3.2.3 Improvement of Information Sharing and Management

Japan

Lessons Learnt from The Great Hanshin-Awaji (Kobe) Earthquake: National Government Countermeasures and Disaster Information Systems

1. Introduction

An earthquake occurred on January 17, 1995 in Kobe, Japan. The magnitude was only 7.3 on the Richter scale, but it happened directly underneath a metropolitan area. It killed 6,400 people, injured 44,000, and destroyed 518,000 houses. At its height, 317,000 people evacuated to schools and public places. Most of the damaged infrastructure was buildings. Even reinforced concrete buildings collapsed. The estimated damage was about 10 trillion yen or about US$85 billion. Of this, about 60% was accounted for by damage to buildings. The most heavily damaged area was the city of Kobe, the capital of Hyogo Prefecture, which is the center of the prefecture's political and economic activities.

2. Lessons Learnt

Because the earthquake hit the capital of the prefecture directly, the initial response was very slow. Not only the prefectural offices, but also almost all traffic systems and telecommunication systems including satellite telecommunications were destroyed. It therefore took almost three days for the national government to grasp the full extent of the damage. Hence it delayed its initial response.

As a countermeasure for the delay in initial response, the national government established a cabinet information collection center. At the same time, it appointed a Minister of State for Disaster Management and Chief cabinet secretary for Crisis Management. The government developed a disaster information system, which consists of an Early Estimation System and an Emergency Measures Support System.

3. Disaster Information Systems

The Japan Meteorological Agency (JMA) and local governments developed seismic intensity observation points with seismographs. There are about 3,000 observation points nationwide. Based on the information from those observation points, the government developed Early Estimation System and Emergency Measure Support System.

Figure 1 illustrates the Disaster Information System. After the earthquake, the government first estimates the damage such as number of deaths, injured, collapsed houses and so on. Then the government estimates the needs of support in terms of materials, manpower for rescue and rehabilitation, hospital beds, evacuation camps etc.

The estimation system is based on population, building structure information, ground conditions, time of occurrence and survey of persons using transport. Normally persons using transport are excluded from the estimation.

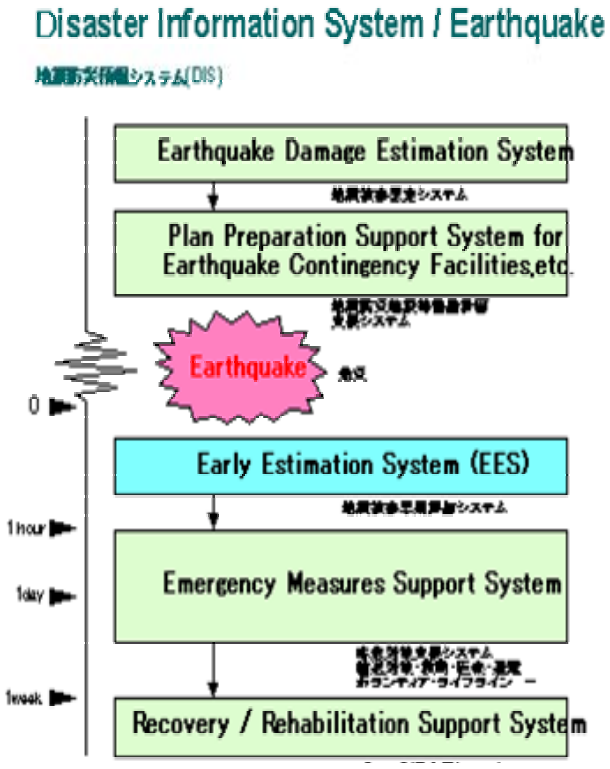

Figure 1: Earthquake Disaster Information System

Damage caused to buildings is estimated according to seismic intensities for each 1-km mesh, building

conditions and ground conditions. Further distribution of seismic intensity is obtained based on data from observatories.

Figure 2 shows the flowchart for earthquake damage estimation. This system enables an estimate for damaged building and casualties to be obtained. Based on this damage estimation, the level of need for support is calculated by computer.

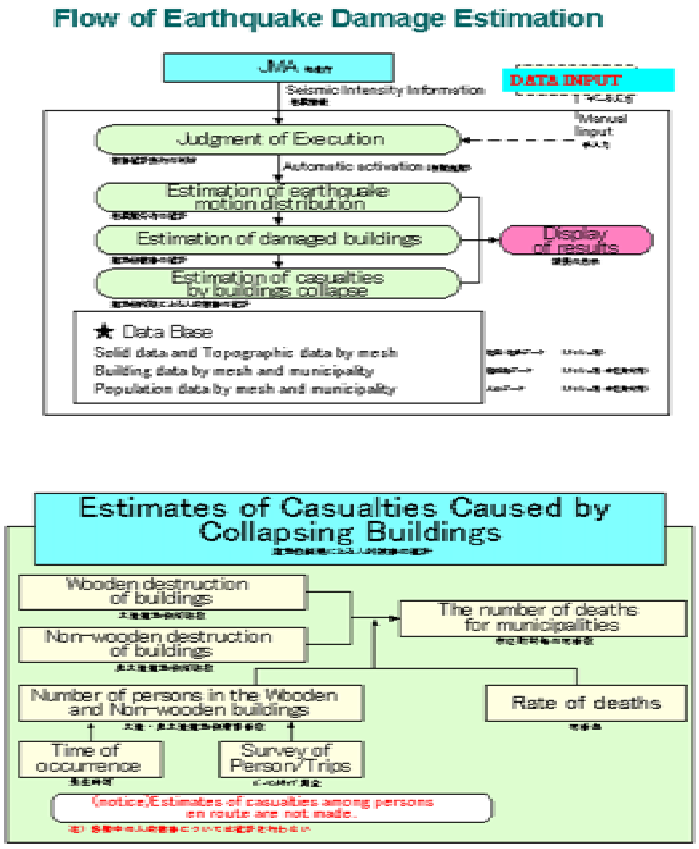

Figure 2: Flowchart of earthquake damage estimation

4. Conclusion

Catastrophic disasters cannot always be predicted. However, in any disaster, an appropriate information and logistic system can enable a prompt start to effective recovery and response, minimizing the secondary disaster. Such a system also assists immediate action by decision makers.

Accurate information is an absolutely key factor for the response.

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