

A Survey of the emergency go kits and awareness of the disaster prevention

- By Comparing Kobe, Kyoto and Sendai city -

Yuji MASUDA*, Masayoshi KUBO*

** Kyoto Institute of Technology , m3624014@edu.kit.ac.jp*

Abstract: By the Great East Japan Earthquake which occurred on March 11, 2011, the number of evacuees exceeded 330,000 people. In response to this earthquake disaster, it is thought that the demand for emergency go kits is increasing.

1) In this research, we aim to explore the validity of the emergency go kits in a big earthquake like the Great East Japan Earthquake through the hearing investigation to a disaster victim.

2) Moreover, comparison survey is carried out between the area (Kobe and Sendai) which suffered the catastrophic disaster, and the area (Kyoto) which is inexperienced in an earthquake in the past. The purpose of this research is also making to show clearly whether there is any relation in action, consciousness and recognition among these inhabitable areas.

In hearing investigation, 45 persons who live in temporary housing answered. In comparison survey, a total of 158 residents who live in each district answered.

1) From hearing investigation, 54% had already prepared the emergency go kits in the person who was not preparing it before the Great East Japan Earthquake. And 28% are planning preparation. By preparing the emergency go kits where it can be carried out immediately in an emergency, preparing has a meaning. Moreover, it became clear that many problems about food and clothing exist at that time. This differs from the Great Hanshin/Awaji Earthquake.

2) In the survey conducted for the resident of three cities, it mainly focuses on the situation of consciousness, recognition, and action, and they also answered the emergency go kits. In Sendai, consciousness and action showed high concern compared with Kobe and Kyoto as a result of investigation. Especially about action, in the whole action not only about the preparation situation of the emergency go kits but disaster prevention, the significant difference was seen between these areas. In the Great East Japan Earthquake, there is a problem about a light and it is thought that the difference appeared in the preparation situation.

In conclusion, Kobe and Kyoto should regard as questionable that concern is low by both sides of action and consciousness compared with Sendai. And in the case of Kyoto, correlation is seldom looked at by consciousness and action. In order to spread the emergency go kits, I expect that the state of the disaster prevention education which raises the consciousness linking directly to action will be reexamined.

Key words: the Great East Japan Earthquake, the emergency go kits, disaster prevention

1. Introduction

A big earthquake continues to happen. Moreover, it is necessary to carry out measures in order to deal with big earthquake [1]. However, do the disaster measures themselves have a meaning in the Great East Japan Earthquake which caused the catastrophic disaster? It is thought that what is stored in preparation for an emergency seldom functioned. It is because the house flowed out by tsunami, and a shelter from which a disaster victim takes refuge has few stockpiles. The items always carried in preparation for an emergency (The 0th preparation) also has a limitation. The items it enabled it to carry out immediately in an emergency (The 1th preparation). It is thought that this demand is extended as a result.

Then, it focused on the emergency go kits considered that demand is most multiplied among disaster measures, and conducted hearing investigation for disaster victims. We aim to explore the validity of the emergency go kits in a big earthquake like the Great East Japan Earthquake through the hearing investigation to a disaster victim.

Moreover, comparison survey is carried out between the area (Kobe and Sendai) which suffered the catastrophic disaster, and the area (Kyoto) which is inexperienced in an earthquake in the past. The purpose of this research is also making to show clearly whether there is any relation in action, consciousness and recognition among these inhabitable areas and hold the clue of the measures in order to deal with big earthquake which may happen from now on.

2. Hearing investigation

We have grasped the actual condition of those days from the troubled thing and the thing which ran short in disaster that time, by hearing disaster victims' voice directly. Moreover, we have clarified the problem and the actual condition at the time of suffering a calamity by observing the preparation situation and the contents of the emergency go kits.

2.1 Investigation outline

The period of investigation: November 27~28, 2012.

The target for investigation: Those who live in the temporary housing.

