

# Disasters and the disabled



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**DISASTERS**  
AND THE  
**DISABLED**



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## THE INTERNATIONAL YEAR OF DISABLED PERSONS

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The General Assembly of the United Nations, at its thirty-first session, by resolution 31/123 of 16 December 1976 proclaimed 1981 to be the International Year of Disabled Persons.

The aims of the International Year were manifold: to help disabled people in their physical and psychological adjustment to society; to promote all national and international efforts to provide disabled people with proper assistance and training, and make available opportunities for suitable work; to ensure their full participation, equality and integration in society; to encourage study and research projects designed to facilitate the participation of disabled people in daily life; to educate and inform the public of the right of disabled persons to take part in and contribute to various aspects of economic, social and political life; and to promote effective measures for the prevention of disability and for the rehabilitation of disabled people.

A "World Programme of Action Concerning Disabled Persons" was prepared under the aegis of the United Nations Centre for Social Development and Humanitarian Affairs, with the intention of promoting the realization of the goals of "Full Participation" of disabled persons in the social life and development of the societies in which they live, and of "equality": that is, living conditions equal to those of other citizens in their society, and an equal share in the improvement in living conditions resulting from social and economic development.

In October 1981, a "World Symposium of Experts on Technical Co-operation among Developing Countries and Technical Assistance in the Field of Disability Prevention and Rehabilitation" recommended special efforts to assist the developing countries, where a majority of the 500 million disabled persons of the world live. Developing countries have a bigger share of disability problems than the industrialised nations, partly because of malnutrition and other diseases related to poverty, and the lack of hygiene, sanitation and communication systems. While the problems associated with disablement are daily growing more serious, measures to alleviate them are not even meeting the present needs, and certainly will not be sufficient for the expected rise in the numbers of those disabled.

Developing countries in particular will need more technical assistance to help them to deal with aspects of prevention and rehabilitation as well as with the provision of equal opportunities for disabled persons in employment, housing, and access to buildings and transport. Production of technical aids and equipment must be encouraged, using indigenous resources; training must be given in the development of services for the disabled; and attention paid to the special needs of disabled people in rural societies.

In the development of programmes and projects designed to attain these objectives, many organizations in the United Nations system are taking part. UNDR0, the Office of the United Nations Disaster Relief Co-ordinator, has prepared this volume as a contribution to this joint endeavour. It is based upon the work of an UNDR0 consultant, Dr. H. Adamsons, who is herself disabled. Due acknowledgment is given to staff of International Labour Organization, World Health Organization, the Secretariat of the IYDP and of the League of Red Cross Societies, who read the text in draft and made many helpful suggestions.

Geneva,

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DISASTERS AND THE DISABLED

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## INTRODUCTION

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### UNDRO AND THE INTERNATIONAL YEAR OF ----- DISABLED PERSONS -----

The Office of the United Nations Disaster Relief Co-ordinator serves as a world-wide communication centre for the co-ordination of disaster relief. UNDRO has three broad functions: the first is that of relief co-ordination, to ensure that in case of natural disaster or other emergency, the relief activities of donors are mobilized and co-ordinated so as to supply the needs of a disaster-stricken country in a timely and effective manner.

Its second function is that of preparedness: to raise the level of pre-disaster planning and preparedness, including disaster assessment and relief management capabilities, in disaster-prone countries.

Thirdly, there is the function of prevention: to promote the study, prevention, control and prediction of natural disasters including the collection and dissemination of information concerning technological developments.

UNDRO's major contribution to the International Year of Disabled Persons has been to undertake a comparative research project in four developing countries, in order to discover the present condition of people who became disabled as a result of disasters which occurred in the period 1976 - 1980. Two of these countries, Algeria and Guatemala, had suffered major earthquakes, and two, the Dominican Republic and Haiti, had been hit by hurricanes.

Over the years, UNDRO has in general used in its work the categories of "homeless", "dead" and "injured" persons, terms which are also to be found throughout the disaster-related literature. Although unsystematized data regarding the number of injuries are available, little or no attention has been paid by the scientific medical community to those victims who incurred disability. The long-term effects of disaster on health have not been well documented. It is a cause for concern that while national plans for reconstruction of devastated countries include many aspects of renewal, they often omit the physical and mental rehabilitation of people.

