# Investigating Social Media Management, Adoption and Challenges - The Case of Bosnia and Herzegovina

Sadi Matar*

School of Engineering and Design, Brunel University- UK

PO box 71000 Sarajevo, Bosnia and Herzegovina

Nasim Matar

School of Management Information System, Petra University, P.O.Box 8441, 12111, Amman- Jordan

Wamadeva Balachandran

School of Engineering and Design, Brunel University, Kingston Lane, Uxbridge Middlesex UB8 3PH

Ziad Hunaiti

School of Engineering and Design, Brunel University, Kingston Lane, Uxbridge Middlesex UB8 3PH

**Abstract**

Social media and innovative Web Services and solutions are offering new possibilities for innovative use in different aspects our lives. Being apart from getting involved in using social media would add more challenges to our daily activities, as we are becoming more reliable on their use. Social media platforms are offering its users new means of communications, where users who post, share and comment on online published information have the potential of reaching a large mass of people in a very short time when compared with traditional use of media. Such use of social media platforms makes it very useful and important to be adequately consider as means for better preparing and responding to a critical event and may offer many benefits in terms of protection and rescue for agencies dealing with civil protection, as they provide wider opportunities for people to engage in warning and informing others in a response to crisis events. This study is part of a wider research conducted in Bosnia and Herzegovina, and it will focus on discussing the current views of governmental officials in Bosnia and Herzegovina when it comes to the use of social media in the field of protection and rescue activities. The findings are presented in order to pinpoint challenges that will be used as a roadmap for any future solutions in this regard.

**Keywords:** Bosnia & Herzegovina, Flood Crisis, Situation Awareness, Natural Disaster, Social Media, Civil protection.

## 1. INTRODUCTION

In case of emergencies or natural disasters, governmental civil protection authorities' use their own communication system to coordinate their activities and report on such events among their different teams (VSMWG, 2014). Such communication system is closed to the public and cannot engage with them in an active communication of any kind. Meanwhile, emerging IT solutions and the use of social media during crisis events and natural disasters are gaining momentum and becoming a real-time communication channel, which is used during crisis events and natural disasters for sharing valuable information among its users (Paladin et al., 2014).

Flood disasters are not a rare phenomenon in Bosnia and Herzegovina, as the country is well known for its richness in water source of rivers and lakes that has been formed due to the mountainous topography that is mostly defining the country's geography (Naida Anđelić, Dilista Hrkaš, Avdo Sarić, 1994). The May 2014 catastrophic floods inundated large areas of Bosnia and Herzegovina and revealed much inefficiency in the communications and coordination efforts that were supposed to help in rescuing and protecting public (CCI, 2015). Meanwhile, public started self-organizing and using social media platforms, where they posted, commented on and shared valuable information in an effort to mitigate and protect themselves from the disaster (S.Matar, N.Mattar, B.Wamadeva, Z.Hunaiti, (2016)).

The benefit and the potential of using social media platforms were recognized by citizens of Bosnia and Herzegovina, and with no doubts the government needs to put an effort of better communicating with public all times and with all available means (CCI, 2015). As part of a research study, we wanted to evaluate the BiH governments' readiness for using Social media as a tool for sharing information in case of disaster, as these tools may differ remarkably depending on the type of disaster encountered and upon that, might require different type of social media tool. (Tengku S.A., et al. 2015). The evaluation is provided in a way that can be used as a benchmark for outlining the changes that might be captured in any section in the governmental entity by the future surveys as stated by (Purser, K., 2012). Moreover, it will identify the main challenges and opportunities for using social media during crisis events. This research will assist in filling the gap in literature and to gain insight knowledge of the situation on the ground prior to indenting any future solution.

## 2.        METHODOLOGY

The objective of this study is to evaluate the current status and define the challenges of social media usage in governmental agencies in Bosnia and Herzegovina. This research utilized quantitative approach, where a questionnaire was used to explore usedness of social media in crisis events.

