Building Code and Existing Buildings in Japan

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1995 Great Hanshin-Awaji (Kobe) Earthquake

- Most of the collapsed buildings (approx. 100,000) were conventional wooden houses.
- ➤ 80% of the total deaths (6,400) or 90 % of immediate deaths were caused by crushing or suffocation mainly due to house collapse.
- ▶ 95 % of collapsed buildings were built before 1981 BSL amendment (in the most severely damaged area).





- Most tragedies and difficulties in disasters are attributed to loss of lives and shelters due to destruction of houses.
- Financial burden of governments caused by destruction of houses is too huge.
- In earthquakes, most of the victims are killed by their own houses.

Securing safety of houses is one of the highest priority in disaster risk management

Japan's policies for safer houses

- Building Standard Law (1950) / Fire Service Law
- Act for Promotion of Retrofitting (Improvement of Structural Safety) (1995)
 - To promote seismic retrofitting of existing vulnerable buildings
- Technical development
- Awareness Raising
- Financial assistance for retrofitting
- Earthquake insurance

Full scale Shake- table testing



E-Defense

5.8m

7.3m

(耐震補強住宅)

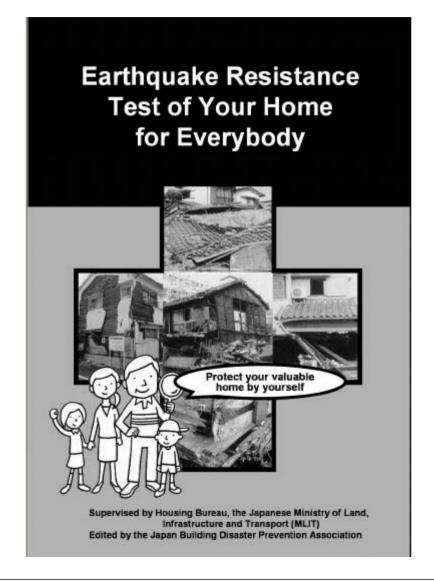
5.9m

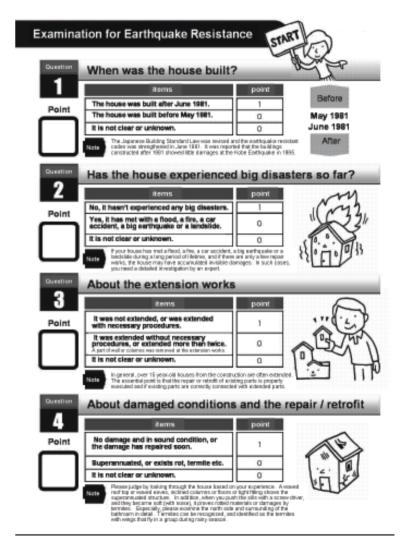
モルタル外壁

(無補強住宅)

Retrofitted and non-retrofitted

Simplified Seismic Diagnosis for wooden houses for awareness raising





Financial assistance for retrofitting

- Seismic evaluation of buildings
 2/3 of the cost is subsidized by the national & local government
- Seismic retrofitting of houses
 - 15% of the cost is subsidized jointly by the national and local governments
 - Low interest rate for the loan
 - Deduction (10% of the cost) from Income Tax
 - Reduction (1/2 for three years) of Property Tax

Is retrofitting of vulnerable houses accelerated?

Resource allocation for disaster management

New construction vs. Existing houses/structures

Resource allocation Lives that could be saved

New construction











Thank you!

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