The place of investigation:

- (1) Uematsurie, Natori city, Miyagi prefecture (17 effective replies)
- (2) Hakozukayashiki, Natori city, Miyagi prefecture (14 effective replies)
- (3) Mitazono, Natori city, Miyagi prefecture (14 effective replies) 45 in total

Methods of operation: After obtaining agreement, hearing investigation were conducted using the questionnaire item and the free description table.



Figure.1 the scene of hearing investigation

2.2 Question items about hearing investigation

In hearing investigation, we clarify the situation at the time of suffering, and usefulness of the emergency go kits, by performing comparison with the Great Hanshin/Awaji Earthquake. With respect to the troubled thing and the thing which ran short at the time of suffering, the question items were set up based on investigation of the Great Hanshin/Awaji Earthquake by Imai for comparison verification [2],[3]. About the content of the emergency go kits, there was no literature which investigated these goods in detail. Therefore, we set the contents of "Hisaisyano koenokatati main set" which had sale most when the Great East Japan Earthquake as the question items. Furthermore, we bring these contents, and after the respondent looked at them, we got them to answer. We thought that consideration was possible about the contents because "Hisaisyano koenokatati main set" take opinion of the disaster victim of the Great Hanshin/Awaji Earthquake into consideration.

3. Hearing results of an investigation and consideration

49% of the whole respondent was elderly people. And respondent in their 60's and over was 67% of the whole. Aging of the temporary housing is progressing.

3.1 The troubled thing and the thing which ran short at the time of suffering

The difference of the feature between the Great East Japan Earthquake and the Great Hanshin/Awaji Earthquake has come out well about the question items of "the troubled thing and the thing which ran short at the time of suffering ". At the Great East Japan Earthquake, all question about Information ("Telephone" "Living information", and "Victim information") is over 60%. However, in the Great Hanshin/Awaji Earthquake, only the "telephone" is over 60%, "Victim information" is 31.3%, "living information" is 18.9%. These 2 questions are relatively low, compared to the Great East Japan Earthquake. Damage of the Great East Japan Earthquake was extensive, and since it was the damage caused by tsunami, it is considered that the safety check was difficult.

Moreover, compared with the Great East Japan Earthquake which had the problem in all food, clothing and shelter, it turned out that the problem was mainly held in the circumference of water, such as "a toilet cannot be used" and "bathing" in the Great Hanshin/Awaji Earthquake. There is a difference about the "food" which had the problem most in the Great East Japan Earthquake, and "spare clothing, such as underwear," in which a problem was next. "Food" is 40.2%. "Spare clothing, such as underwear," is 23.3%. It turns out that situations differ. Since damage of the Great Hanshin/Awaji Earthquake was narrow, it is considered to seldom have had trouble in support goods. In addition, the difference was seen about "daily necessities", "the dress which works easily", "the dress which is easy to move", and "heating." These are considered to be related to that the time which suffered damage was in March, and the area in which people reside.

Table 1. "the troubled thing and the thing which ran short at the time of suffering"

	the Great East Japan Earthquake	the Great Hanshin/Awaji Earthquake
Food	77.8%	40.2%
Spare clothing, such as underwear	73.3%	23.3%
Victim information	62.2%	31.3%
Living information	57.8%	18.9%
Daily necessities	55.6%	8.9%
Shoes which works easily	53.3%	3.6%
Heating	46.7%	24.6%
Dress which is easy to move	46.7%	3.6%

3.2 The emergency go kits

About 80% or more of people had formed the schedule prepared to the emergency go kits among the persons who did not have the emergency go kits at the time of refuge. 54% of them had already prepared. And also, 45% of people who were not preparing before the Great East Japan Earthquake made plans to prepare. It turned out that there are those who are actually moving to action on the whole in more than a half.

On the other hand, although the emergency go kits was prepared, 29% of person who was not able to carry out it. According to hearing investigation, their life was lost if it did not escape early anyhow. And if there were no emergency go kits in the place standing out in an emergency, these items would have no meaning because people forget existence.

