Social Media Response in Disaster Management with Special Reference to the Kerala Floods

Jan Elizabeth Joseph

Assistant Professor, Department of Sociology, Sreenarayana Guru Open University, Kollam. E–mail:janjoseph2291@gmail.com

Abstract: A disaster can be any occurrence that can cause damage, ecological disruption, loss of human life, deterioration of health and health services on a scale, sufficient to warrant an extraordinary response from outside the affected community area (WHO). A disaster can be defined as an occurrence either natural or manmade that causes human suffering and creates human needs that victims cannot alleviate without assistance (American Red Cross ARC). Disaster has been classified into natural disasters such as flood, earthquake, cyclones, tsunami, drought, landslides, pest attacks, forest fires, avalanches, etc., and man-made and human induced such as technological, industrial accidents, etc. Recently Kerala has been susceptive to natural disasters due to the diverse changes in its ecology. Kerala witnessed consecutive floods in the year 2018 and 2019. During both these calamities social media played an important role in advocating the means of rescue and relief by effective resource management and consolidation of relief efforts; the victims of the flood utilised social media to seek help whereas the government and unaffected citizens utilised social media to mobilise rescue, camps and collection centre for people to donate to the affected. This study will look into the use of social media in disaster management with special reference to the Kerala floods. The different forms of involvement of social media in the event of this disaster, in terms of disaster preparation and response, will be analysed from the perspective of the government and the citizens. The focus of this paper is on the role of social media in the Kerala floods and how it served as a tool in disaster management.

Keywords: Disaster Management, Social Media, Kerala Flood

Introduction

The monsoon season of 2018 and 2019 for the state of Kerala had been that of severe rainfall which led the state to face a disastrous flood and a humanitarian

crisis. Kerala witnessed unprecedented damage and disruption in the course of the flood which claimed many lives and caused unparalleled damages to property. A disaster of this magnitude was the first of its kind for many and it left many of its victims without the means and aid to avail help. At such a juncture victims and their families took to social media as a mitigator in terms of disaster preparation and response. The users of the medium and the social media giants facilitated resource management by mobilising relief camps and collection centres and consolidated relief efforts by information dissemination where in victims and their families were able to give real time updates about immediate threats and demand and coordinate the attention of relief teams by sharing their location.

What is disaster? A disaster can be any occurrence that can cause damage, ecological disruption, loss of human life, deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community area (WHO). A disaster can be defined as an occurrence either natural or manmade that causes human suffering and creates human needs that victims cannot alleviate without assistance (American Red Cross ARC). Disaster has been classified into natural disasters such as flood, earth quake, cyclones, tsunami, drought, landslides, pest attack, forest fires, avalanches, etc., and man made and human induced such as technological and industrial accidents, etc.

The definition and ideology of disaster very well describes the nature of disaster, the course of action of the said disaster and the plan to mitigate the disaster. The State disaster management and the National disaster management have both protocols that are to be followed in the event of a disaster. The Kerala State Disaster Management Authority has updated its Standard Operating Procedure as mentioned in the Orange book of disaster management – Kerala – SOP and emergency support functions plan, the protocol has adopted new changes after the Cyclone 'Ockhi' and the 2018 floods. This emphasises on the improved 'Monsoon preparedness and emergency response plan' (SDMA 2020). The Orange book describes the response mechanism to be adopted at the State, District and Taluk level; it mandates the roles and responsibilities of state emergency operation centres, central agencies and district disaster management authorities. The monsoon preparedness and emergency response plan is season specific in adherence to the south – west and north – east monsoon seasons (SDMA 2020).

