

OFFICE OF THE UNITED NATIONS DISASTER RELIEF CO-ORDINATOR  
Geneva

# **Shelter after Disaster**

**Guidelines for Assistance**



**UNITED NATIONS**  
New York, 1982

## Foreword

Since its creation in 1972, the Office of the United Nations Disaster Relief Co-ordinator (UNDRO) has striven to assist nations of the world in their struggle against natural disasters, and other disaster situations, through a two-pronged strategy: firstly through international disaster relief co-ordination, and secondly through pre-disaster planning in order to mitigate the risks and adverse consequences of disasters. In the field of pre-disaster planning UNDRO has organized training seminars and work-shops, provided technical assistance to disaster-prone countries, and has published studies on the many aspects of disaster preparedness, prevention and mitigation.

The origins of the present study go back to 1975 when the Co-ordinator decided that a major review of emergency shelter provision was needed, particularly with a view to giving the United Nations family and Member States guidance on this extremely difficult subject. The Government of the Kingdom of the Netherlands, expressing its concern for the subject, funded the UNDRO study. The study was carried out in two phases: the first from July 1975 to September 1977, and the second from November 1979 to May 1982. During the first phase the bulk of the evidence was assembled and analysed. The second phase of the study saw the development of planning and policy guidelines for emergency shelter provision, and post-disaster housing more generally.

This has been both a difficult and challenging study, for the evidence gathered has clearly pointed out the need for some important attitudinal shifts among the majority of groups providing assistance following disasters. Many conventional and preconceived notions have been questioned and new ideas proposed.

The publications can be characterized as follows:

- It is probably the first comprehensive study to be published on disasters and shelter (many books and articles having been published on limited or special aspects of the problem, usually in relation to specific events).
- It encompasses the entire disaster spectrum: disaster preparedness; disaster relief; post-disaster reconstruction, and prevention.
- It addresses one of the most complex, controversial and least understood aspects of disaster management and planning.
- It analyses the problem of shelter after disaster from the point of view of the survivor, rather than through the traditional perspective of the donors and other assisting groups.

It is evident that in the past decade the understanding of disasters and their consequences has improved. In the face of the mounting social and economic costs of natural disasters in the third world, the international community (donors and recipients of aid alike) have made considerable efforts to improve the quality of

disaster relief, preparedness and prevention; to improve our understanding of natural hazards; to estimate the risks resulting therefrom more accurately; and to take adequate precautionary or preventive measures ahead of disasters. Progress has, nevertheless, been slow: population growth, rapid and uncontrolled urbanization, degradation of the environment, economic recession, and poorly co-ordinated development planning have, together, conspired to outstrip progress in the control of disasters. It is certain that disasters are not merely "acts of God" but are aggravated by human error and lack of foresight; that disaster relief can be made ever more effective through systematized planning and management; and that pre-disaster planning does help, at least, to reduce some of the harshest effects of disasters. Therefore, whatever the difficulties, efforts to improve disaster relief and pre-disaster planning must continue unabated.

It can be said with some assurance that relief management in the fields of medicine, health, and nutrition has, nevertheless, significantly improved over the last decade. The benefits of the lessons learned from major disasters during the 1970s and early 1980s are beginning to show. However, there remains one particular sector in which too little progress has been made, and in which many conservative and obsolescent attitudes survive, that is: emergency shelter, and shelter after disaster in a more general sense. Perhaps the core of the problem lies in the fact that, although housing is one of the most complex and intractable problems of development, it is also one upon which everyone has his or her personal opinion, thus creating much confusion between objective and subjective evaluations. The least understood of all issues is that a house is merely the end-product of a long chain of social, economic, technological, environmental, political and other interactions. In some countries the housing issue is not "the house", but land and utilities (water, electricity, roads, transport, etc.). In others, the poorest, housing has a lower priority than employment and nutrition. In no more than a handful of countries can the house, as a product, be said to be of primary concern. Until it is fully and widely understood that shelter is a "process" rather than a "product", many housing programmes, however well-meaning, will fall short of expectations—especially in the developing countries. The foregoing reasoning is as true for the shelter aspects of disasters as for the "normal" housing process.