With the question about the storage place and reason of an extraordinary carrying-out article, the "door" was 46% most and some people were preparing 26% in "two or more rooms." In addition, there were a few answer "master bedroom" and "outside the door" "the outside of a window." "The ease of carrying out" and "intelligibility" are in common. These two answers occupied most reasons.

I got people to reply what is regarded as required or good to the emergency go kits. What shows a high rate among what is regarded as good, and the thing considered to be required when being it is contained in "Hisaisyano koenokatati main set" which heard disaster victims' opinion and was fundamentally made in the Great Hanshin/Awaji Earthquake. In particular the "thing about clothes" had seldom become a problem at the time of disaster in a Kobe earthquake. It seems that a dry cell still has demand although electric restoration took four days in Natori city, Miyagi prefecture which investigated.

4. 3 city comparison survey

4.1 Investigation outline

The period of investigation: December 23~30, 2012. (Kobe, Kyoto city)

January 05, 2013. (Sendai city)

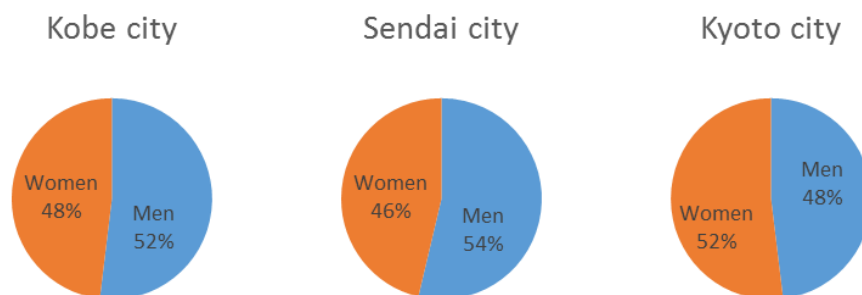
The place of investigation:

- (1)Kobe city, Hyogo prefecture (52 effective replies)
- (2)Kyoto city, Kyoto prefecture (52 effective replies)
- (3)Sendai city, Miyagi prefecture (54 effective replies) 158 in total

The target for investigation: Those who reside in an investigation place.

(It is targeting aged 25 over only for Kobe.)

Methods of operation: Investigation using a questionnaire item and a free description table.



Figure, 2 Attribute

4.2 Question items about comparison survey

We set up the awareness of disaster prevention and preparation action of 27 items [4]. And we established the question item also about the content of the emergency go kits. We carried out Kruskal-Wallis official approval for every question and judged whether a significant difference would be accepted in an area. In addition, we carried out Mann-Whitney official approval by Sidak compensation as two paired comparisons.

4.3 Hypothesis and subjects

The following hypotheses and subjects were set up based on hearing investigation.

Hypothesis 1: By comparing Kyoto and Kobe, Sendai city residents, there are differences in awareness of disaster prevention and action in an area with a big earthquake, and the area which is not.

Subject 1: Clarify the difference between 3 areas about the content of the emergency go kits.

Subject 2: Clarify the difference between 3 areas about awareness of disaster prevention and preparation action.

5. Results of 3 city comparison survey and consideration

5.1 Awareness of disaster prevention and preparation action of 27 items

1. The question item about awareness of disaster prevention

<Uneasy> (the significant difference was seen by 0 of 5 items.)

<Concern> (the significant difference was seen by 4 of 4 items.)

<The view over a disaster and disaster prevention> (the significant difference was seen by 2 of 5 items.)

<Knowledge> (the significant difference was seen by 2 of 3 items.)

2. The question item about preparation action

<It is acting concretely.> (10 the significant difference was seen by all items.)

5.2 Consideration from results of paired comparison method

Many positive replies were seen in Sendai. Also in the multiple comparison, the predominance difference was accepted by many items. In Sendai, awareness of disaster prevention is considered to be connected with preparation action.

