Recovery Efforts after the Great Hanshin-Awaji Earthquake

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The Great Hanshin Awaji Earthquake
Occurred at 5:46 am on January 17, 1995

Overall Summary of Damage

- Date: 5:46 am, 17th of January, 1995
- Epicenter: Northern Awaji Island (Southern part of Hyogo)
- Scale: 7.3 on Richter Scale
- Seismic intensity: 7 on the Japanese Scale (Highest recorded in history)
- Called the Southern Hyogo Earthquake

Rokko and Awaji Island Faults

Damages

- Dead: 6,434 people
- Missing: 3 people
- Financial damage: about $100 billion (about 50% of the Hyogo's GDP)
- Houses destroyed (completely and partially destroyed): 250,000 (460,000 households)

Condition of Earthquake Stricken Area

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Population</th>
<th>Area</th>
<th>GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nagata Ward, Kobe City</td>
<td>377,911k</td>
<td>8,394k</td>
<td>1.96 trillion yen</td>
</tr>
<tr>
<td>Hyogo Prefecture</td>
<td>3.6 million</td>
<td>5.59 mil.</td>
<td>2.2%</td>
</tr>
</tbody>
</table>

Characteristics of the Great Hanshin-Awaji Earthquake

- Occurred in a Densely Inhabited Area
  Population of disaster area – around 3.6 million
- Occurred in area where city functions are concentrated
  Governmental (central, prefectural, municipal), information, transportation and physical distribution function were concentrated
- Occurred in area with an aging society
  30.5% of residents of temporary housings immediately after the earthquake and 46.9% of residents of reconstructed public housing are elderly people over 65 years old.
  (the ratio of people 65 or older out of the total population: 14.5% in 1995)
Creation of a Society Dedicated to Public Welfare Tailored for the 21st Century

Characteristics
- Consists of scholars, support groups, etc.
- An intermediate organization positioned between disaster victims and the government (Begun in July 1995 with 12 experts)
- Understanding issues at hand by visiting disaster areas
- Giving recommendations to both the government and the disaster victims

Activities
- Assists the disaster-affected in lifestyle rehabilitation
- Activity of providing goods each other, Support to victims living out of Hyogo, Support for moving into new houses etc.

Outline <Hyogo Phoenix Plan>

Basic Theme
- Harmonious Coexistence Between People and Nature, People and People, and People and Society
- Creative Reconstruction

Basic Goals (5 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
- Formation of a multi-centered network-type metropolitan area

Duration
- Established July 1995
- Target Year 2005

Expenses
- Planned Amount: $170 billion (660 Projects)
- Actual Amount: $163 billion (1,388 Projects)

5 Pillars
- (1) Hanshin-Awaji Earthquake Reconstruction Plan
- (2) 3-Year Priority Reconstruction Plans
- (3) Reconstruction Fund ($9 billion)
- (4) Collaboration of Citizens, NPOs, Corporations and Governments

3 System Supporting Recovery and Reconstruction

(1) The Great Hanshin-Awaji Earthquake Reconstruction Plan (Hyogo Phoenix Plan)
- City established a fund of $9 billion (current value).
- The interest from this fund, about $3.7 billion, has been used for projects to support recovery in the disaster stricken area.

(2) 3-Year Priority Reconstruction Plans
- Housing, infrastructure, industry

(3) Reconstruction Fund ($9 billion)
- Providing Careful Services (Subsidy for independent recovery of lives, Interest Subsidy for housing loan, etc.)

(4) Collaboration of Citizens, NPOs, Corporations and Governments
- Earthquake Victim Reconstruction Support Committee

3 (2) Priority Three-Year Plans

Within the 10-year Reconstruction Plan, 3-Year Plans were created for urgent matters of residential buildings, infrastructure and industries

<table>
<thead>
<tr>
<th>Category</th>
<th>Housing (unit: housing unit)</th>
<th>Infrastructure (unit: billion US$)</th>
<th>Industry (unit: billion US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned Target (Type of Basic Data for comparison)</td>
<td>125,000</td>
<td>57.0 (budget allocation)</td>
<td>100.0% (Net Regional Product Index)</td>
</tr>
<tr>
<td>Achievement (135% of planned target)</td>
<td>169,000</td>
<td>58.7 (103% of planned target)</td>
<td>101.7%</td>
</tr>
</tbody>
</table>

Overall target level was achieved by the end of March 1998

28 projects at the outset increased to 113 projects

3 (3) Reconstruction Fund

The Great Hanshin-Awaji Earthquake Reconstruction Fund (established in April 1995)

- To support recovery of the affected area, Hyogo Prefecture and Kobe City established a fund of $9 billion (current value).
- The interest from this fund, about $3.7 billion, has been used for projects to support recovery in the disaster stricken area.

