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Disaster Reconstruction in Japan: Lessons Learned from the Kobe Earthquake



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Damage by the Great Hanshin-Awaji Earthquake

Occurred at 05:46 on 17 January, 1995

Scale : Magnitude 7.3

Seismic intensity : 7 on Japanese scale

Epicenter : South Hyogo (North Awaji Isl.)

Dead : 6,433 people

Financial damage : \$ 87 billion (2.5% of GDP)

Evacuees : 316,678 people at peak

Evacuation centers : 1,153 locations

Completely/ Half destroyed : 249,180 bld'gs



The Great Hanshin-Awaji Earthquake Reconstruction Plan Hyogo Phoenix Plan

- **Started 4 days after the disaster**
- **Adopted in July 1995**
- **Targeted completion: 2005**
- **Targeted areas:
10 cities and 10 towns**



Hyogo Phoenix Plan

Creative Reconstruction ---Better than pre-quake--

● Harmonious Coexistence between People & Nature/Society

Five pillars

- Creation of a **WELFARE** society tailored for the 21st century
- Creation of a **CULTURALLY** rich society open to the world
- Creation of a society where existing **INDUSTRIES** grow and new **INDUSTRIES** flourish
- Creation of a **DISASTER-RESISTANT** metropolis where people can live with confidence
- **URBAN DEVELOPMENT** with multi-centered network-type metropolitan area

Lesson 1

Delay of First Response

- **Damaged Headquarters**
- **Local Government Command System was initially paralyzed**
- **Destroyed almost all traffic system**
- **Telecommunication, even satellite telecommunication systems were cut off**



It took three days to grasp the entire damage

Countermeasure 1

- **Establishment of the Cabinet Information Collection Center**
- **Enhanced Governmental System**
 - **Minister of State for Disaster Management**
 - **Chief Cabinet Secretary for Crisis Management**
- **Development of Disaster Information System (DIS)**
 - **Early Estimation System**
 - **Emergency Measure Support System**

Lesson 2

Absence of Coordination among Relevant Organizations

- **Damage was too large for local governments to cope with**
- **Local governments could not request the National government or other agencies to help because their headquarters themselves were paralyzed**
- **Medical cooperation was not effective enough**

Countermeasure 2

Nation Wide Support System for Disaster Emergency Response

- National Police Agency, Fire and Disaster Management Agency, Coast Guard and Self Defense Forces**
- Inter-Prefectural Support Agreement**
- Medical Transportation Action Plan**
- Designation of Emergency Hospitals**
- Designation of Heliports**

Lesson 3

Lack of Preparedness

- **80 % were killed by collapsed buildings**
- **Most damaged buildings did not comply with the building code “Building Standard Law” revised in 1981 (most of them were old buildings built before this revision)**
- **Fire broke out and spread at old wooden houses densely built up area**

Countermeasure 3

Seismic Building Retrofitting Act (1995)

