

The Importance of Interactive Information Issues in terms of Earthquake Disasters with a Focus on Kobe Case

Amine Cifci CHETIN * and Fumikazu ICHIMINAMI **

(Received November 30, 2006)

More than billions of years, Earth activity and earthquakes have functioned as the most important part in shaping the physical features of our Earth, on both social life and environment. Its unavoidable results always change life styles and city's structures with its positive and negative effects. To diminish those negative effects or avoid precise earthquake hazard, informing society is very crucial that the strong awareness decreases the risk as seen from past experiences all around the world.

The research technique is functioned as questionnaire and applied in the area to achieve more realistic information and to maintain the essential arguments. All along the study, it is tried to think up the earthquake phenomena well known and straightforwardly recognized by a considerable quantity of people.

Consequently, it is observed in this study that; firstly, telecommunication is most selected item both before and after earthquake in the point of its effectiveness. Secondly, telecommunication tools more preferable though, public announcement more trusting for society as power of affection on personal decision mechanisms. Thirdly, as a new tendency after earthquake, internet preference increased by means of information source about earthquake.

Keywords; Awareness of earthquake, Importance of information, Relative reliability of sources, Internet and public announcement

1 INTRODUCTION

Preparation for the disasters has many steps that involve the public awareness as much as it involves administrative and central authorities. The main point of this paper is on the public; what do citizens need to know and/or how important to have knowledge to reduce the future disaster threat. To reduce or to prevent exact earthquake hazard, informing society is very crucial that the strong awareness decreases the risk as seen from past experiences all around the world. Investigations suggest that when the threats are recognized and the costs of earthquakes are highlighted, earthquake training increases (Mulilis, J. P. and Lippa, R., 1990). To provide this strong awareness and high information level is not such a trouble-free for the people. There are some particularities needed for the socie-

ties those who require information such as;

- a) The information resources which people preferred to get information.
- b) The citizens trust or distrust sources about their availability or the effectiveness.
- c) At present which sources they need.

Japan experienced with 7.2 scales Kobe earthquake on 17th January 1995, which earthquake was devastating and it became very unfortunate subject for long years for the country by means of being economically burden and many citizens lost their life. Kobe is under risk of possible forthcoming earthquake (Tierney, K., Goltz, J., and James, D., 1997). Therefore, as it is mentioned previous paragraphs, there are needs of city about preparedness especially information level. In this case, to conduct the research about the information sources and needs are still significantly important. In this study, we tried to find results for the information level and citizen's needs according to information level.

* Graduate School of Environmental Science, Okayama University

** Division of Social Engineering and Environmental Management,
Graduate School of Environmental Science, Okayama University

2 OBJECTIVES AND METHOD

2.1. Objectives

This study aims to examine the limited understanding of the post-earthquake situation of Kobe City and information levels depending on the needs of society and the information availability in the case of disaster times. In this perspective, there are some matters required to be concentrated as written on the below:

- a) What kind of sources do people use to get information about disaster? To analyze this question would be helpful to determine the source, which is supportive to decrease earthquake's harms in more effective way. Accordingly, related with earthquake and information the most important aim is to find an answer to this question. However, this question's answer can change respectively due to different reasons for example easily to reach the source or they find it more reliable. So that, there are some other data needs to analyze this question.
- b) Another question that arose according to research objective is; How did change public tendency about sources after the earthquake? Disasters are the reasons for people to be tending to different attitude due to disaster's frustrating results. First of all, they could tend to change their information sources in a short term, which is very normal after big disasters. Consequently, to search this question's answer would be helpful to first question's answer as well. In another term, if the information sources changed after earthquake, it can be thought that the trust level on information source changed after the experiences.
- c) It is obviously known that media and telecommunication is very effective and important information sources at present time. So that, for the third aim to find the answer for the question; what is the rank of telecommunication tools as an information source and if it is trustable and does the usage rank differs before and after earthquake? This question's answer is important to shed light on telecommunication place in our life as an information source.

Finally, according to study content problem statement arose as: if there is especially preferred information source why this source is more effective on society, it will be useful to analyze this related to research objective.