- Life support measures: Self-support fund, etc.
- Housing measures: Monetary compensation
- Industrial measures: Monetary compensation
- Educational and other measures: Historical

Total
- 113 projects: $3.7 billion (100%)

3 (4) Collaboration of Citizens, NPOs, Corporations and Governments

In addition to “Self support” and “Public support”, “Mutual support” is important

Collaboration of Citizens, NPOs, Corporations and Governments
- “Catalysts” and “Coordinator” for collaboration are essential

* ex. Earthquake Victim Reconstruction Support Committee

[Characteristics]
- Consists of scholars, support groups, etc.
- An intermediate organization positioned between disaster victims and the government (Begun in July 1995 with 12 experts)
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[Activities]
- Assists the disaster-affected in lifestyle rehabilitation
- Activity of providing goods each other, Support to victims living out of Hyogo, Support for moving into new houses etc.

* ex. Phoenix Citizens Recovery Network

[Characteristics]
- Consists of citizens, a diverse of organizations, volunteer groups, etc.
- Assists the disaster-affected in lifestyle rehabilitation

[Activities]
- Activity of providing goods each other, Support to victims living out of Hyogo, Support for moving into new houses etc.

4 Promotion of the Recovery Plan

Basic Goals (5 Pillars)

- Creation of a Society Dedicated to Public Welfare Tailored for the 24th 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
- Formation of a Multi-Hub Network Metropolitan Area
4 (1) Creation of a Society Dedicated to Welfare

**Housing Support**
- Low interest housing fund
- Rent subsidy
- Disaster recovery public housing provision

**Support for independent living, and for elderly disaster victims**
- Support of independent living of disaster victims
- Elderly victim’s health classes/events for elderly community building
- Collective housing and collective housing for elderly residents.

**Mental Health**
- Hyogo Institute for Traumatic Stress
- Psychosocial care for children and students

4 (2) Creation of a Culturally Rich Society

**Promotion of Volunteer Activities**
- in the first year after the earthquake, about 1,400,000 people had participated in volunteer activities (the birth of volunteerism in Japan)
- The Ordinance concerning the Promotion of Volunteer Activities (1998)
- Hyogo Volunteer Plaza (2002)

**Education on Disaster Reduction for Children, Hands-on Activities for Children**
- New disaster prevention education, school support teams (EARTH)
- Teenage Social Circle - Children’s Play Areas • The Community Child Care Circle

**Culture-Oriented Development of Unique Communities**
- Hyogo Performing Arts Center (2005)

4 (3) Creation of a Society where New Industries Flourish

**Supporting Small Business**
- Extending low interest loans so business can resume
- Providing temporary facilities for production

**Supporting Shopping Arcades**
- Using open space and vacant shops well
- Revitalization of shopping arcades

**Creating New Industry & Attracting Enterprise**
- Subsidy for research and development
- Attracting enterprises by introducing tax relief

**Maintenance and Creation of Employment**
- Implementing vocational training programs tailored to employer’s needs
- Introducing Worksharing the idea of reducing hours, to avoid laying off employees

4 (4) Creation of a Disaster-Resistant Urban Area

**Physical Aspects**
1. The creation of a disaster-resistant community (Hyogo Prefecture established seismic safe construction regulations and specialists)
2. Disaster planning synthesized for mountainous areas and flood risk. (Hyogo mountain and flooding prevention plan put into effect
3. Making the area more resistant to wind and water disasters
4. Establishing mitigation measures for tsunami, or the predicted large Tonankai or Nankai earthquakes

**Non-Physical Aspects**
1. Expanded hazard mapping and evacuation shelter preparation
2. Support for disaster volunteers
3. Installation of sabo (landslide prevention) dams
4. Seismic retrofitting
5. Forests prepared for disaster
6.Sabo (landslide prevention) dam

4 (5) Community Planning (urban planning system)

**Determination of urban plans based on a two-stage system**

First stage: Project area identification, type of development project, urban facilities (trunk road, etc.) that serve as the core infrastructure

Second stage: Neighborhood streets, neighborhood parks, etc… Citizen’s participation (Community Creation Council)

