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SHELTERING THE URBAN POOR:  
LESSONS AND STRATEGIES OF THE MEXICO CITY  
AND SAN SALVADOR EARTHQUAKES

Frederick C. Cuny  
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INTRODUCTION

A large urban earthquake can create sudden, large demands for shelter for the urban poor. Two recent earthquakes -- one in Mexico City and the other in San Salvador -- illustrate the problems that urban planners may face in future urban disasters. Certain groups of disaster victims are extremely difficult to reach with conventional assistance and normal post-earthquake reconstruction strategies. These recent experiences are forcing planners to re-examine post-disaster shelter strategies and to develop new programs and approaches to provide suitable interim shelter and replacement housing. These events have also forced a re-examination of the temporary shelter strategies which have become widely accepted in the last decade.

Since the great Guatemala earthquake of 1976, most relief agencies have de-emphasized the so-called "ABC" approach -- that is, the initial provision of emergency shelter followed by temporary housing which, in turn, is followed by reconstruction of permanent housing. In the Guatemalan experience, which was primarily rural, many agencies chose to use a transitional approach (the forerunner of the "shelter-to-housing" concept), providing shelter materials that could be reused in permanent reconstruction, thereby going immediately from stage A to stage C and omitting the temporary housing phase. The majority of damages in Guatemala, however, were to rural single-family housing, to individual squatter housing, and to isolated individual housing units in the lower-income neighborhoods in Guatemala City. Damages to multi-family buildings were minimal.

CLASSIFICATION OF DISASTER VICTIMS IN AN URBAN EMERGENCY

In the two earthquakes discussed here, five different types of low-income urban victims could be identified. These were:

A. Squatters

In San Salvador, a large percentage of the victims were squatters who resided on marginal sites such as the banks of steep ravines, along railroad tracks, and on public lands or other sites that had been occupied illegally. (A large number of the victims were displaced persons who had moved to the city to escape the violence of the civil war in the countryside.) Most of their houses were constructed of lightweight materials such as corrugated iron sheeting, cardboard, and wooden timbers. Much of the damage suffered by this group was not from the collapse of housing, however, but from landslides.

B. Urban Self-Help Builders With Secure Tenure

In a number of cases, urban poor have been able to secure small but adequate sites on a permanent basis. In San Salvador, private agencies, and in some cases the government, had been able to purchase large, unoccupied tracts and turn them over to low-income self-help builders. On these sites, a wide variety of non-engineered buildings were erected, many of low-quality earthen materials such as bajareque, unreinforced masonry and, in a few cases, low-quality adobe.

In Mexico City, only a few individually-owned, low-income houses were damaged by the earthquake, due primarily to the fact that most of the damage was centralized in the center of the city.

C. Occupants of Public Housing

In both Mexico City and San Salvador, a high degree of loss was sustained by publicly-financed, high-rise public housing. The most dramatic failures occurred in the Tlatololco Complex and the Benito Juarez site in Mexico City where over 1,000 people were killed in the collapse of four buildings. In San Salvador, a substantial number of public housing units were also damaged, although without the catastrophic failures seen in Mexico City. However, due to cracking and the potential for aftershocks, many of the buildings were unsafe for immediate occupancy, and surveys indicated that few of the seriously-damaged buildings could be immediately repaired.

D. Occupants of Single-Family Rental Housing

A small percentage (although a large number) of individual rental housing units were damaged in both earthquakes. For the most part, people living in single-family housing were at the upper end of the low-income range. Providing replacement housing for this group proved to be relatively easy because landlords were generally wealthy enough to repair or reconstruct the buildings and, since the housing was a source of income, were generally willing to do so quickly. In the case of buildings that could be repaired, owners often agreed to reduce rents if the tenants would do the repair work. There were also a number of owners who sold the property to tenants that could afford to purchase the houses with the assistance of non-governmental agencies and loans from specially-created reconstruction funds.

E. Occupants of Multi-Family Rental Housing

This group proved to be the most problematic of all. In both earthquakes, the majority of people that were affected resided in this type of building. In Mexico City, over 44,000 families, or almost a quarter of a million people, lived in multi-family slum buildings

known as *vecindades*; in San Salvador, 15,855 families, or approximately half the occupants of damaged buildings, lived in similar buildings known as *mesones*.<sup>1</sup> A closer look at the *vecindades* prior to the earthquake will illustrate some of the problems.

*Vecindades* were commercial buildings converted to tenements at the turn of the century as a way of holding the land until such time that it would be economically feasible to build factories. Within several decades, hundreds of thousands of people lived in these small, cramped areas. Most were one-room structures, crammed around long, narrow passageways, without adequate water or sanitary facilities.

