

Current Knowledge and Practices for Disaster Reduction and Recovery

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Securing safety of buildings/houses is the priority in disaster risk management

- Vulnerable buildings magnify the disaster. Collapsed buildings block roads, and hampered evacuation, fire fighting, and relief activities.
- Most tragedies and difficulties in disasters are attributed to loss of lives and shelters due to destruction of houses.
- In earthquakes, most of the victims are killed by collapse of their own houses or buildings.
- Financial burden of governments caused by destruction of houses/buildings is huge.

Disaster recovery and reconstruction is an opportunity to build safer communities through construction of safer buildings/houses



The earthquake and tsunami, Dec. 2004 in Indonesia, provided **opportunities** to rebuild a safer Aceh against earthquakes

116,880 houses destroyed, 152,000 severely damaged, out of a total of 820,000 houses.

Findings from the survey by GRIPS/ITB in 2006

- The reconstruction efforts did not match the actual needs of the communities and the local conditions.
- Lack of coordination among the organizations
- Structural safety was not ensured due to inappropriate design, poor construction materials, poor workmanship, or lack of supervision/inspection.

Site Plan and Infrastructure

- Inadequate location
- Inadequate infrastructure



Many houses have been constructed but not occupied



■ Columns



Rebars exposed



■ Walls

Collapse before completed, no anchorage



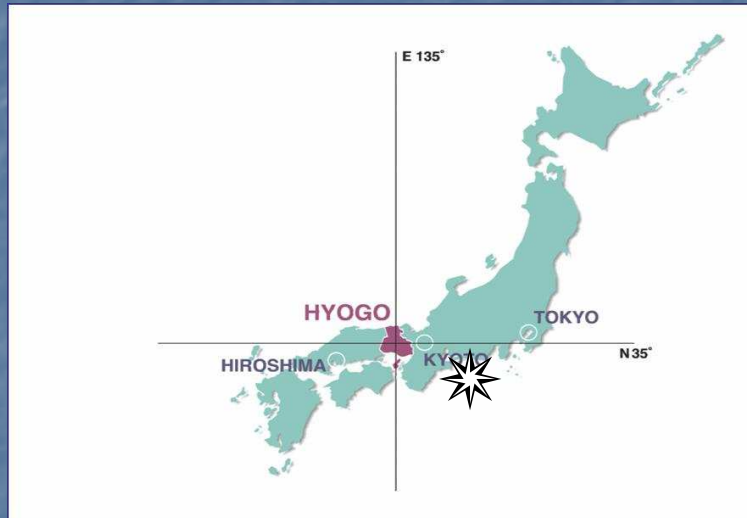
Large spacing



What should be done for safer communities in recovery and reconstruction

- Needs assessment and coordination among the international, national, and local organizations
- Design
Design should follow building codes and technical requirements
- Superintendence/inspection
To make sure that building construction follows the drawings

Lessons from the Great Hanshin-Awaji Earthquake in 1995, Japan



- AM 5:46 17 Jan. 1995
- Magnitude 7.3
- Death: 6,434 people
- Injured: 43,792 people
- Buildings damaged: 640,000 (severely damaged: 250,000)



Reconstruction Plan (Hyogo Phoenix Plan)

Efforts for Creative Reconstruction Doing more than restoration

Budget: \17 trillion (approx. \$170 billions)