The first mission undertaken by the UNDRO consultant in connection with the research project revealed that there are indeed large numbers of disabled disaster victims who, because they have never become identified as a group, often have not benefitted from special rehabilitation measures. Consequently they have remained on the fringes of the society in which they live.



The General Assembly, in its resolution 36/77 of 8 December 1981, urged the agencies and other bodies within the United Nations system to strengthen their capacity to carry out projects in the field of disability prevention and rehabilitation of the disabled. Projects of this kind are of course not within the legal competence of UNDRO.

However, as UNDRO's mandate does direct the Co-ordinator once a disaster-stricken country moves on from the emergency phase, "to continue to interest himself...in the activities of the United Nations agencies concerned with rehabilitation and reconstruction", UNDRO can properly perform certain functions which would assist other agencies having the necessary competence and authority to act.

In developing countries, the Resident Representative of the United Nations Development Programme (UNDP) acts on UNDRO's behalf, and is guided in his tasks by a series of comprehensive instructions about disaster prevention, preparedness and relief. The Resident Representative is being asked to encourage all those who have worked at a disaster site to gather information about the number and type of disabled victims and to bring this to the attention of the appropriate Government Department (usually the ministry of Public Health) so that if necessary further

assistance can be sought from UN agencies and/or international voluntary organizations specializing in this field. These include: the Vocational Rehabilitation Branch of the International Labour Organization (ILO), which could provide expert assistance in this field to a disaster-stricken country; the World Health

Organization (WHO), which has Programme Co-ordinators in all the developing countries, an Office of Emergency Relief Operations, and Divisions of Strengthening Health Services and Therapeutic and Rehabilitation Technology; the United Nations Children's Fund (UNICEF) has paid particular attention to the problems of disabled children, and given emphasis to the training of specialists in their rehabilitation; the United Nations Educational, Scientific and Cultural Organization (UNESCO) also has an interest in special education for the disabled, and in the cultural and scientific aspects of IYDP related work; and Rehabilitation International, a voluntary organization based in New York, and working in conjunction with the Council of World Organizations Interested in the Handicapped (CWOIH). This latter non-governmental organization assists the United Nations and its specialized agencies to develop well-coordinated international programmes for rehabilitation of the disabled. Furthermore, it serves as a permanent liaison body to develop co-operation between non-governmental organizations concerned with disabled people.

The World Health Organization is promoting, at Headquarters, at its Regional Offices and on the country level, programmes of disability prevention and rehabilitation for disabled persons. Its contribution to the IYDP is a Manual entitled "Training the Disabled in the Community". This manual contains training packages and booklets for self-training and rehabilitation at the family and community level. Guides for local supervisors, teachers and community leaders have

been prepared for teaching family members the family members the process and techniques of rehabilitation for persons with different kinds of disabilities. This training manual can be used in communities where disabled victims of disasters have been returned to their families, and where rehabilitation can then begin immediately.

The present volume is addressed essentially to three groups of people:

- a) those with responsibilities for planning relief operations, particularly emergency health care, and for training medical, para-medical and reserve personnel. Upon their work depends the success of any attempt to reduce the incidence of permanent disability resulting from improper or insufficient treatment of an injured person.
- b) those who care for the already disabled who may be at risk should a disaster occur. Upon their work depends not only the immediate well-being of their patients or family members, but also their protection from the possibility of suffering further long-term handicap, possibly of a different nature.
- c) those who make decisions regarding the establishment, maintenance and improvement of facilities for the disabled. They have an important, although not always recognized, role to play in the promotion of disaster prevention.

It will be apparent, therefore, that a very wide cross-section of the community is, will be,

or could be involved with "Disasters and the Disabled". It is certainly not a subject which concerns only the specialists.

Some, perhaps much, of the advice given could be looked upon as a counsel of perfection. Some of it may be inappropriate in certain societies. Some of it may require for its acceptance financial or human resources which are simply not to be had. Nonetheless, it is no bad thing to set out aims and practices which are beyond immediate attainment. To do so serves as a useful stimulus to greater effort: and it is well to remember that any reader of these words may one day find himself disabled as a result of disaster or accident wholly beyond his control.

CHAPTER I

THE PROBLEM OF THE DISABLED

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HOW SERIOUS IS IT?  
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Disasters commonly leave in their wake not only physical destruction and human losses but also far-reaching social and economic consequences which are a major factor in retarding the national development process.

