
Available online 30 March 2025

#### **Keywords:**

Effective communication; Emergency Preparedness and Response Plan (EPRP); Safety Management System (SMS)

### ABSTRACT

Emergency Preparedness and Response plan (EPRPs) are essential components of Safety Management System, designed to prevent and mitigate risks during emergencies. The establishment and existence of an emergency preparedness and response plan is held for multi-functional purposes with the main goal to control and reduce the effects and injuries caused by emergencies. It is important to promote the planning and implementation of emergency preparedness and response plans through effective communication for information sharing and awareness. The need for emergency preparedness and response plans in emergency management is essential. It provides a safe environment for people to live and study, reducing the impact and impact of emergencies. This paper examines the role of communication in the implementation of EPRPs, focusing on how clear and consistent communication can strengthen operational procedures and collaborative efforts in handling emergencies. By improving communication, organizations can prevent any unwanted emergencies. Emergency preparedness and response plans involve documented programs and actions as important steps in mitigating the impact and effects of an emergency. Most are involved in developing policies, programs and systems for emergency preparedness and response plans. This paper uses content analysis to review how communication strategies impact EPRPs effectiveness. The findings emphasize that well-structured communication within organizations not only improves safety awareness but also supports the development of robust emergency mitigation strategies. This paper aims to offer valuable insights to organizations, encouraging them to prioritize communication in strengthening their EPRPs and ensuring a safer environment for all.

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## 1. Introduction

Emergency preparedness and response plan is an integrated system of primary planning to effectively prevent protection risks in emergency situations [1]. The establishment and existence of emergency preparedness is an essential step in mitigating negative impacts of emergencies disasters [2]. The main goal is to reduce the effects and injuries caused by emergencies [1-3]. According to Turner [2], the types of emergencies such as fire, power shutoffs, and earthquakes are the most likely occur indicated need for emergency preparedness in the area affected. It is important to promote the planning and implementation of an emergency preparedness and response plan through effective communication for information sharing and awareness.

The need for emergency preparedness and response plan in emergency management at this time is important to provide a safe environment for people to live and learn, reducing an emergency's effects and impact [3]. The emergency preparedness and response plan involve documented programs and actions as an important step in reducing the effects and impact of an emergency [4]. Most of it involved developing policies, programs and systems for emergency preparedness and response plans. This paper reviews the effective communication in emergency preparedness and response plans that can help strengthen the operational procedures and collaborative efforts to deal with emergencies in safety management system.

The role of communication in enhancing emergency preparedness and response is complex and multifaceted. While progress has been made in this area, significant gap remain that require attention. This paper identifies awareness and education as communication gap in emergency preparedness and response plans. The significant study of role of communication in strengthening the plans lies in its ability to foster trust and resilience between the public and authorities. In turn, it is essential for maintaining social order during crises and encouraging compliance with safety measures. The objectives of improving communication within emergency preparedness and response plans are to enhance public awareness and preparedness through communication strategies that address specific risks and outline appropriate response actions.

### 1.1 Safety Management System

Safety management system involves recognizing, evaluating, and predicting risks that could pose threats to organizations. Essentially, it represents a systematic approach to managing risks within an organization [5]. The safety management system helps avoid problems caused by harmful issues and nurtures potential talents towards excellence. According to Rahman *et al.*, [6] implementing safety management system has numerous complexities despite progress made in the safety management system technique. They added, safety management systems practices encompass a range of organizational policies, procedures, and protocols designed to mitigate workplace hazards and promote a culture of safety. Although the implementation of safety management systems has many complexities, advances in safety management system techniques have evolved. Rezaie *et al.*, [7] mentioned that the supports risks and threats during the system life cycle is predicted for complex systems. To determine practical solutions to improve safety, the safety management system needs to be planned and analyzed. In their study, the safety management system framework was used to evaluate the implementation of an integrated safety management system for improvements in safety culture performance.

