Impact of Social Media in Dissemination of Information during a Disaster- a Case Study on Kerala Floods 2018

Aswathi Suresh Babu, Dinesh Babu S, Harikrishnan D

Abstract: Over the last two decades, social media has been evolved into a powerful tool for communication. Recent Kerala floods could prove the potential of social media as a significant and accessible tool to get information across quickly to reach out to a large group of people. This research intends to study the far reaching impact of social media in dissemination of information during a disaster. It investigates the use of social media platforms by different stakeholders involved in emergency response activities during 2018 Kerala floods. According to the results social media is helpful in organizing and facilitating the rescue and relief actions. With its immediate and amplified reach, social media make sure that vital information reaches to right people at the right time. The strategic use of social media can effectively drive disaster management efforts.

Keywords: Social media, New Media, Disaster management, Kerala Floods, Social Change

I. INTRODUCTION

The flooding of August 2018, the worst in Kerala in nearly a century, isolated people across different regions of the state. The state was not equipped to cope with such a massive damage to life and infrastructure—it is declared that only 14.52 per cent of its region is flood prone. The government confirmed 387 deaths. The preliminary loss has been estimated by the state government at Rs 20,000 crore, which is around 15 percent of the state's GDP estimate for 2018-19. As per Care Ratings, the flooding has affected more than 4 million people in the state. In August alone, people would lose wages worth Rs 4,000 crore. More than one million people were sheltered in relief camps across the state. Damaged road system (more than 12,000 kilometers of roads were destroyed) substantially affected speedy relief and rebuilding operations (Venkatesh et al., 2018).

The traditional modes of communication were ineffective during the flooding as telephone and mobile networks failed. This made it difficult todeal with requests for help and coordinate rescue efforts. At this point, people from across the world turned to volunteers with social media platforms and geared up rescue and relief operations instantly.

It was a chain of thousands of individuals brought together by a determination to overcome a crisis of unprecedented proportions. These online communities played a pivotal role in facilitating rescue efforts during the floods.

This research is intended to determine how social media was used during the flooding and considers if it has a role to play in future disaster management efforts. The researcher has used empirical data including interviews, social media analytics, official reports, news reports, an online survey, extensive social media analysis, email correspondence, and relevant research papers.

Objectives of the Study

Primary Objective

- To determine the impact of social media during a disaster

Secondary Objective

- To ascertain the key areas where social media involved during the Kerala floods.
- To propose a communication framework for volunteer communities to enhance the use of social media during a crisis

Hypotheses:

- Social media can play a key role in driving disaster management actions during a disaster
- Social media could facilitate the functional needs of interaction involving disaster management agencies and communities during the floods
- A strategic framework can provide recommendations to response community on the safe and sustainable use of social media technologies during emergencies.

Research Questions:

- How can Social Media reduce the impact of the disaster?
- How Social Media help individual volunteers/ communities during a disaster?
- Is there a systematic approach to use social media as an emergency management tool during a disaster?

II. LITERATURE REVIEW

Kerala State Disaster Management Plan Profile (2016) points out that although the Kerala state does not experience floods as severe as in the Indo-Gangetic Plains, incidence of

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Aswathi Suresh Babu, M.Phil Research Scholar, Department of Visual Media & Communication, Amrita School of Arts & Sciences, Kochi, Amrita Vishwa Vidyapeetham, India

Dinesh Babu S, Assistant Professor, Department of Visual Media & Communication, Amrita School of Arts & Sciences, Kochi, Amrita Vishwa Vidyapeetham, India

Harikrishnan D, Assistant Professor, Department of Visual Media & Communication, Amrita School of Arts & Sciences, Kochi, Amrita Vishwa Vidyapeetham, India

floods in the state is becoming more frequent and severe. Intense rainfall during the monsoons causes severe floods. Increasing flood plain occupancy and reclamation of water bodies and wetlands results in increasing flood damages. It has been estimated that 14.8% of the total area in the state is prone to flood.

RudraKoul (2015) states that disasters wreak havoc, causing panic and chaos. During such a crisis, loss of life and property affects people mentally inflicting stress and leave them in a state of shock. Helping to overcome the stress and think rationally in such a situation can substantially reduce loss of life.

Gao et al. (2011) pointed out that users on social media platforms tend to respond almost immediately to emergencies, by posting information about those emergencies on social networks. That information could in turn be used by emergency agencies for getting a timely insight into a particular situation. This timely acquisition of information is indeed critical especially because in those situations the lack of timeliness could result in unacceptably severe and life-threatening consequences.

Alexander (2014) pointed out that collaboratively created and thereby versatile information collected from social networks could allow emergency agencies to act proactively for crisis risk reduction and reactively for responding to emergency events, having contextual characteristics properly understood and public's opinions accounted for when making decisions about how to assist them during crises.