Traditionally, an inventory of disaster damage shows diverse categories of losses, usually expressed in monetary terms. Human suffering is quantitatively expressed by reference to the numbers of dead, homeless and injured. The dead are usually buried as soon as conditions permit. The homeless are people who are either temporarily or permanently displaced: they may obtain shelter with members of their family or friends, or receive tents and temporary structures provided by relief organizations. Often, however, they become, or make themselves, responsible for repairing or rebuilding their homes. /1 The injured are an amorphous category,

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1/ In the Guatemala earthquake, 1976, in a sample of 100 cases, 92% lost their homes, and 84% of these had no state or other form of insurance.

difficult to define. In disaster statistics, various attempts have been made to standardize categories of injured, so far without result. "It usually means the approximate number who require some sort of medical care and may include some 'normal' diagnoses and routine illness". 2/

#### CLASSIFICATION OF THE INJURED

A recurring approach to classifying the injured is one that defines the priority in terms of life/death situation, as judged by the attending medical or para-medical personnel. The concept of 'triage' has however not been standardized and may involve three to five categories according to the nature of the injury and the urgency of treatment. Some methods are based on the classification of organs affected, others use a trauma index with a number scale. Obviously, a maximum number of injured have to be treated in a minimum time and this may be as little as 2 or 3 minutes for each patient. During the earthquake in El Asnam, Algeria, four categories were used in sorting the injured according to urgency of treatment and transport criteria.

The injured of PRIORITY I have problems with vital functions (respiration, unconsciousness, circulation) which need immediate treatment.

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2/ "The Effects of Disaster on Health" : A Summary, Disaster, Vol. 4 No. 1, pp 14-18, Pergamon Press, Ltd. 1980, Printed in Great Britain.

The group belonging to PRIORITY II comprises the seriously injured who require an urgent operation but can, in a disaster situation, wait 6-12 hours after having received medical first-aid.

To the group of PRIORITY III belong the hopeless cases, whose suffering must be relieved as much by a treatment as by spiritual comfort until they breathe their last.

The slightly injured in the PRIORITY IV group will be separated from the other groups in order to avoid psychic disorders causing the spread of panic and chaos". 3/

Somewhere within these categories of priority are those victims who are either disabled, or who might become disabled: their destiny depends on whether proper training has been given to the rescue teams and on the medical qualifications of those who make triage decisions. 4/

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3/ Neff, G. Importance and Psychology of Triage, Disaster Medicine (L) Eds. Frey, R. and Safar, P. Types and Events of Disaster organization in various disaster situations. Springer Verlag, Berlin-Heidelberg, New York 1980.

4/ In Guatemala 1976, of a sample of 100 cases, 47% said they were satisfied with the medical care received at the time; 46% were dissatisfied; and the remainder expressed no opinion. Of a sample of 60 cases from the Dominican Republic (1979 Hurricane) 12% said the medical students and other first-aid personnel were not adequately trained.

So far as can be ascertained, no mention is made in the literature dealing with disasters, and aspects of disasters and health, of those disaster victims who have become either temporarily or permanently disabled. This does not mean that they do not exist. They do, and in large numbers in countries which experienced disasters recently or many years ago.

#### INCIDENCE OF DISABLEMENT

It is clear that rates of injuries and death, as well as of disablement, depend on several variables. First among these is the type of disaster. It has been suggested that from the point of view of their impact on health, disasters can be conveniently divided into four broad categories: 1) earthquakes, 2) cyclones and other destructive winds unaccompanied by floods, 3) flash floods, including sea surges, 4) other inundations. The table below illustrates this point:



Frequently Observed SHORT TERM HEALTH EFFECTS OF MAJOR NATURAL DISASTERS	EARTHQUAKE	HIGH WINDS	TIDAL WAVE FLASH FLOOD	FLOOD
	DEATHS	FEW	MANY	FEW
SEVERE INJURIES REQUIRING INTENSIVE MEDICAL CARE	OVERWHELMING	MODERATE	FEW	FEW
INCREASED RISK OF INFECTIOUS DISEASE	POTENTIAL PROBLEM IN ALL MAJOR DISASTERS (Probability rises with overcrowding and deteriorating sanitation)			
FOOD SCARCITY	RARE (May occur due to factors other than shortage of food)	COMMON	COMMON	COMMON
MAJOR POPULATION MOVEMENTS	RARE (May occur in heavily damaged urban areas)	RARE	COMMON	COMMON

In an earthquake a ratio of one dead to three injured is not uncommon. The earthquake at Skopje, Yugoslavia in 1963 left 1,070 dead, and 3,500 injured; 1,200 of the injured became permanently disabled.

