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Study of Insurance Economics

# Études et Dossiers

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Layout & Distribution: Valéria Kozakova

# The Cost Iceberg of the Great Hanshin-Awaji Earthquake

Ryoichi Nakai

## Outline

- I. The Great Hanshin-Awaji Earthquake at a Glance
- II. Characteristic Features of the Quake
- III. Insured Losses
- IV. Estimated Total Cost of Loss and Economic Impact
- V. Cost to Restore the Local Economy
- VI. What Insurance Industry Can/Should Do

I. The Great Hanshin-Awaji Earthquake at a Glance

Date & Time: Tuesday, 17th January, 1995  
 at 5:46a.m. JST  
 Magnitude: 7.3  
 Epicenter: Awaji Island (20km southwest of Kobe)

Casualties: 6,434  
 Injuries: 43,792

Damage to Household Properties

Wholly collapsed: 104,906  
 Partially Collapsed: 144,274  
 Total: 249,180

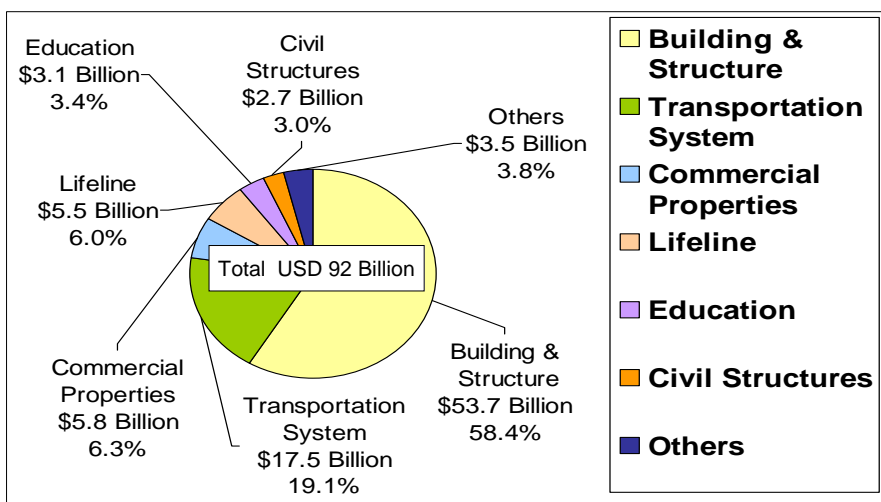


(Fire and Disaster Management Agency)

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I. The Great Hanshin-Awaji Earthquake at a Glance  
 ~Official Estimated Total Cost of Loss (Physical Damage)~



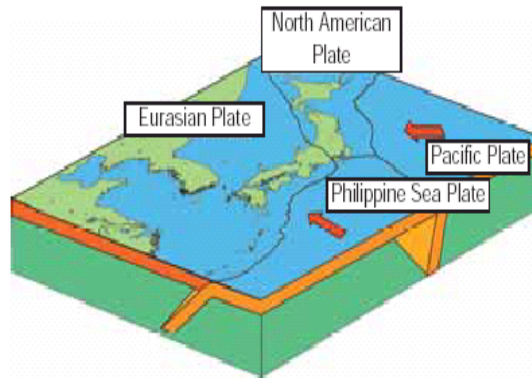
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II. Characteristic Features of the Quake  
~Features of the Quake (1)~

<Tectonic Plates>

3 tectonic plates meet at approximately 120km west of Tokyo



(Study by Japan Meteorology Agency: <http://www.jma.go.jp>)