## 1.2 Emergency Preparedness and Response Plan

The emergency preparedness and response plan are provided document for general guide for identifying, preventing, minimising, managing injuries, accidents and risks for assessment [8-11]. The emergency preparedness and response plan (EPRPs) are fundamental for effective crisis management, as emphasized by Renschler *et al.*, [1]. The EPRPs encompasses activities both prior to and following emergencies, crises, and disasters. These activities include formulating comprehensive emergency, crisis, and disaster plans, as well as training employees to handle both natural and human-made disasters effectively. Kapucu *et al.*, [10, 11], along with the United States Department of Homeland Security, define emergency preparedness as an ongoing cycle. This cycle involves several key phases:

- i. Planning: Developing strategic action plans to address potential emergencies.
- ii. Organizing: Structuring resources and roles to ensure readiness.
- iii. Training: Preparing personnel through relevant training programs.
- iv. Equipping: Providing necessary tools and equipment for effective response.
- v. Exercising: Practicing response scenarios to enhance preparedness.
- vi. Evaluating: Assessing the effectiveness of response strategies.
- vii. Taking Corrective Action: Improving coordination and responses based on evaluations.

Home Helpers [9] states the activities of emergencies in EPRP divided into four phase's cycle. The four phases are as follows:

- i. **Mitigation:** Initial phase, encompassing any activities aimed at preventing emergencies, reducing the likelihood of their occurrence, or minimizing the damaging effects of unavoidable hazards. Planning during this phase involves emergency assessment. It is a cycle that includes planning, organizing, training, equipping, exercising, evaluating, and implementing continuous corrective actions. These elements form the foundation of preparedness, focusing on readiness to respond to all hazardous events and emergencies.
- ii. **Preparedness:** Activities that take place before an emergency includes planning, training, and educational activities for emergencies events that cannot be mitigated. The developing plans for what to do, where to go, or who to call for help in an emergency. Drill exercising plans, table top exercises, and full-scale exercises. Preparedness is a continuous cycle of planning, organizing, training, equipping, exercising, evaluation, and improvement activities to ensure effective coordination and the enhancement of capabilities to prevent, protect against, respond to, recover from, and mitigate against emergency events.
- iii. **Response:** The strategic management and deployment of resources, including personnel, equipment, and supplies. The response phase is triggered by the occurrence of a significant Emergency and entails immediate actions aimed at safeguarding lives, mitigating further harm, and minimizing property damage in the wake of an emergency. It involves coordinated efforts to address the immediate impacts of the emergencies, with a focus on executing life-saving operations, stabilizing the situation, and initiating efforts to prevent additional damage or loss.
- iv. **Recovery:** Encompasses the activities that extend beyond the immediate emergency period, focusing on the restoration of essential functions to stabilize operations and enhance the capacity to resume services to affected populations post-emergency. The primary objective of the recovery phase is to restore the affected area to a state of relative normalcy as swiftly

as possible. This phase also involves securing financial assistance to support the necessary repairs and rebuilding efforts. The summaries of four phases for continuity communication in EPRP by Home Helper [9] show in Figure 1.



Fig. 1. Four phases of management [9]

Kapucu et al. [12] view the EPRP as a distinct system and process aimed at preparing responders and ensuring organizational effectiveness during emergencies, with a strong emphasis on readiness and operational efficiency. Caymaz *et al.*, [13] define the EPRP as a critical system, program, and documented action plan for mitigating adverse impacts in disaster-prone areas such as wildfires, power outages, earthquakes, and floods. The EPRP's primary objectives are to establish a structured process for rapid identification, notification, assembly, readiness, recovery, and deployment of responsible personnel, building owners, occupants, and partners in affected areas [14]. In Addition Adamzadeh *et al.*, [15] reflect that EPRP has aligned with organizational values and Occupational Safety and Health (OSH) policies, regulations, and standard operating procedures.

The EPRP serves as a comprehensive guide for managing emergencies. It outlines procedures and action plans for effectively responding to various emergency scenarios. Furthermore, it provides general guidance to identify, prevent, minimize, and manage injuries, accidents, and risks to workers and communities [8]. Effective implementation of the EPRP demonstrates employers' commitment to eliminating harm to affected individuals by offering a comprehensive framework to identify, prevent, minimize, and respond to injuries, accidents, and potential threats [8,11].

### 1.3 Communication and Information in Emergency Management

Communication and information management are invaluable commodities during emergencies, as they generate visibility and credibility for the information critical to the overall process of managing and reducing emergency risks [18]. Effective communication is essential for organizations to prevent unwanted emergency situations by enhancing the dissemination of information and raising awareness about emergency preparedness and response plans. According to Barrantes *et al.*,

[18], communication and information management are crucial assets during emergencies, providing the necessary visibility and credibility to manage and mitigate risks effectively.

Robust communication strategies aid organizations in preventing emergencies by improving the sharing of information and increasing awareness of emergency preparedness and response plans [16]. In their study, Ryan and Matheson [16] quantified the significance of communication activities in emergency management, highlighting the role of drills and exercises in enhancing community communication. Notably, nearly 20% of the recommendations in their study emphasized the importance of communication activities in managing emergencies by fostering community interactions.