A report concerning the Guatemalan earthquake in 1976, in which some 23,000 people were killed and an estimated 76,000 injured, provides statistical information, even though the authors point out that "the reliability of the reporting system under emergency conditions was very low. A significant number of these patients (11.5%) were found to have fractured clavicles. This type of lesion suggests that most of the persons in question were injured by falling roofs or walls, while they were standing up, but more data are needed to confirm this hypothesis. In other localities spine and pelvic fractures were regarded as "common". 5/ The authors estimate that about 3,000 injured persons in Chimaltenango, 7,000 in Tecpan and 6,000 in Comalapa received first-aid medical care, but these three localities by no means represent the full extent of the area affected by the earthquake.

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5/ "Earthquake in Guatemala : Epidemiologic Evaluation of the Relief Effort" C. de Ville de Goyet, E. del Cid, A. Romero, E. Jeanne and M. Lechat, Reprint from the Bulletin of the Pan American Health Organization, Vol. X, No. 2, 1976.

Preliminary findings from the UNDR0 research project in the two countries which experienced hurricanes show that a significant number of persons were left with physical disabilities, such as spinal cord lesions, blindness and deafness. 6/ Even more than a year after the event, they apparently had not received any kind of rehabilitation, and were not registered at the Ministry of Health. In one of these countries, the medical personnel who were asked if they had either treated or seen disabled victims cited thirty-five such observations. 7/ It would appear then, that cyclones, wherever they occur, do indeed leave disabled victims behind.

Because there are so many variables it is rather dangerous to generalise on the probability of injury or death simply by reference to the kind of disaster. The time of day, the pattern of life, the season of the year, the kind of housing, the degree and type of industrialization in the area affected - all these can have marked effects on casualty rates and play havoc with "normal" predictions.

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6/ In a sample of 100 cases interviewed in rural Haiti, 39% knew someone who became physically disabled as a result of the cyclone.

7/ In a sample of 60 medical personnel in the Dominican Republic, 44% either treated disabled victims or saw them during the disaster (cases of loss of extremities, blindness, problems of trauma of spinal cord (tetra-or paraplegic), deafness).

"Data collection has rarely been considered a priority after disaster and such information as we have mostly been gathered by "entrepreneurs", often doctors and scientists who find themselves in a disaster by chance rather than by design".  
8/

It seems safe to assume that no assessment mission of any national, international or voluntary organization has paid attention to those who have become disabled, or followed up their rehabilitation, if any. 9/ A rough estimate of the incidence and immediate information on the prevailing kinds of disablement are pre-requisites for planning national programmes and international assistance. Without doubt, people who during the disaster suffer injuries which may result in permanent disability, and those who suffer immediate disability, need longer and more extensive treatment than that which can be provided by first-aid emergency units. A person who has lost an arm or leg, or has become paralyzed, is by

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8/ The Effect of Disaster on Health: A Summary, Disaster Vol. 4 No. 1, pp 14/18 Pergamon Press Ltd. 1980.

9/ In Guatemala, in a sample of 100 cases, 13% cannot, because of injury, return to former employment (i.e., they need vocational rehabilitation). 62% would like to receive vocational rehabilitation.

definition permanently disabled, and such visible disabilities must obviously be recorded as quickly as possible so that the necessary long-term treatment can be provided. More intensive and systematic attention to this subject would be a real step toward prevention of disabilities. Measures for improved protection could be established, if people were informed about where the main dangers lie.

#### DEFINITION

It may be useful to define the group whose existence requires special measures to be taken. The International Classification of Impairments, Disabilities and Handicaps, published by the World Health Organization, describes three categories all of which must be taken into consideration in disaster preparedness plans. "In the context of health experience, an impairment is any loss or abnormality of psychological, physiological, or anatomical structure or function. A disability in the context of health experience is any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being. In the context of health experience, a handicap is a disadvantage for a given individual, resulting from an impairment or a disability, that limits or prevents the fulfilment of a role that is normal, (depending on age, sex, and social and cultural factors) for that individual". 10/

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10/ "International Classification of Impairments, Disabilities and Handicaps", World Health Organization, Geneva 1980, pp 27-30.

