

# Motivational Analysis of Web Volunteering in Kerala Flood Disaster Management

Bayaana Beevi\*

Department of Psychology, Prajyoti Niketan College, Pudukad

\*Corresponding author: Bayaana Beevi, Department of Psychology, Prajyoti Niketan College, Pudukad, Tel: +91 9995416312; E-mail: bayanabeevi@gmail.com

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## ABSTRACT

**Context:** In 8 – 21 August 2018, Kerala faced one of its biggest disasters in the form of floods. Even as the state authorities were carrying out rescue operations, many citizens effectively used social media to spread information and connect rescue personnel to those who needed help in remote locations. Users posted messages with the hash tag #KeralaFloods to co-ordinate their operations and this was soon picked up and shared by users all over the world.

**Keywords:** Web Volunteering; Disaster Management; e-Volunteers; Flood; Social media.

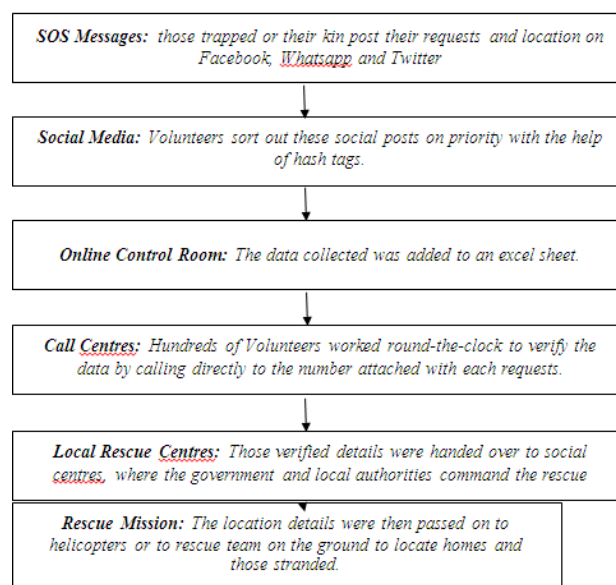
## INTRODUCTION

Disasters occur when communities exposed to given hazards have preexisting vulnerabilities or inadequate capacity to reduce or cope with the adverse effects of the hazard [1]. In 8-21 August 2018, Kerala faced huge disaster in the form of flood in its history. Continuous devastating rainfall followed by deceitful landslides and flood have takeaway 380 people and displaced over a million in the southern Indian state of Kerala. India's National Disaster Relief Force launched its biggest ever rescue operation in the state [2,3]. Evacuating over 10,000 people. The Indian army and the navy were also pressed into service.

Websites like Facebook, Twitter, YouTube and mobile applications like Whatsapp are generally considered to constitute Social Media. They are online communities that allow people to share ideas and information as well as connect people with each other over the internet. It was this online platform that became a defend control room coordinating rescue operations all over the state in Kerala. Considering the flood effect, death rate was not proportionally high. The role carried out by social media is to be given credit for it. As the scope of the disaster became clear, Kerala state government reached out to software engineers from around the world. They joined hands with the state-government- run Information Technology Cell, coming together on Slack, a communications platform, to create the website www.keralarescue.in. This website allowed volunteers on the ground, who were helping with disaster relief

in Kerala's many flood-affected districts, to share the needs of stranded people so that authorities could act based on information gathered. Even as the state personnel carried out rescue operations, many citizens both in and out of the country used social media to spread information and connect people to those who could help them. Users were posted messages with the hash tag #KeralaFloods to co-ordinate their operations and this was shared all over the world.

The Kerala flood rescue using social media was as follows:



**Figure 1:** Diagrammatic representation of the social media method of Kerala flood rescue.

The involvement of the local population in dealing with disaster situations is by no means new. First-aiders are often members of local communities and are not necessarily trained workers. However the way in which the disaster management is co-ordinated and human needs are prioritized is vital. If these needs had been considerably addressed, affected people may have coped better with the disaster [4].

