A Study on Response of Local Government Staffs for Local Bus after the Great East Japan Earthquake Utilizing the Disaster Ethnography

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ABSTRACT

Japan was heavily damaged by Great East Japan Earthquake on 11 March, 2011. At same time, public transportation systems were also heavily paralyzed. Although most of public transportation systems required several months for the restoration, local bus routes were restored at the very beginning. The response of local bus against the disaster is investigated in this study. We implemented interview surveys targeting the local bus staffs in the regions struck by the disaster, including local bus companies, “Ministry of Land, Infrastructure, Transport and Tourism” (MLIT), local governments, journalist, academic experts, and non-profit organization (NPO), using the method of disaster ethnography.

Introduction

Many precious lives and property were taken by the giant earthquake with the magnitude of 9.0, and the giant tsunami that struck eastern Japan on March 11, 2011. The traffic infrastructure also had damaged in various regions. Highways and general national highways were closed in 15 routes and 69 sections, respectively. For the aviation system, tsunami also struck Sendai Airport and it became unusable for long period. The operation of Tohoku Shinkansen was canceled and it took more than 1 month to restore. Although most of traffic infrastructures were seriously damaged, local bus was the only one transportation system, which was rapidly recovered soon after the disaster. Each local bus companies in the disaster-stricken areas resumed service at the beginning of March 11.

Objectives of this study

The primarily aims of this study is to summarize collection of the data from disaster developmental time to restoration, actions and emotions of people concerned to Local bus. Qualitative data, which is difficult to be clarified by quantitative analysis, is collected among this study.

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Related Works

◇ Disaster Ethnography
Disaster ethnography is one of the efficient research methods to understand disaster processes. Shigekawa et.al [1] interviewed disaster victims asking them four questions about disaster experience. All interviews are recorded during an interview. Then, the contents of recordings are started writing. Finally, the flows of interviews are rearranged from their subject and time series, and the talk of a narrator is reproduced as faithfully as possible. Shigekawa et.al [1] collected testimony from victims of the Great Hanshin-Awaji Earthquake using this method.

◇ Knowledge about local bus operation at the time of disasters
The situation of damage among buses transportation systems and the process of the restoration were reported particularly in the Great Hanshin-Awaji Earthquake [2]. Five issues are mentioned as subjects for the post-disaster recovery.

1) It is required to prepare and revise emergency transportation manuals at fixed intervals to prepare for the catastrophic disaster.
2) In the future, arrangement of emergency contact system should be accomplished to gather information and maintain emergency contact system instead of using only telephone lines.
3) The regular priority public transportation service (e.g. Bus Priority Lane) is required, because bus operation was impeded by traffic congestion and heavy traffic jams around bus stops.
4) Various places were closed to traffic at the time of a disaster and bus companies were forced to change the schedule flexibly. Thus, efficient cooperation between entrepreneurs and administrations is required.
5) The bus company is asked for the financial support at the time of disaster.

Research Method

◇ Question Contents
In consideration of the examination method of disaster ethnography, eight question contents were set up as follows. Those questions were told interviewee before interview.

◇ About earthquake disaster correspondence
1) What were you doing at the moment of the earthquake?
2) What did you do on that day after the disaster?
3) How did you spend time or what were you doing for several days after the disaster?
4) What is the most impressive disaster correspondence that you had received in Great East Japan Earthquake?
5) Please tell us about any troubles or problems of the earthquake disaster correspondence that you had during the disaster.

◇ About future earthquake disaster correspondence
6) Any incident that you might be acted or responded similarly with this time of disaster.
7) Any incident that you might be acted or responded differently with this time.
8) Any incident that you might be required for the improvements of responses toward disasters for next time.

◇ About Research Object
Interview study was conducted from September to November, 2011. People from three different organs (administration, local bus company, and bus association) were selected as the
interviewees in our studies. Interviewees of administrations were selected from country, prefecture, and basic municipality. Interviewees of bus company were selected from three categories: company executives, office personnel, and bus drivers.

Response of Local Bus Staffs after the Great East Japan Earthquake

Local Disaster Management Plan is made by each prefectural and municipal disaster management council, considering the differences of the regional characteristics. Emergency Transportation Agreement is considered as one part of the Local Disaster Management Plan. The agreement concluded with each prefecture and each bus association. The main contents of these agreements are the operations for men transportation during the disaster and the cost allocations from each prefecture for the transportation. Necessity of emergency transportation agreement was also proposed on the Great Hanshin-Awaji Earthquake reports[2]. However, the prefecture that made the agreement is limited into some part of prefectures in Japan. (Figure 1)

![Conclusion Situation of Emergency Transportation Agreement](image)

**Figure 1. Conclusion Situation of Emergency Transportation Agreement**

In Great East Japan Earthquake, we found some differences for operations of disasters between one prefecture that made the emergency transportation agreement (prefecture A) and another prefecture that did not make any agreement (prefecture B). The prefecture A made Emergency Transport Agreement in 1996, just after the Great Hanshin-Awaji earthquake. Contents of agreements are below:

1) A prefecture should be responsible to make demands on the emergency transportations from each municipal.
2) Bus association should be responsible for distributing work of emergency transportations to each bus companies.
3) The cost of emergency transportation should be paid from prescribed prefectures.

On the other hand, the prefecture B didn’t make emergency transportation agreement. The correspondences of emergency transportation were compared between prefectures A and B and illustrated in figure 2.
By interviewing the executives of the major bus company from prefecture B, we revealed three issues.

1) Various municipals requested for the emergency transportations at once. Therefore, arrangement of the orders was extremely difficult.
2) People from bus companies in prefecture B faced big difficulties that they could not get the affirmations for the costs of emergency transportation.
3) Every requests of emergency transportation were concentrated in one major company.

On the other hand, in the case of prefecture A, the responses of emergency transportation were coordinated from prefectures and bus associations. Because these prefectures already arranged Emergency Transport Agreement, such confusions that prefecture B confronted did not occur. According to all results above, arrangements of Emergency Transportation Agreement should be considered as one factor reducing the confusions at the time of the disaster.

Conclusions

Our study revealed that prefectoral differences in disaster recovery were caused by relationships between government, bus companies, and bus association on a daily basis.

One prefecture, which has disaster transport agreement between bus association and local government, was enabled to cope rapidly and smoothly with the disaster. In other prefectures, whose local government did not have the regional agreement with bus association, caused big confusions to take cooperation between these two organizations. Therefore, the bus company was confused by emergency transportation requests, consequently caused the delay of the responses toward disaster.

Similar lessons have been pointed out in past disasters in Japan, such as the Hanshin-Awaji Earthquake Disaster [2]. The reason failing to learn lessons from past disasters might be caused by the limitation of qualitative analysis from disaster researches in Japan.

References