In Kobe, compared with Kyoto, it became clear that preparations for the preparation action are well under way. However, it is thought that experience of an earthquake disaster has weathered since a predominance difference was hardly seemed in Kyoto and Kobe. It seems that the consciousness to disaster prevention falls while time passes even if it experiences an earthquake disaster. When there are few risks of the area which reside, it seems that it is not connected in particular with preparation action.

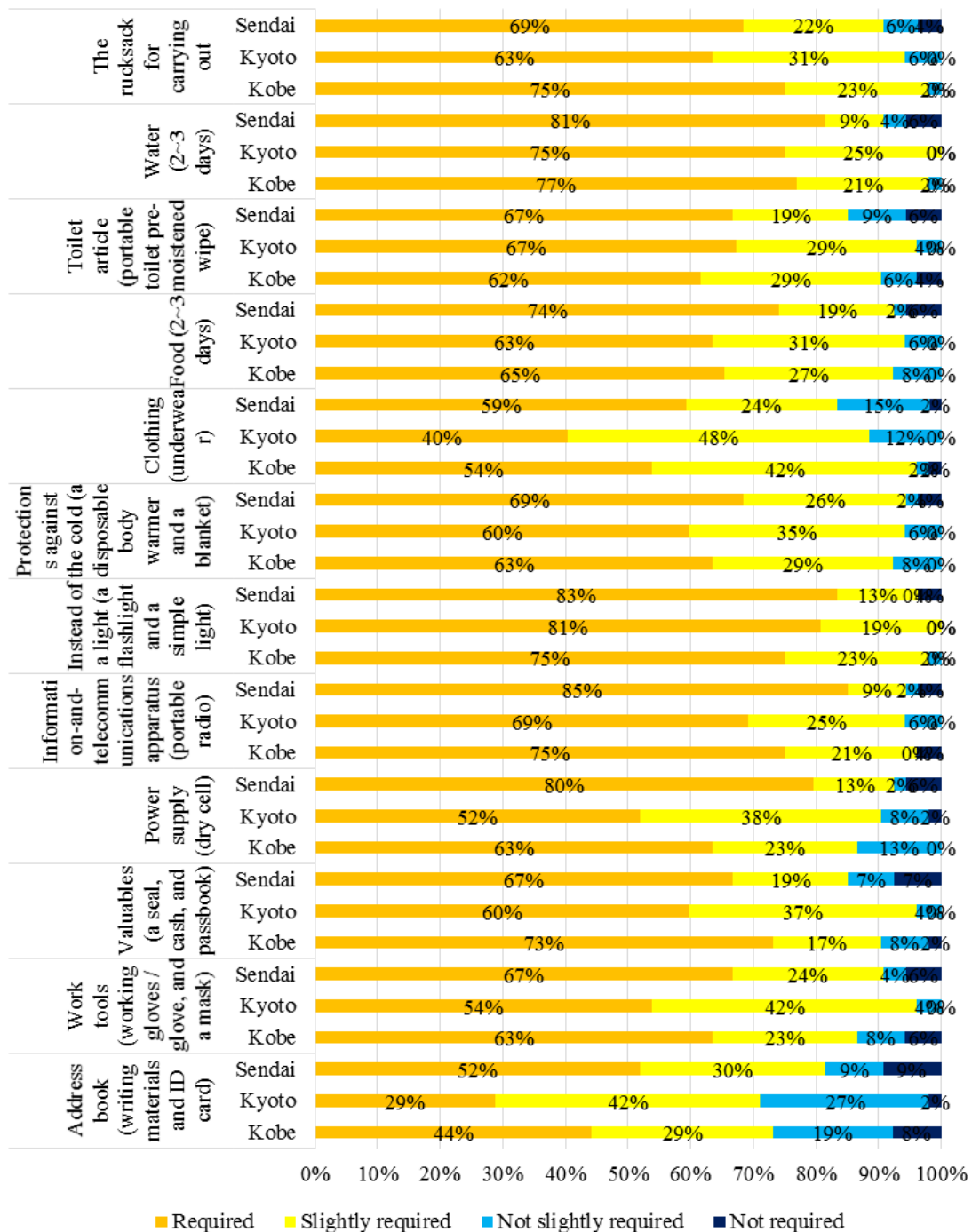
In the case of Kyoto, it seems that it has been a big subject if it sees from a viewpoint of the effectiveness of disaster measures since awareness of disaster prevention and preparation action were entirely low.