Immediately after the Earthquake

Fully-Reconstructed
Community Planning (overall land use planning)

After Land Readjustment (Nishinomiya City)

4 (5) Community Planning (urban redevelopment recovery condition)

1995 1999 2005
Kobe City, Nagata Ward, Shin Nagata Station South Area Urban Redevelopment

5 Recovery Issues and Measures by Phase

5 (1) Emergency Measures Phase
(Immediate Post-Disaster to Evacuation Center Phase)

From January 1995 to August 1995
- Immediate and rapid rescue activities
- Restoration of infrastructure and lifeline utilities
- Improving the living environment of evacuation shelters
- Building temporary housing in the early phase
- Disposing of rubble and building debris

5 (2) Response Phase
(Temporary Housing Phase)

From August 1995 to March 1998
- Senior Citizen victims in temporary housing need support to recover their daily life.
- Early Recovery of Infrastructure, Housing, and Industry

5 (3) Early Reconstruction Phase
(Permanent Housing Transition Phase)

From April 1998 to March 2000
- While moving into permanent housing, disaster victims need to recover their lives one by one.
- Need for stable employment in the disaster affected area

1995 2005
Kobe City, Nagata Ward, Shin Nagata Station South Area Urban Redevelopment

5 (2) Recovery Issues and Measures by Phase

January 1995 to August 1995
- Immediate and rapid rescue activities
- Restoration of infrastructure and lifeline utilities
- Improving the living environment of evacuation shelters
- Building temporary housing in the early phase
- Disposing of rubble and building debris

5 (2) Main Issues
- Senior Citizen victims in temporary housing need support to recover their daily life.
- Early Recovery of Infrastructure, Housing, and Industry

5 (2) Main Efforts
- Establishing community centers within temporary housing to support elderly residents.
- Support of volunteers to recover and daily life activities.
- Establishing Earthquake Victim Reconstruction Support Conference.
- Forming an urgent recovery 3-year plan (infrastructure, housing, industry).
- Establishment of port Recovery
- Construction of Disaster Recovery Public Housing
- Support industry recovery through local ordinances.

5 (3) Main Issues
- While moving into permanent housing, disaster victims need to recover their lives one by one.
- Need for stable employment in the disaster affected area

5 (3) Main Efforts
- Development of systems to monitor and protect the elderly (Living Support Advisors and Lifestyle Restoration Consultants)
- Created community plazas.
- The Act for Support for Reconstructing Livelihoods of Disaster Victims
- Events to Create energetic local shopping arcades.
- “Hyogo Work Sharing” introduced reduced working hours to have more jobs.
- Support for community business.
### 5 (4) Late Reconstruction Phase

**Full Scale Reconstruction Phase**

**Main Issues**
- Measures to address independent living for seniors, and problems of making a lively town.
- Making a safe and secure that is suitable for an aging society in the 21st century.

**Main Efforts**
- Strengthening the systems to monitor the elderly (appointing Senior Citizen Supporters, Establishing Mobile Health Care Rooms and Independent Support Plazas for Seniors)
- Measures to promote use of vacant lots and floor space, combining efforts holistically to create a lively energetic town.
- Creating the Mutual Aid System for Housing Reconstruction
- Establishing the Great Hanshin-Awaji Earthquake Disaster Reduction and Human Renovation Institution (DRI)

### 6 Mitigation and Disaster Risk Reduction Based on Lessons Learned from the Earthquake

#### Creation of Practical Disaster Mitigation Systems
- Hyogo Prefectural Disaster Management Center
- Hyogo Phoenix Disaster Management System (a system to gather and summarize disaster prevention information)
- Disaster & Emergency Medical Care System Institution Created: Hyogo Emergency Medical Center
- Development of Disaster Management Bases
  - Disaster Management Base
  - Miki Earthquake Disaster Memorial Park and others (6 bases)
  - Tsunami mitigation station, Tsunami surveillance camera

#### Increase Regional Disaster Prevention Capacity
- Volunteer Disaster Response Groups: encourage and support (1995.4.27.4% → 2009.4.95.8%)
- Promoting earthquake resistance for homes and public facilities
- Guidance in providing assistance to affected people in the event of a disaster, etc.