2.2. Literature Review

Gaining knowledge from earthquakes and

diminishing earthquake risk involve knowledge transmit and inter disciplinary researches, furthermore distribution of information (Balassanian, S., Cisternas, A., and Melkumyan, M. 2000) .

In the previous paragraph, the researcher in his study points the importance of knowledge transmission, which supports importance of our first aim. In this study, it is additionally investigated, which information source people preferred to use.

Experiences for instance training for, reacting to, and helping people to get better and rebuilt from the chief earthquake teach investigators and practitioners similar realistic concerns that can be appropriate in the next harmful earthquake. This research indicates earthquake's effect on people tendency to change their choices (Balassanian, S., Cisternas, A., and Melkumyan, M. 2000) . Therefore, this research supports the second objective, which was the earthquake caused for changes public tendency about sources after the earthquake.

As it is mentioned in the third aim of our study, it is important to find out which knowledge sources are more trustable. Following paragraph lead us to think that official sources more trustable and maybe more important for the citizens. However, there are some other sources as well, in this case it is too early to decide whether public announcement is most trustable and most needed information source.

Improved preventions for earthquakes will be more achievable when knowledge from the earthquake researchers is straightly distributed to local public supervisors. Hence, those supervisors who realize and accept the worries while deciding how to act based on the knowledge and how to inform their communities for advanced support and lessen possible effects of a disaster. The crucial choice for making any deed based upon obtainable knowledge rests primary with public supervisors, and with every individual in society. Additionally, in this study, it is tried to be shown by survey in their percentage public announcement's importance and trust ability (Farazmand, A. 2001) .

2.3. Research Methodology

This research is based on primary data collection (i.e. survey). In this study, questionnaire was used and the first questionnaire targeted the population of Kobe City who has experienced the 1995 earthquake and the second, the questionnaire in Kobe was applied to different gender groups of woman and man besides variety of age groups, which consist between 20 and 60

over age. The limitations of this survey are as follows:
 a) The survey was carried out in Japanese language in Japan with close-ended questions. However, some of the respondents gave elaborated replies by giving further explanations. In contrast with this survey in Istanbul was with open ended and was in English language.

b) The questionnaires were distributed in huge shopping mall in Kobe. This means, the sampling adopted by this research are not scattered, probability, random or systematic sampling. Thus, the respondents are not identified as selected by any scientific way rather they have replied to questions just by chance.

This study engaged an adapted report of the plan used by comparing experienced tools getting information and set perceptive about natural disasters. The format was a questionnaire with an individual informative gathering. A knowledge-based structured questionnaire formed the basis for an assessment of lay knowledge. The questionnaire few sections, one section contained the questions on the supposed preventability of earthquake damage related with information, earthquake knowledge questions, and an earthquake prevention related government techniques.

In this paper we will focus on the information with earthquake hazards under the light of related questions.

3 RESULTS

3.1. Appropriate information for protecting your family and house from the earthquake before it hits

Having information about past or possible disasters is helpful for societies in consideration of preparedness. In countries, which are vulnerable to earthquake disasters, there are ways to inform society. Although Japan has very high newspaper and book reading tendency, still the communication is mostly provided by telecommunication such as television and radio. This question's result reflected that people obtained information about earthquake by the telecommunication systems (Fig. 1). Beside that, different point from the result public announcement was the third rank about informing society. However, in Turkey public announcement is still not so effective about informing society. This is the interesting point of view. After all, internet was expected to be in the high rank to obtain information, however, results showed that people did not think internet was effective medium for them.

3.2. Appropriate information for protecting your family and house from the earthquake after it hit

As it is mentioned in the previous question, the most of the questioners got informed from telecommunication vehicles such as television and radio after earthquake. Furthermore, public announcement still effective medium to obtain information in the third rank after the earthquake (Fig. 2). There were few participants of questionnaire who obtained information