The Ministry of Security of Bosnia and Herzegovina was approached to provide this research study with a list of governmental civil protection agencies that are distributed among the Federation of Bosnia and Herzegovina (FBiH), Republic of Srpska (RS) and Brčko District. A total of 80 civil protection agencies were contacted in March 2015, each via e-mail with a survey attached concerning with their views about the use of social media in Bosnia and Herzegovina in the field of protection and rescue. It was emphasized the importance of such study and the results that will be filling the gap in literature, as well as in assisting the creation of a better understanding and future recommendation for using social media in disaster cases.

The research questionnaire used a mixture of closed and open-ended questions, where some questions were added and edited from major studies by (Kelly, William, 2014; and UN OCHA, 2013) that has been considered suitable for this research study, as it provided the needed investigation scope for social media usage and in order to investigate and describe different factors related to this research study. In terms of open ended questions, the participants were encouraged to provide their answers in full description as possible using their comprehension and language. The information were collected and analyzed for close ended question, while for open ended questions they were firstly coded using a coding frame based on 20% of the total responses and they are presented in this study as the percentage of the total items mentioned. Moreover, in terms of the open question used in the survey, MS-Excel was used in order to define nodes, relationships and exclude themes that are considered answers for the questions being posted in the questionnaire. In terms of statistical significance, the results provided in this study are statistically significant at 95% confidence level and the differences between responses were +/- 5. The responses that are related to open type question are considered indicatively. A total of 26 respondents (32.5%) completed the survey and sent back their responses to the researcher. These respondents were mainly coming from the most affected region hit by the May 2014 flood disaster, where this could be regarded due to the experience that they have been going through and their need to have an effective communication and information in a timely manner, as such need is considered the most critical thing in making a difference between life and death (Sellnow & Seeger, 2013). The findings of this research are considered significant as no such analyses were done so far that included this number of civil protection authorities. The participants were made aware that their participation is voluntarily, and the data will be used for research purposes only.
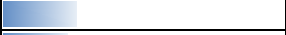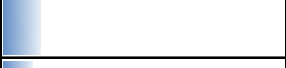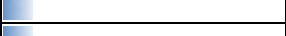
## 3. FINDINGS OF THE STUDY

The data presented in this research is part of a larger study that the researcher is carrying out. The focus here is on aspects determining the current status and challenges of using social media by governmental entities in Bosnia and Herzegovina. In the following sections we will be presenting our findings and variables that are relevant to current studies carried out by the researcher.

### 3.1. Use of social media by Governmental Agencies

To assess the level of social media usage by governmental agencies, we asked the participants to identify their current governmental agencies position on using social media. We provided 5 options with only one to choose (table 1).

*Table 1: Governmental current position on social media*

| | Response | Chart | Percent |
|---|---|---|---|
| A | The authority is using social media on a daily bases and is relying on its use. | | 42% |
| B | The authority has some experience with social media | | 23% |
| C | The authority is planning to use social media in the near future but hasn't started yet | | 19% |
| D | The authority has not considered using social media at all | | 8% |
| E | The authority has just started to use social media | | 4% |
| F | The authority has been introduced to the use of social media and decided against it for the moment | | 4% |

One can notice that we have two categories identified here, first one is where 69% are the ones who already use social media and the second one is the 31% whom do not use social media. The highest percent of 42% came for participants that assured that their governmental agency is using social media on a daily bases and is relying on its use (Table 1). Respectively the second highest percent of 23% came for the participants that mentioned that the authority has some experience with social media. The third highest percent of 19% came for

the participants that assured that their governmental entity is planning to use social media but they didn't start yet. A percent of 8% of participants selected that their governmental entity hasn't considered the use of social media at all, while 4% stated that the authority has just started to use social media. Finally the lowest percent of 4% came for participants that selected that their governmental entity has been introduced to the use of social media and decided against it for the moment. The different variations between the governmental entities are showing that the majority of cases of Bosnia and Herzegovina entities in different levels are looking positively towards using social media within their governmental tasks.