In the case of a natural disaster or calamity the state and the concerned authorities have a strict protocol to adhere to which states the course of action each agency has to set in motion. Who should enact it and how it should be carried out is all defined in fine print but the people at the very core of the wrath of the disaster

are without a uniform code in case of a disaster. In such a crisis it has always been the media that has bridged the gap between the authorities and the common man. In the post information society since internet has taken precedence there has been a paradigm shift in which there is a decreasing reliance on the traditional media platform as the sole propagator of information. Social media has revolutionised information such that it has become a gateway for people to publicise themselves or engage in various social activities. Engagement and interaction in social media have moved beyond social as it is now information and data loaded tool effective in political, diplomatic, economic and even situations of crisis. Social media now holds a vital position in people's life as they are now virtual citizens in numerous social platforms found on the internet with diverse and multitude of purpose. As such social media is referred to as the fifth pillar of democracy as it has an undeniable involvement in the public and private spheres of life of its users. In recent times the diversified role of social media networks has been established with the vital role in disaster management. The state of Kerala has a unique geographical composition and, in the past, has not been receptive to many natural disasters or calamities until recently the state had witnessed severe monsoon leading to consecutive floods in the years of 2019 & 2018 and cyclone Okhi in 2017. This paper explores the role of social media in disaster management with special reference to the Kerala floods of 2018 and 2019 in line of crowd sourcing, Information Dissemination, Digital Volunteering and Virtual relief and rescue missions.

Objectives

The present study tries:

- To understand the functional use and effectiveness of social media in disaster mitigation and response;
- To identify the use of social media in disaster management with special reference to the Kerala floods.

Method

During the course of the floods in Kerala in 2018 and 2019 non-participant observation was carried out online and offline, to identify the nature and method of use of prominent social media platforms such as Facebook, Twitter, Instagram and messaging app WhatsApp for the purpose of mitigation and post disaster relief activities.

Results and Discussion
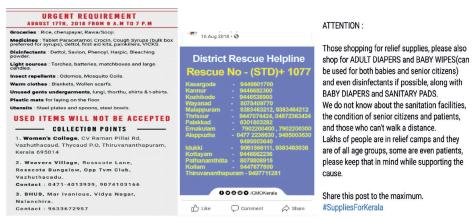
Kerala Flood 2018 and 2019

In the beginning of the monsoon season, the heavy monsoon rainfall raised the water level of the 44 dams which led to them being simultaneously opened which resulted in a disastrous flood that the coastal state of Kerala had ever seen in the last century. The Kerala flood of 2018 was considered to be the worst in the history of the state since 1924, the flood affected around 54 lakh people in 14 districts, mostly in the districts of Alappuzha, Ernakulam, Idukki, Kottayam, Pathanamthitta, Thrissur and Wayanad (Indian Express October 2018) Persistent and heavy rain in Kerala between August 8 to August 17, 2018 may not be the only reason for the large-scale flooding, the reservoir storage might have played a major role in worsening the flood situation in the state as almost all the major reservoirs were more than 90 per cent full before the heavy rains (between August 14 to August 17, 2018) (Hydrol. Earth Syst. Sci.). The scale of devastation of the flood led to 14 lakh people being evacuated and an estimate of 1,74,500 houses were damaged partially or completely. The overall damages and loss affected the GDP of the state with 2.6 per cent of the total GDP loss, an estimate of Rs 31,000 crore worth of damages was incurred by the state in various sectors during the floods (Indian Express October 2018). At the onset of the flood the state set into motion relief and rescue operations that were undertaken by the National Disaster Response Force, Indian Army and Indian Navy. The timely intervention of the 4537 Fishermen, to be exact, from the coastal community of Kerala was important in saving the lives of as many as 65,000 people using 669 fishing boats which were securely transported to the affected districts from Thiruvananthapuram and Kollam (Indian Express October 2018). The teams of rescue and relief consisting of the locals and fisher folk were able to better aid in the rescue mission as they were coordinating with local authorities and the self–evolved digital and non-digital rescue and relief groups.