Theory of motivation suggests that there are five classes of needs and that they are hierarchically organized [5]. Physiological needs are on the bottom of the hierarchy followed by security, belongingness, esteem, and self-actualization needs. Each level is prepotent to the next higher level. Thus

physiological needs must receive sufficient satisfaction before security needs emerge, security needs must receive sufficient satisfaction before belongingness needs emerge, and so forth.

One of the merits of Maslow's theory is that it can act as a guide for living. It suggests that early in life one should establish a basis for physiological survival and safety, and once these are accomplished one should seek friends, followed by achievements, and finally, self-actualization [6]. Essentially, if any individual or community lacks any of needs 1-4 such a person or community certainly feels that he/she or the concerned community is actually missing something that is critical for human survival in the society [7]. Indeed, if Maslow's theory is an accurate reflection of human development, it should already exist in some form in the norms and folkways of every culture-the distillation of the experience of centuries [8]. In the present investigation an attempt is made to study the online flood disaster management in light of Maslow's need theory.

## NEED AND SIGNIFICANCE

Disaster is not the time to get perturbed or distressed. Rather, what is required is an attitude of determination and extreme resilience. In Kerala, due to heavy rainfall, flood and landslides many areas were reported totally devastated but with no deaths, due to timely information, dissemination and intervention. Otherwise, the death rate may have been bigger. The Kerala disaster management model has been recognized for its effective integration of local communities and state authorities for disaster management. Thus, a study of how Kerala responded to a disaster could be considered a model in future for people to emulate. This study explores how volunteers and volunteer groups are formed through social media; how the Kerala social media works differ from others, and the use of social media in disaster relief, assistance, aids and services. Their actions during that time through social media are investigated in this study. It will aid in developing a holistic and integrated approach to disaster risk management and response.

## Objectives

To understand the role of social media in Kerala flood disaster.

To determine the need priority considered in flood disaster management with reference to Maslow's need hierarchy.

## METHOD

### Research design

The aim of this study is to draw conclusions from individual observations in the response of social media to the disaster and to generalize results. The incident was happened in August 2018. As part of this, first author's social media account (Facebook) was observed and 1329 messages were coded.

## Procedure

Data collection was based on posted messages of the first author's Facebook friends during August 15-August 21 of 2018. A number of 83 actively participated people during disaster were considered. Every single message that was associated with the disaster was noted down and documented it to different categories and summarized accordingly. Messages not related to flood issues were ignored. Data was collected through these steps:

Step 1: Search posts displayed by participants in between August 15-August 21.

Step 2: Noted down disaster related message posted on Facebook

Step 3: Counted and Categorized messages

## Analysis

Phenomenological method was employed to analyze user's messages/ transcripts in Facebook [8]. In this method, all written transcripts were read several times to obtain an overall impact for them. From each transcript, significant phrases or sentences that pertain directly to the motivational need of online helping behaviour are identified and themes generated. A Theme Analysis of the content was done based on Maslow's need hierarchy.

Biological needs

Security needs

Love and Belongingness needs

Esteem needs

Self-actualization needs

## RESULTS

From the observations, Social media messages during flood disaster are based on: rescue, need of clothes, medicines, location maps (suitable roads for travel), food, psychological help, helpline numbers, mobile batteries and power banks, home cleaning, snake hazard aid, and drinking water were analyzed. Messages related to animal care, writing notes for school children, slide mud removal in affected houses, dam shutter alerts, request for prayers, use of petrol/diesel, relief camp information, volunteer's data, instructions for people in flooded areas, request for donations and volunteer acknowledgment were also included.

