

Chapter III

EMERGENCY SHELTER

3.1. THE NEEDS AND RESOURCES OF SURVIVORS

PRINCIPLE: The primary resource in the provision of post-disaster shelter is the grassroots motivation of survivors, their friends and families. Assisting groups can help, but they must avoid duplicating anything best undertaken by survivors themselves.

Audience

- Private sector: Manufacturers/contractors
- Professionals: Architects/planners/engineers
- Policy-making administrators: National (tertiary) level
- Project managers of post-disaster shelter/housing projects: Regional/provincial (secondary) level

Time phases

- Pre-disaster phase—Preparedness/mitigation/risk reduction
- Phase 1—Immediate relief period (impact to day 5)
- Phase 2—Rehabilitation period (day 5 to 3 months)
- Phase 3—Reconstruction period (3 months onward)

RESPONSE

In the disasters studied, the primary response to shelter needs has been provided by the survivors themselves. The secondary response has been that of local organizations, particularly those "in place" at the time of the disaster. The least effective response has inevitably come from expatriate organizations with no prior experience of the disaster-affected area. In no case have these organizations provided more than 20 per cent of the local shelter response. This percentage relates to both shelter units and materials provided in the emergency phase².

The factors limiting the participation of external assisting groups include:

1. *Time.* External organizations cannot move fast enough to participate fully during the emergency period. It is not only extremely difficult to mobilize external resources quickly, but the enormous problems of shelter

distribution in the stricken area limit the possibility of delivery within the emergency period.

2. *Scale of disaster.* The magnitude of many disasters, especially in relation to numbers affected and the cost of meeting their needs, clearly prohibits any major role for imported shelter. No expatriate agency has the resources to meet the massive needs which can be, and are, more often best met by local resources.

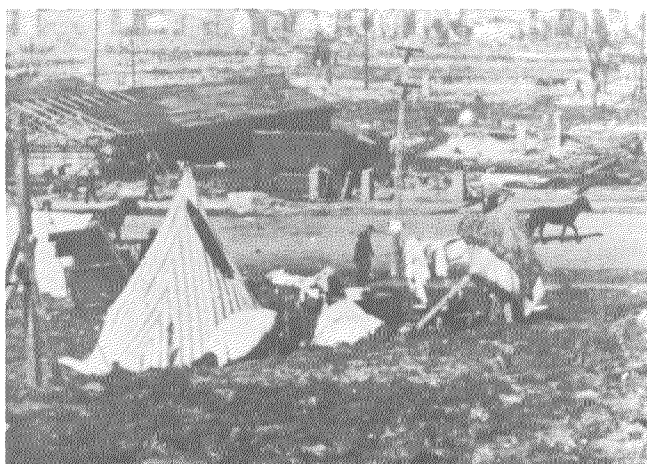
3. *Self-reliance.* The peoples of developing countries are more self-reliant in the basic skills of shelter construction than their counterparts in the industrialized countries. This is particularly true in rural areas where, in any case, families have always built their own houses. If the nature of the disaster allows them to stay in place, they can, in principle, rebuild their homes quickly, although they may require technical and material assistance.

AVAILABILITY OF BUILDING MATERIALS

In every type of disaster and post-disaster situation, a wide variety of building materials is available for emergency shelter and housing reconstruction programmes.³

³ Even in international refugee situations, where the refugees themselves may not have access to the normal housing materials supply market, the host government and supporting international and voluntary agencies will have access to local resources for emergency shelter and housing.

² The ratio of locally provided shelter to external provision bears out the statistics issued by the Office of Foreign Disasters Assistance of the United States Government indicating that, in a 10 year period (1965-1975), for every dollar provided in disaster assistance from external sources, 42 dollars were provided *within* the countries affected. [Committee on International Disaster Assistance (CIDA) The United States Foreign Disaster Assistance Programme National Academy of Sciences, Washington D.C., USA, 1978.]



Improvised shelter following the 1906 San Francisco earthquake.

(Credit: Bear Photographic Services, San Francisco)

Following every type of disaster, one or more of the following sources can be used to obtain substantial amounts of the materials needed for construction:

Inventories of unused materials that existed before the disaster.

Indigenous materials (both commercially and non-commercially available).

Materials salvaged from the rubble.

Of the above, the latter two are the most important for widespread housing programmes. The vast majority of the urban poor usually rebuild from materials obtained from non-commercial sources. Housing in rural areas is most likely to be based on indigenous materials. Industrially manufactured building materials are those which normally survive a disaster in the best condition and are, therefore, the best to salvage from the rubble.

In studying the major disasters which have occurred during the past ten years, causing extensive housing losses, it has been found that there have been enough resources from indigenous and salvaged materials to rebuild nearly three-quarters of the housing to pre-disaster standards. Indeed, for houses rebuilt to a structurally safer standard, the same materials can be used in over ninety per cent of cases, thereby substantially reducing the costs of reconstruction. Yet, authorities and agencies responsible for handling relief and reconstruction efforts have repeatedly overlooked these resources, and have often, and inadvertently, taken steps to destroy them.

The reasons are:

That few assisting groups have prior housing or building experience and, therefore, are not familiar with the types of materials required or available.