To promote seismic retrofitting of existing vulnerable buildings

- *Subsidy* -

- Seismic diagnosis of buildings

2/3 of the cost, shared by national and local governments

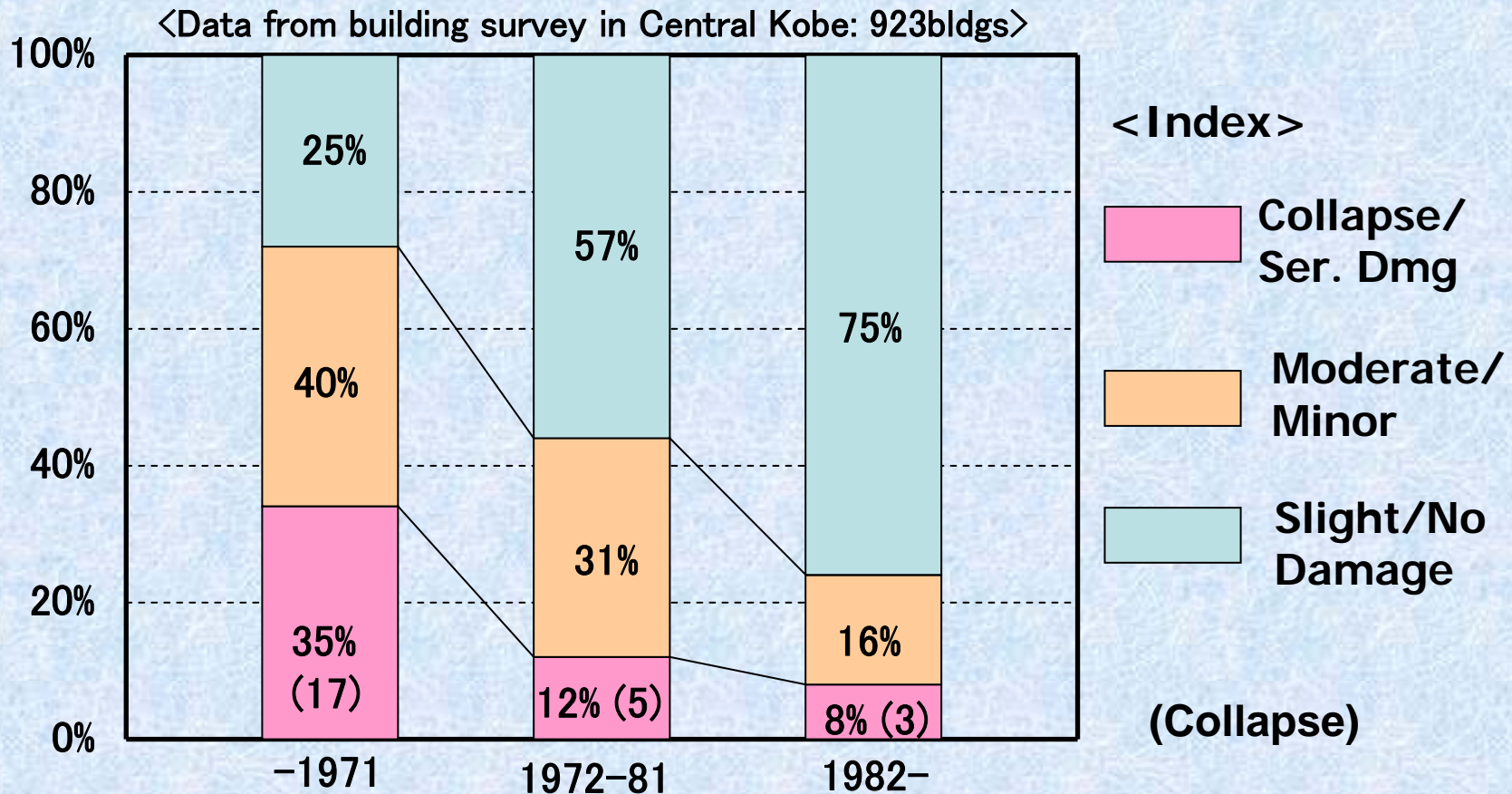
- Seismic retrofitting of large buildings

13% of the cost, shared by both

- Seismic retrofitting of houses in dense residential areas

(from 2002) 15% of the cost, shared by both

Building Damage by Construction Date



**In Japan, 21 mil. houses were built before 1981
(out of 44 mil) 14 mil. Houses are not seismic resistant:
needs reinforcement**

