KOBEnet: A VOLUNTARY INFORMATION NETWORK FOR EARTHQUAKE DISASTER MITIGATION

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1. INTRODUCTION

The Great Hanshin-Awaji (Hyogoken-Nanbu, Kobe) Earthquake on January 17, 1995, was really a shocking event to earthquake engineers in Japan as well as ordinary citizens. The earthquake engineering researchers of the Institute of Industrial Science (IIS), University of Tokyo were more less involved in the aftermath of the earthquake in their academic societies or research projects. Extensive damage and a vast range of diverse activities taking place after the earthquake caused difficulties for earthquake engineering researchers in grasping correct and comprehensive aspects of the disaster. We asked ourselves 'What should we do now? What can we do now as researchers?' After a period of reflection on the extensive damage caused by the quake, we came to a conclusion that a human network to exchange information among researchers and to support various activities concerning restoration operations in affected areas was most needed.

On January 30,1995, two weeks after the occurrence of the earthquake, the authors and their colleagues of IIS started a voluntary organization called iKOBEneti. The researchers of IIS related to earthquake engineering, including 6 Professors, 4 Associate Professors, 1 Lecture, 8 Research Associates, and 3 Secretaries, joined this human network (Yamazaki et al., 1995). The objectives of KOBEnet are as follows: 1) information exchange among nationwide research communities related to the Kobe Earthquake, 2) promotion and support of technical voluntary activities related to the disaster, and 3) international cooperation among researchers.

To perform these objectives, KOBEnet started to gather various kinds of information related to the disaster and opened an information room exhibiting the collected materials. This room has grown into a disaster information library and it is still open at IIS, four years after the earthquake. Newsletters (in Japanese) were also released many times and WWW homepage was created both in Japanese and in English. KOBEnet welcomed many foreign reconnaissance teams and gave brief-

ings of the earthquake in the early 1995. In the four-year period, about 5 thousand guests including about 5 hundred foreigners visited the KOBEnet library. Although the activities of KOBEnet have changed depending on the time phase, we still continue the activity related to archives. This paper summarizes the activities of KOBEnet in the four-year period.

2. ACTIVITIES IN THE EARLY STAGE

2.1 Domestic Assemblies

KOBEnet held two domestic assemblies in early 1995. The first assembly was held at IIS on February 16, 1995 (Photo 1). About 130 researchers joined this meeting including leading disaster-mitigation researchers from various regions in Japan, such as Hokkaido, Tohoku, Nagoya, Hokuriku, Kansai, Chugoku and Kyushu. The importance of information sharing among various academic societies, regional groups and voluntary organizations were discussed and the establishment of KOBEnet was recognized among the earthquake engineering community in this assembly.

The second assembly was held at Kyoto University Conference Hall on March 31, 1995 (Photo 2). Sixty-five researchers of earthquake engineering and social science gathered in this meeting from various regions of Japan. The participants delivered the summary of recent activities related to the disaster and the direction of information sharing was discussed.

After these two assemblies, KOBEnet stopped to have further assemblies since there were so many other meetings in various societies and groups. We thought that information exchange might be possible through newsletters, e-mails and web pages.

Photo 1 A scene from the first domestic assembly of KOBEnet held at IIS, University of Tokyo on February 16, 1995

2.2 Technical Voluntary Activities

KOBEnet provided the information on the activities of other technical voluntary organizations related to recovery from the disaster. Several members of KOBEnet actively participated in building damage inspections by voluntary engineers. Voluntary students also participated in technical and social activities through KOBEnet to support the affected areas.

KOBEnet also supported the activities related to the development of technical databases such as a comprehensive GIS database on the earthquake damage and a strong motion database. The GIS database was jointly initiated by various research organizations and academic societies. Several meetings were held for the common GIS database and KOBEnet members participated in them. As one of activities toward the common GIS database, KOBEnet distributed the GIS base map of Kobe City to non-profit organizations for research objectives. Although the common GIS database was not achieved for various difficulties, many people recognized the importance of the common GIS database.

Several strong motion databases were compiled more than one year after the Hyogoken-Nanbu Earthquake by academic societies such as Architectural Institute of Japan (AIJ). In a few weeks after the earthquake, the Japan Meteorological Agency (JMA) released the strong motion records from several JMA stations including Kobe Maritime Observatory. These data were available from the Japan Weather Association with a nominal cost. However, the procedure to obtain the data did not look so easy, especially for foreigners. Hence, KOBEnet distributed these data to over fifty domestic and foreign researchers by e-mail upon request.

2.3 Support of Foreign Reconnaissance Teams

In the early stage, KOBEnet distributed the information related to the earthquake disaster through various media such as Internet, fax, newsletters, etc., to

Photo 2 A scene from the second domestic assembly of KOBEnet held at Kyodai-Kaikan, Kyoto University on March 31, 1995

foreign and Japanese engineers and researchers belonging to different professional associations, cooperating with the International Center for Disaster-Mitigation Engineering (INCEDE) of IIS, University of Tokyo. So many requests for information and supports of reconnaissance survey came to KOBEnet and INCEDE (INCEDE, 1995).

KOBEnet and INCEDE accepted reconnaissance teams from more than 15 countries such as France, Switzerland, Korea, USA, Israel, China, Philippines, Taiwan, Singapore, Italy, Russia, Croatia, New Zealand, UK, etc. (**Photos 3-5**). We provided them the up-to-date and comprehensive information on the disaster to help their field surveys.

Photo 3 The first foreign visitors to KOBEnet: the reconnaissance teams from France and Switzerland on January 31, 1995

Photo 4 Briefings to the reconnaissance team of the Italian Government on March 6, 1995

Photo 5 Two groups of foreign visitors to KOBEnet at the same time (June 16, 1995): Prof. Amr Elnashai of Imperial College, UK and Prof. Anne Kiremidjian of Stanford University, USA

3. ARCHIVES

The KOBEnet has been collecting information on the activities of academic societies, non-government organizations, national and local governments, and private sectors. The collected materials include technical and non-technical reports, newspapers, books, magazines, maps, videotapes, slides, and CD-ROMs. Since the articles related to the Kobe Earthquake were found everywhere, it was almost impossible to gather all the related materials to this earthquake. However, we tried to get them through various routes as much as possible.

We register the collected materials on the KOBEnet Database and use it for literature search. The number of registered materials is about two thousand as of December 1998. This number looks not so large, but we count a series of journals, newsletters etc. as one title. Hence, the actual amount of the archives may be one of the largest in Japan related to the earthquake. **Table 1** shows the number of collected materials based on the category of producers of the materials. **Table 2** classifies the archives based on the form of materials. Although the most materials are printed ones, we possess a large amount of videotapes and CD-ROMs. **Table 3** classifies the collected materials based on the subject. Since most of the archives cover several subjects, one title might be counted several times. **Figure 1** shows the number of published materials for each month. It is seen that one year after (January 1996) and end of fiscal years (March 1996; March 1997) were the peaks of new publication.

These collected materials have been opened to the public at the KOBEnet Library in IIS as shown in **Photo 6**. The library opens from 10:00 AM to 5:30 PM on weekdays. **Figure 2** shows the number of visitors to the library. As of January1999, approximately 5,000 people visited the library including a large amount