While "impairment" and "disability" are strictly medical terms, a handicap is a social consequence of a given disability. Depending on the attitudes of others towards the disabled person and the physical environment experienced, a disabled person finds him- or herself more or less handicapped. Disabled persons who have had the privilege of being rehabilitated (so far as physically possible), whose fellow men accept them as they would any other human being, and who live in a society where the general physical environment is accessible, may be disabled, but they are not handicapped.

## CHAPTER II

### THE PREVENTION OF DISABILITY - WHAT SHOULD ----- MEDICAL AND PARA-MEDICAL PERSONNEL DO? -----

This section deals with a strategy for prevention of disability, and outlines the essential measures which should be taken when first aid is administered. It also deals with the necessary equipment and supporting material that ought to be available in emergency in order to reduce the incidence of disability.

The first and main concern is the direct impact a disaster has on people and to what extent their health can be preserved. Theoretically, within minutes after a disaster has struck, depending on its type and severity, there may be tens, hundreds or even thousands of injured people requiring immediate medical care.

#### PERSONNEL PLANNING

The efficiency and speed of the mobilization and deployment of all available manpower and technical resources is in large part determined by the effectiveness of pre-disaster planning and preparedness. In most developed countries disaster preparedness, in terms of both planning and resources, is highly organized and is being constantly improved. Elsewhere, however, the degree of preparedness varies widely: in particular, there is often a shortage of doctors

and of the facilities and equipment necessary to support their work. 11/ Moreover, there is often a concentration of hospitals and medical personnel in the capital and larger cities of a country so that in rural areas, (many of them difficult of access because of lack of roads or the nature of the terrain), emergency medical assistance when a disaster occurs will be neither adequate nor effective. 12/ In these circumstances, aggravated as they may well be by the absence of prior planning, it is clear that a higher proportion of the injured will either die, or become permanently disabled.

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11/ Of a sample of 60 medical personnel in the Dominican Republic 38% said they were not sufficiently equipped with the necessary materials.

12/ In the Dominican Republic, using the same sample the mean time taken to arrive at San Cristobal (25 Km from Santo Domingo) was 3 hours, and to the southern region between 7 and 14 hours according to destination. Road blockage and shortage of helicopters were factors contributing to these delays.

In Guatemala, of a sample of 100 victims, 58% believed they did not receive timely treatment. 12% had to wait 2 to 3 days before being admitted to hospital, and 16% for 1 week. In reply to a query about the time waiting for first-aid, 13% said they waited 2 - 4 hours, 12% waited 4 - 8 hours, and 21% 2 - 3 days.



Any country, regardless of its level of development and technical resources, has manpower available to assist in emergency first-aid. Medical students, nurses, Red Cross and other community workers, the military forces, organizations like Scouts or Guides, may all be sent to assist after a disaster in rescue and first-aid work. It is important that they should be instructed that certain injuries have the potential to become permanent disabilities, if they are not handled or treated correctly.

In planning for relief operations, emergency medical care should be accorded a very high priority. The nature and adequacy of the measures to be taken must be incorporated in the training of rescue teams, from whatever source they may be drawn, in order to avoid, or at least reduce, the possibility of unnecessary and preventable harm to an injured victim's future health.

The management of casualties includes the rescue of the injured and those trapped in wreckage, etc; first-aid; evacuation; and definitive treatment. Clearly advance planning for medical services must include provision for all these elements, if a proper standard of care is to be attained. There are several important factors to be considered when plans are being made:

- a) will there be enough medical personnel for the increased demands generated by a disaster?
- b) will they be appropriately qualified or experienced for this task?

- c) if untrained or semi-trained personnel participate in first-aid emergency care, will they have been made sufficiently aware of the dangers inherent in certain injuries?
- d) are the hospital personnel adequately trained for providing care for those victims who are admitted?
- e) is there enough transport available (ambulances, helicopters, etc,) to take medical personnel to the site and to bring those who need specialized and urgent hospital care to the nearest hospital? 13/
- f) do written plans exist for individual hospitals, and do they cover all possible contingencies, in particular provision for emergency supplies of power and water?

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13/ In Guatemala, of 100 victims questioned, 40% believed their injury have been less serious if first-aid had arrived sooner; 21% felt the delay had made no difference; 38% expressed no opinion.