Lesson 4

Importance of Community and Volunteer

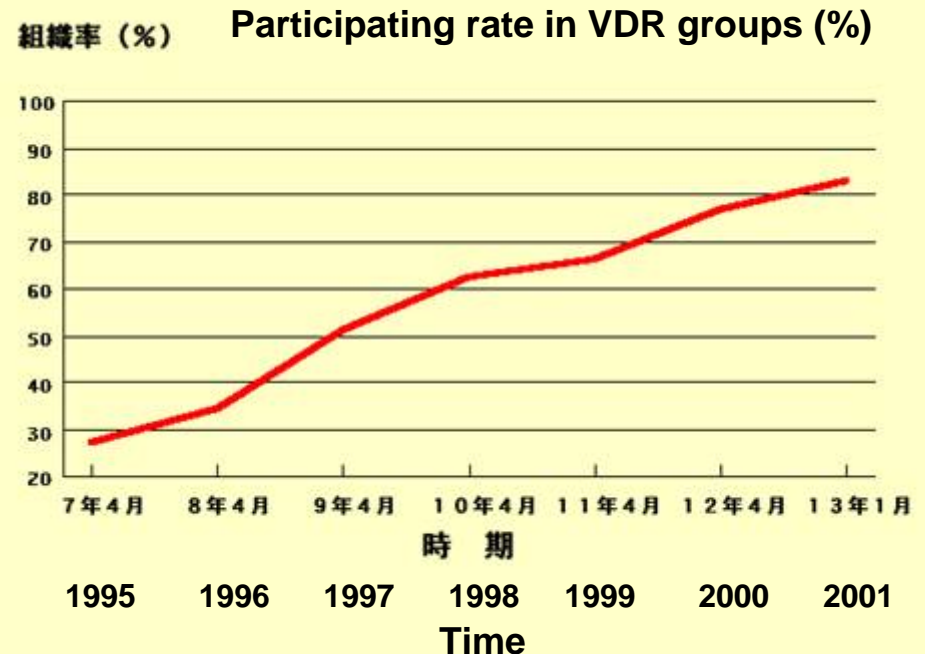
- Most people were rescued by local community
- 1.4 million volunteers rush to damaged area to support victims
- Volunteers were really helpful and useful especially in the fields of medical, architecture, welfare, logistics specialist etc.
- Disaster vulnerable people, elderly, children,..



Countermeasure 4

Support system for Volunteer Activity

- Designating January 17 as “Disaster Management and Volunteer Day”
- The Law to Promote Specific Nonprofit Activities
- Promotion of Community Self Defense Organizations



Lesson 5

Need for Assistance in Livelihood Restoration

- **44% of death casualty: over 65 years old**
- **More women than men killed:
2,713 men vs. 3,680 women***
- **Destruction of communities: resulted in more than 200 lonely deaths without terminal care by their families**

*Source: Hyogo Prefecture

Countermeasure 5

- **Revision of Compensation Framework**
- **Revision of Local Tax Law**
- **Fund of 900 billion yen (9 billion US\$) was established in April 1995**
- **New Support Framework**
 - **Livelihood Restoration Fund Loans**
 - **Increased Rent Subsidies**
 - **Assistance for voluntary activities, events to revitalize shopping arcades, community building, etc.**

Lesson 6

Importance of Urban Planning



Countermeasure 6

- **Live in Harmony with Nature: understand the nature (dangerous slopes, active faults, etc.)**
- **Water and Greenery: part of infrastructure**
- **Decentralization of Urban Functions**
- **Balanced Transportation System: alternate routes**
- **Urban Infrastructure (ensure public space: roads, parks, public squares, etc.)**
- **Fire & Earthquake Resistant Buildings**
- **Life lines: fail-safe approach**

Lesson 7

Transfer of Lessons

- **Importance of Sharing Information, Knowledge, Lessons and Experience on the Earthquake**
- **Importance of Education in Disaster Reduction**
- **Importance of Research in Disaster Reduction**
- **Importance of Citizen Centered and Active Community**

Countermeasure 7

- **Great Hanshin-Awaji Earthquake Memorial, Disaster Reduction and Human Renovation Institution (DRI)**
- **Asian Disaster Reduction Center (ADRC)**
- **UN/OCHA**
- **UNCRD (UN Centre for Regional Development)**
- **EDM (Earthquake Disaster Mitigation Research Center, NIED)**
- **WHO Kobe Center**
- **JICA Hyogo International Center**
- **Disaster Medical Center**
- **IRP (International Recovery Platform)**

<http://www.adrc.or.jp>



Thank You for Your Attention!