This study is designed to provide policy and programme guidelines on emergency shelter and post-disaster housing for disaster management personnel within the governments of disaster-prone countries; the non-governmental, voluntary and relief organizations; donor governments; the United Nations system, and other international organizations. It should be emphasized that while considered to be a technical study, it is *not* a document on engineering or building construc-

tion—for reasons well explained in the text—notably because precise specifications for shelter can only be given in a precise, local context. This study, nevertheless, provides the foundation for such action.

The study was prepared by the Office of the United Nations Disaster Relief Co-ordinator (UNDRO), under the responsibility of Mr. Ludovic van Essche, Senior Co-ordination Officer. The consultants to the study were Mr. Ian Davis, Principal Lecturer, Oxford Polytechnic, United Kingdom, and Mr. Frederick Cuny, Intertect, Dallas, Texas, USA. Contributions were also received from Mr. Paul Thompson (Intertect), Mr. Frederick Krimgold, National Science Foundation, Washington, D.C., USA; and Mr. Aloysius Fernandez, New Delhi, India.

In its closing stages, the draft study was reviewed by an International Expert Group who met in UNDRO, Palais des Nations, Geneva, in December 1981. Members of the Group were: Dr. Otto Koenigsberger (Chairman), Emeritus Professor of Development Planning, University College, London, United Kingdom; Mr. Jurg Vittani, a senior relief official of the League of Red Cross Societies, Geneva; Dr. Julius Holt, International Disaster Institute, London, United Kingdom; Dr. Caroline Moser, Development Planning Unit, University College, London, United Kingdom; Professor Aydin Germen, King Faisal University, Dammam, Saudi Arabia; Mr. Jai Sen, UNNAYAN, Calcutta, India.

The representatives of the Netherlands attending the Meeting were Ms. Valery Sluyter, Ministry of Foreign Affairs, The Hague, and Mr. L. J. Van den Dool, First Secretary of Embassy, Permanent Mission of the Kingdom of the Netherlands to the Office of the United Nations and other International Organizations at Geneva.

Observers attended from the United Nations High Commissioner for Refugees (UNHCR); the United Nations Centre for Human Settlements (Habitat), and the World Health Organization (WHO).

The Office of the United Nations Disaster Relief Co-ordinator (UNDRO) wishes to express its deep appreciation to the Government of the Kingdom of the Netherlands for its unfailing commitment to, and support for, this important and complex study.

It is hoped that this publication will be of assistance to those it addresses, and a source of inspiration for all those concerned with the problems of shelter in the developing countries. Readers' comments and suggestions are invited, and should be addressed to UNDRO, United Nations, Palais des Nations, Geneva, Switzerland.