Next, we have asked participants to provide us with the most suitable response, as why their organization doesn't use social media?
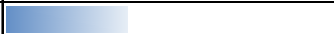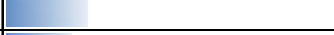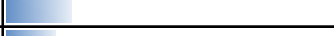
*Table 2: Reasons for not using social media*

| | Response | Chart | Frequency |
|---|---|---|---|
| A | Lack of IT training and authenticity of information | | 22% |
| B | Technical challenges | | 17% |
| C | Staffing issues | | 11% |
| D | Inadequate interconnectivity of all objects of importance for the protection and rescue | | 11% |
| E | Unreliability in emergency situations | | 6% |

The results from this question were from an open type question and the results were coded using Excel. The derived themes are showing that the highest rank of 22% mentioned that lack of IT training and authenticity of information is considered as the main reason for not considering the use of social media within their governmental entity. In a different research study conducted by (Fresenko, 2010), he mentioned that governmental agencies may face different challenges towards adopting social media and he listed the training among the main challenges as the lack of training can result in not being able of providing accurate information for the public. Another challenge that had the percent of 17% was related towards "technical challenges" that might face the governmental agency. A research study by (Aaron Martin, René van Bavel, 2013) also shows that technical challenges are one of the main obstacles for effectively using social media within governmental agencies. A percent of 11% of respondent mentioned that "staffing issues" and "inadequate interconnectivity of all objects of importance for the protection and rescue" are considered as a challenge, as for the effective use of social media dedicated persons should be available that understands the use of social media from technical perspective, ethical and job policies and procedures (C. S. Ramanigopal, G. Palaniappan, N. Hemalatha, 2012). A percent of 6% of participants mentioned that the use of social media can cause unreliability in emergency situation. Investigating this issue in the literature showed that different research had different concern either related to the technical unreliability or reliability of use. A research study by (Appleby, 2013; Oggi, 2013) showed that the use of social media can cause disasters and spread of rumors as during the earthquake in Japan and Italy (Natassa Antoniou and Mario Ciaramicoli, 2013).

**3.2. Ownership of social media inside governmental agency**
In this section we asked the participants to give us their response of what do they think is the driving force for governmental agencies to consider the use of social media. They responded as following:

*Table 3. Driving forces for considering the use of social media.*
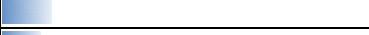
| | Response | Chart | Frequency |
|---|---|---|---|
| A | Other authorities in Bosnian Government | | 33% |
| B | The community | | 30% |
| C | Other staff | | 18% |
| D | Authorities outside Bosnian Government | | 12% |
| E | Communications staff | | 6% |

The highest percentage of 33% came from participants seeing that other authorities in Bosnian Government are considered the driving force to consider the use of social media. This indicates that governmental agencies in Bosnia and Herzegovina are encouraged to use social media through the use of other agencies, as they can refer to those agencies and ask for help or sharing of information. Moreover, the results show that 30% of the driving force is coming from the community. The use of social media has proven to bring different benefits for the community, which makes it appealing for the governmental agencies to provide its services using social media networks in order to provide the services for the largest scale of the community (USAID, 2014). The results show that a percent of 18% of staff working in the governmental agencies are the reason and driving force for considering the use of social media in their governmental agency. Moreover, a research study by Kosonen and Kianto (2009)

showed that employees in organizations have realized that the open nature of social media have encouraged informal collaboration and supported knowledge sharing among workers and with the public. The literature is full of success stories for using social media by different sectors such as (Governmental, Business, Communication, Education, Marketing…etc.). Such stories and practices are found encouraging other businesses to start using social media (Sandeep Patnaik PhD, Gallup & Robinson, Pennington, 2011). The use of social media as effective tool for communication with public and other organizations is well acknowledged in different research studies either in normal events or during crisis events due to the effective services they provide towards communication (Wendling, C., J. Radisch and S. Jacobzone, 2013).

In another question, we asked participants to provide us with what would be their main purpose for establishing a presence on social media.