### Messages underlying biological needs

In disaster management during Kerala floods, affected people's basic material needs were met through the result of these messages of web volunteers:

No.	Significant Message Content	Example	Formulated theme
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1.	People stranded & want rescue (via boats, helicopters)	Sijo, working in Bangalore, his eight month pregnant wife and mother stranded at their home in Aranmula, Pathanamthitta.	Biological Need
2.	People want clothes	Wayanad is in need of your support. Kindly donate the below mentioned items. We need these items in abundance as our population in Relief Camps is close to 25000. Please be with us. Materials required: food items, hygiene, clothing (inner wear – male, female, children, night gown, dhotis, bath towels, diapers etc.)	
3.	Medicines essential	Urgently need Medicines and Medical supplies: Lakhs of people sought refuge in relief camps across the state including elderly, children, new born babies, pregnant women, paralysed and person suffer from various other illness are in need of necessary medicines.	
4.	Food scarcity & availability	Food will reach via helicopters for people stranded in flooded areas. Please contact.	
5.	Drinking water shortage	Arranging drinking water (well water) in Tanker Lorry free of cost in Kochi city and within 50 Kms during this flood time. If anyone requires please contact.	

**Table 1:** Shows selected examples on significant statements of social media messages that emphasize on biological needs in online disaster management.

### Messages underlying safety needs

In disaster management, affected people have met their safety needs as result of sharing these messages of web volunteers on social media:

No.	Significant Message Content	Example	Formulated theme
1.	Location maps (suit roads for travel)	Bridge no 176 in between Angamaly and Aluva has been temporarily cancelled due to flood. Thus, If anybody is isolated in Kochi, they will be picked up in two-wheeler. Please contact:	Safety Need
2.	Snake catching help available	The worst condition is not that the flood that has captured your home, but the cleaning process. Must confirm there are no snakes while arranging your things. If you noticed one, please watch and just dial our number. Our volunteers will reach anywhere in Kerala.	
3.	Power banks provide	Power banks for mobile charging are supplied at Thrissur Engineering College free of cost. Please contact:	
4.	Let animals free from chains	You may be in hurry. Don't forget to release the belt from your pet animals. Let them escape.	
5.	Dam shutter alerts	People in the banks of Kuttyadi river and nearby places should be alert as the Peruvannamuzh i shutter of Kakkayam dam will open and water could rise six feet height.	
6.	People shouldn't use petrol/diesel unnecessarily	The water level falls down some places in Thrissur. It was noticed that people from those areas	

		have started using own vehicles. Please don't do that. Our helicopter and boat rescue team are in need of fuel. As the roads are blocked in many places, fuel transportation has stopped. Please cooperate.	
7.	Relief camps opened	CMS College in Kottayam is open as relief camp for Flood-victims. Dear Student, If you and/or your family are in a crisis due to flood and require accommodation, we will come to the nearest road access point to pick you and your family, to CMS College. Please contact:	
8.	Salary Challenge	It's my first salary. I planned a lot. But now I am donating it to Chief Minister's Flood disaster relief fund to rebuild Kerala.	
9.	Don't take and SELFie photos	There are people who have gathered and are taking SELFies and photos in Guruvayur – Calicut road and create block. Don't make others in difficulty if you feel you are safe. Rescue affected.	

**Table 2:** Shows selected examples on significant statements of social media messages that emphasize on safety needs in online disaster management.

### Messages focusing on love and belongingness

In the face of this devastating tragedy, affected people have received aid, morale support and met love and belongingness needs through these messages from web volunteers:

No.	Significant Message Content	Example	Formulated theme
1.	Helpline numbers	These are the helpline numbers of	Need for Love & Belongingness

		volunteers on district wise for rescue operations. Please call:	
2.	Home cleaning volunteers	Caletal developers from Thrissur is coming together to help clean houses affected by floods in the Thrissur city. Most of the residential areas are unfit to live in, dumped with waste water and garbage. We're doing this free of cost, to make sure your homes are fit to reside in, for as smooth a transition for you after the terrifying impact of the floods. Feel free to call us when you require our help:	
3.	Free soil removal	For Free soil removing, please contact:	
4.	Volunteer's data summary	Next we want to summarize the volunteer's data. Please make a missed call to this number people who are volunteering all over Kerala	
5.	Bits of Advice for people in flooded areas	Attention please. Isolated people in upstairs show white light towards helicopter, please don't stay in first floor, water level can increase anytime. Try to be as safe as possible, don't wait for rescue team.	
6.	Writing notes for school children	We school students from Malappuram are preparing notes for students who have lost their books in flood. For join with us, Please contact:	
7.	Home stay	There are families arranging their houses at Kozhikode, Malappuram and nearby places, ready to receive people who face	

		difficulties to by stay in camps. We can overcome this monster rain together. Please contact:	
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**Table 3:** Shows selected examples on significant statements of social media messages that lay emphasis on safety needs in online disaster management.