Social Media Facilitated: RESPONSE

During the Kerala Flood of 2018, social media played a vital role in disaster management by bringing together the flood victims, the government authorities, agencies and the countless number of volunteers. The involvement of social media in disaster management brought forward the idea of digital volunteering and massive crowd sourcing in the form of virtual rescue and relief operation and information dissemination. The role of IT and social media demonstrated the ability of a self-

evolving platform in mobilising rescue and relief operations. Facebook, WhatsApp, Twitter and Instagram were the popular social media used for the purpose of disaster management during the Kerala Floods. Each with its unique tools had a different band of followers most of whom had accounts in multiple social media platforms. Flood related information and needs were shared and circulated by the users in multiple social media platforms for instance a post regarding the need of specific supplies in a collection centre was shared through WhatsApp in the form of messages and status and the same was shared on FB and Instagram as a Post and Story and on Twitter via a tweet. Social media proved to be an effective tool for those in the affected area and for those engaged in the relief activities. The unique feature about the utilisation of social media in disaster management is that it enabled a two-way communication between the flood victims and the rescue team/control room.

The use of social media in disaster management was tremendous, in terms of preparation and response to disaster management, information dissemination and digital volunteering in the pre flood situation and post situation. During both the stages the social media played a critical role in disseminating information to the public in the forms of warning and how to proceed during the flood. Social media was rich in information as information was pouring in from different sources. In the case of responses post flood, social media facilitated broadcasting information of all sorts relating to the flood. By mobilising a large number of volunteers who worked on site and digitally, who were a critical part of demarking rescue and relief calls and crowd sourcing led to a very positive outcome with all the collection centres being at a surplus with goods.

Images 1 & 2 & 3: Digital Volunteering in the form of appeals for crowd sourcing and information dissemination

Digital Volunteering

In a time of crisis everyone can lend a helping hand and through social media many did in the form of sharing posts, status, information, location and by listing needs and responding to it and by offering their skilled services. Most of these activities were carried out through Facebook, WhatsApp, Instagram, and Twitter. Individuals came together through shared social media platform to contort the massive digital volunteering effort. Digital Volunteering services had begun with government authorities and officials using their official social media accounts such as the CMO office and pages of different District collectors appealing to the public who were not affected by the flood to help out in their own capacity by volunteering in the form of manning collection centres, coordinating resources to and from the collection centres to particular camp sites, collecting online pleas for help confirming the information, time stamping, geo tagging the information and passing it on to the concerned authorities. Thus massive digital volunteering had begun. It is termed as digital because many of the volunteers weren't on site but were rather helping out through various digital platforms such as Facebook and WhatsApp. There were volunteers from different parts of India, UAE, US and UK. Many of the expat volunteers were involved in offering their skilled services such as facilitating the technical functioning of the Kerala rescue website, coordinating with other expats to offer financial aid and material help to the affected back home. The collection centres were mostly manned by volunteers who answered the call for help in different social media platforms. Multiple WhatsApp groups were formed for the specific purpose of mobilising resources for the collection centres and manning collection centres. In WhatsApp there were multiple groups coordinating the working of collection centres by sorting the material and reporting shortages with time stamps to avoid excess, to quote a digital volunteer, "since there was a limit to the number of people that could be accommodated in a single group we had multiple WhatsApp groups and the administrators were handling the crowd sourcing. To be time effective we used to create posts or just write up in charts stating what was required in a particular collection centre and in order to a avoid excess of certain goods we used to constantly update as to what was needed and what we had in surplus". The volunteers participated through social media to inform others of the needs of the collection centre, transportation needs, live updates of items being distributed to the affected, info graphics detailing how to deal with flood affected substances and health and hygiene. Information of these nature were circulated in the form of WhatsApp status, Facebook post, shares, live videos, tweets and re-

tweets and stories in Instagram. Through live videos, video and audio messages that were circulated through FB & Messenger to other family members, local volunteers, help groups and governmental helpline or control room. In the midst of the disaster the Kerala IT Mission incited the help of Institute of Electrical and Electronics Engineers (IEEE) and other professionals to come up with a quick fix that could be utilised in disaster management as a result the Kerala Rescue (Figure 1) was established. It connected all the stakeholders at one place: a flood victim could request help, seek information regarding a missing person, contribute aid materials, volunteer, etc. The portal registered 54,933 volunteers, 45,587 requests were posted and a total of 1,363,704 people visited the portal (Global Voices 2018). The disaster management through social media was a constantly changing self-evolving system that operated on the faculties of the users.