UNDRO  
*Geneva, May 1982*

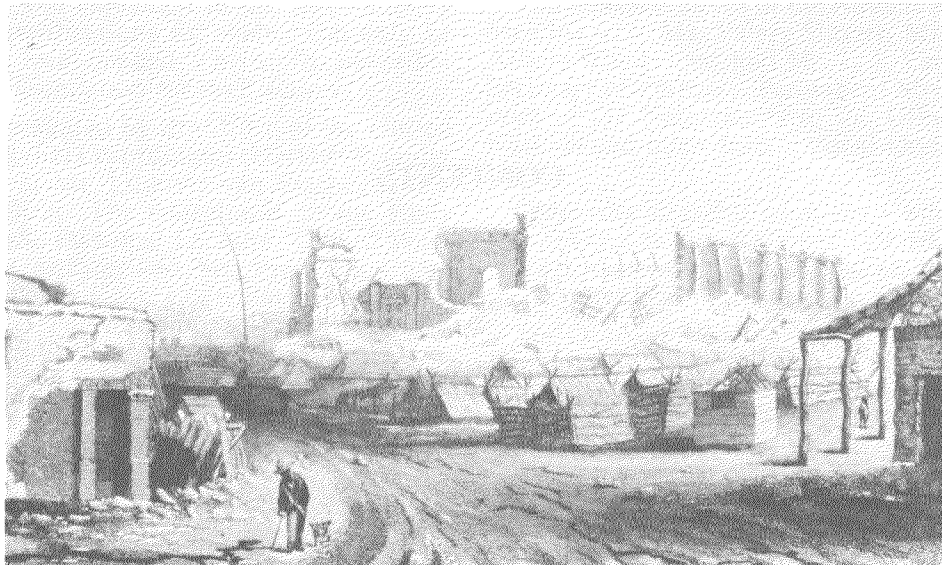
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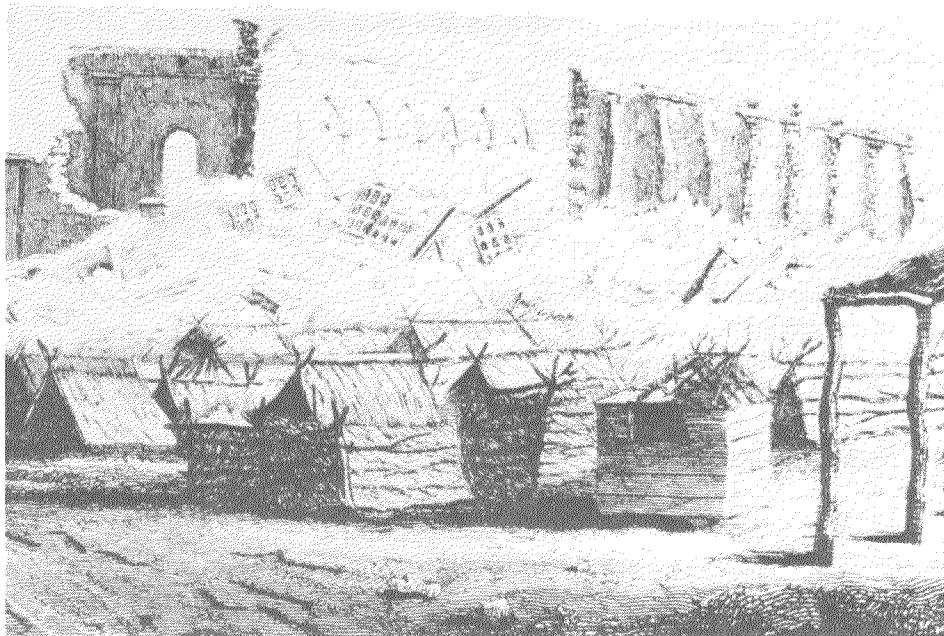
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The Concepcion Earthquake, Chile, 1835



*"... Much misery was alleviated by the good conduct and extreme hospitality of the inhabitants of Concepcion. Mutual assistance was everywhere rendered, and theft was almost unknown. The higher classes immediately set people to work, to build straw-covered huts and temporary houses of board, living meanwhile in the open air under trees. Those who soonest obtained or contrived shelter, collected as many about them as they could assist, and in a very few days all had temporary shelter, under which they tried to laugh at their misfortunes and the shifts to which they were reduced. ..."*<sup>a</sup>

— Capt. Robert Fitzroy, hydrographer accompanying Charles Darwin on the scientific voyage of *HMS Beagle* (1831-1836). Drawing by the expedition artist. Probably the first careful record of post-disaster shelter.

<sup>a</sup> Keynes, R. D., ed., *The Beagle Record* selections from the original accounts of the voyage of *HMS Beagle*, Cambridge University Press, 1979 pp. 255-7

## Chapter I

### CONTEXT AND OBJECTIVES

"A Committee of voluntary agencies writing to the President of Guatemala two years after the earthquake of 4 February 1976 admitted that many mistakes had been made and listed the following five as the most important: too much aid was given away; too many of the houses constructed were merely of an emergency type; some organizations used large numbers of foreign volunteers, too much was done under pressure and without proper consultation, so that the victims became mere spectators of the work carried out rather than participants; a lot of reconstruction work was undertaken without first consulting the Government's Reconstruction Committee."<sup>1</sup>

Of these five "mistakes", it will be noted that two are specifically concerned with shelter and housing provision and that the others have a clear bearing on the subject, highlighting yet again the importance of this area of disaster relief and raising a number of important questions:

How should disaster assistance be dispensed? Should it be simply given away, subsidized or marketed in the affected area?

How can outside aid be balanced with local self-help?

What type of housing or shelter should be provided—permanent or emergency?

How can the active participation of the affected community be mobilized during the post-disaster pressure for swift action?

How can the government retain control of housing reconstruction?

Though the literature on these and other topics concerned with shelter after disaster is extensive, it is scattered and, therefore, often inaccessible, especially to assisting groups seeking guidelines and advice.

#### OBJECTIVES

The present study aims to remedy these problems, its most distinguishing feature being the emphasis on shelter needs from the standpoint of the survivor receiving aid. It also seeks to assist disaster-prone countries (especially the developing countries), and all assisting groups, in solving as effectively as possible the problems of emergency shelter and post-disaster housing through the emergency and reconstruction periods. By the same token, therefore, this study is also a guide to pre-disaster planning, in anticipating future disasters.