III. METHODOLOGY

This research adopts a mixed approach. It includes review of secondary literature, content analysis of news reports and articles. The questionnaire method is used for collecting data from volunteer groups and individual volunteers and social media influencers involved, as it serves as a useful tool for exploring social media usage during the floods. An in-depth interview has been conducted with key emergency management stakeholders who were actively involved in the response phase.

Theoretical Framework:

Social Network Theory:

Social network theory examines how people, organizations or groups interact with others inside their network. The theory analyses the social relationships in terms of nodes and ties. Nodes refer to the individual actors within the networks, and ties are the relationships between the actors. There will be different types of ties between the nodes. In simple terms, a social network is a map of all of the relevant ties between the nodes being examined. The theory also helps to determine the social capital of individual actors. These aspects are often featured in a social network diagram, where nodes are represented by the points and ties by the lines. One can easily understand the relationships while analyzing the individual elements beginning with the largest element, which implies the networks, and working down to the smallest piece, which is the actors.

The rise of social media sites makes researchers and digital analysts much more thoughtful and curious about the

its impact. Social network theory helps themanalyze the functioning of social media networks as detailed maps of specific one-to-one relationships, instead of as a vague concept of a virtual community.

This study intends to explore the impact of social media during a disaster. This involves detailed examination of how social media being used to facilitate communication during the responsive or recovery phase. In fact, how content goes viral on social media determines the reach of the messages during this period. In fact, it is the social network theory that explains how social media content goes viral instantly. This will explain how a small change in one area can have a huge impact in the overall network.

Research Design:

A quantitative analysis of the data will be done through a well-structured questionnaire. There are two sets of questionnaires used; one for volunteer groups and one for individual volunteers and social media influencers. Questionnaire one is meant to explore how effectively individuals make use of their social media presence and questionnaire two explores how effectively volunteer groups used social media during the flood. Interviews conducted for key emergency management stakeholders involved in the recovery phase of Kerala floods, this includes Disaster Management Authority and United Nations Development Program (UNDP). A qualitative analysis will be done by a detailed description of observation on the collected data. The study analyses secondary data like news, journals, books, periodicals etc.

When a change is initiated at the node level, the change moves first from the node, along its ties to the various connected relationships, before being pushed out to additional nodes and their relationships, creating a change throughout the entire social network.

This study intends to analyze how communities within the social networks work during a disaster. Examining this based on Social Network Theory enables the researcher to evaluate the different aspects of the research problem and analyze them to draw the final conclusion.

This study is an exploratory research that attempts to find out how social media platforms could facilitate the communication during the 2018 Kerala floods. The effectiveness of dissemination of information using social media during the floods was heavily relied on how messages have been passed on by various online communities and social media influencers.

IV. FINDINGS

1. How can Social Media reduce the impact of the disaster?

Kerala flooding could prove that social media can reduce the impact of disaster in many ways. Social media helps people stay connected with family and friends. Being connected means, during a crisis they can request help from their network. And their message will reach out to a large mass the moment it is being posted.

It can facilitate the coordination among volunteers and emergency services. It can be used to monitor the situation by analyzing the social media updates on how a crisis is evolving in real time. Through facilitating the communication between different stakeholders in a risk or crisis management situation, social media could reduce the impact of the disaster at different levels.

During the Kerala floods, social media helped the volunteers retrieve information about the situation instantly and this helped them respond effectively right after the emergence of the crisis. The effective use of social media during this phase helped to gather, analyze and disseminate information in a timely manner. Timely communication during the rescue efforts could save lives. People could request for help and support and volunteers could reach out to them quickly.

2. How Social Media help individual volunteers /communities during a disaster?

The in-depth analysis of the data brings to light the key aspects of social media that make it a potential tool for disaster management rather than enhancing public awareness about the risk and crises. As per Global Disaster Preparedness Center's classification, social media can be used during a disaster as:

- **Monitoring tool** with the technical support of crowd sourcing and data mining or by relying on volunteers trained to support media monitoring for emergency response.
- **Early warning system**, with real time alerts and warnings. Emergency management stakeholders can make use of social media to send alerts and warnings.
- **Tool to mobilize volunteers both during and after a disaster**. Social media can also be used to facilitate disaster response by mobilizing online volunteers far away from where the disaster occurred to spread information provided by emergency agencies.
- **Medium to identify both survivors and victims.** For instance, Facebook safety check allows users to mark safe during a disaster. This helps to know if family and friends. It can also help to report a crisis precisely and to send requests for help.
- **As a risk and crisis communication tool** to counter inaccurate or insufficient media coverage or to counterbalance rumours.
- **Platform for fundraising** by encouraging donations when disasters occur.
- **Potential tool to build trust.** Strategic use of social media could improve transparency and trust in government authorities.
- **Tool for managing stress** by sharing useful information to public on how to cope with the disaster. Through compelling stories using visuals and content during the crisis social media can inspire and spread optimism and facilitate effective stress management.