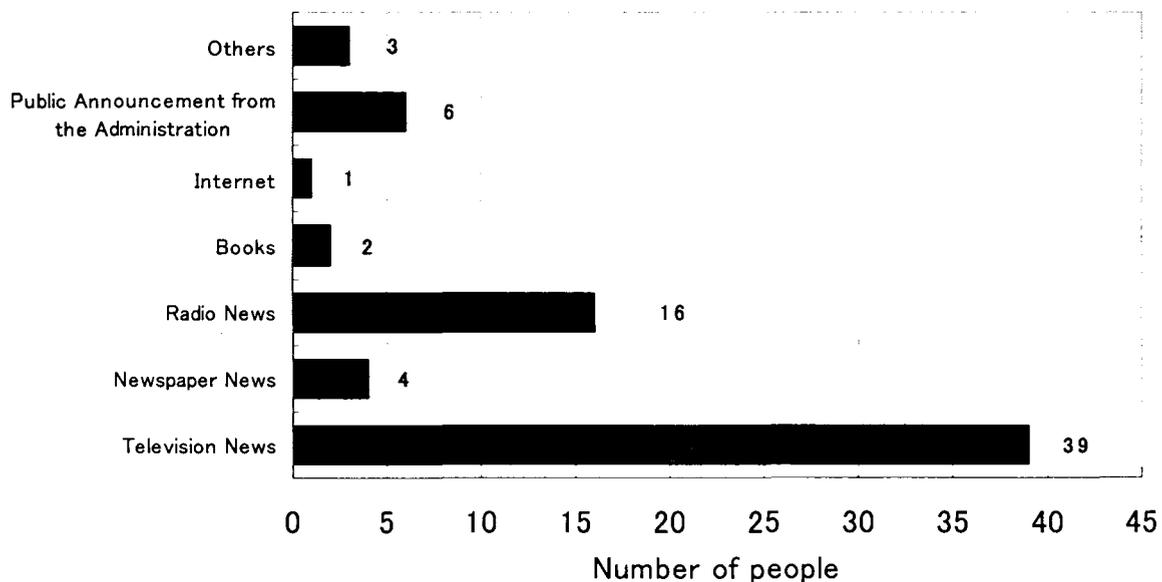


Fig. 1 Source of Information before the Earthquake

Source; Author's Questionnaire.

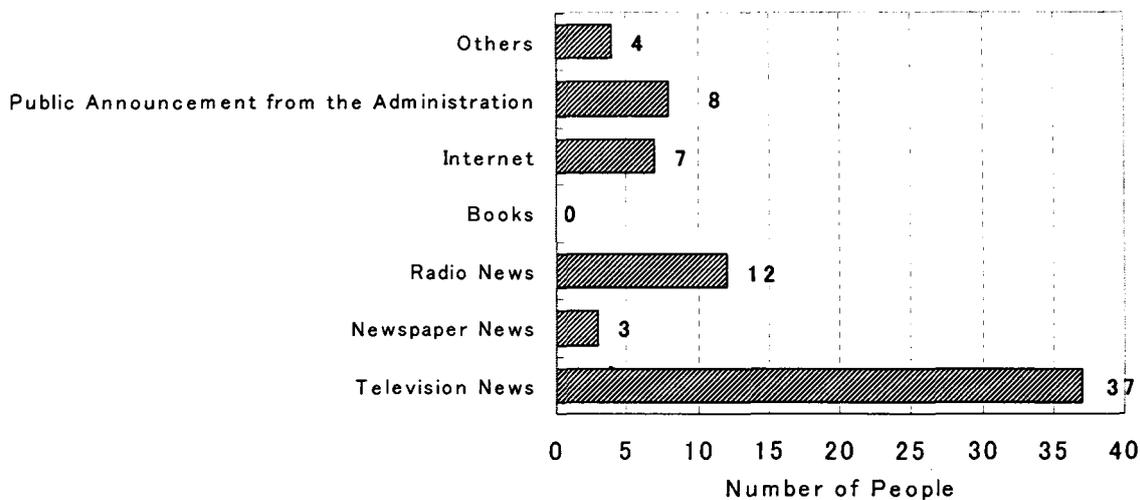


Fig. 2 Source of Information after the Earthquake

Source; Author's Questionnaire.