#### SCOPE

In so far as this study is comprehensive, it has to maintain a certain level of generality. It does not, therefore, address problems of building construction and engineering which, in the view of UNDRO, can only be identified and solved within a specific locality and context. As already emphasized in the foreword, this is a policy and planning document, not a building manual. Some of the findings of this study are relevant to man-made disasters (for example, refugee situations) and to long-onset disasters (such as droughts), but its main concern is with fast-impact disasters (such as earthquakes, floods, cyclones). Although it has been found essential to view emergency shelter provision in the wider context of "normal" housing, it must be emphasized that the primary concern of the study is with the immediate shelter needs of survivors following disaster.

#### AUDIENCE

This publication is intended for all officials and technicians (professional staff) who are responsible for planning and executing post-disaster shelter programmes: government planners, administrators and programme managers at the national and regional levels in disaster-prone developing countries; the experts and technical advisers of the international agencies (and the United Nations system in particular); officials and field staff of non-governmental, voluntary organizations; relief agencies; and donor governments. Clearly, these groups will be concerned with technical matters as well as with policy development and programme management. Since these aspects are closely interwoven, no attempt has been made to separate them in this study, although it is recognized that in practice they may be the concern of different people and agencies, at different levels of responsibility. It is important to emphasize that the recommendations are deliberately *not* intended for use at the local (or primary) level of field implementation, since detailed guidelines (which are essential for all disaster-prone areas) can *only* be formulated by local personnel in the light of local conditions. However, the structure of the guidelines as a whole will provide an appropriate model for local adaptation.

#### FOCUS

Although many of the guidelines may be appropriate to some industrialized societies, the main concern of the study is with developing countries. The emphasis is placed on the needs of the poorer communities, both urban and rural, for they are in the majority today. These communities, for the most part, preserve many links with tradition, particularly when it comes to housing. Therefore, self-help and popular participation con-

<sup>1</sup> Norton, Reggie, "Disasters and Settlements," *Disasters*, vol. 4, No. 3, 1980, p. 339.

stitute one of the strongest threads running through the study. In fact, the evidence suggests that the modern industrialized sector (large firms of building contractors, prefabrication, etc.) has a relatively minor role to play in the total reconstruction of housing after disaster in developing countries. The very general character of the guidelines must be emphasized in view of the variety of political systems reflected in the evidence collected. Therefore, some of the advice (for example, on the role of private sector or problems of land acquisition and reform) will be of limited application, again pointing to the need for specific guidelines to be developed at the local level. It is further recognized that in urban areas, in particular, the affected community may be highly heterogeneous in terms of religious beliefs, social status, ethnic background and income level. Again these differences can only be accommodated in locally developed guidelines. It is hoped that the formulation of local guidelines will be an important and active follow-up aspect of the present study.

#### STRUCTURE OF THE GUIDELINES

The analysis of the evidence gathered points to fourteen basic principles. These are listed in chapter II,

forming the foundation of the study, and serving as a brief summary of its recommendations. Chapter III presents the findings and guidelines for emergency shelter, and chapter IV does so for post-disaster housing (reconstruction). Chapter V summarizes the most important conclusions to be drawn from the study. It calls special attention to the rising expectations of the developing countries, the accountability of assisting groups toward them, and the need to develop local guidelines.

The following time phases are used, although it is recognized that they will vary according to the local conditions and type of disaster:

*Phase 0*—Pre-disaster phase

*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)

It is realized that these phases are somewhat arbitrary, but in the case of disasters of sudden onset they are adequate for descriptive purposes.

Lastly it is important to mention that the evidence upon which all the findings of the study are based can be found in appendix A containing 11 case study summary sheets.

#### CHART 1 Audience

##### TERTIARY LEVEL (NATIONAL)

###### Policy-making administrators

Directors of government building research bodies.  
Directors of government housing, reconstruction and emergency planning agencies.  
Directors of international voluntary relief development agencies  
Directors of housing finance institutions

##### SECONDARY LEVEL (REGIONAL/PROVINCIAL)

###### Project managers of shelter or housing programmes

Field staff of governments (donor and recipient), international organizations; voluntary organizations; relief agencies  
Professional groups; architects, engineers, planners.  
Private sector: building contractors, suppliers of materials, equipment, etc.