Savoia *et al.*, [17] underscore the critical importance of public communication for emergency preparedness, examining the extent to which this field has received attention from the scientific community. Their findings reveal the necessity of identifying effective communication messages to achieve preparedness outcomes. They suggest that real-time analysis of communication information is valuable for understanding what is being communicated to the public and for correcting messages during a crisis.

Government emergency management agencies utilize communication activities to inform and educate the public about emergencies [18]. These activities enable communities understand how to prepare for and respond to emergency situations [19,20]. Effective emergency communication enhances community preparedness by building capacity and resilience among citizens. It provides an accurate assessment of the risks associated with various hazards, thereby enabling individuals and communities to take appropriate precautions and measures. For emergency preparedness to be effective, communication must be recognized as a multidisciplinary process that occurs in various contexts [21].

Communication and information technologies, including social media, play a pivotal role in emergency communication for prevention, mitigation, response, and recovery [22,23]. Knowledge and awareness in communication are crucial for improving emergency preparedness procedures and for providing assistance at the scene of an accident to prevent injuries or casualties [24]. Therefore, it is imperative that individuals at all levels are involved in communicating and disseminating information about emergency preparedness to ensure a comprehensive understanding of emergency preparedness.

## **2. Methodology**

In this paper, the study employs analytical review of relevant articles to review the role of communication in strengthening the emergency preparedness and response plan for emergency preparation. Content analysis utilise use to scrutinize the literature review presented in the articles show in Table 1 [2,18-28]. The articles were selected from various sources, such as thesis, academic journals, websites, guidelines and government reports related or similarity with communication in EPRP.

Communication in EPRP [2,18-28] in the articles cover different aspects of communication in emergency preparedness and response plan, disaster management, such as factors influencing decision-making, risk mitigation strategies, community resilience, organizational culture, and modelling approaches.

The communication in EPRP involves documented programs and actions as an important step in reducing the effects and impact of an emergency. Most of it involved developing policies, programs and systems for emergency preparedness and response plans. The articles also provide examples and

recommendations for improving emergency preparedness and disaster management in different contexts, such as Malaysia, Turkey, Nigeria, the UAE, and the US.

**Table 1**

Articles review related communication in EPRP

No	Authors	Title
1.	Turner, M. [2]	Emergency Preparedness and Perceptions of Resident University Students: Literature Review, Study Proposal & Impact of Pandemic Crisis on Research.
2.	Johnston <i>et al.</i> , [18]	Emergency Management Communication: The Paradox of the Positive in Public Communication for Preparedness.
3.	Colpitts, [19]	Emergency Management and Preparedness at Higher Education Institutions Perceptions of Senior Student Affairs Officers and Emergency Managers.
4.	Al Mujaidel, [20]	The role of Universities in Disaster Management.
5.	Ranjit & Houston, [21]	Emergency Preparedness Communication.
6.	Diyal, [22]	Analysis of Effective Communication Tools for Disaster Management in the Educational Institutes.
8.	Hinata <i>et al.</i> , [23]	Communicating with the Public in Emergencies: A Systematic Review of Communication Approaches in Emergency Response.
7.	Sharifudin, [24]	Critical Success Factor on Emergency Preparedness and Response Planning in Commercial Building.
9.	Patel <i>et al.</i> , [25]	Establishment of a Framework to Measure Disaster Preparedness: Development of Strategies to Enhance Disaster Preparedness Activities.
10.	Weber <i>et al.</i> , [26]	University Employees' Preparedness for Natural Hazards and Incidents of Mass Violence: An Application of the Extended Parallel Process Model.
11.	Tipler & Susan, [27]	Emergency Preparedness and Response in New Zealand Schools.
12.	AlBattat <i>et al.</i> , [28]	Emergency Preparedness of the Hotel Industry: The Case of Jordan.

An understanding of communication within the emergency preparedness and response plan (EPRP) is essential for organizations, as it significantly enhances their capacity for emergency preparedness and mitigation. By fostering effective communication strategies, organizations can promote the planning and implementation of an EPRP, thereby facilitating information sharing and increasing awareness among employees.

### 3. Results

Table 2 summarises the findings of twelve articles related to communication in emergency preparedness and response plan. Effective communication is vital for timely decision making and swift response actions during emergencies. The impact of effective communication in EPRP has several finding and benefit to the community.