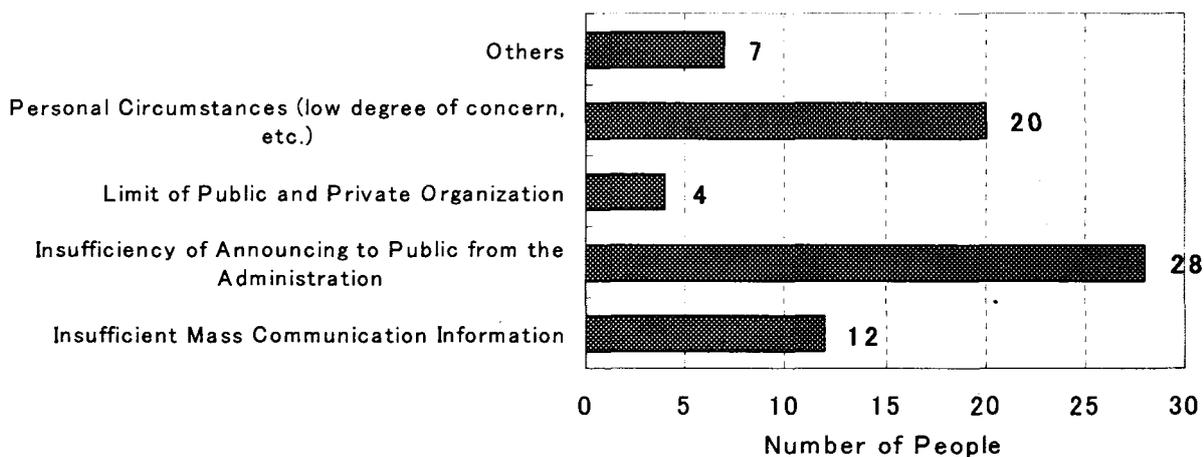


Fig. 3 Main Reasons of Lacking Information

Source; Author's Questionnaire.

from books before the earthquake; nevertheless there is no one after the earthquake. This might be related with sorrow from earthquake or being very busy that hinders reading book.

3.3. Main reasons not to have the knowledge and information on earthquake

Natural disasters can be expressed as prompt and excessive events within geophysical system (lithosphere, hydrosphere, and biosphere or atmosphere), which generate obvious threat to existence or belongings (Alexander, D., 1999). Earthquakes as one of the natural disasters generate damage that affects the communities across the country. Avoidance of disasters is only hardly ever accomplished with technology and information. There are ways of dealing with earthquakes in different countries. One of

these ways is ignoring it. In many part of the globe, society and authorities do not all the time take disaster into consideration crucial account (Van Westen, C., 2002). Beside that, it is possible to decrease earthquake danger with adequate and comprehensive disaster management. Disaster management is a set of policies, governmental determination and organized activities. With efficient disaster management tactics, it is possible to prevent or to lessen effect of disasters (Montoya, L., 2002). The main purpose of disaster management is to enhance preparedness, provide early warning, observe the danger in real time, assess the damage and organize relief activities (Ayanz, J. et al., 1997). In Kobe, it was not expected that this kind of big earthquake happens. Hence, there was no preparedness as it is needed after a big disastrous earthquake. Therefore, in the fourteenth question, there were reasons for lacking

to have information about earthquakes. Most of questioners replied as insufficiency of announcing to public from the administration. People found the second reason as personal circumstances (low degree of concern, etc.); the third reason arose as insufficient mass communication information. The fourth reason was the limit of public and private organizations. And few people replied as others. It was interesting that people replied as insufficient mass communication on the basis of question twelfth and thirteenth. People had answered the most affective medium to get information was television and radio news (Fig. 3).

4 CONCLUSIONS AND DISCUSSION

Fig. 1 "What was the most effective medium for you to get the appropriate information for protecting your family and house from the earthquake before that earthquake?" Fig. 2 "What is the most effective medium for you to get the appropriate information for protecting your family and house from the earthquake after it hit?" As it is seen from Fig. 1, people before the earthquake obtain information mostly by telecommunication mediums such as television and radio with 81% and the second medium was public announcement by 9%. On the third rank medium by the 6% was newspaper and the fourth rank by 3% book. People evaluated internet on the fifth rank by 1%. These percentages changed after earthquake as it is observed from Fig. 2. As the people percentage who supplied information telecommunication decreased to 73%, number of people supplied information from public announcement increased to 12%. People obtained information from internet also increased by 10%. Therefore, according to survey that conducted in Kobe City there are similarities on information sources about earthquake. The biggest similarity is that the highest three ranks about information tools exactly the same for the responders before and after earthquake such as in the first rank television, the second radio and the third public announcement. Even, these rankings are close to each other before and after earthquake. All over again, when we see in detail, the ranking appears before the earthquake such as television 57%, radio 24% and public announcement 9% and after earthquake this ranking is appears like television 55% radio 18% and public announcement 12%.

