

# Assistance from Unaffected Municipalities in a Disaster – A Case Study: The Great East Japan Earthquake -

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## **SUMMARY:**

The present case study of the Great East Japan Earthquake (March, 2011) examined the response activities of teams dispatched from unaffected municipalities to the Tohoku area, Japan. Using data from retrospective and unstructured interviews of responders from beyond the affected area, flows to prepare for the dispatch and to support affected local governments were visualized. Practical activities were also examined to determine what types of aid should be offered in such a response. Problems confronted by officials were analysed, and improved countermeasures were proposed. It is essential to formulate plans regarding how to receive outside aid, and how to best utilize external assistance in a response. The information provided in the present study will help municipalities improve their regional disaster management plans in preparation for future disasters (127words).

*Keywords: Assistance from unaffected municipalities, Emergency response, The Great East Japan Earthquake*

## **1. INTRODUCTION**

During the response period in major disasters, unaffected municipal and prefectural governments often dispatch aid teams to the affected area. They have two primary objectives in sending teams to disasters in other areas. First, they support local governments in their emergency response, enabling them to cope with the situation more promptly and effectively. Second, actual disaster response experience helps to train response teams from the unaffected municipalities and enables them to collect data that can be used to modify their own response plans. This is critical because major disasters do not occur often, making it difficult for municipal and prefectural officials to prepare effectively.

Successful disaster responses require close interagency cooperation, and information sharing is necessary within and between affected and unaffected governments. The teams from unaffected municipalities are expected to properly assist the affected local governments, but it is sometimes alleged that they actually do not. It is assumed that future disasters will face similar situations.

## **2. OBJECTIVES OF THIS STUDY**

The present case study examined the response activities of teams dispatched from unaffected municipalities to the Tohoku area after the Great East Japan Earthquake in March, 2011. Retrospective and unstructured interviews of responders from beyond the affected area were adopted. Using interview data, practical activities were examined to determine what types of aid should be offered in such a response. Problems confronted by officials were analysed, and improved countermeasures were proposed.

### 3. THE GREAT EAST JAPAN EARTHQUAKE

On March 11<sup>th</sup> 2011, Tohoku-Pacific Ocean Earthquake occurred. It caused extensive damage to the Pacific coastal areas in Northern part of Japan. According to the Fire and Disaster Management Agency, the number of human casualties reached 16,278, and 2,994 are missing at the present time of March 11<sup>th</sup> 2012. The damage disrupted the local governments, causing their malfunctions. To support such a situation for prompt and effective emergency responses, unaffected municipalities dispatched aid teams to support municipal activities in the Tohoku area. Various types of aids were offered based on different relations, e.g. National Governors' Association, Japan Association of City Mayors, mutual aid agreements, amicable relations, etc. The present study will focus on the assistance provided by Shizuoka prefecture.

#### 3.1. Shizuoka Prefecture

Shizuoka prefecture is located in the Tokai area. Since 1854, it has not experienced a massive earthquake called Tokai earthquake, which has been one of their major concerns. The earthquake is a plate-boundary type, predicted to be of magnitude 8 level (Japan Meteorological Agency, 2012). Shizuoka therefore has become one of the pioneering prefectures in Japan and has taken various measures to enhance disaster preparedness. After the Great East Japan Earthquake occurred, the Headquarters for Earthquake Research Promotion announced that the risk of the Tokai earthquake is 88% in the next 30 years. A total of 157 municipalities of 8 prefectures, including Shizuoka, have been designated as the Areas under Intensified Measures against Earthquake Disaster regarding the Tokai Earthquake.

The government of Shizuoka decided to send assistance teams to affected areas in Tohoku on March 17<sup>th</sup>. It had been in charge of assisting Iwate prefecture in case of an emergency, according to the allocation of the National Governors' Association. The allocated assistance was originally to provide supplies, and the prefecture decided to dispatch officials as well as materials.

#### 3.2. Aid Teams from Shizuoka

##### 3.2.1. *Logistical support base of Tono city*

Shizuoka established an on-site support headquarters office on March 26<sup>th</sup> in Tono city, Iwate prefecture. The Tono city is located in a mountainous area between coast and inland. The city is within approximately an hour's drive from the coast. Due in part to this, it had instituted a Logistical Support Base Plan in Earthquakes and Tsunamis, adjusting facilities and roads. Since 2007, large-scale drills had been held with Iwate prefecture and Japan Ground Self-Defense Force. Many assistance teams from outside the area were based in Tono after the Great East Japan Earthquake.