*Table 4. Reasons for establishing presence on social media*

|   | Responses | Chart | Percent |
|---|-----------|-------|---------|
| A | Public Relations | | 35% |
| B | Community Risk Communication | | 23% |
| C | Crisis Management | | 15% |
| D | Monitoring the Organization's Reputation | | 15% |
| E | Communicating with employees | | 8% |
| F | Networking with other organizations | | 4% |

The previous table shows the highest percent came for the option of (public relations) with a 35% of participants selecting that option. According to (Kelly, William, 2014), he presents the importance of creating conversation with the public and having public relations as they will have more trust and respond in the cases of emergency and crisis events. The second highest percent came for the option of (Community risk communication) with a 23%. It is important to understand how to use different tools that fits the use of certain communication needs that are associated with crisis event and nature, as many participants are looking positively on using social media for (community risk communication). In the same scope of community risk communications, different solutions are provided that can enhance the distribution and management of communication. An example of such approaches is seen by using Twitter and Next door, which enabled managing the distributed messages based on groups that are allocated geographically or logically (Kelly, William, 2014). The third highest percent was for the option of (crisis management, monitoring the organizations reputation) with a percent of 15%. In terms of crisis management, different tools are available that can be used to manage the crisis in different scope and stages. In terms of Monitoring organization's reputation, it has been proved that enhancing the communication with the public and building the trust will enable the social media managers of evaluating organization's reputation. The fourth highest percent was for the (communicating with employees) with a percent of 8%. Providing good and clear communication with employee is important as they will ensure better engagement and availability of information and resources especially in the cases of crisis event. The final option of (Networking with other organizations) had the percent of 4%. Networking with other organizations is also very important, as more effort should be addressed towards encouraging the cooperation with other organizations, especially that large organizations and different NGO's are being available through social media networks. A good case of cooperation with the public and other organizations is the American Red Cross (ARC) which is using different variety of social media tools to engage actively with the public and other organizations that serves the community. According to the ARC, they reported that the use of social media enabled them to have a larger coverage towards the public, faster services to the public and received positive and negative feedbacks from the public that enabled them to improve their organization (Briones, Kuch, Liu, & Jin, 2011).

**3.3 Social media policy**

Policies are considered as statement of intent and are used as protocols or procedures that regulate different aspects of matters. Governments through their work use policies to guide their decisions. In this section we wanted to see whether governmental entities have defined their status in terms of having social media policy or not.

*Table 5. Governmental entities status towards social media.*

|   | Response | Chart | Frequency |
|---|----------|-------|-----------|
| A | We don't have | | 77% |
| B | We have one | | 19% |
| C | We are developing one | | 4% |

The previous table shows that the majority of participants with a percent of 77% are not having any type of policies that would regulate the social media use in their environment. Not having a policy is considered a

serious problem even in more developed countries as stated in the study performed by (Jim Macnamara, 2011). It stated that a percent of 65% of Australian public and private organizations are not having any kind of policy for regulating the use of social media. A percent of 19% of participants stated that they have developed a policy, while a percent of 4% stated that they are currently developing policy for the use with social media. The absence of policy is considered a threat to the governmental agencies as they expose their activities and users that are visiting those sites to different types of threats and risks (David Hill, 2014).

In another question, 23% of participants indicated the type of policy they are currently having or developing (table 6).

*Table 6. Types of social media policies used*

|   | Response | Chart | Frequency |
|---|----------|-------|-----------|
| A | community guidelines | 83% | 83% |
| B | copyright policy | 50% | 50% |
| C | privacy policy | 33% | 33% |
| D | terms of use policy | 0% | 0% |
| E | Security Policy | 0% | 0% |
| F | anti-trust policy | 0% | 0% |
| G | blogging guidelines/blog moderation policy | 0% | 0% |
| H | crisis communication plan policy | 0% | 0% |
| I | business continuity plan policy | 0% | 0% |
| J | employee code of conduct policy | 0% | 0% |

The previous table shows that the majority of participants with a percent of 83% are providing community guidelines for the services that are presented by each governmental entity. Moreover, they are providing copyright policy for their employees with a percent of 50% of participants selected that option. In terms of privacy policy a percent of 33% of participants are providing information for managing the privacy issues of employees. However, it is seen by the results that the rest of important policies have been neglected, which can cause threats and risks for the government and the public. A serious consideration should be given for the rest of the policies (security policy, terms of use policy, anti-trust policy, blogging godliness/moderation policy, crisis communication policy, business continuity plan policy and employee code of conduct policy) where having a clear policies will defend or mitigate the cyber-attacks that can result in denial of service, loss of data, misuse of data and expose of confidential data. Moreover, they will help in defining the consequences of putting the services or data in danger, and will define a crisis plan that is necessary for the case of Bosnia and Herzegovina against the flood threats (Jim Macnamara, 2011).