## QUALIFICATION AND TRAINING

There may be enough medical and para-medical personnel available, but their quality is more important than their number. Specialized skills and expertise will be needed for treating certain kinds of injuries. Those who have received professional training in medicine, nursing, laboratory work, and rehabilitation therapy may be limited in numbers. Yet however few of them there are, they must be instructed wherever possible to take a supervisory role while working at the disaster site. Doctors often feel that they must work more or less continuously during emergencies to deal with the numbers of patients, but often their skills are in fact being under-utilized and treatments could be given by less qualified people working under guidance. 14/

In the process of "triage" explained in Chapter I, highly qualified doctors must be employed, who under pressure can decide which patients need treatment on the spot, immediate hospitalization, transfusion, etc. Persons who do not have visible injuries may nevertheless need immediate treatment, in order to prevent a disability. This kind of decision-making demands professional experience and high qualifications.

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14/ In the Dominican Republic, 70% of the sample of 60 medical personnel felt there were sufficient doctors, but many of them worked exceptionally long hours.

If nurses or medical students are involved in the triage process, they should when in doubt seek guidance from qualified doctors. Delicate decisions between speed and accuracy have to be made and herein lies a serious source of error. The following list gives some examples to call attention to the potential of certain kinds of injuries to result in disablement:

- a) if open injuries with compound fractures are not attended to within 6-8 hours, a permanent disability may result;
- b) if damaged limbs become infected, they may have to be severed;
- c) if a hematoma in the brain is not attended to in a hospital, mental disability for life may result;
- d) if bleeding occurs at knee level and a tourniquet at the thigh remains in place for 3-4 hours, the person may lose his leg;
- e) if a severe head fracture occurs and is not attended to immediately in a hospital, blindness may ensue due to a severed optic nerve;
- f) if aseptic bodies in the cornea of the eye are not removed skilfully and rapidly, loss of sight or permanent cornea damage will result;
- g) if blood exudes from the ear, the base of the skull is fractured: if this is not diagnosed correctly, the patient will become deaf;

- h) if blood exudes from under the eyelids, immediate specialized treatment of the eyes is required to avoid blindness;
- i) if the spinal cord is damaged, and the person is being moved about more than absolutely necessary, the patient will be permanently paralysed;
- j) if simple fractures are not set quickly and skilfully, permanent damage and disability will almost certainly occur.

Although this list is by no means exhaustive, it provides striking examples of how injuries can become life-long disabilities, with all their implications for the individuals concerned. 15/ It underlines the need for medical and para-medical personnel to receive special instructions regarding the prevention of disabilities. Senior medical staff with actual or potential responsibilities for disaster health care should wherever possible take the initiative and hold training courses for those likely to be called upon in emergencies. Similar action might well be considered by national Red Cross or Red Crescent Societies, and other voluntary organizations providing health care or assistance in hospitals. (To reduce the load on medical staff, and to free them from their proper tasks, volunteers may be asked to assume duties such as

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15/ In Guatemala, in a sample of 100 victims, 33% had leg injuries (amputations, fractures, other impairments), 22% spinal cord injuries and 10% paraplegic.

making beds, folding blankets, administering food, and so on. However here, as in other areas, volunteers must have education and information regarding the care of those disabled).

A good example of the importance of this comes from an incident which occurred in one of the four countries included in the UNDR0 survey. A large number of patients with spinal cord injuries were, shortly after the earthquake, admitted to an already overcrowded hospital. These patients were placed in the corridors of the hospital and could not be treated immediately because more patients were being continually brought in. Volunteers were found fairly quickly to attend to these unfortunate victims and were instructed to wash and feed them. Not one of the medical staff gave instructions about the importance of turning these patients every two hours in order to avoid skin lesions and subsequent decubitus. Those who volunteered to render the service evidently did not know that they should turn the patients and only did so when asked. These patients remained in temporary quarters along the corridor for some time and of the para- and tetra-plegics 80% died of infected decubitus lesions.