##### 3.2.2. *On-site support headquarters of Shizuoka*

Until the office was closed on October 5<sup>th</sup> 2011, 28 teams, 683 officials in total, had been sent to the Coast of Iwate to support the response. Each team consists of 20 to 25 personnel, supporting municipalities such as Otsuchi town, Yamada town, and the Tono city. All of them had been operated in response for 10 days (including two days of travel). They had been in activities, such as grasping the aid needs of the affected municipalities, providing necessary supplies, and cooperating with the local governments.

##### 3.2.3. *Organizational structure of the headquarters*

The headquarters consists of five sections and groups: command section, coordination section, and the three operating groups: Otsuchi, Yamada, and Tono. Prefectural officials take a post as a commander, section leaders, while municipal officials were the majority in Otsuchi and Yamada operating groups. The command and the coordination sections, and the Tono group consisted of prefectural officials (Table 3.2). This arrangement was based on the difference in activities between coastal and mountainous areas. Affected coastal areas had faced multiplication of administrative services after the disaster. More municipal officials were assigned to meet these needs. The ratio of the

prefectural officials to the municipal had shifted, depending on changes of local needs over time.

**Table 3.2.** Structure of the Headquarters and Operations

Section/Group	Member	Number of people	Operations
Command	Prefectural	2	Information sharing and coordination among related governments and organizations, decision making of their assistance
Coordination	Prefectural	3	Information sharing and coordination between the operational groups and the prefecture
Operation			
Tono	Prefectural	3	Based in the headquarters of the Tono city, coordination regarding transportation of supplies
Otsuchi	Prefectural Municipal	3 5	Information sharing and coordination among Iwate prefecture and the the Otsuchi town, general information office, public donation work, disaster victim certificate work, census registration work, residence registration work, seal registration work
Yamada	Prefectural Municipal	1 9	Town headquarters office, water and sewerage division, construction division, revenue division, welfare division, other operational work

#### 4. INTERVIEWS OF RESPONDERS OF SHIZUOKA AID TEAMS

Retrospective and unstructured interviewing of responders from unaffected areas was adopted in this study. In the schedule, 19 officials in total, 17 from one of the municipalities and 2 from the prefectural government of Shizuoka, were interviewed. The interviews were conducted in groups where two to three officials participated from October to December 2011. Interviews ranged from 90 minutes to two hours, and were video-taped and recorded.

**Table 3.1.** Schedule of Interviews

No	Date (2011)	Pref / Mun	Affiliation (section)	Operated in	Team number
1	Oct 11 <sup>th</sup>	Mun	Planning	Otsuchi	2
		Mun	Emergency management	Otsuchi	2
		Mun	Emergency management	Otsuchi	3
2	Oct 17 <sup>th</sup>	Mun	Planning	Yamada	5
		Mun	Health and social welfare	Yamada	6
3	Oct 24 <sup>th</sup>	Mun	Environment preservation	Yamada	9
		Mun	Education and general affairs	Yamada	11
4	Oct 31 <sup>st</sup>	Mun	Welfare and general affairs	Yamada	12
		Mun	Community center	Yamada	15
5	Nov 1 <sup>st</sup>	Pref	Emergency management, general affairs	Tono	10, 23
		Pref	Emergency management, policy planning	Tono	1
6	Nov 8 <sup>th</sup>	Mun	Property tax	Otsuchi	16
		Mun	Property tax	Yamada	17
7	Nov 14 <sup>th</sup>	Mun	Sewage system treatment	Yamada	19
		Mun	Industry promotion	Yamada	20
8	Nov 28 <sup>th</sup>	Mun	Property tax	Yamada	21
		Mun	Public park management	Yamada	23
9	Dec 5 <sup>th</sup>	Mun	City secretary	Otsuchi	25
		Mun	Community center	Otsuchi	27

Before starting each interview, the purpose was explained to the interviewees. Instructions then followed to gather information concerning four subjects: 1) response activities in their local area on March 11<sup>th</sup> 2011, 2) preparation for the dispatch, 3) operational activities to support the affected governments, 4) operational problems experienced during the assistance. In the present study,