**3.4. Use of social media in an emergency**
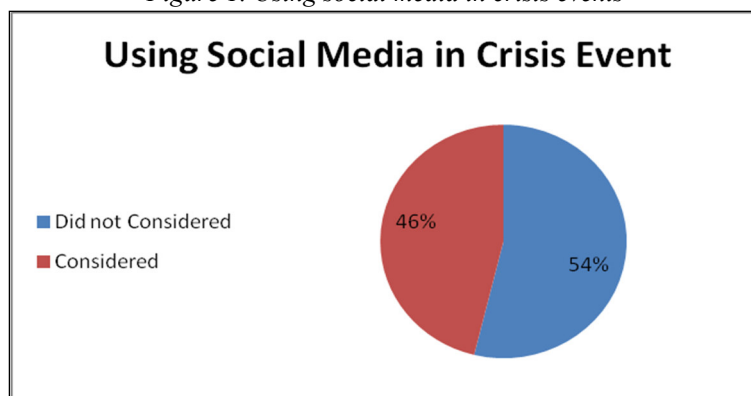Recent research studies have highlighted the possibility of governmental entities to use social media as an emergency management tool. We have asked participants if their governmental entity considered how they might use social media in an emergency situation.

*Figure 1. Using social media in crisis events*



The previous figure shows the result of participants' consideration for using social media in crisis event. The results shows that 46% of participants are considering using social media for such event, while 54% did not. The detailed answers that formed the previous categories are presented in the following tables:

*Table 7. Using social media for category answers*

| | Responses - Using social media for | Char | Frequency |
|---|---|---|---|
| A | Informing the public | | 89% |
| B | Coordinating with other entities | | 11% |

In table 7 one can see the detailed responses of participants that are considering the use of social media, and they added that the social media can be used for (Informing the public) with a percent of 89% and for (Coordinating with other entities) with percent of 11%. The coordination and collaboration with other entities is ranked the lowest due to the political situation and segregation in governmental structure (CCI, 2015).
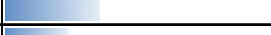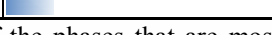
*Table 8. informing the public category answers*

| | Responses - Informing the public | Char | Frequency |
|---|---|---|---|
| A | Crisis Status | | 75% |
| B | Rescue Activities | | 25% |

Next, table 8 presents the results of the category (Informing the public) and the result was divided between two responses that are (Crisis Status) with a percent of 75% and (Rescue Activities) with a percent of 25%. The results shows that the current activities using social media are more oriented towards providing information regarding the status, and the use of social media is not properly utilized within its power to provide rescue activities in Bosnia and Herzegovina.

Our next question was for the participant to give their opinion, of which phase of the Emergency Management Cycle is social media most effective for communicating risk to the public

Table 9. Social media effectiveness and emergency management cycle

| | Responses | Chart | Percent |
|---|---|---|---|
| A | Equally usefull in all phases | | 42% |
| B | Response Phase | | 19% |
| C | Preparedness Phase | | 19% |
| D | Prevention-Mitigation Phase | | 12% |
| E | Recovery Phase | | 8% |

The previous table shows the results of the phases that are mostly considered by participants in the emergency management cycles using social media. The highest percent of 42% is for the option of (Equally useful in all phases) selected by participants. The second highest percent of 19% is for the options of (Response phase, and Preparedness phase). The third highest percent of 12% is for the option of (Prevention-Mitigation phase). The final option of (Recovery phase) had the percent of 8%. The majority of participants are seeing that the social media is active and effective in all phases as it provides different tools that are useful through the different services provided for all the phases of emergency management cycle. The other selection is seen by participants according to the services they are using, and thus their selection is more oriented towards specific phases as described by (Adamski, Shayne, 2013) in similar research results. It is believed that if participants have been using a variety of selection, they would have seen that the social media is effective in all emergency management cycle (Kelly, William, 2014).