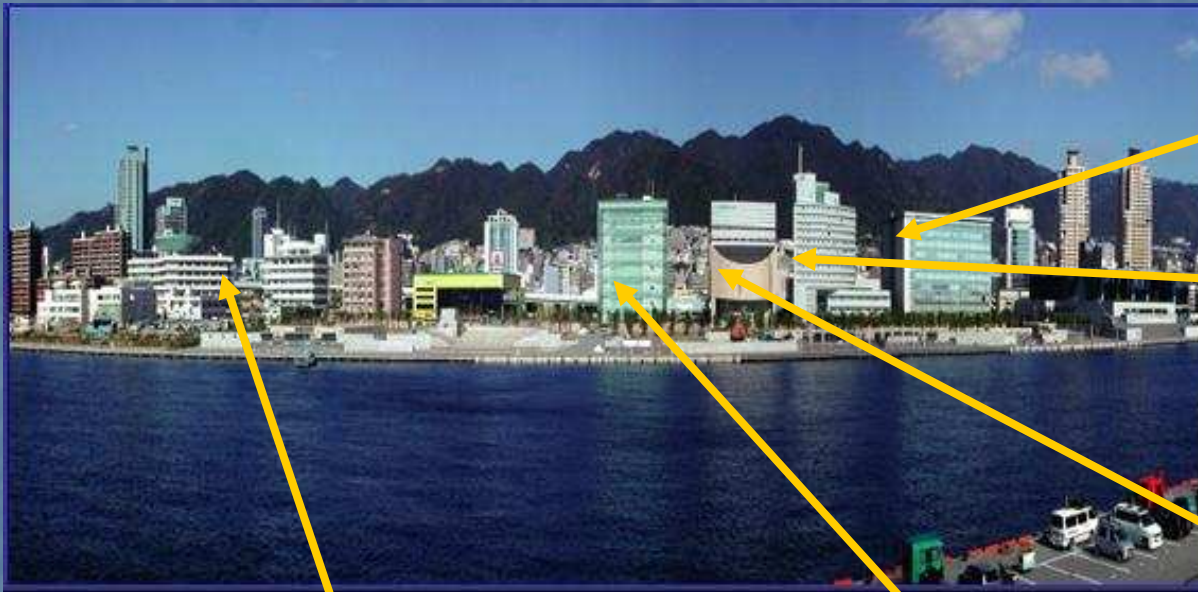
Priority 3-year Reconstruction Plan

	Housing reconstruction	Industry	Infrastructure
Planned Target in 1998	125,000 units	100 % (Net Product)	\$57 billions (Budget base)
Achieved in 1998	169,000 units (135 %)	101.7 %	\$59 billions (103 %)

Movements originated from recovery and reconstruction efforts

- Emergence of “Culture of disaster reduction”
Disaster issues are discussed by the entire society in daily life.
- Tackling issues concerning the aged society
Support system for vulnerable people has been established
- Set directions for a better and safer society
Active participation and cooperation are encouraged for community rebuilding.

Kobe: Base for International Disaster Management and Humanitarian Support



- WHO Kobe Centre
- APN Centre
- EMECS

- JICA Hyogo International Centre

- IRP
- ADRC
- EDM
- OCHA
- UNCRD
- The Great Hanshin-Awaji Earthquake Memorial Research Institution
- 21st Century Hyogo Research Organization for Human Care

- Hyogo Disaster Management Center
- Japanese Red Cross Society Hyogo Chapter
- Hyogo Institute for Traumatic Stress

- Disaster Reduction & Human Renovation Institution (DRI)

● International Organization ● Recovery Base

Construction of safer houses

- 48,300 temporary houses were constructed within 7 months.
 - They were built in remote areas due to difficulties to find suitable spaces (The public temporary houses cannot be built in private lots.)



- Publicly operated 71,600 permanent houses (rental) were constructed.
 - Many houses were built far from disaster areas.

Recommendations:

- The temporary houses should be provided alongside of the damaged houses
- In urban areas, it is recommended to secure some open spaces for temporary/temporary houses in urban planning.

Repair rather than reconstruction

- Many repairable buildings were unnecessarily demolished and reconstructed
 - Publicly operated demolition within a limited period (one year)
 - People were scared to live in the damaged house which looked damaged beyond repair, but actually were repairable.
- Disposal of debris (earthquake waste)
20 million tons (8 times of usual year) of debris caused environmental problems



Emergency Damage Assessment of Buildings

- Risk assessment of buildings shall be carried out after the occurrence of a major earthquake for protection of people from a secondary disaster caused by the collapse of a damaged building or falling building materials due to aftershocks or damage from first strike.

Who work on Emergency Damage Assessment of Buildings?

- Assessors of this risk assessment are building engineers who have taken a special program and being registered as volunteers. More than 100,000 engineers are registered.

Assessment shall be indicated by a special sticker at a visible part of the building

Safe

安全確認作業完了
調査済
INSPECTED

●この調査結果に基づいて安全確認作業が完了したことを示す
●必ず目視で確認してください

調査担当者
氏名：
住所：
電話番号：
調査日時 年 月 日 午前・午後 時 分

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注意喚起作業完了
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Verification of Recovery and Reconstruction after 10 years by Hyogo Prefecture

- Strengthening **initial response** to address disaster rapidly and appropriately
- Accurate **Assessment of Situation** and **Rapid Action** save lives
- Significant results from Rescue and Fire Fighting activities by **communities and neighbors**
- Disaster reduction and preparedness in **daily life**
- Importance of rapid **commercial** rebuilding initiatives
- **Business Continuity Planning** (BCP)
- **Participatory Urban Planning** for urban reconstruction
- Transmitting the lessons to the future generations and to the other areas

Thank you !

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