

Safer Schools

Making Schools Resilient at Scale: The Case of Japan

Solutions Brief
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The experience of Japan in bringing its schools to earthquake-resistant standard offers key lessons for developing countries across policy development, program design, financing modalities, and program implementation.

Earthquakes threatening schools around the world

Each year, natural disasters have devastating effects on children's education in developing countries. The 2015 earthquake in Nepal resulted in the collapse of 5,000 schools, damaged 30,000 classrooms, and disrupted the education of 1 million children while Hurricane Matthew in October 2016 damaged over 730 schools in Haiti. These setbacks in educating children and keeping them safe while in school are not inevitable. Japan accelerated a large-scale retrofitting initiative over the last decade to improve the structural safety of thousands of schools across the country, building on previous incremental efforts.

In the last 13 years, the country has made tremendous progress in seismic resilience. Due to its frequent experience with earthquakes and other natural disasters, Japan has developed new and revised earlier policies, building standards, and other guidelines to help manage the impacts of the hazard events, including the retrofitting of school buildings. In Japan, schools are not only the place for student education, but also a place for local community activities and evacuation during disaster.

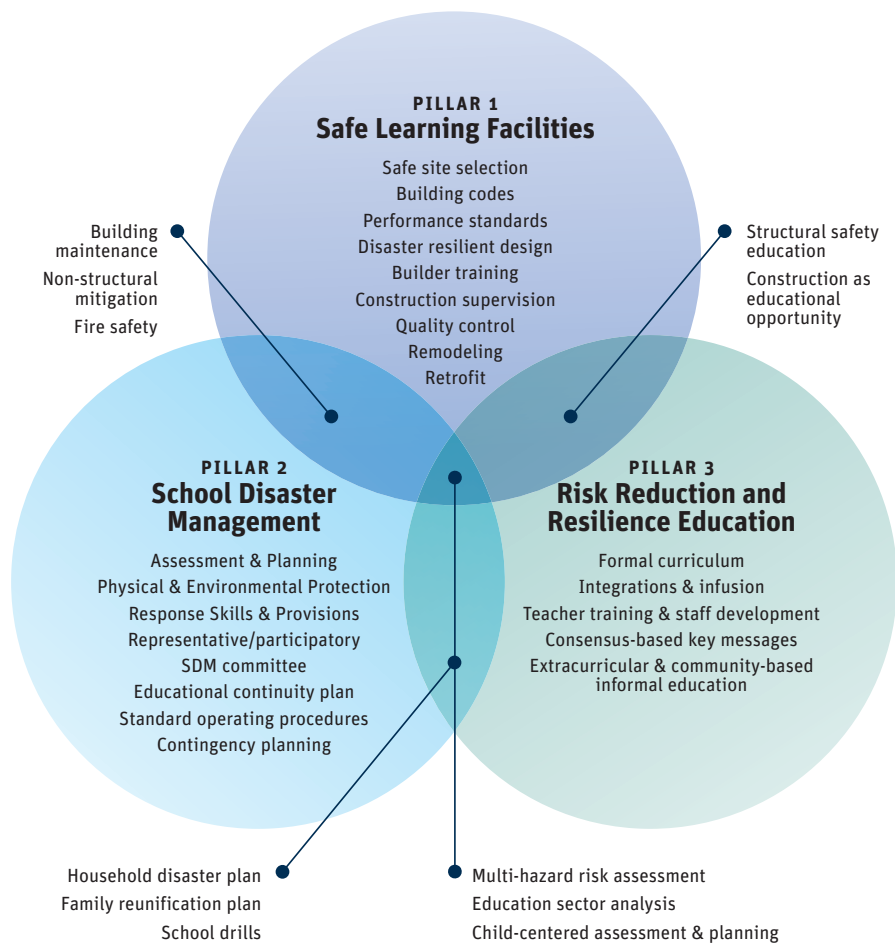
Japan's knowledge and expertise in seismic retrofitting

- The Japan-World Program for Mainstreaming Disaster Risk Management in Developing Countries produced a report documenting the experience of Japan in making school infrastructure more earthquake-resistant over a short period of time, with a focus on activities from 2003 to 2015.

- In Japan, policies and guidelines for safer school facilities, school disaster management, and disaster risk reduction education are formulated by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). As described in the report, this is aligned with national disaster prevention plans. These policies and guidelines are subsequently implemented at the school and community level.
- The report sheds light on how the central government has evolved to establish policies and create a mechanism for school retrofitting. It also describes the local government's efforts to implement these policies and overcome challenges of limited budgets, among others.

The World Bank Disaster Risk Management Hub, Tokyo supports developing countries to mainstream DRM in national development planning and investment programs. As part of the Global Facility for Disaster Reduction and Recovery and in coordination with the World Bank Tokyo Office, the DRM Hub provides technical assistance grants and connects Japanese and global DRM expertise and solutions with World Bank teams and government officials. More than 40 countries have benefited from the Hub's technical assistance, knowledge, and capacity building activities. The DRM Hub was established in 2014 through the Japan-World Bank Program for Mainstreaming DRM in Developing Countries – a partnership between Japan's Ministry of Finance and the World Bank.

Comprehensive School Safety Framework



A program for earthquake-resistant school buildings: lessons for other countries

The experience of Japan in making its schools earthquake-resistant offers key lessons in policy development, program design, and program implementation for developing countries. As outlined in the report, these lessons include:

1. Disasters can create momentum for increased action

Past experience of Japan, including the 1995 Great Hanshin-Awaji Earthquake and other disaster events later, were leveraged to provide momentum to accelerate the school retrofitting program. The program on making schools safe was strongly supported by many political parties, as it was a politically appealing agenda in Japan. It was also favored because it contributed to the local economy and had tangible results.