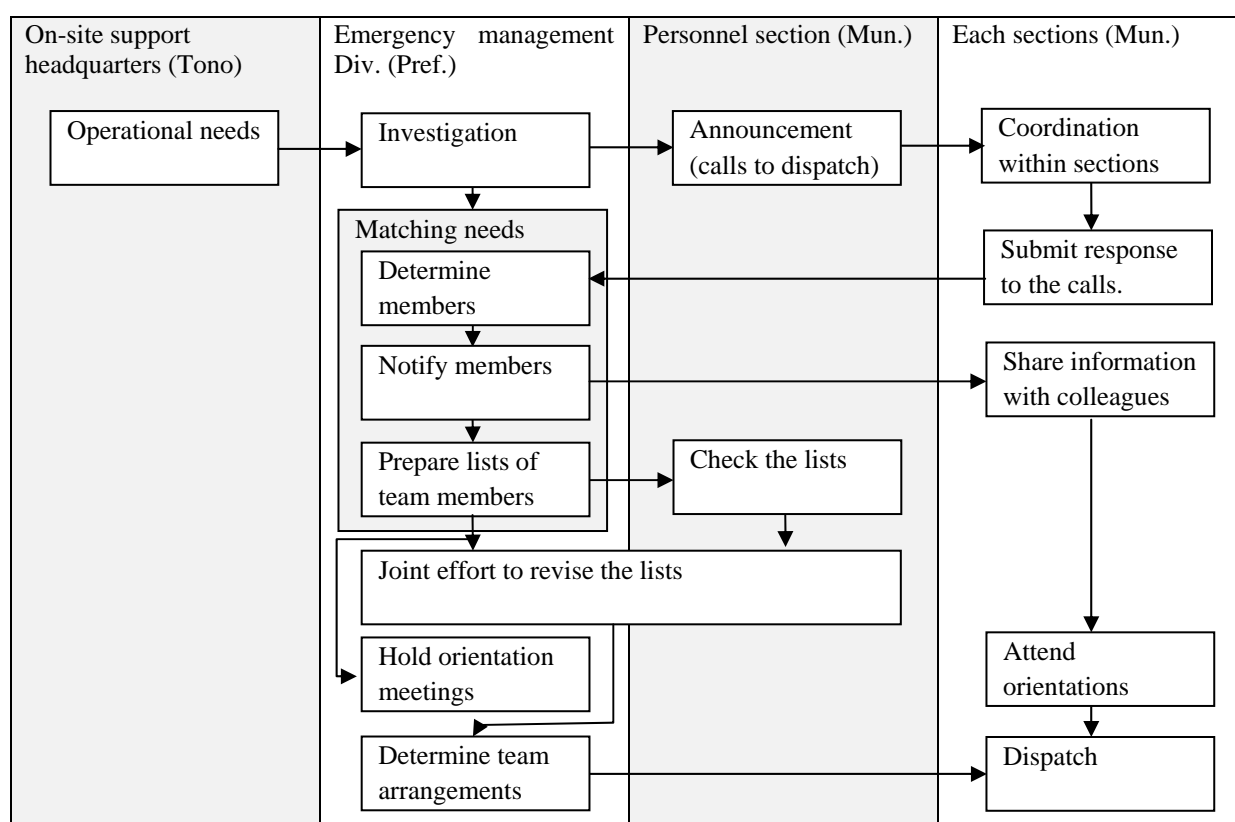
analyses were focused on 2) to 4).

## 5. ASSISTANCE TO AFFECTED MUNICIPALITIES

In the present study, a workflow to prepare for the dispatch was visualized. A flow of assistance in response activities was also clarified. Practical activities to support affected local governments were then indicated. In the analyses, problems were pointed out and the countermeasures were proposed.

### 5.1. Preparation for Dispatch

Operational needs in the affected governments were collected and integrated in the on-site support headquarters office. The office shared the information with the emergency management division of Shizuoka so that the prefecture could investigate their municipalities. Through personnel section of municipalities, calls to dispatch personnel were sent to sections (see Figure 5.1). One or two personnel from each section responded to the calls.



**Figure 5.1.** Process of preparing for dispatch

In the emergency management division, receiving the responses, further matching was done to determine members and proper team arrangements. Lists of team members were adjusted and revised by communicating with city personnel sections. Meanwhile, orientation meetings were held approximately a week before the dispatch. Final team arrangements were announced on the way to the affected area.