Image 4: Kerala Rescue: A platform to unite disaster mitigation and response

Virtual Rescue and Relief Operation

The flood simultaneously affected all 14 districts of the state the most affected were Alappuzha, Ernakulam, Idukki, Kottayam, Pathanamthitta, Thrissur and Wayanad, the nature and pace of the flood was unprecedented and as such it affected the rescue and relief operations in the initial stage because the rescue and relief operations undertook by the police and fire services could not meet the scale of the disaster. Later by combining forces with the armed force and disaster management task force rescue and relief operations were better organised. In the initial stage of flooding the lack of anticipation about the scale of flood led many people to stay in their own homes against the advice of the government to relocate to camps thus as the water level rose certain places became inaccessible and hence incapacitated rescue process. As part of this many faced food and drinking water shortage, medical emergency

and lack of medical supplies, many such instances as people were unable to connect with the helpline numbers and lack of helpline numbers at many instances led to people seeking help from social media. Those that did not have direct access had family and friends from elsewhere seek help on behalf of them. Messages of these nature were tackled by the digital volunteers who would then contact the people in need, confirm the nature of their problem then add the geo tag which would specify the location then it was passed on to the local rescue and relief teams. The main challenge in the rescue operations was the lack of helpline numbers during which people took to WhatsApp messages and Facebook live videos to ask for help. Large and small WhatsApp groups were formed in and outside of Kerala and India for the purpose of rescue and relief operations as well as for mobilising collection centres. Members of these WhatsApp group as well as other social media platform turned to digital volunteers by collecting information, geo tagging and time stamping calls for help and directing these to the concerned authorities and rescue teams on ground. There were constant updates in the form of messages, posts, status updates regarding weather updates and alerts that were being circulated through different social medium.

In the beginning due to lack of helpline numbers and slow response people took to social media to get help, which is when digital volunteers and many media houses took the role of collecting calls and information, geo tagging them and giving this information to the rescue and relief team on the ground. Telecom operators did their part by ensuring network connectivity be maintained by offering free calls and data packages. Facebook offered services such as crisis response in which a person could mark themselves as safe, request information, list products or services of need. Apart from this Facebook users utilised this platform to ask for help in terms of rescue and relief.
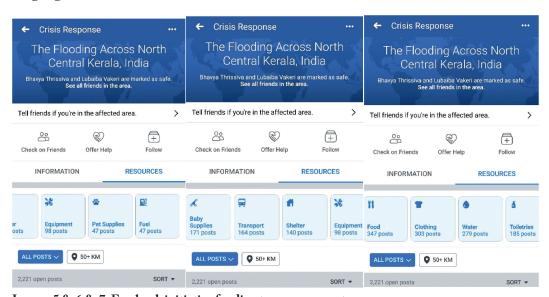
Information Dissemination

Social media enabled connectivity to the masses and hence the dissemination of information was facilitated with ease as in a short span of time information could be circulated on to a large audience. Information regarding the flood started spreading through social media at the very onset of the flood, and as the magnitude and intensity of the flood increased, the pace and nature of information also diversified. Messages started pouring in regarding rising water levels, immediate need for intervention in the form of rescue and relief like supply of food, medicine, and support to the elderly especially those living alone, medical emergency and care.

Such situations of crisis and need were reported in real time through social media platforms by the victims themselves or by those close to them. Social media enabled a third-party intervention during the flood; many demands for rescue and relief were made by friends, family and even volunteers on behalf of the flood victims through social media. Information dissemination took place in three forms pre flood, during flooding and post flooding. Pre flood information was mostly to warm and alert people regarding an oncoming disaster and its possibilities which had no uniform nature and highly depended on the speculation of the content creator and receiver. Wide spread participation was seen during the flood with the flood victims, onlookers and volunteers all participating in some manner of information dissemination through social media and the post flood information dissemination was mostly on how to deal with the different aspects of life after such a disaster.

