

# Summary of Component 2-3 Development of Simple and Affordable Seismic Isolation

Thematic International Workshop 2007 on  
Feasible and Affordable Seismic Constructions

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# Background of R&D for Safer Housing in Developing Countries

- Earthquakes cause serious damages to human societies



# Serious Damages to Community Buildings such as Schools, Medical Care Center

- Collapse of buildings/houses causes serious damages to children, teachers, doctors, medical staff

**Damaged school in Bantul, Central Java, Indonesia**



# Serious Damages to Community Buildings such as Schools, Medical Care Center

- Collapse of buildings/houses causes serious damages to children, teachers, doctors, medical staff

**Collapsed hospital in Batgram, Pakistan**

Photo by Mr. Miura and Ms. Nakamura



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# Seven components (R&D Activities Programs)

- **Topic 1 Risk Management System**

  - Component 1-1**

  - Contrivance for Seismic Risk Recognition by Communities

  - Component 1-2**

  - Compilation of Available Information/Data on Seismic Risks

- **Topic 2 Feasible and Affordable Seismic Constructions**

  - Component 2-1**

  - Study on Feasible and Affordable Seismic Constructions through Full Scale Shaking Table Experiments

  - Component 2-2**

  - Bridge between Engineering and Construction Works

  - Component 2-3**

  - Development of Simple and Affordable Seismic Isolation**

- **Topic 3 Strategies for Dissemination of Technologies to Communities**

  - Component 3-1**

  - Comprehensive Study on Strategies for Dissemination of Technologies to Communities

  - Component 3-2**

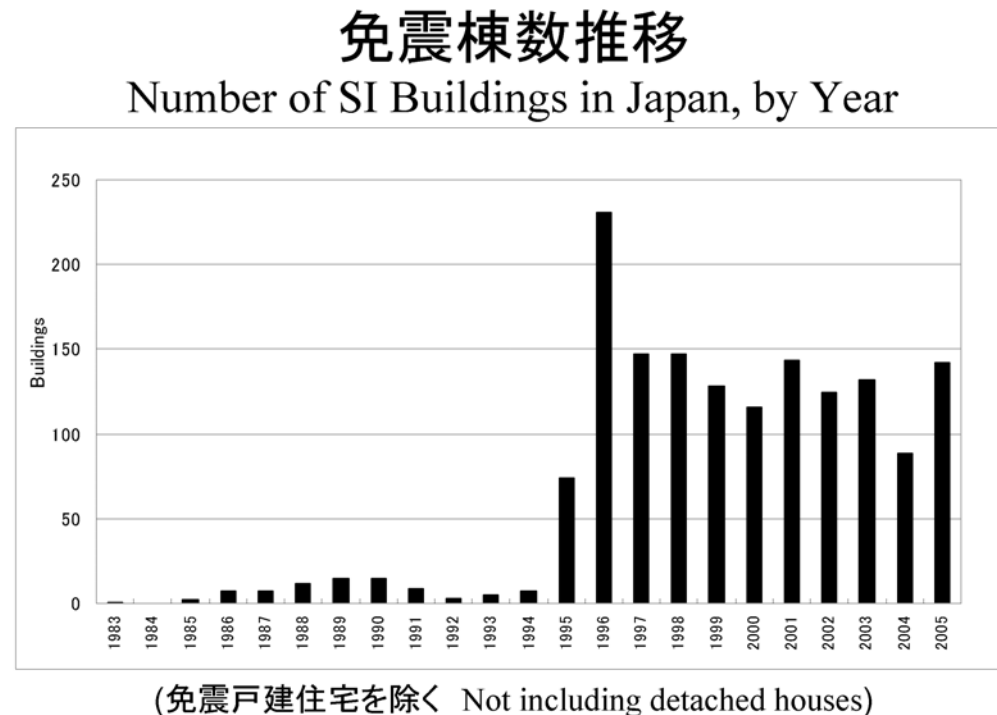
  - Compilation of Manuals/Guidelines/Leaflets for Safer Housing

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# Study Group on Simple and Affordable Seismic Isolation in CBRD

- Seismic Isolation is one of the effective way to mitigate damages
- Not yet widely applied because of specialized technology and higher cost
- Study Group was organized to make seismic Isolation more applicable in April 2006

Date by JSSI



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## **Study Group in CBRD**

- Targeted buildings/houses
    - community buildings like schools, medical care centers
    - historical/cultural constructions
    - conventional houses
  - Members
    - researchers
    - professional practitioner
    - people in technical cooperation to developing countries
  - Meetings were held around every one and half months
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Platform of R&D activities

## International Workshop on Seismic Isolation

### ■ Activities for R&D Component 2-3 “Development of Simple and Affordable Seismic Isolation”

■ February 8, 2007

■ World Bank Tokyo  
Development Learning  
Center (TDLC)