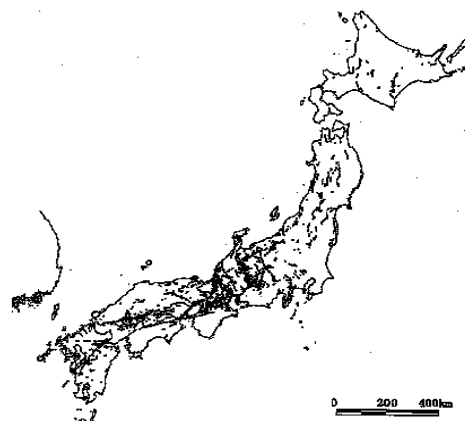
5



II. Characteristic Features of the Quake  
~Features of the Quake (2)~

<Active Faults in Japan>

2,000 active faults exist close to the ground surface of Japan



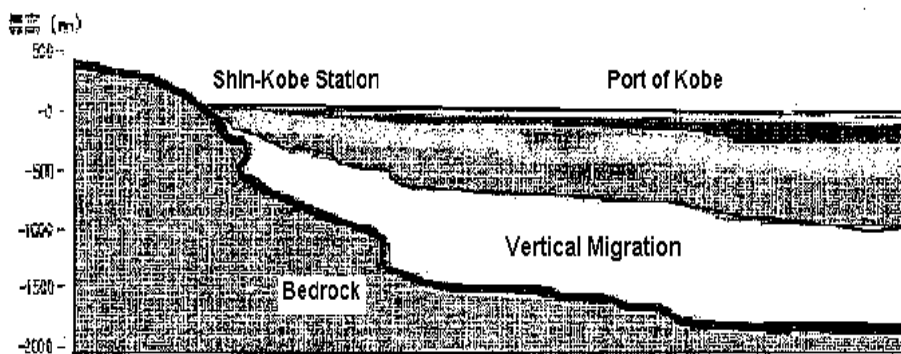
(From *Active Faults in Japan*, by The Research Group For Active Faults Of Japan )

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II. Characteristic Features of the Quake  
~Features of the Quake (3)~

<Vertical Migration>



(From Great Hanshin-Awaji Earthquake, K-TEC, pp.20)

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II. Characteristic Features of the Quake  
~Features of the Quake (4)~

<Photo Image of Collapsed Structures>



(From the web site of the City of Kobe: <http://www.city.kobe.jp/>)

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III. Insured Losses

Insured Loss: Residential Structures and Personal Properties

(Insured Loss) JPY 76.6 Billion (USD 709 Million)  
 (Total Structural Loss) JPY 5.8 Trillion (USD 53.7 Billion)



Roughly 1.3% of estimated total structural loss

(Non-Life Insurance Rating Organization of Japan, Hyogo Prefecture)