### Messages underlying esteem needs

During Kerala Flood Disaster Management, affected people have met esteem needs through these messages from web volunteers:

No.	Significant Message Content	Example	Formulated theme
1.	Psychological support	Please don't explain the disaster effect repeatedly in front of children and others people in relief camps. It may affect their mind. Play with children. Let our words give them hope.	Need Esteem for
2.	Toys for Children	Many Children are in relief camps. They have lost their toys in flood. Could you please help to recreate their world? Don't you know food and clothes are not enough for us to live? Message:	
3.	Thanking rescue team	We, the people of Kerala will bounce back. Thanks the ever dynamic youth in Kerala, our state is safe at your hands.  Our super heroes – the ultimate warriors – the fisher folk in Kerala – A Big Salute, Dear bros.	

**Table 4:** Shows selected examples on significant statements of social media messages accentuate on Esteem needs in online disaster management.

### Messages underlying self actualization needs

No.	Significant Message Content	Example	Formulated theme
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	Pray for Kerala	Our people are doing their level best. Please pray for Kerala. God! Please make safe my land...	Self Actualization
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**Table 5:** Shows selected example on significant statement of social media message give emphasis to Self-actualization need in online disaster management.

## DISCUSSION

The Five levels of needs in Abraham Maslow's hierarchy of needs range from the basic human needs of physiological needs to the highest level of self-actualization. Essentially, if any individual or community lacks any of needs 1 - 4 such a person or community certainly feels that he/she or the concerned community is actually missing something that is critical for human survival in the society [8]. Table 1, table 2, table 3, table 4 and table 5 shows sorted messages on social media disaster management.

Biological/ Physiological needs are basic human needs which are critical for human living in various participating communities within the society. Physiological needs include basic needs such as food, water, shelter, sleep, clothing etc. Essentially, human race or human society will just die out or go into extinction without the human basic needs in the society. During the flood a large number of social media messages mentioned stranded people in different remote or inaccessible places (shown in Table 1).

Table 1 reveals the social media messages related to meet basic needs. Food and water were most essential for people in relief camps and stranded areas. Through Facebook posts, volunteers transported food and water from one districts to another. 'Ready to Eat' meals were distributed from helicopters and boats to the stranded people. Social media effectively communicated immediate medical needs in various places. Teams of doctors and paramedical staff from other states left for Kerala to aid the flood affected people. Delhi AIMS Hospital provided medicines free of cost [9].

Maslow's Safety needs or security needs deal with protection and survival from chaotic situations, social disorder, social disturbance and physical dangers in human environment. Chaotic situations, social disorders, social disturbance, social and physical dangers are characterized by a lot of uncertainties that threaten peaceful co-existence of people in various communities in the society. Table 2 reveals the social media messages related to meet safety needs. For the safety of affected people, almost 3274 relief camps have been opened across the state ("Kerala floods: Over 1 million," 2018) and the messages were used by volunteers to drop people at safe zones. People were not informed initially regarding dam shutter openings. For the first time in Kerala all the 40 – odd rivers were in spate (Sommerlad, 2018). Reservoirs were filled to the brim and shutters of 80 dams were opened to release water. Thus the alerts were mainly spread via social media platforms. Social media messages mentioned the necessity of power banks as they are crucial in



rescue operations. Charged mobile phones helped stranded people to communicate with the outer world. People having low battery shared their battery status on social media and thereby power banks as well as battery saving techniques were shared. A power bank could boost a mobile phone's charge by 20 percent in minutes, which was critical for people without access to electricity. Authorities agreed to distribute the power banks, wrapping them securely and airdropping them to areas where people were marooned (Thiagarajan, 2018). Major telecom companies like Airtel & Reliance also provided a helping hand. Along with mobile data and free call benefits of Airtel and Reliance, Airtel announced that smartphone users in the state could charge their phone's battery at Airtel stores in the state to provide relief to people in Kerala (Gadgets Now Bureau, 2018).

