



A STUDY FOR IMPROVING THE TOTAL DISASTER REDUCTION ABILITY OF LITTLE CHILDREN'S GUARDIANS

MARIKO ABE¹ and KIMIRO MEGURO²

¹ *Ph D candidate, Dept. of Civil Engineering, Graduate School of Engineering Department,
The University of Tokyo, Tokyo, Japan*

² *Director/Professor, International Center for Urban Safety Engineering,
Institute of Industrial Science, The University of Tokyo, Tokyo, Japan
Email: abe@risk-mg.iis.u-tokyo.ac.jp, meguro@iis.u-tokyo.ac.jp*

ABSTRACT :

In the field of protecting small children in the event of disasters, there are various problems such as many seismic-vulnerable facilities and miscommunication among concerned parties. Improving the disaster-imagination ability of related people is necessary to solve some of these problems. To address this issue, the authors prepared a disaster situation image-training tool named Meguro-maki which is explained later. Then, the authors designed the workshop using Meguro-maki and conducted it at nursery schools among others. The authors made Meguro-maki stories based on past earthquake disaster cases and expert opinions to support Meguro-maki making and develop disaster mitigation ability. The authors also made a pamphlet for pregnant women and little children's parents using these stories.

KEYWORDS: Children, disaster imagination, work shop, disaster management system

1. INTRODUCTION

When small children (in this paper, "small children" means infants and kids under six years old, that is before elementary school age) face unpredictable dangers such as an earthquake, fire or an intruding malicious person, they need adult's help. Today, in Japan, typical places in which small children gather are nursery schools and kindergartens. The former takes care of infants who are only several months old. In these groups, because the number of children per adult is larger than that of a regular home, the load on adults when disaster occurs become heavier.

In this study, we propose a system to raise the disaster management ability of these groups by establishing an independent and permanent disaster management cycle starting from "Imagining the disaster situation" up to "Perception of the present state of affairs and problem grasping" and "Design and implementation of countermeasures." In order to "imagine the disaster situation" and "perceive the present state of affairs and grasp the problems", we suggest carrying out disaster management workshops called "Meguro-maki WS", in which "Meguro-maki", a tool to imagine the disaster situation, is used.

An additional positive effect of our proposal is the increase of the disaster management awareness of the whole community. When children's parents, relatives, and people interacting with them learn about nursery school



disaster management activities, they themselves become aware that “disaster management is important” and embrace it even if they did not consider it as their own problem before. Furthermore, focusing on nursery schools and kindergartens creates a disaster mitigation culture among small children that will become a valuable asset for the society in the future.

2. METHODOLOGY

2.1 Importance of disaster-imagination

To appropriately deal with the various problems of disaster mitigation under severe conditions such as limited number of members, time, and items, etc, it is necessary to imagine disaster situations. If you cannot imagine your possible disaster situations, your efforts for disaster mitigation tend to be useless or wrong. To imagine the disaster situation appropriately, it is important to consider various factors such as the social and natural environmental conditions of the region. Also, as human acts and social activities are strongly dependant on time, time related factors, such as season, weather, day of the week, time of the day, etc. in which the earthquake occurs, are important. In addition, your individual conditions such as your family members and living house situation are important. A disaster situation evolves in time. Therefore, changes are expected as time passes from the hazard occurrence. What and how much you need changes in relation to the elapsed time.

2.2 The Meguro-method

The Meguro-method (Meguro, 1999), which is the origin of Meguro-maki, has been developed in response to these contextual factors. The concept of Meguro-method is "After setting various conditions, imagine your situation, actions and feelings, according to the passage of time after the hazard occurrence." In general, a table like the one shown in Figure 1 is used in the Meguro-method. This table is divided in detail with a vertical and horizontal axis. The vertical axis shows "your typical actions during a day". When you fill in these blanks, you should consider the earthquake resistance conditions of the environment around where you live and work, conditions of location, and the indoor furniture arrangement, family structure, and each member's action patterns, etc. A horizontal axis is "time passage since the earthquake occurrence", e.g. three seconds later, ten seconds later, one minute later, two minutes later, several minutes later, one hour later, one day later, one week later, one month later, one year later, and ten years later. The horizontal axis may be flexibly changed according to the time available to fill out the table.

