

Sound Practice No.1

The School Earthquake Safety Program (SESP)

Overview

The School Earthquake Safety Program (SESP) is one of the priority initiatives under the Kathmandu Valley Earthquake Risk Management Project (1997-2001). The program evolved from a simple school retrofit to a comprehensive program of earthquake safety involving the entire community. This case study developed the rationale for focusing on schools and the comprehensive process of developing and implementing SESP in the Kathmandu Valley. SESP includes a survey and vulnerability assessment of public school buildings through school headmasters; retrofitting and reconstruction of schools; local masons' training on earthquake resistant construction; a participatory community-based approach to earthquake mitigation; awareness raising and education on earthquake safety for teachers, school children and parents; empowerment of communities and general improvement of safety and livelihood; and institutionalizing SESP in local government.

THE SCHOOL EARTHQUAKE SAFETY PROGRAM



Below are some of the lessons learned through this program:

- It is useful to involve the community members from the beginning to transfer ownership of the program to the community as a whole through a transparent management structure.
- In order to enhance local capacity and involve more people, it is helpful to convey scientific and technical know-how in simple terms and transfer low-cost technology accepted by the community. .
- Use SESP as an awareness-raising opportunity and adopt a “train-the-trainers” approach to encourage increased levels of participation.
- Sustained effort is required to effectively change people’s mind sets in

regards to promoting earthquake safety.

Significant Background Information

According to an earthquake vulnerability assessment carried out by the National Society of Earthquakes Technology, NSET, more than 643 school buildings or 66% of public schools in three administrative districts of Kathmandu Valley – Bhaktapur, Kathmandu and Lalitpur, could collapse given an MM IX earthquake in the City.

Use of traditional building materials, such as adobe, stone rubble in mud mortar, or brick in mud mortar is the leading cause the schools extreme risk vulnerability, with the second leading cause of risk being a lack of maintenance. Of the inspected buildings, 10-15% were in very poor condition, many with roofs on the verge of collapse or walls that could crumble at any time.

However, schools could play a significant role in the aftermath of an earthquake since they typically well distributed throughout the communities and could be used as temporary shelters should they remain sound after such an event.

Based on a school survey, SESP started as a program to retrofit and reconstruct vulnerable schools. In the process it became clear that the initiative should be accompanied by (1) training of masons on issues related to building earthquake-resistant masonry structures and (2) training of teachers, parents, and children on earthquake preparedness.

Sound Practice Details

Categories:

Implementing sound practices includes the application of **technical** knowledge for retrofitting or strengthening different type of structures. During this process interesting **instructional** modules have been developed, such as the ones for training masons, teaching parents, teachers, and students about earthquake preparedness and mitigation issues. The process has also raised **community awareness** and involvement in risk reduction.

Thus, this sound practice could be classified under the following categories:

technical, instructional and community awareness activity.

SESP Sponsors:

Nepal's Kathmandu Valley Earthquake Risk Management Project (KVERMP) was launched in September 1997 under the Asian Urban Disaster Mitigation Program (AUDMP) of the Asian Disaster Preparedness Center (ADPC). The objective of this national project was to reduce earthquake vulnerability of Kathmandu Valley through four main elements: (1) loss estimation, scenario development, and action planning; (2) a program for school earthquake safety; (3) public awareness promotion; (4) and capacity building. Through these elements, KVERMP aimed to promote long-term sustainable seismic vulnerability reduction mechanisms in and beyond Kathmandu Valley.

The Office of Foreign Disaster Assistance (OFDA), the U.S. Agency for International Development (USAID), provided funding. The National Society for Earthquake Technology (NSET-Nepal) and GeoHazards International, GHI-USA, were the two main partners in the implementation process.

Key players and their roles:

SESP was implemented with maximum participation of governmental institutions, DDCs, VDCs, school management systems, teachers, parents and students. The governmental agencies provided funds and policy guidance while the school management committees, with technical inputs and supervision from NSET, handled the actual implementation and construction. This implementation, together with the formation of municipal- and district level advisory committees, considerably widened the outreach of the program and its ownership.

Involvement of all



Target groups/recipients:

From the start, SESP actively incorporated community participation as a critical element of the process. Periodic public meetings were held to review work progress, provide financial updates, and collect views and suggestions from villagers. These meetings provided a forum for active participation in decision-making and, at the same time, raised people's awareness of earthquake safety.

**Awareness Raising
within Parents and Students!**



There were many beneficiaries of this program, including were the students, teachers, and parents from selected schools; the masons in the training program; and the community at large due to their involvement in the process.

Program locations:

SESP began in Kathmandu City and was expanded to the Valley. The initial retrofit of Bhuwaneshwori Lower Secondary School proved the technical, social, and economic feasibility of the program. In 2000, five more schools were retrofitted. In 2001, an additional four more schools were retrofitted and the SESP model was replicated in two communities outside the Valley in the Dhading District by Room to Read.

Resources:

School headmasters assisted in completing the school building survey, which was always supervised and guided by expert engineers from NSET. The criteria for school selection emphasized good community solidarity and the community's willingness to contribute in kind and in cash to the strengthening of the school building.

Masons identified for training lived in the community or its vicinity. Mason training was set up as informal community gatherings during the evenings

where community members observed hands-on demonstration of retrofitting and reconstruction techniques.

The community provided about one fourth of the labor costs. The communities themselves, with some support from NSET, generated funds and acquisition of materials for the project and the SESP committee managed the funds and implementation.

A pool among international organizations, local government, and community effort generated the necessary funding based on the school's needs.

Start and Completion date:

Begun in 1999, this is a long-term sustained initiative that will continue to be developed as additional resources are generated.

RELEVANCE TO MEGACITIES

Universality / Transferability

Local and international organizations have shown interest in the SESP program, with Room to Read, a non-profit Nepalese organization, replicating the SESP model in two communities outside KV in 2001. It has also been endorsed and replicated by GeoHazards International, the Japan International Cooperation Agency and UNCRD in their programs.

More importantly, this practice has sparked community interest: Ward 8 in Gorkha District, Prithvinagar Municipality (in western Nepal), submitted a proposal to NSET for technical assistance in school reconstruction and SESP implementation in the aftermath of a 5.1 earthquake that struck the district in July 2001.

Applicability And Expandability

The SESP management structure, training curriculum, manuals, toolkits and other resources developed under SESP could be used and adopted in other communities, cities, and countries.

Supporting Documentation

The process to structurally strengthen schools developed into a comprehensive program that generated three significant products:

- “Protection of Educational Buildings Against Earthquakes: A Manual for Designers and Builders,” developed by NSET in collaboration with UNESCO;
- A curriculum for mason training on earthquake-resistant construction produced by NSET based on the curriculum developed by the Royal Nepal Government’s Department of Housing and Building Construction; and
- An Earthquake Kit developed for training teachers and parents on earthquake preparedness.

School Earthquake Safety



Knowledge Base Coding Reference:

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