**Table 2**

Communication in EPRP

No	Authors/Year	Title	Findings
1.	Turner & Madelyn (2020) [2]	Emergency Preparedness and Perceptions of Resident University Students: Literature Review, Study Proposal & Impact of Pandemic Crisis on Research	The sharing of emergency preparedness information promotes preparedness, leading to better control in an emergency.

2.	Johnston, Kim A., Maureen Taylor, and Barbara Ryan (2020) [18]	Emergency management communication: The paradox of the positive in public communication for preparedness	Communication demonstrates clear messaging information motivate communities to prepare for the optimum safety during emergencies events.
3.	Colpitts, Matthew Wade (2019) [19]	Emergency Management and Preparedness at Higher Education Institutions Perceptions of Senior Student Affairs Officers and Emergency Managers	Emergency managers believe that higher education institutions continue to improve their emergency management and preparedness plans through continuous training and drills along with effective communication to improve emergency preparedness in higher education institutions.
4.	Al Mujaidel, Abdulrahman Abdullah A (2022) [20]	The role of Universities in Disaster Management	Effective communication leadership in universities play important roles in identified way to perform in ERP.
5.	Ranjit, Y. S., & Houston, J. B (2023) [21]	Emergency Preparedness Communication	Communication technology becomes important for emergency preparedness dissemination information utilisation.
6.	Diyal, Suresh Bahadur (2023) [22]	Analysis of Effective Communication Tools for Disaster Management in the Educational Institutes	Information and communication technologies play an important role in emergency communication for disaster prevention, mitigation response, and recovery for effective information.
7.	Hinata, Sayaka, Hannah Rohde, and Anne Templeton (2024) [23]	Communicating with the public in emergencies: A systematic review of communication approaches in emergency response	Social media used as modes of communication for interactive communication between emergency responder, government agencies and public.
8.	Sharifudin, Ahmad Danial Bin (2021) [24]	Critical Success Factor on Emergency Preparedness and Response Planning in Commercial Building.	Knowledge and awareness in communication improvised emergency preparedness procedures to save people from any injury or casualties by developing an Emergency Response Team (ERT) in each organisation to assist in the emergency event.
9.	Patel, Ronik Ketan kumar, Sharareh Kermanshachi, and Thahomina Jahan Nipa (2020) [25]	Establishment of a Framework to Measure Disaster Preparedness: Development of Strategies to Enhance Disaster Preparedness Activities.	The administrator and academics are updating the awareness of emergency preparedness programs in communication to enhance the student and community based on the characteristics of emergency for student awareness education.
10.	Weber, Marcela C., Stefan E., Schulenberg, and Elicia C. Lair (2018) [26]	University employees' preparedness for natural hazards and incidents of mass violence: An application of the extended parallel process model.	Preparedness for emergencies threat perceptions and self-efficacy to promote preparedness through communication for improving emergency preparedness by promoted the communicating message in an emergency response plan.
11.	Tipler, Karlene Susan (2017) [27]	Emergency preparedness and response in New Zealand schools	Communications are the methods foundation of an effective response developed in emergency response plans to allowed staff and student informed about what is happening during the emergency.
12.	AlBattat, Ahmad Rasmi, and Ahmad Puad Mat Som (2015) [28]	Emergency preparedness of the hotel industry: The case of Jordan.	The role of authorities in relation to communication and emergency management convinces them to practice emergency preparedness practices effectively through effective communication.

The reviewed studies consistently highlight the importance of effective communication in enhancing emergency preparedness across various sectors. Clear messaging and the use of communication technologies, such as social media, play crucial roles in motivating communities and

improving emergency management plans. Continuous training, leadership in communication, and the development of emergency response teams are essential strategies for fostering preparedness and mitigating the impact of emergencies. Overall, a well-informed and prepared community can significantly enhance safety and response during emergency events.

#### 4. Conclusion

In conclusion, the establishment of emergency preparedness and response plans is crucial for mitigating the negative impacts of emergencies and ensuring a safe environment. Effective communication plays a vital role in these plans by promoting information sharing and awareness, which are essential for reducing the effects and injuries caused by emergencies. Despite progress, significant study in awareness and education remains highlight the need of study of communication for improved communication strategies. These strategies should focus to foster trust and resilience between the public and authorities to enhance public awareness and outline appropriate response actions to maintain social order and encourage compliance with safety measures during crises.

#### Acknowledgement

This research was not funded by any grant.

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