Landslides and flood damaged rails and roads. Also Flight and train services were suspended in affected areas. Authorities worked round the clock to restore road and other services. The safe and advisable routes were discussed and communicated among people on social media. Public were also warned about collapsed roads by the local population. Women and girls were under severe stress due to shortage in supply of sanitary napkins (Bisht, 2018). Social media messages were in full swing ensuring that women didn't face further distress due to unhygienic circumstances because of lack of sanitary napkins, cloths and undergarments. They made sure no relief camps ran short of sanitary napkins. Messages concerning animal rescues were passed among cyber volunteers. Animal rescue helpline was also setup during floods. Through social media messages a wonderful network of animal welfare workers, NGOs, volunteers, and rescuers from across the country was connected, and within a couple of days, swung into action to take on the massive task of helping the animals stranded in the floods. As the roads are damaged, fuel transportation was interrupted to different fuel stations. People from affected areas where water level was down, started to use private vehicles. So, warning messages forwarded in web to conserve the fuel for boat and helicopter operation rescue teams. 50 cases of snake bites were reported as the snakes from overflowing ponds and rivers entered the homes (Sidhardhan, 2018). Helpline numbers of professional snake catchers were passed through social media and awareness messages regarding first aid and in case of snakes and reptiles bite, safety information was also shared. Social media campaigns were extremely successful in collecting relief fund for disaster management. Keralites, Non-keralites and foreign Nationals donated to Chief Minister's Disaster Relief Fund. The state government requested Govt. employees to donate a month's salary to relief fund and named it as "Salary Challenge". All these activities are in line with Maslow's Safety Needs.

Love and belonging indicate the need to be a part of a group such as family, group of colleagues in a workplace, friendship, social group among others in the society. When once people feel reasonably safe, they tend to worry about belonging in a social group where they can love and be loved in the society. Table 3 discloses the social media messages related to meet love and belongingness needs. As Kerala reeled under the worst floods in 100 years, several helpline numbers have been released by the State Disaster Management Authority, civil administration and the police. Toll free numbers were provided for each districts

and spread all over the state via social media platforms. People whose houses were in safe places invited and accommodated flood affected people to their homes as a gesture of goodwill. These people informed their willingness about how many number of people can accommodate in their houses through social media. Volunteer's data summarization helped to co-ordinate relief work. All this was possible due to the willingness of people to volunteer from all places in different regions of Kerala by organizing on Facebook.

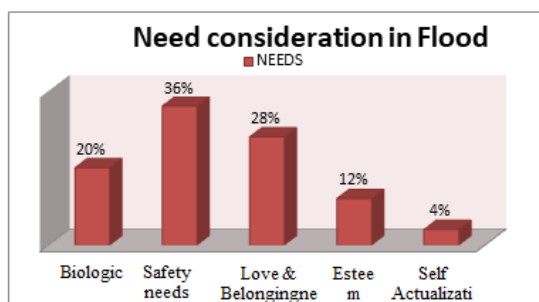
People who returned to their homes faced the gigantic task of cleaning their homes as it was filled with soil and slush among which was many small animals and reptiles including crocodile and poisonous snakes. Social media messages offered cleaning services free of charge. Volunteers included local people, University and college students, Panchayat authorities, etc. who were willing the muddy houses clean to make them habitable and posted their work on social media for anybody requiring such services. The need for disinfectants like bleaching powder in adequate quantities to prevent outbreak of water-borne diseases was also considered. Hundreds and thousands of electricians, plumbers, technicians, and carpenters joined in the cleaning mission based on the request passed through social media. Advices of experts and official authorities for people in flooded areas were also promoted via social media. They included messages like "show white light towards helicopter", "don't stay in first floor, first floor is not a safe place", "don't wait for rescue team, be safe", etc. Love and belonging help people to have the confidence in their own abilities of contributing reasonably to decision making process that promotes development in the society. From the evidences it can assure that the disaster management satisfied a level of love and belongingness needs of affected people.