The quality of construction of the *vecindades* was poor. In many cases, property owners simply subdivided the interior space with adobe walls laid directly on the ground with no foundation or other type of reinforcement. The roofs were made of logs covered with earthen material, later replaced by concrete slabs. Few of the buildings had any internal structural integrity and it was easy for the earthquake to transfer forces from one living unit to another, quickly damaging all of them beyond repair.

By 1948, conditions had become so bad that the government froze the rents in an attempt to force landowners to improve the buildings. Instead, the owners tried to evict the tenants and the government was forced to issue a further order to the landowners stipulating that they could only evict tenants if the structures were totally uninhabitable. For the next thirty-eight years, relatively few improvements were made to the buildings except by the tenants. The density continued to increase and, by the time of the earthquake, had reached incredible levels. In one eighty-block area, almost a quarter of a million people lived in *vecindades*. In many cases, the original landlords had long since sold the property to land speculators who simply collected what marginal rents they could get and otherwise ignored the properties and their conditions.

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<sup>1</sup> Assessment Report: Estimated Damages in the Housing Sector Caused by the October 1986 San Salvador Earthquake and Suggested Reconstruction Strategies, INTERTECT, Dallas, October 1986.

### COMMON RECONSTRUCTION STRATEGIES

The most common reconstruction strategies include: shelter-to-housing programs, i.e., the provision of building materials such as corrugated iron sheets, timber, etc., that can be used first as a temporary shelter and later incorporated into permanent housing; loans and other forms of credit; and relocation to other homes or sites. The shelter-to-housing strategy (which evolved from experiences in Guatemala; Andhra Pradesh, India; and more recently, Popayan, Columbia) worked well with squatters and urban self-help builders with secure tenure. Loans and credit mechanisms also worked well with those two groups. Relocation strategies, which are highly favored by the World Bank and other major lending institutions, can work only for small numbers, since the cost of land acquisition, installation of services and housing construction are generally fairly high. Furthermore, few people have been willing to relocate to sites outside a disaster-affected area.

This leaves large numbers of the last three categories -- occupants of rental housing of all types (generally the largest group of disaster victims in an urban area) -- without a suitable strategy for the provision of housing or intermediate shelter.

### THE COMPLEXITY OF SHELTER STRATEGIES FOR RENTERS

Of all the groups affected by urban disasters, renters of multi-family properties have proven to be the most problematic. Foremost is the issue of land. In any urban area, good sites are very expensive. In both Mexico City and San Salvador, the majority of vecindades and mesones were located in the heart of the city, on land which had not only residential but also commercial and, in some cases, industrial potential. In most situations, owners would have preferred to evict the tenants and build other types of structures.

The second and, in many ways the most important, question is who to assist in reconstruction. No humanitarian agency, few governments, and hardly any lending institutions would be willing to give slumlords loans or grants to rebuild the properties, since for years they had exploited the tenants. To assist them would be tantamount to supporting an unjust housing system. On the other hand, if assistance was provided to the tenants to rebuild or repair housing on land which they did not own, in most countries the tenants would have no protection against eviction once the houses were rebuilt. Furthermore, they would be carrying the burden for reconstruction without any compensation. (In no cases were relief agencies able to work out agreements between owners and tenants to provide rent reductions for work or cash put into the reconstruction effort by the tenants.)

In many cases, landowners viewed the disaster as an opportunity to expel the tenants and convert the land to other uses. With the devaluation of the peso, many of the people living in vecindades in Mexico City found that, in terms of real income, their individual situation had vastly improved; the amount of money they paid in rent decreased with devaluation. Thus, when the earthquake occurred, many were paying only a small percentage of their income for housing and therefore had more total disposable income at their command.

The earthquake first appeared to give landowners the opportunity for which they had been waiting to evict the tenants. Since many of the buildings were now unsafe, the tenants could legally be evicted under the safety clauses of the Mexican Building Code and the provisions for eviction under the rent freeze decree of 1948. But in many cases, the landlords simply chose to do nothing. They would neither evict the tenants nor do anything to repair the buildings. Without secure title to the land, the tenants were unable to obtain credit; thus they were forced to decide whether to abandon the site or to risk rebuilding at their own expense and hope that the landlord would not evict them later.

For the reconstruction agencies, the operational costs were enormous. First, the cost of assembling the land, if the owners were willing to sell, was extremely high, since the land was centrally located and had value far above any housing that would be placed on it. Even if they could assemble the land, the cost of building earthquake resistant buildings would also be very high. Any building would have to be multi-story in order to accommodate all previous residents. Such construction can only rarely be carried out by unskilled workers. Therefore, skilled contractors, masons and, in some cases, engineers and architects, would have to be involved in the construction process, further increasing the costs.