According to survey results after earthquake, the percentage of television decreased about 2%, public announcement increased about 3% and radio decreased

about 6%, which means telecommunication effects on information level have decreased after earthquake. Nevertheless, the result demonstrates telecommunication is still the most effective after earthquake. However, by the devastating earthquake information mediums percentage changed as a result of distress on society and official units. Especially, internet effect on information level increased from 1% to 10% and from the 7th rank to 4th rank, this is a remarkable result. One of the reasons on this increasing rate is could be people got interested about earthquake due to internet sources. Another reason could be that internet is a kind of source that makes people active searcher instead of being passive to get information. In other words, people do not trust information that they get from the other sources as a passive receiver and they prefer more active to get information. The rising percentage about internet can be considered as people supply information as well while they get informed.

Having information can decrease the level of losses at some level. Fig. 3 shows the question 14th result that asks, "If you did not have the knowledge and information on earthquake, what is the main reason?" As it is seen from the figure, 17% of participants determined that mass communication was not sufficient and 39% of them thought public announcement was not sufficient. 28% of participants are thinking personal circumstances (low degree of concern), and 6% of them accuse limit of public and private organizations, which means about 39% people declared that they found public announcement is not obliging by the first rank order. However, as an information resource public announcement's rates increased after earthquake about 3% compare to before the earthquake rates from 8% to 11%. This shows the importance of public announcement and Japanese society's power of the community movement. Also the lack of public announcement by the rank of 39% and the lack of mass communication by the rank of 16% show that public announcement resources should be higher than real percentage of 11%. Probably, telecommunication tools more preferable, however, public announcement more trusting for society as power of affection on personal decision mechanisms.

The most of the sufferers complaining about public and private announcement about being deficient in knowledge and even little percentage of them thought public and private organizations were not sufficient. These illustrate that people expectation were very high about having information related to matter by the

governmental and private organizations and they are dissatisfied by some means. Beside, percentage of lack of personal concern related to matter is not ignorable.

ACKNOWLEDGEMENTS

We are most grateful to Mr. Dincsoy of the graduate school of natural science and technology, Okayama university for his critical reading and suggestions of the draft of the paper.

REFERENCES

- Alexander, D. (1999): *Natural Disasters*. New York, Chapman and Hall, p.4.
- Ayaz, J., Verstratete M., Pinty, B., Meyer-Roux, J. and Schmuck, G., (1997): The Use of Existing and Future Remote Sensing Systems in Natural Hazard Management Specifications and Requirements. In Verstraete M. Menenti, M and Peltoniemi, J. (Eds.) *Observing Land From Space: Science, Customers and Technology*, pp. 53-60, Kluwer Academic Publishers.
- Balassanian, S., Cisternas, A., and Melkumyan, M. (2000): *Earthquake Hazard and Seismic Risk Reduction*. Springer, Kluwer Academic Publishers, 446p., Netherlands.
- Farazmand, A. (2001): *Handbook of Crisis and Emergency Management*, Marcel Decker, 593p.
- Montoya, L. (2002): Low-cost Rapid Ground Data Capture. *GIM International*, **16**, pp.25-32.
- Mulilis, J. P., and Lippa, R. (1990): Behavioral Change in Earthquake Preparedness due to Negative Threat Appeals: A Test of Protection Motivation Theory. *Journal of Applied Social Psychology*, **20**, pp.619-638.
- Tierney, K., Goltz, J. and James, D. (1997): *Emergency Response: Lessons Learned from the Kobe Earthquake*, Disaster Research Center, Preliminary Paper; **260**, pp. 2-16.
- Van Westen, C. (2002): Remote Sensing and Geographic Information Systems for Natural Disaster Management. In Skidmore, A. (Ed), *Environmental Modeling with Gis Remote Sensing*, pp.200-226. Taylor & Francis, London.