3. Is there a systematic approach to use social media as an emergency management tool during a disaster?

The results show that the emergency management stakeholders and individual volunteers find the social media's intervention during the Kerala floods impactful. However, State Disaster Management Authority, the government agency to handle disaster management efforts in the state, has not used social media during the disaster.

However, the other volunteer groups involved could use the social media in an effective manner. But they couldn't adopt a systematic approach. They did not make use of social media management tools. This points to the need of guidelines and trainings for future use of social media as a crisis management tool.

When analyzing the current Kerala context, social media platforms have limitations in terms of the collaborative tools accessible to users that can be used for emergency purpose. Because all the major social media platforms were generally designed with socializing purpose in mind rather than the emergency management efforts.

Many government officials have used their social media pages to share information and connect with public during the disaster. Incorporating these new platforms, however, requires that responding agencies adopt new communication strategies, policies and engagement methods.

The stakeholders believe that there should be a proper framework or guidelines for emergency communication through social media. They point out that analyzing the authenticity of the information as key challenge while incorporating social media as a disaster management tool.
From the interviews it was revealed that with most of the stakeholders there were no dedicated team to handle social media during the disaster. Proper planning and a dedicated social media team are essential for effective communications to occur during an emergency.

V. PROPOSED FRAMEWORK

Based on the discussions and adopting the basic workflow of Compassionate Keralam(a volunteer initiative formed by Prasanth Nair IAS, a deputy secretary to the union government) this study presents a conceptual framework as shown in Figure 1. The plan provides a necessary framework for the volunteer groups to facilitate, coordinate and monitor disaster management tasks by mobilizing the resources and taking the expertise of relevant Governmental departments at state level, non-governmental organizations and community during the response phase of disaster management. This design would help volunteer communities to streamline volunteer efforts to support and supplement the government rescue.
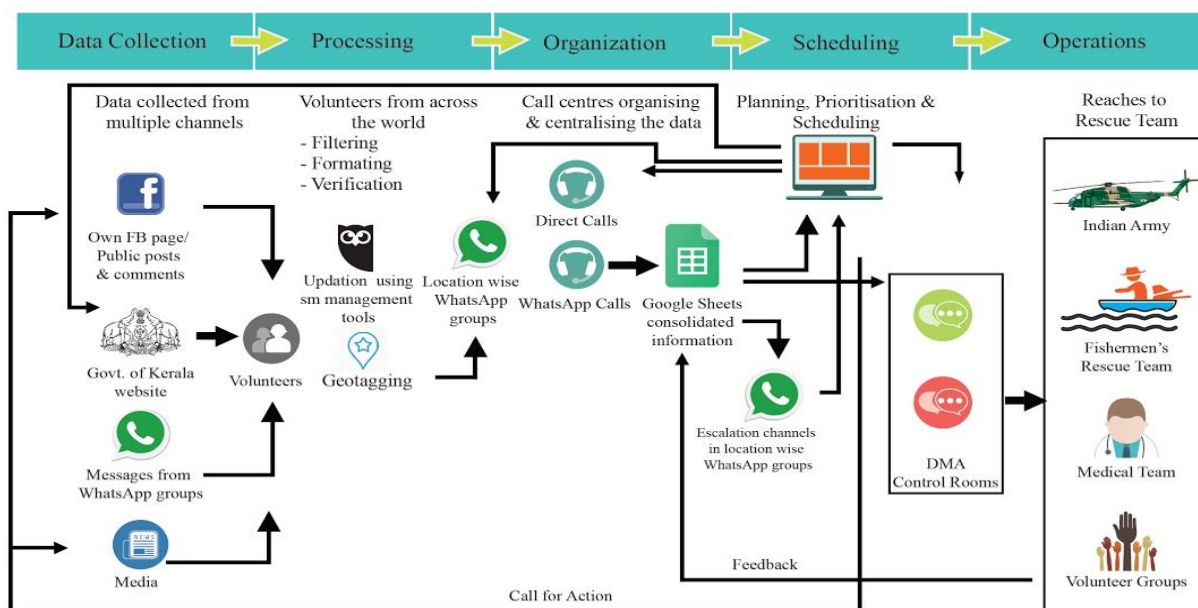
Fig. 1 A Framework for Volunteer Communities

VI. CONCLUSION

The aim of this study was to demonstrate the impact of social media in dissemination of information during a disaster. The researcher conducted interviews with key emergency management stakeholders and survey among volunteer groups and individual volunteers who were active participants during Kerala floods to examine the potential of social media as a communication tool during the response phase.

From the results it is evident that social media was impactful as a tool for communication during the disaster. With its massive reach and ability to convey real-time information, social media could drive the disaster management efforts. However, lack of trainings and guidelines pose major challenges for the use of social media as an emergency management tool. Based on the results, this study poses the need for implementing a systematic approach to improve the way stakeholders use social media during a disaster. This research also proposes a framework for volunteer communities to streamline the communication during the disaster.

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