## 4.    CONCLUSIONS

In this paper we have presented the current status of social media adoption in governmental entities in Bosnia and Herzegovina. The previous results and discussion indicate that the use of social media platforms by the governmental agencies in Bosnia and Herzegovina are not currently very active and they withheld in providing new way of cooperation and collaboration with public which can improve preparedness and response to natural disasters. More efforts are needed as the current use of social media is not planned or mature to be used effectively in crisis events or for effective promotion of online governmental services. The current use of social media has been found not being supported by proper training, policies, frameworks or procedures, and many current and future obstacles, risks and barriers have been identified towards adopting social media by those governmental agencies. However, despite the current negative status of social media adoption and usage in Bosnia and Herzegovina, this research managed to identify current opportunities that are believed to be chances for better utilization of social media by the governmental entities. In addition to what has been mentioned, this research managed to identify the view of Bosnian governmental agencies on the usage of social media in crisis events and the willingness of civil protection authorities to adopt and use social media platforms as supplementary tool for better communication in case of disaster, which can better alleviate rescue efforts. All the previous presented information has not been defined in the literature, and it is believed that the current outcome will enrich the literature with new and updated information. The current social media status in governmental agencies in Bosnian and Herzegovina are not sufficient to be used for designing a unified social media framework that will be utilized by governmental agencies for crisis events, another inputs are needed that are related to the public perception and

usage of social media in the country. We believe that governmental authorities should take advantage of the availability of social media platforms by using it to warn and inform public of a potential disaster, also reach flood victims, and manage information posted on social media for rescue efforts. In terms of future research directions, we believe that the focus should be on investigating social media status and preferences for public usage by different groups and ages of people who have diverse views and affiliations on using social media tools, especially during crisis events in Bosnia and Herzegovina. We have seen in this study that the adoption of using social media by governmental agencies are considered very low, accordingly there is a need to determine different aspects of using social media tools by public, as well as to determine the kind of social media tools that are most suitable for use during crisis or natural disasters. Further information should be explored by researches, as they can help in adapting future solutions for natural preparedness to public preferences.

**References**

Aaron Martin, René van Bavel , 2013, "Assessing the Benefits of Social Networks for Organizations", Report on the first phase of the SEA-SoNS Project, European Commission Joint Research Centre Institute for Prospective Technological Studies, ISBN 978-92-79-29462-4 (pdf) ISSN 1831-9424 (online) doi:10.2791/89039

Adamski, Shayne. (2013). Emergency MGMT 2.0: How social media and new tech are transforming preparedness, response, and recovery. Testimony before the U.S. House of Representatives. Committee on Homeland Security, Subcommittee on Emergency Preparedness, Response and Communication. Washington, D.C. July 9, 2013. Retrieved October 1, 2013 from : http://www.fema.gov/media-library/assets/documents/33745

Appleby, L. (2013). Connecting the Last Mile: The Role of Communications in the Great East Japan Earthquake. London: Internews Europe

Briones, R. L., Kuch, B., Liu, B. F., & Jin, Y. (2011). Keeping up with the digital age: How the American Red Cross uses social media to build relationships. Public Relations Review, 37, 37- 43.

C. S. Ramanigopal , G. Palaniappan , N. Hemalatha , 2012, "SOCIAL NETWORKING: PROBLEMS AND PROSPECTS OF THE KNOWLEDGE SOCIETY", International Journal of Research in Management, Economics and Commerce, IJRMEC Volume2, Issue 2(February 2012) ISSN: 2250-057X

CCI, 2015. FLOODS IN BIH – Natural disaster and/or institutional inefficiency – Center for Civil Initiatives. Mar, 2015 [Online] Available at: http://www.cci.ba/dokumenti/Analiza_Poplave_eng.pdf.

