

Second Session Keynote Address :

KEY ISSUES IN BUILDING FOR SAFETY

I. Davis, Oxford Centre for Disaster Studies, UK

Introduction

Statistics show that the numbers of people affected by disaster is growing annually by 6%. However, the impacts of a disaster will vary according to the circumstances of the community affected. For example, in 1993 both Latur (India) and Los Angeles (USA) were struck by earthquakes of magnitude 6.5 (Richter). 8,240 died in Latur while the death toll in Los Angeles was a relatively low 60.

The lesson from the earthquake in Kobe makes another point: this event killed 5,466 and caused damage totalling \$100bn. This is an illustration of the way in which property losses are escalating alarmingly. These issues have been addressed in this year's INDNR theme "Cities at risk".

Much of the death toll from earthquakes results from collapsing masonry and buildings and another key factor is the reality that these deaths primarily occur in the dwellings of low-income families. Since such families are normally well below the threshold of "engineered structures built by qualified builders", there is a clear need for more community-based training programmes in hazard-resistant housing. Allied to that there is much to be done to look at the various issues surrounding vulnerability to examine any social, cultural or even political reasons for present unsafe practices.

Risk assessment

The assessment of the risks affecting a community will need to consider three elements :

Firstly, what preparedness measures are in place or can be developed and if they have the necessary knowledge, resources and authority to do so. Who will take responsibility?

Next, are there ways of reducing the risk by, for example, moving homes out of flood-prone areas (or above them on mud platforms) or mitigating winds by the use of wind breaks.

Thirdly, can realistic warnings be issued that will enable the most vulnerable to take effective action before a disaster to mitigate its likely effects.

Building stronger houses is one way of reducing the risks created by a hazard. Building for safety includes better basic construction and the retrofitting of existing structures with strengthening elements.

Building for safety

The objective of a Building for Safety programme should be to promote community self-reliance and to create a culture of safety. There is no need to make major changes in building technology; indeed this should be resisted, since Bangladesh and many other hazard-prone countries are littered with failed projects that aimed for fundamental changes.

Rather than physical changes in technology, the objective should be to create a team of experienced local builders and craftsmen. Components and materials may be supplied but only in conjunction with advice and explanation of their uses and benefits so that the culture of safety is built up gradually.

This process should focus on and involve high risk social groups.

Effective training

Figure 1 illustrates diagrammatically the importance of increasing participation of a participant in effective learning.

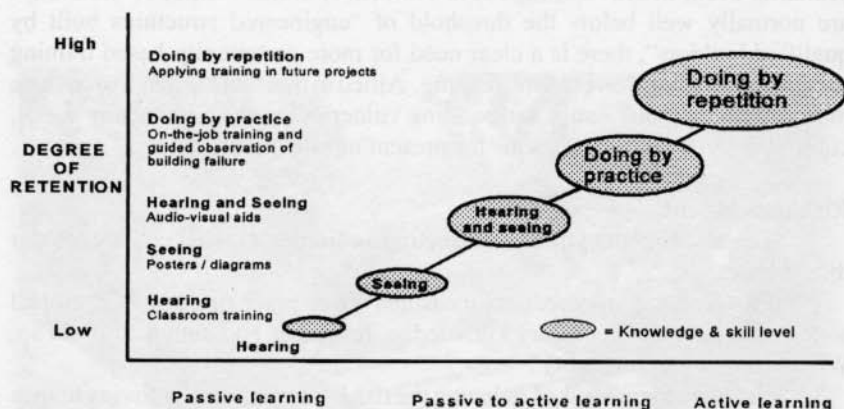


Figure 1 : Format of training for building improvement projects
(After Aysan et al., 1995)

This diagram highlights that effective learning must be based on direct experience. Therefore, trainees need to avoid class-room based theoretical training approaches. Students retain more of the message for longer by active involvement, ideally including repetition of activities.

Training needs to include everyone - the building users as well as the builders. Conducting building for safety training programmes provides opportunities for incorporating a range of other skill training.

By linking building for safety programmes with income generation activities it is possible to enable participants to generate the funds necessary for improving their homes. This has been done, for example, in Anhui Province in China.

Conclusions

1. Advocates of community-based training programmes for local builders and craftsmen must expect strong opposition from building contractors who want the work.
2. Although the risks from earthquakes are not so severe in Bangladesh as those from floods or cyclones, it is still vital to design and construct safer dwellings for poor families. Probably the only way to do this is through community training.
3. The best time to introduce safe building training is after a disaster as part of the reconstruction process. This time presents a unique "window of opportunity". Probably the next best time to introduce improvements will be when new dwellings are being built. However, the most difficult thing will probably be to address the need to make existing buildings safe. This is expensive and socially disruptive as well as often technically difficult.
4. To be effective, training needs to be "experiential" - where advice is given "on the job" - rather than in a passive class room situation.
5. Community-based training in building safety is best organised in conjunction with other opportunities for developments in leadership, skills, local preparedness planning and income generation as new skills in building can be marketed and general community development is seen as a positive outcome of the process.

Postscript :

This paper and this workshop have attempted to pose a challenge to the assumption that the most effective way to build houses for low-income families in hazard-prone areas is by using building contractors. "Building for Safety" community-based programmes may take longer than those undertaken by large building firms and they may be less tidy. However, as noted above, they offer significant benefits in terms of social gains that concerned decision-makers need to consider very carefully.

References :

The four volume Building for Safety series is published by
Intermediate Technology Publications Ltd,
103-105 Southampton Row, London WC1B 4HH :

1 : *Technical principles of Building for Safety*, Andrew Coburn, Richard Hughes, Robin Spence and Antonios Pomonis, 74pp, 1995

2 : *Developing Building for Safety programmes*, Yasmin Aysan, Andrew Clayton, Alistair Cory and Ian Davis, 120pp, 1995

3 : *Communicating Building for Safety*, Eric Dudley and Ane Haaland, 80pp, 1994

4 : *Building for Safety compendium*, Andrew Clayton and Ian Davis, 56pp, 1994