The biggest problem, however, was how to get the landlords to sell, since most were adopting a "wait and see" approach.

For the government, the political problems were extremely sensitive. In Mexico City, the majority of people living in vecindades were affiliated with political groups hostile to the government, while a majority of the landowners were strong supporters of the ruling PRI party. In El Salvador, it was estimated that over 90% of the damaged mesones were owned by two families, both of which were associated with the right-wing party opposed to the present administration. In both cases, whatever action was taken by the central government to resolve the land issues was likely to create a firestorm of criticism on one side or the other. In the case of El Salvador, which has close links to a conservative U.S. administration, the government had to consider the reaction of right-wing senators in the U.S. Republican Party: if they were offended, the overall aid package to the country might be severely reduced.

#### The Mexican Approach

After several weeks of hard deliberations, President Miguel de la Madrid decided to take a bold step on behalf of the tenants. Announcing to close associates in October that he was not prepared to see several hundred thousand people thrown out into the streets by slumlords (especially since they were only a mile from the National Palace), the President signed an order which expropriated approximately 60% of the vecindades damaged by the tremors. In subsequent months, a comprehensive strategy was developed to deal with the issues of land acquisition and reconstruction. The land was acquired under the expropriation order and government development bonds were issued to the previous landowners.

Community organizers from the government then went to each vecindad and conducted a survey to determine whether the people would prefer to move or remain. For those who wished to remain (95%), the groups were instructed to form and register either a cooperative or condominium association. Once this was done, the government issued a temporary title, certifying the names of the previous occupants and assuring them that they could reoccupy the site.

Next, the government cordoned off 50% of the residential streets in the affected neighborhoods on which they erected a series of temporary shelters, in most cases adjacent to or near each vecindad that was to be demolished.

Operating through the Public Works Department, the government demolished the buildings, cleared the sites, and then stabilized the soils. At that point, tenants were queried to determine whether they wanted a contractor selected by the government to rebuild their structure or if they preferred to select a voluntary agency to do the work. If a voluntary agency was selected, it usually indicated that the people preferred some sort of aided self-help housing program but, in fact, only a very few chose to rebuild the houses themselves.

As the houses were being erected, the government tried to define a suitable loan program. Several different schemes were tried without much success as will be explained later. The original intent was to have the people borrow the money with the interest going to pay for the bonds given to the landowners. However, this proved impractical and, in the end, a large majority of the buildings were simply given to the tenants gratis.

#### The Situation in San Salvador

Unfortunately, the Salvadoran program has lagged far behind that of Mexico. President Duarte, unwilling to antagonize the right-wing U.S. senators, has ignored calls for expropriation and has unsuccessfully sought other ways of freeing up the land. For the most part, few reconstruction activities of any significance have taken place and many people are still without shelter. In some cases, urban residents have reluctantly concluded that they will have to rebuild houses themselves. Since they do not have secure tenure, few are willing to build more than marginal structures, most of which are more dangerous in earthquakes than the buildings they previously occupied.

Shelter has also been a problem for the renters. The government refused to cordon off the streets for shelter space, partly because they had no plans to help rebuild the multi-family buildings. Therefore, many people have been living in self-built shelters made of scavenged materials completely unsuitable for long-term occupancy. Efforts to provide alternative land for relocating the victims have not yet gotten off the ground, since the government has been unable to obtain credit from international lending institutions. Many observers feel that the growing unrest in the city, and the lack of confidence in the government arising from its failure to meet reconstruction needs, are seriously undermining the administration.

## LESSONS LEARNED

Both earthquakes have shown that the concentration of risk in urban areas is extremely high and the potential for catastrophic loss is very real. Regarding shelter, it is clear that, due to the uncertainty over land acquisition, both emergency and long-term shelter strategies must be reconsidered. The provision of building materials for some groups may not be a suitable approach. In some cases people may not be able to rebuild houses; in others, the sites will later be cleared in demolition activities. Furthermore, it is doubtful that relief agencies will want to encourage people to remain on crowded, dense sites that could experience further failures during aftershocks.

Due to the long time that may be required to rebuild multi-family structures, large numbers of temporary shelters or housing units may be needed. The Mexico City approach of cordoning off the streets may be a workable approach for providing land for these shelters in cases where surrounding buildings are not higher than one or two stories. Expectations by relief agencies that many people would abandon the sites and move in with relatives or friends, or would be willing to relocate to temporary shelters some distance from their previous homes, did not prove to be the case. Due to uncertainty over the land, most people clung tenaciously to their previous site, even at the risk of occupying the buildings during the period of strong aftershocks.