Connectivity was the key for information dissemination to take place through social media. In order to ensure connectivity tech savvy individuals were publicising information on ways to build a makeshift power bank with household items. Uniquely both Twitter and Instagram were utilised by celebrities and popular users/pages to grab the attention of a large number of people, more the number of followers wider was the reach. Professional pages like Where-In-Trivandrum, Trivandrum Indian and Eat-At-Trivandrum with accounts in all four SM turned into control rooms of sorts aiding tremendously in relief operation by reaching to the masses that followed them. The twitter handle of Google India posted on their twitter account "Our thoughts are with those in Kerala. Help track missing people with #personfinder: goo.gl/WxuUFp #KeralaFloods", via this link a person could either report they were looking for someone or had information about someone, there was constantly updated on behalf of Google India in their twitter account using the #KeralaFloods, these were re-tweeted by thousands and thus circulated further more. Various twitter users used several hash tags such as #KeralaFloods, #KeralaFloodRelief, #KeralaRains, #SOSKerala, #DoForKerala, #StandWithKerala, #KeralaDonationChallenge, @CMOKerala, @WingsRelief, etc. These hash tags were used on all social media platforms alike to spread the information, highlight and seek all flood related information with ease. Facebook played a role by facilitating an option for its users to "mark themselves as safe", which could then be seen by all their friends and followers. Amazon the largest ecommerce establishment although not traditionally a social media platform also facilitated in the disaster management by offering access to make donations in terms of articles like food items, clothing, sanitary products, pet food and essentials. There was a collective effort through social media platforms to manage the disaster

situation considerably, many a times there was over lapping of information which is in the nature of a self evolved and adaptive disaster management that is without a structure or system.

As the flood water receded the nature of information changed, mostly helpful information such as the do's and don'ts during flood, health and hygiene info, survival information, post flood help in terms of health care, cleaning services, housing, car care, how to deal with electrical utilities that were submerged and how to deal with wild animals especially snakes that may have taken refugee inside abandoned flooded homes were widely circulated through social media platforms. For the same purpose experts on disaster management reached out to a team called Kerala Designers Collaborative – vital information in the form of info graphics was designed to spread awareness. Topics of these ranged from how to assess your car after floods by checking for lizards, venomous snakes, mould growth in the vehicle and remove moisture content from the lights, to burying animal bodies to prevent the spread of diseases. These info graphics were translated into five Indian languages.

Images 5 & 6 & 7: Facebook initiative for disaster management

Digital Crowd Sourcing

As relief camps were set up messages demarking the needs of these camps at large were being circulated through social media platforms. Thus collection centres were set up in districts that were unaffected by the flood and large scale of crowd sourcing

was done through social media encouraging people to donate essential items of their choice from lists of materials circulated from different collection centres. A large scale digital volunteering was involved in mobilising the numerous collection centres and crowd sourcing across the state especially in Thiruvananthapuram and Kollam. The volunteers in the collection centres were taking stock of items they had and they were in need of and distributing this information through social media with specifications such as name of collection centre, date and time in order to avoid surplus of goods. The "Status" tool of WhatsApp was thoroughly utilised for crowd sourcing where in volunteers and authorities were mobilising resources for the relief camps across the state. In the case of Twitter – Twitterati put out 2.62 million tweets across India and around the world during the Kerala flood. Twitter was used to share important updates, requesting donations and to request for help. Instagram was sought for similar purposes as well.

