Roles of mass media during disaster from experiences of the 2011 Great East Japan earthquake

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ABSTRACT

Mainly two functions of mass media can be defined in terms of before and after the hazard attacks. (1) The first important role of mass media is to contribute to disaster risk reduction before a disaster happens. (2) For the second important role of mass media after the hazard, it is necessary to contribute to the effective disaster response by introducing the probable problems and necessary actions along the disaster recovery process. This paper shows the quantitative analysis how mass media can play their roles both before and after the disaster.

Background

Three years have passed since the 2011 Great East Japan earthquake. The impact of this earthquake caused long-term problems during recovery and reconstruction not only in damaged areas but also all over Japan. Following the earthquake, mass media (news media) reported the conditions of the damaged areas. Even with the development of social network technology, information disseminated by mass media is still considered as major information source to understand the damage, social trend and the activities in affected areas. However one of the major problems of mass media during disaster situations is the focus on particular areas with easy access or with shocking events [1, 2]. Therefore, it is difficult to understand the total picture of the disaster. The important roles of mass media are mainly two functions in terms of before and after the hazard attacks. (1) The first important role of mass media is to contribute to disaster risk reduction before a disaster happens. (2) For the second important role of mass media after the hazard, it is necessary to contribute to the effective disaster response by introducing the probable problems and necessary actions along the disaster recovery process. Also, long-term continuous monitoring of the damaged area is important for the evaluation of effective recovery and reconstruction.

It is necessary to evaluate the mass media report to solve the problems during the earthquake to share the effective knowledge. But there are a few researches to tackle a mass media problem with quantitative analysis. The purpose of this research is to analyze how mass media can play those roles from experiences after the earthquake by the database of TV programs provided by JCC Corporation.

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Results

(1) To analyze how mass media report about disaster risk reduction before a disaster happens, keywords related to the earthquake resistance of structures from the reports after the earthquake by NHK are extracted. NHK is the national TV broadcast. Figure 1 shows the reported time (minutes) from March 11, 2011 to March 31, 2014 for each keywords. For example, “housing” means that the problems about retrofitting of housing were reported more than 100 minutes after the earthquake. “Apartment”, Building”, “School”, “Ceiling”, “Escalator”, “Infrastructure”, and “Ground” are indicated frequently.

In the case of a national level crisis, it will be difficult to respond to the damage and to make an effective decision for the recovery and reconstruction. The only way to deal with this level of disaster is to reduce the vulnerabilities before a hazard and reduce the potential damage so that the hazard can be managed. There are mainly two approaches to reduce vulnerabilities, namely the retrofitting of structures and effective land use management. The mass media can play an important role to inform past disaster knowledge and lessons learnt through experiences to the next possible disaster area and people to reduce vulnerabilities.

(2) Just after the 2011 Great East Japan earthquake, a lot of information was reported by the mass media. But as time passed, reports from mass media decreased except during the anniversary of the event, as shown in Figure 2.

One of the important role of the mass media is to report the necessary supporting menu for affected people, communities or companies just after the disaster. Then, immediately people can take actions according to the menu. It is necessary to describe the framework of disaster responses to show the menu with the national government's funding and support of the recovery.

Figure 3 shows the monthly reported time [min] for each categories as the framework of disaster responses after the earthquake. The categories of the framework are defined by the disaster relief act and local disaster management plan as followings “Evacuation, Shelter, Medical, Rescue, Goods supply, Processing of body, Stability of life, Temporary housing, Vulnerable people, School, Consultation, Land use, Road, Transport, Security, Railway, Agriculture facilities.

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Figure 1. Keyword lists and its reported time.
Figure 2. Time history of NHK reports.

Figure 3. Monthly reported time [min] for each categories.
Water supply, Sewer, Electricity, Gas, Telecommunications, Rivers and coastal, Public building, Hazardous materials, Waste, Obstacle, Fund, Finance, Accounting, Relief money, Organization, Volunteer, Voluntary disaster prevention organization, Mutual support, Self-Defense Forces, Relief Act, Disaster drill, Disaster education”. The database to describe the framework of responses can be developed with the tag such as time, space, society, stakeholder, etc. for multi-dimensional analysis. The following strategy to improve the mass media reports for the next disaster are important. Under the condition of limited time and human resources of the mass media, it is advisable to (1) grasp the overall damage condition properly, (2) provide information that corresponds to the needs of the audience, and (3) promote the cooperation among the mass media, with respect to freedom of the press, in order to avoid unbalanced news coverage to specific municipalities and to make it more accessible to obtain necessary information. Regarding to the role of news organizations, the mass media are expected to provide useful information in order to contribute to the realization of appropriate disaster response, both from inside and outside of the disaster-affected area (Cabinet Office of Japan 2008) and it is important to consider the above-mentioned strategy for improvement from this point of view as well.

Conclusion

To consider the impact of mass media, it is important to continuously report the progress of the damaged area with total framework of disaster management. By doing so, it can be contribute to the mitigation of vulnerabilities. Based on the results in this paper, this research will develop the disaster information system for mass media which can support the total picture of disaster for the effective responses and appropriate decision making for each stakeholder.

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References
