NEAT Working Group Meeting on "
East Asian Disaster Management"
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Disaster Management and Community Building

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Great East Japan Earthquake
11 March, 2011 (as of 11 July 2011)

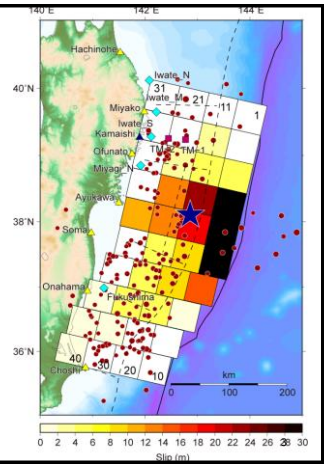
Origin time	14:46, 11 March 2011
Magnitude	9.0
Focal depth	24km
Seismic Intensity (JMA)	7 (Kurihara) 6+ (28 cities and towns)
Death (and missing)	15,547 (+ 5,344)
Injured	5,688
Lost houses	108,021
Severely damaged houses	140,529
Fires	344

Fault Slip Model for Tsunami Simulation

by Dr. Fujii (IISEE/BRI)

Fault : 500 km x 200 km
1 block : 50 km x 50 km

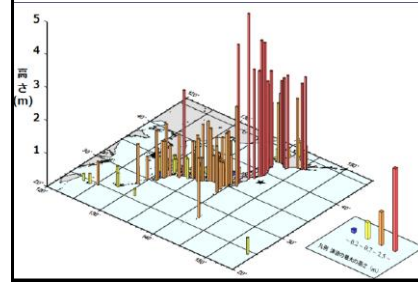
Maximum slip : 34 m



Heights of Tsunami

Height of tsunami waves reaching: more than 40m

Heights of tsunami waves (JMA)



Oofunato: 11.8m
Kamaishi: 9.3m
Souma: 9.3m
Ishinomaki: 7.7m
Sendai: 7.2m

Made by Dr. Okada

Most buildings were swept away (Onagawa, Miyagi)

5

Turnover of RC buildings (Onagawa)

Arahama, Sendai City (Miyagi)

Before 11 Mar. 2011 After Tsunami

Most RC buildings survived (but many people below 4th floor could not survive)

Rikuzenn-takata (Iwate)

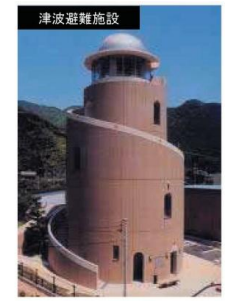
Onagawa (Miyagi)

Tsunami Evacuation Buildings

- Safety against tsunamis
  - Earthquake resistant RC structures are generally safe against tsunamis.
  - 3 stories or more against tsunami with 2 m high
  - 4 stories or more against tsunami with 3 m high
- Considerations
  - Agreement with the building owners and residents
  - Outside staircases, lock system, etc.

Tsunami Evacuation Towers, Japan

Kushimoto Town, Wakayama



Taiki Town, Mie Prefecture

A challenging issue: How to reconstruct safer buildings and communities against tsunamis

- Land use control or restriction of buildings in coastal areas
  >> not practical, not feasible
- Building Code to secure minimum safety against tsunamis
  >> not practical for ordinary houses
- Construction of seawalls
  >> too costly and false feeling of safety, interrupting the view.
- Construction of evacuation centers and parks
  >> 100% of people cannot evacuate immediately and safely

Community based disaster management (CBDM)
To build resilient communities against disasters

- Local governments and communities respond first and are the last remaining to rebuild safer communities
  Their timely response is critical because it determines how many lives or properties can be saved.
- Disasters reflect local conditions, of which local people are aware
  Local people have local knowledge regarding vulnerability and capacity conditions.
- Strong local coordination with national (and international) assistance optimize the efforts in emergency and reconstruction.
  Top-down approach from the central government may fail to meet the appropriate and vital humanitarian needs.

Motivation of local governments and communities is essential

- Most local governments do not prioritize disaster reduction (There are many other priorities)
- Most people do not prioritize disaster reduction (There are many other priorities)
- Most people are not easily motivated for actions to avoid disaster risk.
  - Most people do not evacuate immediately after tsunami warning
  - Few house owners invest for seismic retrofitting even with financial assistance from the governments (Japan)

However, once a large disaster occurs, the entire communities would be devastated.

RADIUS Project (UN/IDNDR with financial assistance from the Japanese Government)

Motivation of local people for urban seismic reduction

- Capacity building
- Local leadership and ownership
- Awareness raising

Nine (9) case study cities:
Addis Ababa (Ethiopia), Antofagasta (Chile), Bandung (Indonesia), Guayaquil (Ecuador), Izmir (Turkey), Skopje (TFYR Macedonia), Tashkent (Uzbekistan), Tijuana (Mexico), Zigong (China)

Earthquake damage scenarios and action plans were developed by local people in 9 cities worldwide

RADIUS initiatives are sustainable

- Some local partnership sustains and efforts continue
  - Skopje adopted RADIUS recommendations in Master Plan.
  - Guayaquil created a new Division for Disaster Mitigation.
  - Bandung changed its building permit process.
  - Antofagasta generated US$ 1 million to remove schools from Tsunami areas.
  - Tijuana created NGO called RADIUS. The meeting is held every month still now
  - Experience is transferred to neighboring cities.

➢Frequent communication
➢Dedication of the key persons

Motivation and capacity building by Shake Table Demonstration (UNCRD + India)

Normal vs. Retrofitted

Build People's confidence/ Simple and effective means
Enhance understanding of performance of simple structures
Incorporate people into process of transferring technology

Motivation and capacity building by Shake-table Demonstration (by UNCRD + NSET Nepal)

Afghanistan Training and Livelihood Initiative, Kabul, 2003

Practical guidelines (English and Persian) was developed under the project.

After Bam Earthquake, Iran, 2004

Demonstration was conducted at the house model exhibition center.

Key factors for sustainable CBDM

- Strengthening capacity for motivation of people at the community level
- Ownership of a program through participatory methods
- Mutual support at all levels
- Closing the gap between policy and implementation
- Institutionalization and political commitment
- "Collective security" through structural and non-structural means, which are affordable and practical

Proposal of a regional pilot CBDM project for disaster reduction

- Objective

- Disaster risk assessment and awareness raising by the local governments and communities through CBDM

- Outline

✓ Several cities are selected for the pilot project

✓ They will develop disaster scenarios and action plans by themselves

✓ Targeted disasters are flood, tsunami, typhoons, or earthquake.

✓ Technical (and financial) assistance is provided from the developed countries or neighboring countries

Thank you !

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