Conclusion

Essentially these social media platforms took on the role of acting as a buffer between the flood victims and rescue and relief teams on site, when the flood hit due to lack of awareness and caution many hadn't left their homes which led to them being stranded in their homes devoid of the basic needs such as food, clothing and shelter. Social media has proven to be an effective tool in the mitigation and post disaster relief measures. It has the ability to reach the masses, in real time and establish ground realties but it is required that every one has access to network connectivity and the means to use and access such technology, thus along with accessibility digital literacy is also required for the proper utilisation of social media. Reliability is always questionable in terms of the information circulated through such social medium as such information must always be verified, posts by popular local pages or groups, local leadership, official pages of state leaders, bureaucrats, celebrities and influencers could be a primal source of information during such crisis and disaster. Groups and pages that were created specifically during the flood are still maintained to be utilised in case of future crisis and disaster.

Limitations & Obstacles

During the course of the disaster the use of social media brought forth certain limitations and obstacles that questioned the effectiveness of social media as a mitigation tool for disaster management.

- Lack of digital literacy in terms of using these SM platforms effectively and to the full effects of its capability.
- In times of crisis there will arise the issues of network connectivity and power outages which could render the platform ineffective temporarily.
- In social media the power is self– creation and as such the information created and disseminated at times may not be from a reliable source nor true in nature, thus, care must be given to the information one comes across and choose to proceed with and share in order to not fall prey to fake news and misleading information.
- Due to the lack of consensus or protocol a repetition of pleas for help and rescue even after they have been addressed was seen, this can be controlled with the use of time stamping and geo tagging, thus local groups, pages or popular entities can act as a hub of information dissemination and mediate to the masses.
- A media strategy should be created and enforced to avoid mistrust and ethical concerns.

References

Ahmed, A. (2011). Use of social media in disaster management. *International Conference on Information Systems*, ICIS 2011, 5.

Express News Services. (2018, October 26). Kerala floods: UN report puts loss at 31,000 crore. *The New Indian Express*. Retrieved from https://www.newindianexpress.com/states/kerala/2018/oct/26/kerala-floods-un-report-put-loss-at-rs-31000-crore-1890370.html

Konikkara, A. (2018, October 6). How social media was vital to rescue efforts during the Kerala floods. *The Caravan*. Retrieved from http://caravanmagazine.in/vantage/hoe-social-media-was-vital-to-rescue-efforts-during-the-kerala-floods

Mandhani, N. (2018, August 20). How Indians are using social media to help flood-hit Kerala. *BBC News*. Retrieved from http://www.bbc.com/news/world-asia-india-45218556

Mauroner, O., & Heudorfer, A. (2016). Social media in disaster management: How social media impact the work of volunteer groups and aid organisations in disaster preparation and response. *International Journal of Emergency Management*, *12*, 196. 10.1504/IJEM.2016.076625.

Mishra, V., Aaadhar, S., Shah, H., Kumar, R., Pattanaik, D. R., & Tiwari, A.D. (2018). The Kerala flood of 2018: Combined impact of extreme rainfall and reservoir storage, Hydrol. *Earth Syst. Sci. Discuss.* [preprint], https://doi.org/10.5194/hess-2018-480.

Nair, S. (2018, August 17). Kerala floods: Teach savvy Indian citizens mobilize to minimize the damage. *Global Voices*. Retrieved from http://globalvoices.org/2018/08/17/kerala-floods-tech-savvy-indian-citizens-mobilize-to-minimize-the-damage/

Sabu, S., & Joby, E.N. (2018 September 21). Kerala floods – Rescue and rehabilitation using information technology and social media. *The Field*. Retrieved from http://blogs.agu.org/thefield/2018/09/21/kerala-floods-rescue-and-rehabilitation-using-information-technology-and-social-media/

Thiagarajan, K. (2018, August 22). How social media came to the rescue after Kerala's floods. *Goats and Soda Newscast*. Retrieved from http://www.npr.org/sections/goatsamdsoda/2018/08/22/640879582/how-socail-media-came-to-the-rescue-after-keralas-flood

Topno, P. (2016). Social media, an effective tool for disaster response. *International Council on Social Welfare.*

Velev, D., & Zlateva, P. (2012). Use of social media in natural disaster management. Conference: ICITE 2012, At: Hong Kong, *IPEDR, vol.39.*