Chapter 5
Social Media for Disaster Awareness and Management

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ABSTRACT

Social media has redefined crisis management in the recent years. Extraction of situation awareness information from social media sites such as Twitter, Facebook, Instagram, etc. is a non-trivial task once the required framework is established. Unfortunately, most public safety authorities are still suspicious of using social media in engaging and disseminating information. This chapter reports on how social media can be effectively used in the field of emergency management along with the opportunities and challenges put forth. The chapter starts with a discussion on the functions of social media and its trustworthiness. It provides a description of the framework for disaster management system and the methodology to be adopted. The methodology consists of volunteer classification, methods of data collection, challenges faced, event detection, and data characterization with currently available disaster management tools. The chapter concludes with the division between practice and research and moves toward envisioning how social media may be used as a resource in emergency management.

INTRODUCTION

Natural or man-made disasters (e.g., earthquakes, hurricanes, tsunamis and genocide) and crisis phenomena or accidental hazards (e.g., terrorist bombings, chemical spills) have severe impact on the safety of a community. They require a well-coordinated response among a variety of people and organizations. For speeding up the disaster/crisis management process, focus of many crisis organizations shifted to leveraging the power of social media network in collection and dissemination of information on disastrous events which in turn kindled the interest of many researchers (Ngamassi et al., 2010; Maitland, et. al., 2007, 2009; Maldonado, et. al 2009; and Tapia et. al 2011). The role of social media in disaster awareness, rescue and recovery operations is prominent in the 2015 Chennai floods (India), 2011 Thai floods (Thailand), Indonesian Tsunami (Indonesia), 2011 Tohoku earthquake (Japan), 2010 Mount Merapi Eruption (Java), 2010 Yushu (China) and Haiti Earthquake (Haiti), 2008 Wenchuan earthquake (China), 2007 Southern California Wildfire (U.S.A), 2005 Hurricane Katrina (U.S.A) etc. Social media, citizens who use social media can offer potential firsthand information during any crisis and participate in the disaster response and recovery efforts even when remotely located from physical disaster sites. Crowd sourcing of data during a disaster can aid in the task of decision making.

Exchange of information by the users online on social media is through conversation, interaction and re-exchange of user generated content (Kavanaugh et al., 2011; Huang et al., 2010; Abbasiet al., 2010). The real-time sharing of opinions, news and discussions on various topics is enabled on social media which form information artifacts in the online environment. This information is not available on other information channels like mass media, official and unofficial sources except on social media during emergencies and disaster situations. Therefore, it can be used to mobilize and organize communities to achieve various objectives and update them with the most up-to-date information. Such intimacy with the community in these situations can provide comfort, support and aid to potentially distraught individuals and populations (Taylor et al., 2012).

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