That indigenous and salvageable materials are often overlooked when the authorities or assisting groups reject pre-existing building standards.

That housing is often over-emphasized by assisting groups, though, as will be seen throughout this study, it is not always the highest priority item for low-income families in a developing country. They may not, therefore, be willing to invest substantial amounts of money, time or effort into building formal structures.

These problems indicate the need:

1. *To understand the local building process which exists before a disaster* The most effective assisting group will be one which is conversant with the pre-existing norm, and draws upon this understanding in the development of the post-disaster programme.

2. *To survey resources available after the disaster.* This will probably require the employment by assisting groups of personnel with experience of local building traditions.⁴

SURVIVORS' PRIORITIES

(See table 1)

Survivors show certain distinct preferences for their shelter in the aftermath of disaster. The evidence suggests that their priorities are:

1. To remain as close as possible to their damaged or ruined homes and their means of livelihood.
2. To move temporarily into the homes of families or friends.
3. To improvise temporary shelters as close as possible to the site of their ruined homes. (These shelters frequently evolve into rebuilt houses.)
4. To occupy buildings which have been temporarily requisitioned.
5. To occupy tents erected in, or next to, their ruined homes.
6. To occupy emergency shelters provided by external agencies.
7. To occupy tents on campsites.
8. To be evacuated to distant locations (compulsory evacuation).

⁴ In India in 1971, at the beginning of relief operations for the Bengali refugees, none of the major agencies involved had any prior housing experience in India. At the peak of the influx of refugees in August 1971, only three of the ten largest agencies employed housing or emergency shelter specialists. Over the years, the situation has not significantly improved. In reconstruction operations in Guatemala, 1976, out of the forty agencies involved in reconstruction, only 5 had had prior housing experience in Guatemala, and of the remainder, only 7 had staff with prior low-cost housing experience. *Reconstruction of Housing in Guatemala: A Survey of Programs Proposed after the Earthquake of February 1976*, Charlotte and Paul Thompson, UNDRO/Intertect, 1976.

TABLE I
Shelter priorities of disaster survivors relative to roles of assisting groups

Preferences of disaster survivors in order of priority	Roles of assisting groups								Examples of this preference
	International agencies	External donor governments	External voluntary agencies	Foreign experts	Local military	National government	Local administration	Local voluntary groups	
1. Remain as close as possible to damaged or ruined home									Guatemala 1976
2. Move into the home of families or friends									Skopje, Yugoslavia 1963 Managua, Nicaragua 1972
3. Improvise temporary shelters close to ruined homes									Guatemala 1976, Peking alert, China 1976
4. Occupy buildings temporarily requisitioned									Van, Turkey 1976
5. Occupy tents near ruined home									Gediz, Turkey 1970 Lice, Turkey 1975 Van, Turkey 1976
6. Occupy emergency shelters provided by external agencies									Chimbote, Peru 1970 Gediz, Turkey 1970 Managua, Nicaragua 1972 Lice, Turkey 1975
7. Occupy tents camp sites									Guatemala 1976
8. Compulsory evacuation to distant locations									Managua, Nicaragua 1972

FUNCTIONS OF SHELTER

Emergency shelter serves several vital functions (*not* listed in order of priorities):

Protection against cold, heat, wind and rain ⁵

Storage of belongings and protection of property.

The establishment of territorial claims (ownership and occupancy rights)

The establishment of a staging point for future action (including salvage and reconstruction, as well as social reorganization.)

⁵ Evidence from two severe winter earthquakes (Van, Turkey, 1976 and Southern Italy, 1980) shows how families take the initiative in reducing the risks of exposure, by lighting fires made from earthquake debris, digging in to form semi-underground structures, thus securing ground warmth, or by erecting several tents inside each other to form a cellular insulation skin. This shows that the majority of survivors who are frequently from the poorest sections of the community are the most resourceful. See Ressler, Everett, *Issues Related to the Provision of Emergency Shelter in Winter Conditions (Report on visit to Caldivan Earthquake, Eastern Turkey)*. UNDRO/Intertect, 1977.

Emotional security and the need for privacy.

An address for the receipt of services (medical aid, food distribution, etc.)

Shelter within commuting distance of employment.

Accommodation for families who have temporarily evacuated their homes for fear of subsequent damage.⁶

⁶ A major earthquake and its aftershocks may result in families needing temporary accommodation for a long period. Normally this form of shelter will be adjacent to their homes, with many activities still taking place inside the house but sleeping occurring in cars, tents or improvised shelters. Following the 1976 Friuli earthquake in Italy, many families with undamaged, or partially damaged homes moved out into temporary accommodation. Whilst this occurred, a second earthquake took place, causing additional damage to the already weakened structures but minimal loss of life due to evacuated houses. A further effect of earthquakes is that, in certain instances, surviving families have shown reluctance to begin salvaging materials from the rubble until the threat of a secondary disaster has passed. In the case of floods, families will be displaced for as long as it takes the flood waters to retreat. On their return, the problems of inundated soil, contaminated water supply etc., normally delay the repair or reconstruction of buildings.



A key function of emergency shelter is the storage of salvaged belongings. This photograph was taken after the Guatemalan earthquake of 1976.