##### PRIMARY LEVEL (LOCAL)

###### Local groups (surviving community)

Local community leaders.  
Local teachers/trainers.  
Local builders/craftsmen

The guidelines in *Shelter after Disaster* are focused on tertiary and secondary levels of audience. The production of guidelines for the local (primary) level must be undertaken locally by personnel from the regional/provincial (secondary) level, working in close collaboration with local groups. *Shelter after Disaster* may serve as a model for the preparation of local guidelines. Section 5.4—Advice for the local level—has been written to assist in this task. The guidelines in *Shelter after Disaster* are focused on tertiary and secondary levels of audience

## Chapter II

### PRINCIPLES

#### 1. *Resources of survivors*

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

#### 2. *Allocation of roles for assisting groups*

The success of a relief and rehabilitation operation depends on the correct and logical distribution of roles. Ideally, this allocation should be undertaken by the local authorities who are best qualified to decide who should do what, when and where. However, if the local administration is too weak to assume this responsibility, the priority must be to strengthen it.

#### 3. *The assessment of needs*

The accurate assessment of survivors' needs is in the short term more important than a detailed assessment of damage to houses and property. Partial or inaccurate assessments of human needs by assisting groups have been a frequent cause of past failure of relief efforts.

#### 4. *Evacuation of survivors*

The compulsory evacuation of disaster survivors can retard the recovery process and cause resentment. The voluntary movement of survivors, where their choice of venue and return is timed by their own needs, on the other hand, can be a positive asset. (In the normal course of events some surviving families may seek shelter for the emergency period with friends and relatives living outside the affected area.)

#### 5. *The role of emergency shelter*

Assisting groups tend to attribute too high a priority to the need for imported shelter as a result of mistaken assumptions regarding the nature, and, in some cases, relevance of emergency shelter.

#### 6. *Shelter strategies*

Between emergency shelter provision and permanent reconstruction lies a range of intermediate options. However, the earlier the reconstruction process begins, the lower the ultimate social, economic and capital costs of the disaster.

#### 7. *Contingency planning (preparedness)*

Post-disaster needs, including shelter requirements, can be anticipated with some accuracy. Effective contingency planning can help to reduce distress and homelessness.

#### 8. *Reconstruction: the opportunity for risk reduction and reform*

A disaster offers opportunities to reduce the risk of future disasters by introducing improved land-use planning, building methods, and building regulations. These preventive measures should be based on hazard, vulnerability and risk analyses, and should be extensively applied to all hazardous areas across the national territory.

#### 9. *Relocation of settlements*

Despite frequent intentions to move entire villages, towns and cities at risk to safe locations, such plans are rarely feasible. However, at the local level a disaster will reveal the most hazardous sites (i.e. earthquakes faults, areas subject to repeated flooding, etc.). Partial relocation within the town or city may therefore be both possible and essential.

#### 10. *Land use and land tenure*

Success in reconstruction is closely linked to the question of land tenure, government land policy, and all aspects of land-use and infrastructure planning.

#### 11. *Financing shelter*

One of the most important components of a post disaster shelter programme is its financing system. Out-right cash grants are effective in the short term only, and can create a dependency relationship between survivor and assisting groups. It is far more advantageous for both the individual and the community to participate in the financing of their own shelter programmes, especially permanent reconstruction.

#### 12. *Rising expectations*

Apart from the tendency of prefabricated, temporary housing to become permanent because of its high initial cost, and in spite of its frequent rejection on socio-cultural grounds, temporary shelter, nevertheless, fre-



quently accelerates the desire for permanent modern housing, well beyond reasonable expectation. It is important for assisting groups not to exacerbate social and economic tensions by such provision where there are widespread and chronic housing shortages among low-income and marginal populations.

#### 13. *Accountability of donors to recipients of aid*

Since the most effective relief and reconstruction policies result from the participation of survivors in determining and planning their own needs, the successful

performance of assisting groups is dependent on their accountability to the recipients of their aid.

#### 14. *Guidelines for the local level*

Guidelines on emergency shelter and post-disaster housing for individual communities can only be formulated by qualified, local personnel, in the light of the prevailing local conditions (types of hazard, building traditions, economic base, social system, etc.). Such guidelines can, however, be modelled on the structure of this study.