David Hill, 2014, University of Liverpool Social Media Compliance Policy , CSD Information Security , Retrieved feb 17, 2015, from: http://www.liv.ac.uk/media/livacuk/computingservices/regulations/social-media-policy.pdf

Fresenko, V. L. (2010). Social media integration into state operated fusion centers and local law enforcement: Potential uses and challenges (Unpublished master's thesis). Naval Postgraduate School, Monterey, CA. Retrieved from http://www.hsdl.org/?view&did =11536

Jim Macnamara, 2011, Social media strategy and governance Gaps, risks and opportunities, Australian Centre for Public Communication, Sydney university of technology. Available from: http://amecorg.com/wp-content/uploads/2011/10/Social-Media-Strategy-Governance-Report-UTS.pdf

Kelly, William, 2014, "Social Media: An Effective Tool for Risk and Crisis Communication?" (2014).Master's Projects. Paper 344.

Kosonen, M., & Kianto, A. (2009). Applying wikis to managing knowledge – A socio-technical approach. Knowledge and Process Management, 16, 23-29. doi:10.1002/kpm.322

Naida Anđelić,Dilista Hrkaš,Avdo Sarić , 1994, "Okvirna vodoprivredna osnova BiH – Sarajevo": Vodoprivreda Bosne i Hercegovine, 1994.

Natassa Antoniou and Mario Ciaramicoli, 2013."Social Media in Disaster Cycle - Useful Tools or Mass Distraction?", IAC-13-E.5.5.3, presented at 64th International Astronautical Congress, Beijing, China, September 23-27, 2013.

Oggi. (2013, February 1). Terremoto in Garfagnana: falso allarme nella notte. Tutta colpa di un cinguettio. Retrieved August 29, 2013, from Oggi: http://www.oggi.it/attualita/attualita/2013/02/0 1/terremoto-in-garfagnana-falso-allarme-nellanotte-tutta-colpa-di-un-cinguettio/

Paladin, K.C., Ramos, K.A.J., & Capulong-Reyes, R. (2015). "Meron o wala" A study on the usefulness of Twitter during typhoon as perceived by the students of the selected intramurals-based schools. International Journal of Social Science and Humanity, 5 (1), 130-133.

Purser, K. (2012) Using Social Media in Local Government: 2011 Survey Report, Australian Centre of Excellence for Local Government, University of Technology, Sydney

S.Matar, N.Matar, B.Wamadeva, Z.Hunaiti, (2016)," Social media platforms and its application in natuarl disaster and crisis events the case of Bosnia and Herzegovina", Information and knowledge management journal, ISSN 2224-5758(paper), ISSN 2224-896X(online) Vol.6, No.5, 2016.

Sandeep Patnaik PhD, Gallup & Robinson, Pennington, 2011, NJ Going Social: Case studies of successful Social Media Marketing In Beyond Knowledge Management: What Every Leader Should Know. Auerbach Publications.November 2011

Sellnow, T. L., & Seeger, M. W. (2013) Theorizing crisis communication. Malden, MA: Wiley-Blackwell. (July 2013) ISBN : 978-1-118-76762-7

Tengku Siti Aisha, Saodah Wok, Aini Maznina A Manaf, Rizalawati Ismail, 2015. "Exploring the Use of Social Media During the 2014 Flood in Malaysia", 2nd Global Conference on Business and Social Science-2015, GCBSS-2015, 17-18 September 2015, Bali, Indonesia.

UN OCHA, 2013 - "Examples of Coordination Challenges", United Nation Office for the Coordination of Humanitarian Affairs, March 9 2013, Retrieved from http://www.humanitarianresponse.info/en/system/files/documents/files/OCHA_Some Examples of Coordination Challenges.pdf

USAID, 2014, "Social Networking: A Guide to Strengthening Civil Society Through Social Media", Retrieved January 6, 2015, from http://www.usaid.gov/sites/default/files/documents/1866/SMGuide4CSO.pdf

VSMWG, 2014, "Using Social Media for Enhanced Situational Awareness and Decision Support" – Virtual Social Media Working Group and DHS First Responders Group. June 2014. Available on: https://www.dhs.gov/publication/using-social-media-enhanced-situational-awareness-decision-support

Wendling, C., J. Radisch and S. Jacobzone (2013), "The Use of Social Media in Risk and Crisis Communication", OECD Working Papers on Public Governance, No. 25, OECD Publishing. http://dx.doi.org/10.1787/5k3v01fskp9s-eneader Should Know. Auerbach Publications.November 2011