### 6 (1) Creation of Practical Disaster Mitigation Systems (Hyogo Prefectural Disaster Management Center)

1. ‘Superintendent of Emergency Management’ post established in April, 1996
2. Prefectural Organization and System of Disaster Mitigation (including Emergency Management)
3. Establishment of Emergency Management Center in August 2000; Center expanded in April 2007

### 6 (1) Creation of Practical Disaster Mitigation Systems (Housing for Disaster Response Governmental Staff)

1. **Protect Emergency Response Government Staff**
   - Provide 24 hour disaster watch
   - Housing for Disaster Response Government Staff
2. **Realistic Disaster Drills**
   - Based on the lessons and experience of Kobe Earthquake, government office employees also participate in regular disaster drills.

### 6 (1) Creation of Practical Disaster Mitigation Systems (Communication between Organizations Related to Disaster Management, and Regional Disaster Mitigation Systems)

1. **Support increased cooperation between Related Organizations**
   - Disaster Drills involving related organizations in the Prefecture
   - Established “Never Forget 1.17” program in schools in the area, as part of Disaster Prevention Education
2. **Establishment of a Regional Disaster Mitigation System**
   - Municipalities Mutual Assistance Agreements in each major area of the Prefecture
   - Support agreement of the Association of Prefectural Governors, and the Inter-Regional Mutual Assistance Agreement for Emergencies agreed on by 9 Prefectures in the Kinki Region (April 26, 2006) (Revision of earlier Agreement from Feb. 20, 1998)
   - Kansai Regional Organization (Regional Disaster Mitigation Group) December 4th, 2010.

### 6 (1) Creation of Practical Disaster Mitigation Systems (Phoenix Disaster Management System)

The function of the system is to collect information about conditions related to earthquake, atmospheric pressure, amount of rain amounts, and river depths is collected and gathered in a central location. In the event of disaster, information about damage is collected from every area.

Also, in the event of an earthquake, the information about the magnitude is recorded on a map and made available, and predictions about building damage, injuries, and damaged areas are made, in order to supply people and goods needed for an emergency response.

In the Prefecture and offices of organization related to disaster management, there are 320 terminals to collect disaster information.
6 (1) Creation of Practical Disaster Mitigation Systems (Hyogo Disaster Prevention Network)

Residents can receive information about weather, earthquake, evacuation, or emergency situation directly by cell phone, etc.

6 (1) Creation of Practical Disaster Mitigation Systems (Regional Emergency Management Bases)

6 (1) Creation of Practical Disaster Mitigation Systems (Miki Disaster Prevention Park)

6 (1) Improve Regional Disaster Mitigation (E-Defense System, Established in 2005)

Objective: Establish a research center to study the effects of earthquake on actual buildings.

Tasks:
- conduct experiments about earthquake damage
- the worlds largest 3-D shaking table
- The result of these experiments are the foundation for developing technology and techniques for seismic reinforcement of building structures to make them earthquake-safe.

6 (1) Creation of Practical Disaster Mitigation Systems (Hyogo Prefecture Disaster Management Center)

Objective: Core facility of emergency medical system

Tasks:
- "Emergency Response Center, Information and Instruction Center"
- "Collecting and providing emergency medical care information in the event of disaster, Utilizing Ambulance"
- "Human Resources Development, Collection & Dissemination of Information"
6 (1) Creation of Practical Disaster Mitigation Systems

**Objective:** To have an specialized institute that addresses traumatic stress and Posttraumatic Stress Disorder (PTSD) caused by disasters, accidents, and abuses.

**Tasks:**
- Research, study and training
- Dissemination of information and advocacy
- Alliance building and networking
- Consultation and counseling

6 (2) Improve Regional Disaster Mitigation

**Community Resilience**

**Condition of Disaster Victims**
About 80% of victims who were rescued from collapsed buildings were saved by neighbors.

**Voluntary Disaster Response Groups**
Independent Local Community Groups with Disaster Response Activities
- Typically, neighborhood organizations, self-governed.
- In Kobe, based on elementary school districts, and called ‘BOU-KOMI’

After the Hanshin Awaji Earthquake, these organizations increased


6 (2) Improve Regional Disaster Mitigation

**Increased seismic resistance in Buildings**

80% of deaths during the Great Earthquake were caused by collapsed buildings

- Promoting earthquake resistance for homes and public facilities
  1. Formulation of Promotion Plan for Earthquake-Resistant Renovation Works in Hyogo
  2. Promotion Project for Earthquake-Resistant Renovation work for homeowners
  3. Earthquake-resistant renovation works for prefecture-owned facilities

- To use as hubs for emergency activities and/or for relief activities and evacuation site for disaster victims (schools, hospitals, police stations etc.)

