

### Third Session Keynote Address :

## SOME EXPERIENCES OF SAFE BUILDING PROGRAMMES FROM LATIN AMERICA

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### Introduction

The key message which I want to leave with you is to find out how people build and help them build a little bit better ! In my experience, most people know how to build and use their homes but we professionals can help them to do it a bit better.

The examples on which I will draw include those of Alto Mayo where 7,000 homes were rebuilt after the 1990 earthquake and the regional reconstruction programme undertaken by the Corporation Nasakiwe in Colombia.

Much human vulnerability to hazards is man-made. Since the risks relating to disasters and dwellings are largely social products, anyone intending to facilitate change must look at how and why people build as they do in any particular place.

It is useful to compare the main features of traditional and modern building technologies.

### Traditional rural building technologies

It is usually the case that housing provision is subordinate to the agricultural activities on which most rural dwellers depend for their existence. Traditional houses will be built using local materials, available labour and time-honoured technology. The quality of the resulting product will be subject to social, economic and locational constraints. It has to be admitted that traditional building is not always good from a technical viewpoint.

### Modern building industry sector

The period since the 1950s has seen the introduction of new materials such as cement and steel into domestic building. At the same time a big change in terms of monetization of time and space has occurred. Labour now has to be paid so the speed of construction has become important.

Thus the modern building sector supports material production and distribution, the development of skilled labour, professional inputs and home finance mechanisms. To compare the modern and traditional sectors it is necessary to look at all of these factors.

Urbanization brings additional demands for infrastructure and services. Therefore, the modern sector defines culture of building and provides the standard to which people aspire. Traditional forms become seen as sub-standard, a view reinforced by television images. This can be an advantage. For example, the author's traditionally-built house in Lima attracts local taxes of only 10% of those paid by his neighbours living in modern constructions.

### **Modification of traditional building technologies**

The aspiration to "modern" housing has resulted in modification of traditional technologies. Some modifications are due to the subjection of materials and labour to market forces. Thus, time becomes a constraint for building housing.

Within urban areas space has a value and also becomes a constraint. Therefore, those on low incomes are obliged to cut costs on the construction and traditional building becomes more unsafe. For example, a traditional one-metre thick wall may become half as thick to speed construction.

### **Modification of modern building technologies**

This is the reality for most urban poor. Modern materials are used, often in traditional ways. To guarantee a satisfactory outcome, most of the new urban dwellers will need assistance.

Modern building requires technological supports: credit, to enable completion of the building at one time and professional inputs regarding siting, design, and so on.

Lack of building skills, high cost of materials, lack of finance, inadequate norms (or standards) and lack of controls are commonly found within this group of home owners/builders. The consequence, sadly, is that often unsafe modern building is produced.

### **Building: Innovation; adaptation and vulnerability**

Innovation and adaptation of modern and traditional technologies is common. Lack of funding and understanding of those technologies impose severe constraints on achieving security and quality. In general, subjective factors (aspirations and desires of the owners) are as important as objective factors (technical and financial aspects) in defining building technologies.

It should be noted that choosing a building technology is a conscious choice made by the owner. The home must look modern irrespective of actual technology used.

### **The traditional approach to safe building**

In most countries standards and regulations ignore the realities of how people build. Credits and finance schemes are orientated to the middle classes and thus can exclude the poor. Housing projects and programmes seldom have much long term effect.

### **Latin American experiences of introducing technological innovation**

Schools and other community buildings make appropriate demonstration buildings. The best time to reconstruct has been found to be after disasters when improved traditional technologies such as ring beams and soil stabilisation techniques can be introduced.

All the necessary technology is known; there is no need to reinvent the wheel. For example, manuals on safe building have been available since 1956. The need is to implement them.

### **Disadvantages of a Rigid Technology Approach to Innovation**

Disasters can be opportunities for innovation and change but often have not been so. Where complete technological packages have attempted too much change at one time, the results have inevitably been confusion and failure. Beneficiaries never refuse aid but unless they are able to assimilate and understand the technologies the innovations are unlikely to be replicated once the project has finished. It is said that there are more elephants in Peru than in India; the difference is that the Peruvian ones are all white elephants!

Involvement of the local building industry sector is essential for the successful replication of safe building innovations. Unless these innovations are seen to be incorporated in "modern" buildings, they are unlikely to be widely used by owner-builders.

Lack of understanding of people's aspirations has often resulted in poor replication of innovations.

Many programmes have found it difficult to scale up from initial localised activities to a wider impact. Often, this was because they lacked support mechanisms that could maintain and develop their momentum. One example of such support would be the training of builders so that the innovations can be used and seen in use every day instead of on one-off occasions.

It is essential that the home owners participate in designing the innovations. Designers have to talk to people to find out their needs. This will help to give the owners some control over the process and ensure that essential features are not ignored. For example, in one project area people needed to incorporate a large living room in which they could (one day)

entertain wedding parties. Failure to host a daughter's big day would constitute unacceptable loss of face. Architects from another area failed to anticipate this need.

Reliance on technology alone carries the strong risk that any failure (such as unavailability or increasing cost) of that technology will result in the stalling or complete break down of the project.

### **Loose Technology Approach to Innovation**

Experiences from Latin America indicate that a loose approach to innovation is generally more likely to be long-lasting. This will involve

- Negotiation of consensus on technological innovation before building with consultations starting perhaps six months before action;
- Letting people take the decision to innovate;
- Introduction of innovative technological elements rather than complete solutions;
- Incorporating local materials, skills and knowledge into innovation this may require some adaptation of proven technologies;
- Use of local networks to disseminate innovation through training programmes, local Press and so on; and, lastly
- The acceptance that the improved technology will be only a little bit better than what already exists. The development of Safe building technologies must be seen as an incremental process. The catch phrase is that

"Perfect is the enemy of Good"

Those who aim initially for perfection may easily fail to achieve even a good outcome.

### **To summarise some lessons**

It is vital, as a first step, to understand why people build as they do. Then we can help people move from defensive innovations to innovations of counter attack and start to get real improvements.

Innovations must be introduced in a loose framework. Produce training materials after and not before the project as the prepared material may impose an unnecessary rigidity.

Safe Building programmes cannot exist in isolation. It is important to build up support systems for innovation which should include :

- appropriate norms and regulations;
- credit systems;
- material and component production and distribution systems;
- skill development.

### **Finally !**

It is the responsibility of the expert to understand the user and NOT to focus exclusively on hazard. We, the experts, often need training ourselves to make us more accessible. Programmes must take into account aesthetics and cultural values.