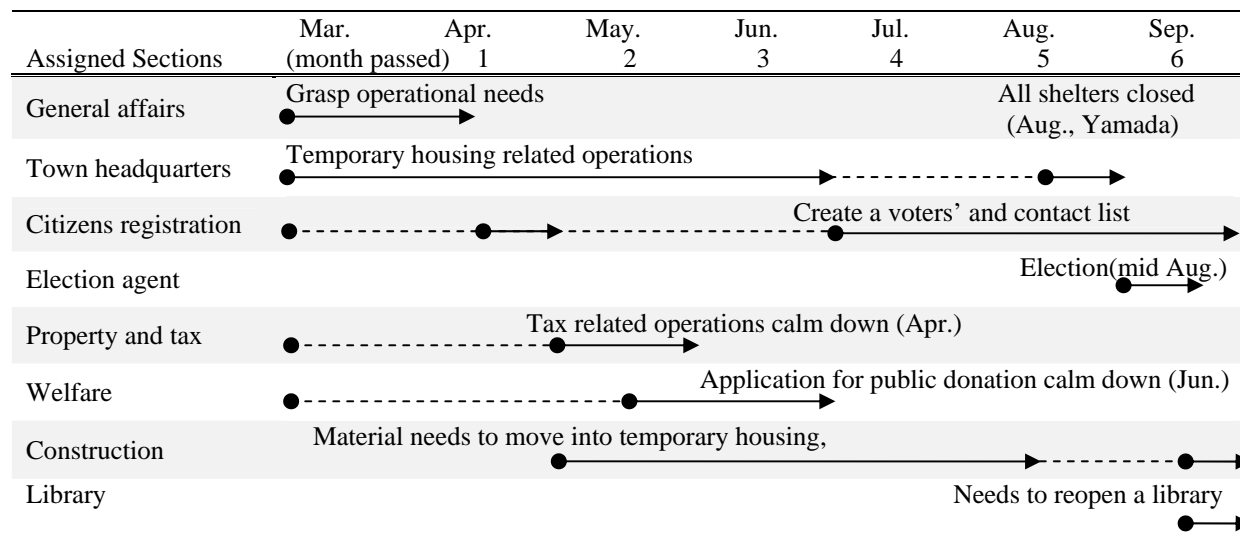
Feedback from a prefectural official showed that matching needs was not well implemented. The reason is that operational needs in disaster areas are often unstable. Until the time of dispatch, they may shift. Extension of the length of stay was discussed several times during the dispatch. However, if a stay would become one month, decrease in the number of municipal applicants was a concern. It is essential to formulate a flexible system to arrange personnel after arriving in affected

areas, instead of planning before departures. On-site coordination and arrangement is required to meet operational needs. Six months after a disaster, a month or longer dispatch is preferred.

## 5.2. Flow of Assisting Operational Activities

From the interviews, a flow of an overall outline of the assistance is specified (see Figure 4.1). It is considered that activities of four sections, except for the town headquarters office, were increased after the disaster. Those sections are related to citizens' applications for government services, such as general affairs, citizens registration, property and tax, and welfare. Due to an increase of cases required to be handled at municipal contact and consultation services, local governments were short on staff. Assistance from beyond affected areas should be practicalized for such administrative affairs in an early response stage. It is suggested that future assistance efforts independently send officials with such skills for the first 90 days.

In the early response, one of the aid teams was required to assess situations themselves. They proposed a list of capable operations for the affected local government to support. Absence of cross-organizational communication there was apparent. Severely damaged local governments are often not prepared to accept assistance, incapable of actually considering what to request. The main reason was that local officials were too overwhelmed with response measures to organize and inform other communities of their needs. Affected municipalities were struggling just to grasp the overall situation. It is of utmost importance to establish communication channels between organizations immediately after disaster occurs. It is extremely difficult to develop effective communication channels as disaster management tasks become more complex and increase. In order to prepare for possible crises, it is essential to develop emergency response plans regarding how to receive external assistance, and determine which section is in charge of communication among related organizations. That will enable local governments to utilize outside aid promptly and appropriately.



**Figure 5.2.** Flow of assisting operational activities

As some evacuees move into temporary housing from shelters, material needs appeared to improve quality of life, hair dryers for instance. Construction sections were required to respond wish lists from shelters and had a full schedule after May. Since June when promotion of temporary housing became concentrated upon, they had been overwhelmed. Getting the information regarding the manpower shortage in a construction section in the Yamada town, the assistance teams adjusted members of three groups. It is assumed that the support system had become flexible due to change during the mission. Using private organizations and volunteers is another potential aid to cope with such a situation.