When some people write the Meguro method, the facilitator uses some cells in the table as examples and explains the purpose and “how to imagine their disaster situations”. For instance, he/she shows the mass "A1a" and makes them imagine "What will your situation be three seconds after the earthquake happens while you are sleeping?" Usually a digital worksheet is used to collect and analyze the data easily. Through practices of filling in the Meguro-method, the writer's disaster imagination ability such as "What happens in his/her environment as time has passed since the earthquake occurred?" can be improved. After that, the facilitator asks the writers if they could imagine the disaster situation appropriately. For example, the facilitator asks "Could you consider a situation in which the writer or his/her family members get injured or die?" and/or “Why are you the only one fine in spite many people are killed or injured?” The facilitator uses various data, pictures



and videos of past earthquakes in order to reinforce the writer's disaster imagination. Although many mass media people, such as TV, radio, newspaper, magazines, etc, have prepared special issues on earthquake disasters and their lessons, these materials could not give strong and direct impression to the general public. This is mainly because all these materials were not prepared from the viewpoint of the general people. In the Meguro-method or Meguro-maki, as the writers should recognize their own life and situations. When they imagine their disaster, they can feel reality. If the writers fill again the tables with different conditions, they will recognize what will change and what will not. Some will drastically change and some will not. Next, the writers think "what can we do to reduce the negative impact?" Based on this, countermeasures can be implemented.

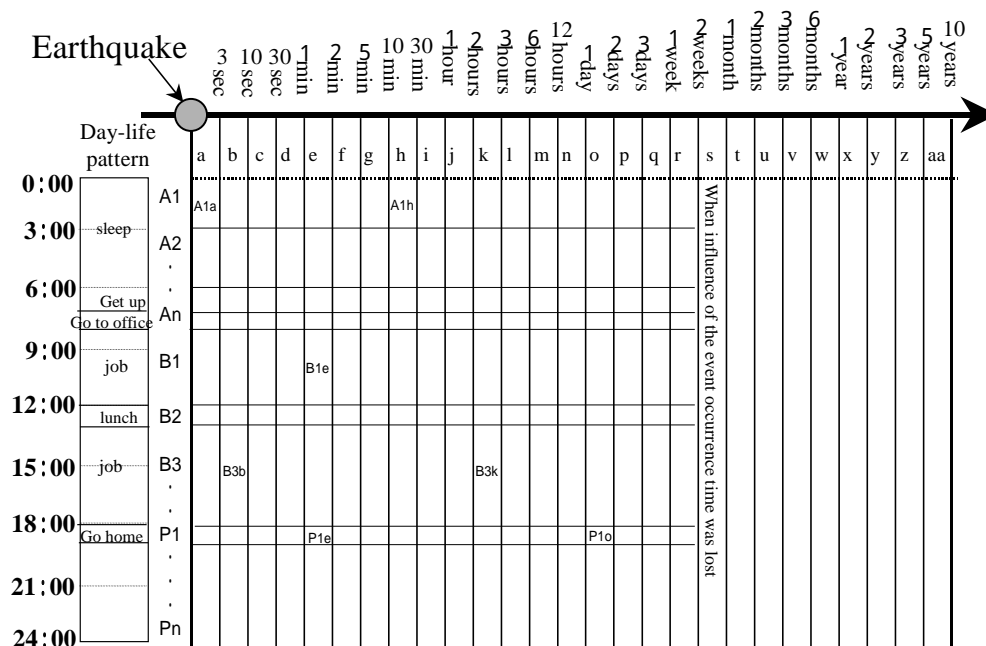


Figure 1 Disaster situation story table

2.3 Meguro-maki & Meguro-maki Workshop

The "Meguro-method" is a very effective tool to improve the capacity of imagination of the disaster situation in detail. However, it is a hard task for beginners and busy people to use the Meguro-method. Therefore, it is necessary to simplify the Meguro-method for them.

Because nursery teachers do not have a sufficient number of PCs, the tool must be written by hand. Also, because they are very busy, the tool must be written in about 30 minutes. To meet these requirements, the authors prepared "Meguro-maki" from the Meguro-method. "Maki" means "long roll" in Japanese. As the writing board of Meguro-maki is a long paper like long roll, this writing board is called Meguro-maki. When Meguro-maki writing boards are lined up on the table and compared each other in the same time domain, people can compare the stories and understand the difference among them. Through this comparison, people can understand their own situation and improve their disaster imagination ability. Then, the authors carried out

the workshop (WS) using Meguro-maki.

While in Meguro-method several possibilities are considered, only some conditions and the time axis are on the board. The conditions are the season, the day of the week, time, weather, the writer's role, at the office or his/her family, and the seismic intensity (in case of the earthquake). First, the writers decide the conditions and situations when the disaster occurs. While deciding, the writers should consider frequency and particularities of the conditions and situations. After the writers decide the conditions and situations when the disaster occurs, they start writing disaster situations as time passes. The facilitator advises the writer "Please write your own story after the disaster occurs. You are the central figure of the story. What will your situation be and what will you think and do? How about other characters like your family members, your neighbors, your coworkers, etc.?" Usually, when Meguro-maki WS is held at nursery schools or others, at the first WS the leader and some members do the imagination exercise. At the second WS, the first WS members become the facilitators. The facilitator helps other to imagine the disaster situation if they cannot write smoothly. If the writer becomes aware of the questions and problems, he/she writes down these things on the memo pads. After all the members finish writing, they line up Meguro-maki on the table and read each story. It is interesting for each member to read the other members' stories.