- connecting six sub venues in  
four countries

Indonesia – Jakarta, Bandung

Nepal – Kathmaudu

Pakistan – Islamabad

Turkey – Istanbul, Ankara

- Web Streaming Services

- for internet access





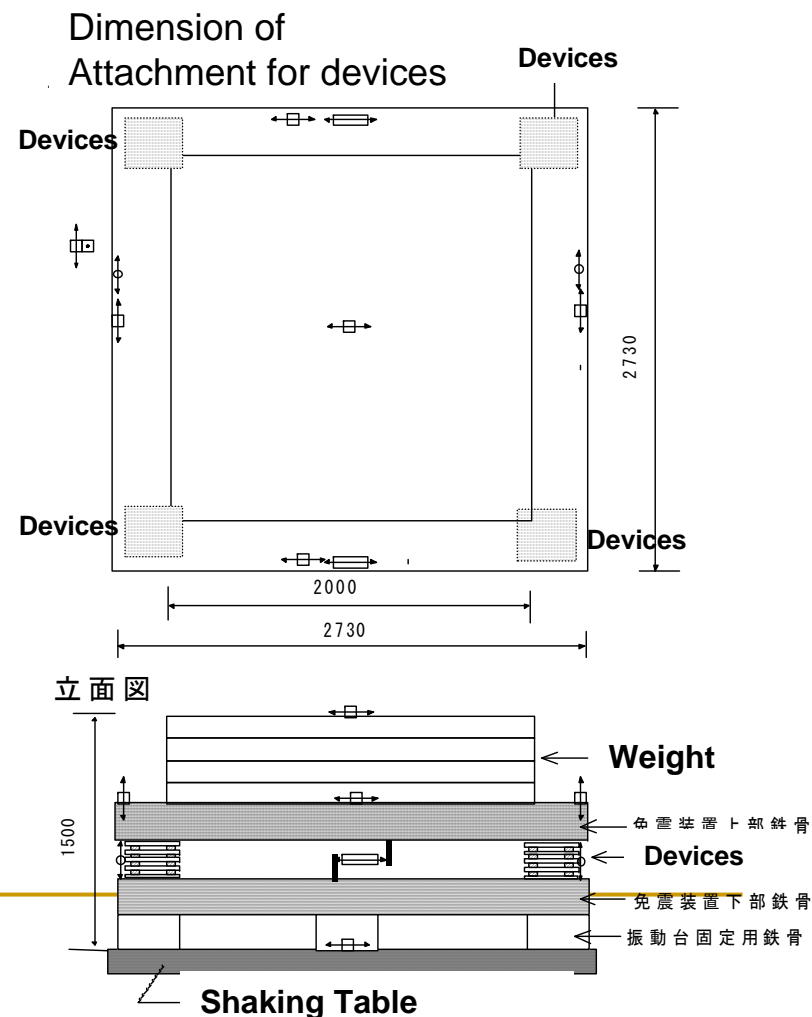
## Topic 2: Risk Feasible and Affordable Seismic Constructions

### Component 2-3:

## Development of Simple and Affordable Seismic Isolation

### ■ Research Topics

- development of low cost isolation devices
- low cost rigid base
- simple construction procedures



## Topic 2: Risk Feasible and Affordable Seismic Constructions

Component 2-3:

### Development of Simple and Affordable Seismic Isolation

- **Other big research topics**
  - **low cost rigid base**
  - **simple construction procedures**

An example of seismic isolation for detached house in Japan

**Isolation Device**

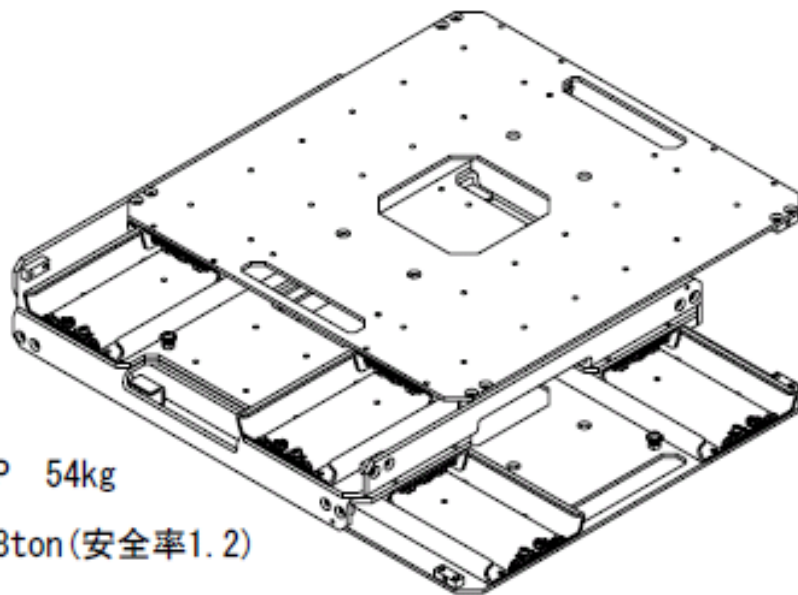


**Rigid Base which supports upper structure**



## ■ Possible alternative Isolation Devices at this moment

- Low cost slide bearing isolation proposed by Dr. Tachibana
- Low cost roller type device proposed by Dr. Ishiyama
- Seismic base isolation using scrap tire pads by Dr. Turer



## ■ Activities for Next Step

- Experiments on devices in BRI
- Workshops/Demonstration for dissemination
- Pilot project

### Shaking Table in BRI

- dimension of table 3m x 4m
- max. load 20tf
- max. acceleration 1 G
- max. velocity 100cm/sec.



Photo by  
Dr. Ishiyama



BRI and our partners

expect

active participation and contribution

Such as

**\*offering experience and expertise**

**\*proposing collaborative works**

**\*joining the R&D activities**

Thank you