### 5.3. Activities to Support Affected Local Governments

From the interviews and an official report regarding their assistance published by Shizuoka, each activity to support affected local governments was clarified. Those activities and the corresponding assigned sections are shown in Table 5.3. Categorized components are also indicated, in accordance with those of the Incident Command System. Most activities were categorized either as communications and information management or operation. It is due to the reason mentioned before. Activities grouped as other were not components in Incident Command System. It is supposed that

**Table 5.3.** Assigned sections and services

Assigned sections	Services	Functions
General affairs (Otsuchi)	Grasping operational needs	Comms/Info
	Preparing meeting announcement(format)	Comms/Info
	Sending official documents	Comms/Info
	Preparing mayor's opening speech of temporary government buildings	Comms/Info
	Designing floor layout of opening ceremony of temporary government buildings	Comms/Info
	Preparing documents for meeting to determine the extent of damage	Comms/Info
	Receiving and discharging supplies and materials	Operation
	Supporting a contact information office	Other
	Distributing public relations magazines to evacuation shelters	Other
	Cleaning and checking equipment at a primary school building	Other
Town headquarters office (Yamada)	Assisting administration	Comms/Info
	Secretary of town mayors and a security inspector	Comms/Info
	Attending and registering regular meetings	Comms/Info
	Reception of town memorial services	Operation
Citizens registration	Resident and seal registration	Operation
	Updating and checking evacuees information	Operation
	Information counter at resident registration	Operation
	Matching census registration and evacuees data	Operation
	Creating citizens and voters list	Operation
	Supporting election campaign and early voting	Operation
Property and tax	Preparing tax notice of residential taxes and real property tax	Operation
	Checking input data of abolishing kei cars	Operation
	Tax certificate and final return	Operation
	Drying and classifying wet official documents	Operation
	Reduction of taxes	Operation
	Issuing disaster victim certificates	Operation
Welfare	Checking applications for public donation and condolence money	Operation
	Inputting application data for public donation and contact list data	Operation
	<i>Official works of issuing public donation</i>	Operation
	Checking missing notifications	Operation
Construction	On-the-spot investigation of temporary housing	Operation
	Checking applications for temporary housing	Operation
	Handling complaints about ex-drawing of temporary housing	Operation
	Supervising and delivering supply services	Operation
	Local survey regarding debris removal and demolition	Operation
	<i>Sewage special account works</i>	Operation
Library	Supporting registration of library data	Operation
<i>Health insurance</i>	<i>Application or loss of national pension and health insurance</i>	Operation
	<i>Temporary calculation of care insurance</i>	Operation
	<i>Consultation at community centres</i>	Operation

*Activities in italics: operated by uninterviewed municipalities of Shizuoka*

volunteers or temporary staff are able to substitute for external officials to work on those activities.

In order to avoid underutilizing external assistance, it is critical to formulate a plan and judge which activities need external administrative support in response.

## 6. CONCLUSIONS

The present study

- 1) suggests that a flexible organizational system is required to support affected local governments. Six months after disasters, it is preferred to implement dispatch of long-term-stay.
- 2) identifies early administrative needs in services related to general affairs, citizens registration, property and tax, and welfare. Due to an increase of the number of cases in municipal administration services, those activities are required to be focused on by external assistance in first 90 days after disasters.
- 3) demonstrates the need to establish a support system in a construction section. As measures related to temporary housing are intensified, the section is expected to be overwhelmed. It is suggested to request private-sector firms such as a delivery company to cope with such a situation.
- 4) indicated the importance of developing a plan regarding how to receive external assistance in regional disaster management plans. It is critical to include factors, concerning reception of aid teams, continuous cross-organizational information sharing, and close interagency cooperation, clearly indicating which department is in charge. It is also crucial to determine which administrative services are to leave external assistance or to be taken in local municipalities.

The results in this study can help municipalities improve their regional disaster management plans. Preparing a how-to-receive-assistance plan from unaffected governments is critical in future major disasters. It is practical to assess their own response activities and take the measure of different priorities. Those improvements suggested by this study will support future emergency response activities.

The present study was limited to the interviews of the responders from the unaffected government, Shizuoka, after the Great East Japan Earthquake. Future studies will target on assistance from other unaffected governments to collect more cases. They will allow comparative studies and systematically propose general factors in support. It is also essential to include interviews of officials in host municipalities to ascertain effects of assistance. Additionally, this study adopted qualitative analyses on interview transcripts. Applying quantitative methods is required to further analyses in future.

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