2. Information disclosure is key to raising public awareness and encouraging program implementers

In Japan, the disclosure of hazard risk information and the analysis of damage by past earthquakes have been the most powerful tools to raise public awareness on need for seismic retrofitting of schools because it both stimulates and supports local government efforts in the program.

3. The roles and functions of schools in disaster management must be clear

In Japan, a school is the core of the community, and many school facilities are designated as evacuation centers.

4. Data has a powerful role in the design and promotion of a retrofitting program

Availability and usage of data on school facilities, progress of the program, analysis of damages by past earthquake, and the hazard risks contributed to the development and promotion of the school retrofitting program in Japan.

5. Important to develop a comprehensive and flexible program with clear priorities and targets

In Japan, MEXT developed a program with clear priorities and target setting. Additionally, it designed implementation strategies that were feasible from the technical, managerial, and financial points of view, contributing to the success of the Program. School heads and community members were consulted to determine the urgency and design of retrofitting projects, making sure that the interference of school retrofitting with educational activities is minimized. This has contributed to raising awareness and ownership among schools and communities on retrofitting projects.

6. The advancement of engineering research should serve as a basis for developing a school retrofitting program

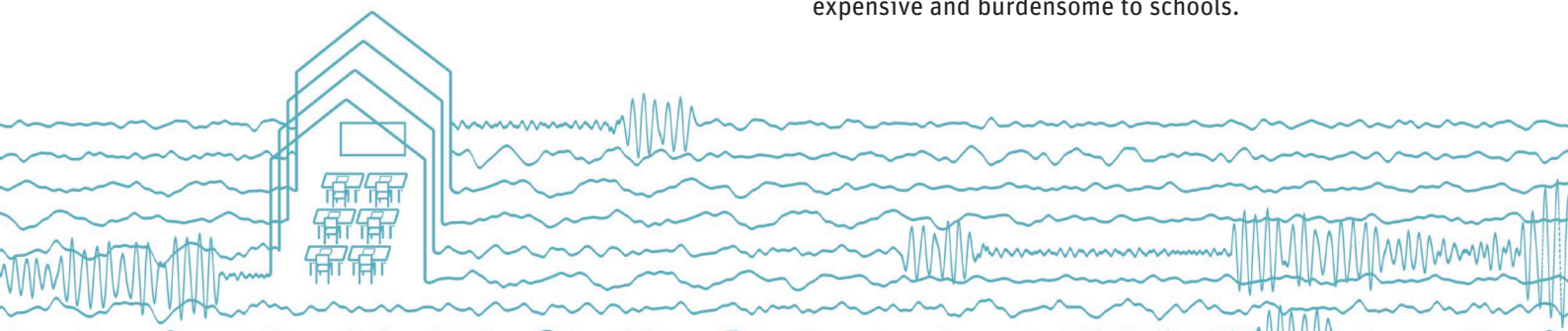
In Japan, retrofitting technology was accumulated and further improved on a regular basis. MEXT policy and strategies were built on accumulating this engineering research and knowledge. The engagement of engineers, private engineering firms, institutions, and other technical experts contributes to the efficient implementation of the school retrofitting.

7. Proactive support by the national government, strong initiative by program implementers and clearly defined role and function of schools within disaster management context are critical to school facility retrofitting and improvements needed

MEXT provided technical support to encourage local government action by responding to their needs. Additionally, as the responsible institutions for implementing the retrofitting program, municipalities in Japan took initiative to secure the safety of school buildings.

8. Combining seismic retrofitting with general modernization of school is cost-efficient

To achieve retrofitting targets each year, MEXT sometimes postponed general improvement of existing schools. As a result, some schools – mostly older buildings – will have to go through further rehabilitation about 10 years after the seismic retrofitting has been carried out. This approach turned out to be expensive and burdensome to schools.



Additional resources

- GFDRR, The World Bank, “Making Schools Resilient at Scale: the Case of Japan” (2016)
- MEXT, “Guidelines for Promotion of Earthquake-resistance School Buildings” (2003)
- MEXT, “Seismic Retrofitting Quick Reference: Schools Facilities that Withstand Earthquakes” (2006)
- MEXT, “Protecting Children from Falling and Tumbling Objects due to an Earthquake: Guidebook for Earthquake Protection for Nonstructural Members of School Facilities” (2010)
- Investigative Commission on School Facility Improvement in Light of the Damage Caused by the Great East Japan Earthquake, Urgent Recommendation “Concerning School Facility Improvement in Light of the Damage Caused by the Great East Japan Earthquake” (2011)
- MEXT, “Ideal State of Disaster- Resilient School Facilities: Tsunami protection measures and enhancement of disaster prevention function as evacuation shelter” (2014)
- MEXT, “Guidebook for Earthquake Protection for Nonstructural Members of School Facilities Protecting Children from Falling and Tumbling Objects due to an Earthquake: Implementing Earthquake Resistance Inspection (Revised Edition)” (2015)
- The additional resources given above are available from National Institute for Educational Policy Research. (www.nier.go.jp)



The Japan-World Bank Program for Mainstreaming Disaster Risk Management (DRM) helps developing countries drive large-scale investment to increase their disaster resilience. Through the Global Facility for Disaster Reduction and Recovery, the World Bank DRM Hub in Tokyo connects officials, practitioners, and development professionals with leading Japanese and global DRM expertise and solutions.

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