

Global Assessment of Earthquake Countermeasures after the Great Hanshin-Awaji Earthquake

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As a commemorative work of the five year anniversary of the Great Hanshin-Awaji earthquake, Hyogo Prefecture Government planned and executed a project called "Global Assessment of Earthquake Countermeasures". International and domestic experts were assigned to each of 20 items of problems related to the disaster. These experts visited Kobe for several days in 1999, discussed issues with the persons concerned, and collected data and evidences of the earthquake and the countermeasures used after the disaster.

On the theme "medical response", there apparently were many problems: search and rescue did not work well; ambulance services system failed; hospitals were damaged and overwhelmed; etc. Taking these precious lessons learned into account, several countermeasure projects were instituted during the last five years. In spite of the limited time and assistant manpower, the assigned experts analyzed and evaluated the progress of the countermeasure projects, identified areas of improvement, and noted the problems that still existed in the affected health/medical community. Details of the assessment of disaster countermeasures after the Great Hanshin-Awaji earthquake will be discussed in accordance with their report.

Keywords: assessment; countermeasures; community vulnerability to disasters; disaster; health; medical; vulnerability

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Recent Natural Hazards in North Coast of Venezuela

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On 29 July 1967, a 6.5 magnitude earthquake occurred in the Caribbean Sea, north of Venezuela. The focal depth was estimated to be 15 kilometers and was centered about 50 kilometers northwest of Caracas where four modern high-rise buildings collapsed. In Caraballeda City, adjacent to the shore of the Caribbean Sea, approximately 16 kilometers due north of Caracas, the top four floors of an 11-story building collapsed on top of the lower seven floors, which remained standing. Many multi-storied buildings and several hundred single-family dwellings were seriously damaged in areas near the Caribbean and in the Caracas Valley.

It has been reported that the Sebastian Fault, which is located about 10 kilometers north of Venezuelan coast, is the origin of the large earthquakes that have affected Caracas and the Caribbean shore urban areas.

In mid December 1999, extremely heavy rain caused muddy debris slides and massive landslides, killing more than 35,000 persons and leaving 200,000 homeless. The rains washed-out whole neighborhoods and small villages that lie between the Venezuela's coastal mountains, the Caribbean Sea, and the Caracas valley. Urban areas like Caraballeda, Los Corales, Macuto, Carmen de Uria, and La Gilaira in the Caribbean shoreline were heavily destroyed.

The City of Caracas also was affected by slurry flows and slumps caused by ground saturation especially in areas where the mountains were known to be exceptionally landslide prone.

These natural events can be referred to as compound disasters, which occur when nature geological hazards are influenced greatly by acts of man: deforestation; modification of slopes; growing demands for land in a hazardous area; public education; and lack of awareness of hazards.

The main objectives of this paper are to:

- 1) Incorporate knowledge about natural processes in the affected areas herein studied, portraying all of the available information in a form that can be used by planners and decision-makers; and
- 2) Study the impact of disasters upon a population including direct effects and generally human responses to the disasters.

Keywords: earthquake; hazards; landslides; mudslides; natural; rain; Venezuela

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