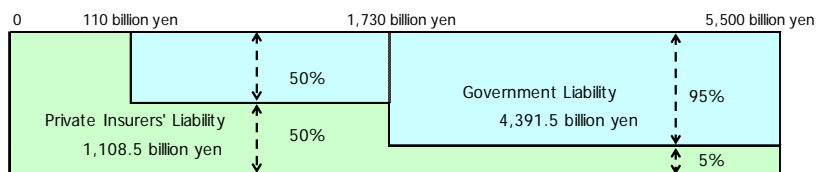


III. Insured Losses  
 ~Earthquake Insurance Scheme in Japan~

<Maximum Recoverable Loss>

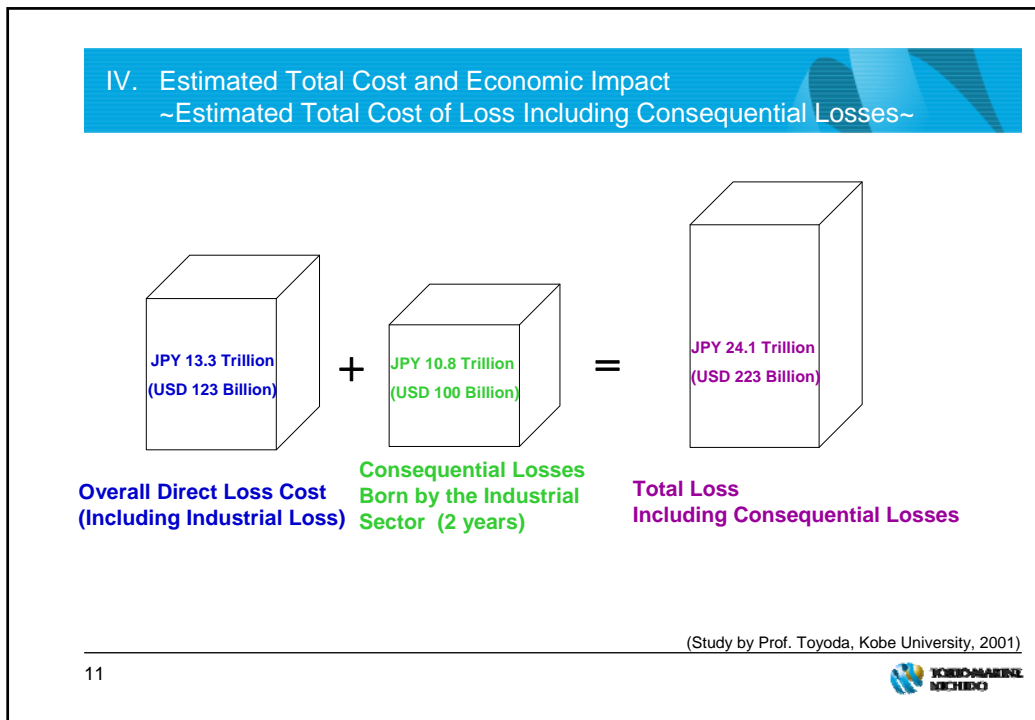
At the time of the quake		→	Current	
Buildings	JPY 10 million (USD 93,000)		Buildings	JPY 50 million (USD 460,000)
Personal Properties	JPY 5 million (USD 46,000)	Personal Properties	JPY 10 million (USD 93,000)	

<Program Structure>



(The General Insurance Association of Japan)





IV. Estimated Total Cost and Economic Impact  
~Local Industries~

- **Heavy Industries:** steel, shipbuilding, machinery, metals, rubber, etc.  
⇒ Relatively quick to recover
  
- **Mid to Small Sized Industries:** apparel, specialty shoes, Japanese sake, etc.  
⇒ Struggled to recover

IV. Estimated Total Cost and Economic Impact  
~Economic Impact Nationwide~

- Estimated Loss: JPY 10 Trillion ≙ 2% of GDP in Japan
- Nikkei 225 Index: declined 5.6% on the following Monday (23rd Jan.) after the earthquake



(From TradingChart web site: <http://futures.tradingcharts.com/>)

## V. Cost to Restore the Local Economy

- "Lost Decade"
- Change business models? or withdraw?
- Public sector spending  
= JPY 9.7 Trillion (USD 90.2 Billion) over 6 years



Almost equal to the estimated total physical loss

(Yasuda, Uchikawa, and Nagamatsu, 2000)

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## V. Cost to Restore the Local Economy ~Other Economic Challenges Emerged from the Quake~

### Other Social and Economic Challenges

- Aftershock Trauma (over 400 sensible aftershocks during 1995)
- Decrease in Population: 50,000~60,000 people left Kobe
- Loss of popularity as a leisure or tourism destination

### Opportunity

- Public & private sector initiative to rebuild & revitalize the economy

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VI. What Insurance Industry Can/Should Do

- Raising capacity, enhancing securitization
- Increasing the affordability of earthquake insurance coverage
- Collaborating with the public sector
- Strengthen the local building code
- Raising awareness of the general public

VI. What Insurance Industry Can/Should Do

- Knowledge transfer to emerging markets
- <The Asian Disaster Reduction Center, ADRC>
- Established: 1998
  - Mission: Assist in creating a sustainable development in Asia by sharing knowledge on disaster reduction among the member nations



**27 Member countries**

Armenia	Republic of Korea	Philippines
Banladesh	Kyrgyz	Russian Federation
Bhutan	Lao PDR	Singapore
Cambodia	Malaysia	Sri Lanka
China	Mongolia	Tajikistan
India	Myanmar	Thailand
Indonesia	Nepal	Uzbekistan
Japan	Pakistan	Viet Nam
Kazakhstan	Papua New Guinea	Yemen

**5 Advisor countries**

Australia, France, New Zealand, Switzerland, United States of America



**Observer**

Asian Disaster Preparedness Center (ADPC)

(From ADRC's website: <http://www.adrc.or.jp/>)