Table 4 exposes the social media messages allied to meet esteem needs. It is always natural that people seek for esteem and prestige in human environment when it is obvious that they feel secure in their respective social groups such family group, social group, communal group, working group, group of colleagues, group of friends among others in their various communities in the society. Esteem and prestige needs are usually sought when a person actually feels secure in a group in the society. Social media thanked rescue teams of fisherman, military, police, social workers, common people etc. The messages like "We will survive together", "together we can" etc. which inspired confidence in people. Groups of psychologists served in relief camps as the web volunteers reported the need for psychological trauma care for children, adults and elders. The Doll "Chekkutti", were made by damaged clothes in flood represents a kid who survived the mud flood. It is considered as the symbol of resilience of Kerala people. All these activities support Maslow's esteem needs. When people achieve their social needs - that they focus attention on matters such as reputation, recognition, self-esteem, prestige or self-worth, self-respect and status among others, that give people strong confidence to participate in activities which will certainly improve their living conditions in the society. A disaster survivor whose basic needs are not met may likely not fully address grief and loss issues, as essential survival needs must be attended to first, before higher level needs can be addressed.

Self-actualization is a peak experience referred to as transcendence by Maslow. Self-actualization here is the ability to maintain or recover well-being after a crisis or disaster. It is at this point where the individual can be truly independent and functional in interdependent relationship. This level of needs is referred to as being needs by Maslow while those at the bottom of the hierarchy are deficit needs. As Kerala has a great tradition of inter-faith tolerance, communal harmony and respect for different traditions, messages of love, prayers and support were spread (Table 5). In Religions, Values, and Peak Experiences, Maslow (1975) stated his position on spirituality that it is intimately connected with “peak experiences” and is the capstone of this hierarchy.

### Need priority considered in disaster management

Maslow describes the pattern through which human motivations generally move. Biological needs, Safety needs, love and belongingness needs, esteem need and self-actualization. From the collected data, categorizing Kerala flood disaster management social media messages on the basis of Maslow's needs, 25 significant message categories are noted. Percentage of messages related to each need depicted below:



**Figure 2:** Diagrammatic representation of Need consideration in Kerala Flood Disaster Management.

Disaster is the manifestation of a hazard through extensive disruption of the normal functioning of a community or society, with losses or damages to human lives, livelihoods, properties, infrastructure, socio-economic activities and the environment. It is always appropriate to have good understanding of human needs destruction during disaster for proper disaster management and rehabilitation in the society.

As the disaster destroys once sense of safety, Kerala volunteers considered the need and significance of conveying this sense of safety as very important and communicated it through messages. This helped rescue efforts to be done much faster and helped people stay became safe till rescue team reached them. Along with rescue, love and care were ensured to affected people that helped the people cope mentally as well too. The effects of disasters such as floods are mediated by the material and non-material conditions of the people affected. Understanding the needs of individuals, households and communities is therefore crucial for integrated disaster management and policy on disaster management.

## CONCLUSION

This study explores how volunteers and volunteer groups are formed through social media; how social media usage was differed from normal usage, and the use of social media for disaster relief, assistance, aids and other services. The actions of the people of Kerala during this calamity on social media are investigated keeping in light of Maslow's need theory for this study. For this, social media updates were studied through content analysis.

During Disasters, Hierarchy of Needs is an important parameter in the field of disaster management and need to be considered by disaster volunteers. Physical/mental health workers when working with people affected is very important. In light of the multiple needs that require attention in disaster management, prioritizing those needs will be overwhelming. Social media communication was methodically managed and it ran parallel to the measures and actions that were taken by authorities. Monitoring as well as evaluating of those actions were done. Web and ground disaster management team considered Physical and mental health of affected persons. They attended to most of needs of people. It can be concluded that Kerala Model Disaster Management was practiced based on a Holistic approach, and there for the mission succeeded. Thus, the Disaster Survivor's Hierarchy of Needs should be familiar to disaster management teams working with disaster affected regions for successful implementation.

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