The importance of having a workable land acquisition strategy is one of the major lessons for reconstruction planners. Despite the hostility of donors to the idea of expropriation (U.S. AID, the World Bank, and other lending institutions strongly discourage expropriation and will not finance housing built on expropriated properties), it appears to be the most viable way that land can be assembled quickly and turned over to the occupants. Land swaps (providing government land to the previous owners in exchange for the tenant properties), while often promoted, have not proven to be a viable option in either Mexico City or San Salvador, nor in other cases where they have been proposed. Despite an initial outcry from landowners, the vast majority of the Mexican populace applauded President de la Madrid when he carried out the expropriation, for sympathy was overwhelmingly with the disaster victims. In most cases, if expropriation is carried out quickly in the aftermath of a disaster, the government should not encounter major problems.

The potential importance of expropriation should not be overlooked. If expropriation is linked to a balanced program of reconstruction and urban upgrading, it can provide the basis for major initiatives in urban renewal and land reform. It is therefore important that the actions be carried out in such a way that they serve as a model for future action. To be successful, the government must ensure:

- that the program is carried out in a reasonable period of time;
- that it is equitable to everyone affected, both renters and landowners; and
- that unreasonable expectations are not generated.

Both reconstruction programs have encountered a number of operational problems that will be of interest to urban planners. Among these, the most important is providing loans in an inflationary environment. Since the number of people who will require economic assistance is high, most governments would prefer to use some form of revolving loan program so that the benefits of reconstruction can be provided to everyone. To ensure that large numbers of poor people can participate in loan programs, governments must either subsidize the loans (i.e., absorb a large percentage of the cost or forgive a portion of the debt) or extend the loans over long periods of time. In an inflationary economy with the value of the monetary unit dropping daily, the amount of money that will be recovered, in real terms, is relatively small.

This has two impacts. First, revolving loans cannot be used unless the payments are tied to the inflation rate. If that happens, fewer people will qualify or seek loans since the incomes of the poor usually increase at a rate slower than the inflation rate. In order to get people to participate in the loans, the rate must usually be fixed. This means that the government will virtually have to write off between 50%-70% of the loan value (assuming that the inflation rate continues unchecked). At some point, the government must realistically decide whether it is more economical to give the money away or to administer a loan which will have little value after only a short period of time. The cost of loan administration can be high and, in an inflationary environment where salaries are adjusted to the inflation rate, it may be advisable for the government to terminate a twenty-year note after the fourth or fifth year rather than continue to administer and collect the amount due.

The Mexico City and El Salvador earthquakes reiterate other important lessons. Urban reconstruction is primarily an economic problem. The majority of people affected most are the poor. For the poor, disasters represent lost property, jobs and economic opportunity. In real terms they can represent an enormous economic setback. Therefore, reconstruction assistance should be designed to:

A. Relieve the Economic Strain and Reduce the Cost of Reconstruction.

This can be done using both direct and indirect approaches. An example of a direct approach would be subsidizing the costs of reconstruction and lowering the cost to the victim. Indirect measures might include actions to reduce expenditures in non-disaster-related areas, such as lowering the cost of food and other daily purchases, thereby freeing people's capital for reconstruction.

B. Inject Capital into the Community.

In a reconstruction program, vast amounts of money will be taken out of the community as people pay for building materials, supplies and services. It is important that the amount of money going out be replaced by new money coming in. (This is often done through jobs programs created for the disaster victims.)



C. Create Employment Opportunities.

In the aftermath of a disaster, the affected areas should receive high priority for initiatives to provide both full and part-time employment.

D. Support and Strengthen Existing Economic Enterprises.

It is important to ensure that local small businesses are involved in the procurement process. For example, if roofing materials need to be purchased, they should be procured from local suppliers, stored in local warehouses, and distributed by local transport systems. In the long run, the program may be slightly more expensive but the injection of this money into the economy will ensure that the socio-economic structure remains intact and provide a means for giving indirect support to economic reconstruction.

CONCLUSION

It goes without saying that the economic situation in Mexico and El Salvador is not without parallels in other parts of Latin America. Governments must be realistic in what they can accomplish in reconstruction without severely increasing their debt burden. For countries which have yet to experience a disaster, however, now is the time to plan ways to reduce vulnerability. Risks can be shared between the government and the private sector, and a "safety net" of economic and administrative programs can be developed to reduce losses and reconstruction expenses if a disaster occurs. In short, disaster mitigation can be far less expensive than major shelter or reconstruction programs.

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