They compare Meguro-maki stories as time passes. Sometimes the images of each member are quiet different. They can consider the situation and how to manage it through such discussion. Through this practice, WS members can share their disaster images and problems. It is important to find and recognize the problems and solve the problems as a group.

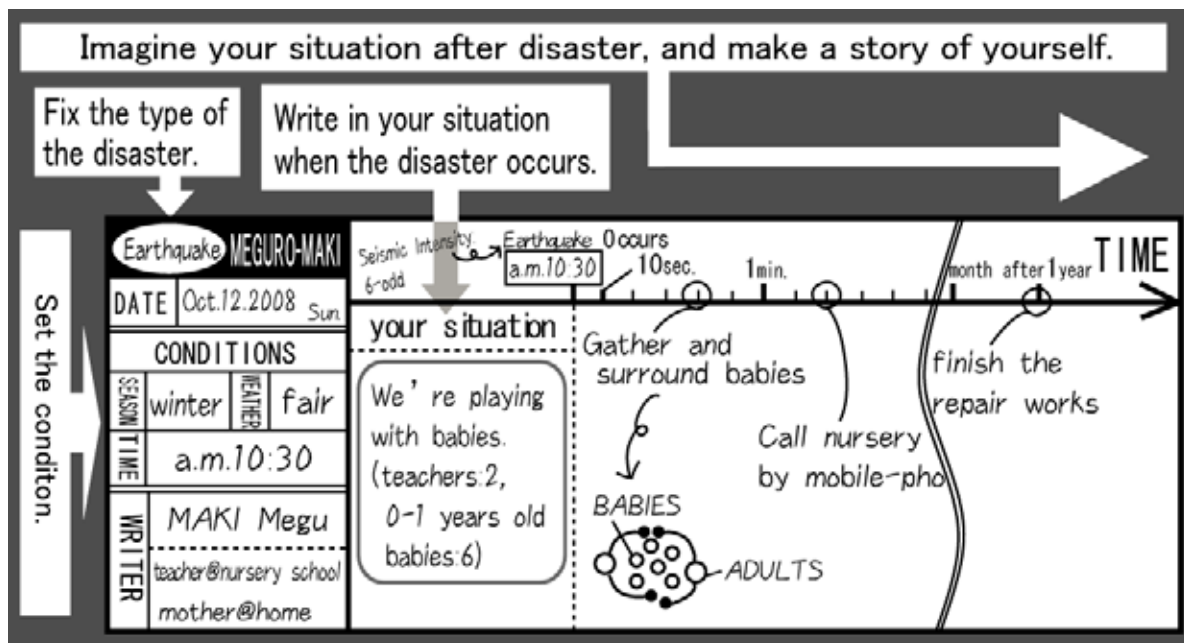


Figure 2 Meguro-maki writing board

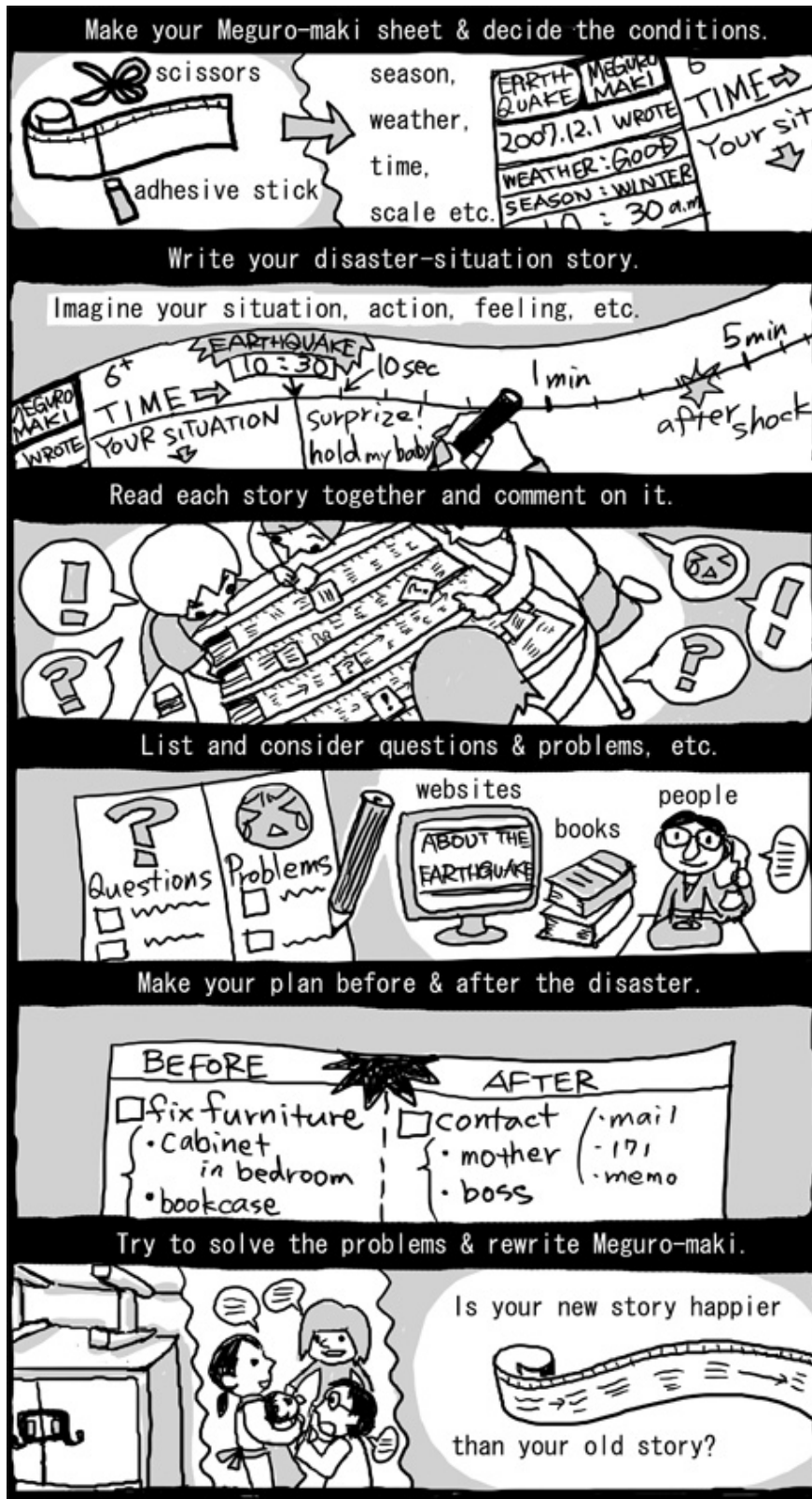


Figure 3 How to use Meguro-maki

3. MEGURO-MAKI WS AT VARIOUS GROUPS

We have held Meguro-maki WSs at nursery schools, kindergartens and other various groups as shown in Figure 4. Through these practices, we found some important issues. It is difficult for beginners to imagine the disaster situation without help from the facilitator. And to motivate nursery schools and kindergartens, a combined approach by both the government and parents' side is important.



Figure 4 Meguro-maki WS in various situations

4. MAKING DISASTER SITUATION STORIES FOR REFERENCE AND PAMPHLET

To solve the problems mentioned above, the authors made Meguro-maki reference stories in cooperation with Tokyo Metropolitan Government based on past earthquake disaster experiences and expert opinions so that help people making Meguro-maki improve their disaster mitigation ability. Then the authors and the Tokyo Metropolitan Government made a pamphlet for pregnant women and little children's parents using these stories.