5.3 The emergency go kits

About the emergency go kits, the difference was found a little by the residential compound. And if there were no emergency go kits in the place ease of carrying out and intelligibility in an emergency, these items would have no meaning because people forget existence. It is necessary to spread common-knowledge also about this point.

Although the difference was found a little by the area about the contents, each item is high necessity. It was the reply whose necessity is low to the thing especially about clothes (underwear) in 3 cities.

However, it is the 2nd highest item in the problem which people experienced at the time of disaster in the Great East Japan Earthquake. In fact, in the items which the disaster victim is preparing with the content of the emergency go kits, the reply was 4th the highest. It is thought that it has influenced that there is no feeling which puts underwear into the emergency go kits. However, about clothes, a possibility that a self-governing body is not putting clothes into the items of a disaster prevention stockpile warehouse because individual difference is high. This is an item which poses a problem very much until support goods arrive. People should know the fact "I must prepare underwear for myself".



Figure, 3 what is regarded as required or good to the emergency go kits

5.4 Hypothesis and subjects

We summarized the set-up hypothesis and the subject.

1. The significant difference was only found in contents of "power supply (dry cell)."

In the multiple comparison, 5% of significant difference was seen in Sendai and Kyoto city.

2. About awareness of disaster prevention and preparation action, Sendai showed the high reply and many significant differences were also seen compared to other cities.

On the other hand, the significant difference was seldom seen in Kobe and Kyoto city.

3. Based on 1 and 2, the hypothesis 1 partly considered to support.

6. Conclusion

These days, it was a problem of the disaster prevention education that concern is not connected with action. But in Sendai, the rate of preparing the emergency go kits was high. The concern backed by disaster experience and the habitation risk is expected to be connected with action, and it can be said that the emergency go kits is useful. In the emergency when many problems appear, preparation of the emergency go kits is a familiar act where an individual can do it as disaster measures. However, it is the problem of probability theory when an emergency happens. Concrete time is not understood at a present stage. It may be an act which does not almost have an opportunity to feel usefulness.

What conceived such a problem is not having restricted to the emergency go kits. It is a problem to which most disaster prevention education corresponds. In the case of Kobe, memory of an earthquake disaster has weathered. In fact, the low result came out of awareness of disaster prevention and preparation action in Kobe and Kyoto. The measures also including the state of the disaster prevention information which a self-governing body offers which stir up a sense of crisis further are called for.

7. References and Citations

[1] Cabinet Office (2012) "*version disaster prevention white paper in Heisei 24 fiscal year*" p.2, Nikkei printing incorporated company.

[2] Noriko Imai, Hisami Nakamura (1998) *Problems of Dwelling Life at Apartments of Housing and Urban Development Corporation in the Disaster Stricken Areas of Hanshin-Awaji Earthquake. (Part 1)*, Journal of home economics of Japan, vol49, no.6, p.693.

[3] Noriko Imai, Hisami Nakamura (1998) *Problems of Dwelling Life at Apartments of Housing and Urban Development Corporation in the Disaster Stricken Areas of Hanshin-Awaji Earthquake. (Part 3)*, Journal of home economics of Japan, vol49, no.11, pp.1223-1224.

[4] Thutomu Teramura (2003) *Research on the resident consciousness about earthquake disaster prevention* [Online PDF]. Available at

<http://www.davinci.nuac.nagoya-u.ac.jp/~kuno/gakui_thema/PDF/SH15/M34020225Teramura00.pdf>[Accessed 31 March 2013]