6 (3) Hyogo Mutual Aid Fund for Housing Reconstruction

- In the case of a large scale disaster, housing reconstruction is crucial to recovery of disaster victims, and also for the quick revitalization of the disaster region. However, there is a limit to what can be accomplished by the efforts of individuals and the government.
- To address this, ‘Phoenix Mutual Aid’ was created, to provide assistance to homeowners in the case of a future disaster.
- For an annual premium of 500 yen, members of this plan can receive up to 6 million yen if their house is more than half destroyed by a natural disaster.
- Starting in August 2010, personal belongs up to a value of 500,000 yen can also be protected through the establishment of a new system of mutual aid fund.
- Currently enrolled: (as of August 31, 2010)
  - Housing reconstruction 137, 199 households (7.8% enrollment rate)
  - Personal Property Recovery 28, 681 households (1.4% enrollment rate)

7 Sharing Lessons Learned from the Experience of Disaster

(Base for International Disaster Management and Humanitarian Support)

The New Energy City of Kobe in Hyogo is home to many International Institutions related to disaster reduction, medicine, health, and environment.

In January 2005, the United Nations International Disaster Reduction Conference was held in Kobe. The “Hyogo Framework for Action” was introduced as a strategy for disaster reduction in the 21st century.

In December 2010, at the First INSARAG World Meeting, international cooperation for search and rescue capacity building was introduced as the ‘Hyogo Declaration’.

Based on the ‘Hyogo Framework for Action’ many international organizations are gathered for International Disaster Management and Humanitarian Support.
7 Sharing Lessons Learned from the Experience of Disaster
(Disaster Reduction and Human Renovation Institute, established in 2002)

- Senior researchers: 10; Dedicated researchers: 7
- Collection, storage and display of reference materials
- Operation costs: 50% supported by the national government
- Research and study by specialists
- Dispatch of specialists in the event of disasters
- Development of practical disaster prevention personnel

Sharing Lessons Learned from the Experience of Disaster

World’s first disaster management program under collaboration of Hyogo prefecture and JICA
(1) Comprehensive coordination of disaster risk management training course which is held in Hyogo prefecture
(2) Implementation of disaster risk management training
(3) Disaster risk management research and development of educational materials
(4) Networking and utilization of ex-participants
(5) Establishment and utilization of database for human resource in disaster risk management

Implementation of training for disaster risk management
(JICA Hyogo, Kobe)

Disaster Reduction Learning Center
(Inaugurated in JICA Hyogo on May 17, 2007)

Utilize the potential of the Kobe New Eastern City Center

Research on disaster risk management

8 Recovery Condition of the Disaster Affected Area

Smooth Recovery

Population

<table>
<thead>
<tr>
<th>Year</th>
<th>Hyogo Pref.</th>
<th>Affected area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>5,526,689</td>
<td>3,589,126</td>
</tr>
<tr>
<td>2008</td>
<td>5,595,183</td>
<td>3,673,853</td>
</tr>
</tbody>
</table>

Gross Prefectural Production (GPP)

<table>
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<tr>
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<tbody>
<tr>
<td>1994</td>
<td>about $200 million</td>
<td>about $128 billion</td>
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<tr>
<td>2008</td>
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<td>about $129 billion</td>
</tr>
</tbody>
</table>

※ numbers above: whole prefecture, numbers in []: disaster-affected area

- Support for independent living of elderly disaster victims
- Reviving Community Vitality
- Preserve the Memory of the Earthquake

- Creating elderly independence support plazas and Mobile Health Care Rooms
- Grouping together activities in a system of comprehensive support for revitalizing urban development, for example measures to promote the use of vacant lots and floor space.
- Passing on the experiences and lessons of the Great Hanshin-Awaji Earthquake: develop a “Disaster Culture”; efforts to use the lessons; ‘Never forget 1.17’ project.

9. Addressing Remaining Issues

10-Year Reconstruction Overall Verification and Recommendation Project (January 2005)
Recovery Follow up Commissioners Project (March 2010)

Remaining Issues

- Erase the Memory of the Earthquake

Efforts Made

- Creating elderly independence support plazas and Mobile Health Care Rooms
- Grouping together activities in a system of comprehensive support for revitalizing urban development, for example measures to promote the use of vacant lots and floor space.
- Passing on the experiences and lessons of the Great Hanshin-Awaji Earthquake: develop a “Disaster Culture”; efforts to use the lessons; ‘Never forget 1.17’ project.