We conducted a questionnaire survey with the people, mainly little children's guardians, who experienced the Niigata Prefecture Chuetsu Earthquake (M6.8, October 23, 2004). We asked about the situation when the earthquake occurred, their characteristics such as family members and living house, etc. In addition, we asked about their disaster situations, actions and feelings as time passed. Then, we transfer their messages to other pregnant women and little children's guardians who have never experienced big earthquakes. After that, we analyzed these data and make disaster situation stories. One main character is a pregnant woman and other is the mother of a baby. Then, we made a pamphlet for pregnant women and little children's guardians in Tokyo.



Figure 5 Disaster situation story

5. CONCLUSIONS

In the field of saving small children in the event of disasters, we have various problems such as many seismic-vulnerable buildings or miscommunication among concerned parties. To improve the disaster-imagination ability, it is necessary for the related people to solve these problems.

To address these issues, the authors made the disaster situation image-training tool Meguro-maki from Meguro-method. Then, the authors designed workshops using Meguro-maki and conducted them at nursery schools among others.

Furthermore, the authors made Meguro-maki stories, based on past disaster cases and special findings, as supporting material for making Meguro-maki and implementing countermeasures. Then, the authors made a pamphlet for pregnant women and little children's parents using these stories.

We plan to increase the number of users of the pamphlet to get more Meguro-maki stories and to verify the affects. Based on these research activities, we will develop support systems for children's guardians.

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