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 21\textsuperscript{st} 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
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

![Participating rate in VDR groups (%)](chart.png)
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)
Thank You for Your Attention!

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