But preparedness in disaster-prone countries should extend its information campaign down to the community level. In an article entitled: "Medical Care and Natural Disasters", Professor Lechat observed "if anything should be considered primary health care at the community level, it is disaster care. Hence it is all the more surprising that in many countries and even in those frequently affected by floods, typhoons,

earthquakes or other calamities, health personnel receive no training whatsoever for the immediate responsibilities they could assume in case of disaster". 16/

#### MATERIAL PLANNING

The provision of transport is of great importance. Even the best hospital facilities and the most comprehensive plans will be useless if no transport can be found to bring the patients for treatment. The injured will be lying somewhere in temporary quarters or in a field hospital where the required services cannot be provided. In one of the countries visited in the course of UNDR0's survey, a very high proportion of the medical personnel who worked at the disaster site commented adversely about the lack of transport: some patients had to wait as long as three days to reach the hospital, because roads had become impassable and not enough helicopters were available. Needless to say that among those unfortunate patients who had to wait so long, some are disabled today.

Any delay in the arrival of medical staff at the site of disaster may have similar adverse effects. Cases have been recorded in which as long as 14 hours elapsed before doctors could arrive at places where the need for their services was greatest, because roads were impassable to ordinary traffic.

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16/ "Medical Care and Natural Disasters"  
Professor Michel F. Lechat, International  
Centre for Disaster Epidemiology, Louvain  
University, Brussels.

Disaster preparedness plans must envisage the provision of suitable and sufficient transport. If ambulances are used, they can often provide life-saving functions for patients on the way to a hospital, such as the maintenance of respiration by means of equipment installed in the vehicle itself. Studies have amply demonstrated that, where ambulance services have been at hand, post-disaster mortality rates have dropped dramatically.

Associated with the transport factor is the availability and adequacy of first-aid equipment. In the case just mentioned, a significant number of medical personnel said they had neither enough, nor the right kind of, equipment and instruments at hand, but they made do. This shortcoming was compounded by a lack of electricity: mobile generator trucks at field hospitals and indeed in city hospitals, if the disaster has affected power supplies, are an essential element.

## RECOMMENDATIONS

To conclude, it is recommended that:

- a) specific information regarding the prevention of disability should be made public, through whatever means of communication are available. This should be a normal part of the instructions given to doctors, nurses, Red Cross workers and others who will administer first-aid emergency care. An awareness campaign entitled "Disasters and the Disabled" should be started by Governments and local voluntary organizations citing specific examples which may lead to disability;



- b) measures should be taken to promote a better understanding in the community that speed for urgent treatment is an important factor. This will encourage community members to help organize transport for some of the injured to the hospital, if sophisticated means are not available. Helicopters and ambulances should be planned for as part of disaster preparedness in order to ensure that casualties who require immediate treatment reach the hospitals as fast as possible; 17/
- c) hospitals, especially those in disaster-prone areas, should have an advanced and comprehensive plan detailing the optimum facilities, in terms of bed space and materials as well as personnel, required to meet emergency needs, i.e. to expand surgical capacity and handle large numbers of incoming injuries. Hospitals should have reserves of water, fuel and a stand-by electricity supply (provided by independent generators) to be used in emergencies;
- d) medical and para-medical personnel should have, as part of disaster preparedness plans, a pre-packed emergency bag with the most essential equipment to administer first-aid. A standardized list detailing all necessary

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17/ In the Dominican Republic, 40% of the 60 medical personnel questioned said that the injured were not taken quickly enough to hospital, because transport was insufficient.

items should be distributed to those who are likely to be called to a disaster site;

- e) emergency / auxiliary treatment centres (in addition to hospitals and clinics) should be identified and included in the advanced and comprehensive plan. These would include rehabilitation centres, community centres, schools, and other suitable public buildings provided they are themselves unlikely to be affected by the events expected.

CHAPTER III

DISABLED SURVIVORS OF DISASTERS -

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CAN THEY BE REHABILITATED?  
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Despite all measures which may be taken, some people injured in disasters will in fact become permanently disabled. They therefore stand in need of rehabilitation: not in the sense of fully restoring them to their former condition, for that would be impossible, but so that through care, treatment and training they may come to live as near normal a life as the disability allows, and not, except in the most extreme cases, become a charge upon the society in which they live.

Most if not all of the steps which need to be taken to this end in the case of disaster victims must also be taken in respect of everyone who becomes disabled as a result of an accident or other "normal" cause. It might therefore be thought that there need be no special mention in a brief document of this kind of the rehabilitation problem: the recommended courses of action are clearly laid down in other publications.

The subject is however relevant to "Disasters and the Disabled" because, like any other activity, the process of rehabilitation can only

proceed in an orderly fashion if proper plans have been laid down and subsequently followed.

It is manifest that no proper planning can be undertaken without knowledge of the size and scope of the problem to be tackled. It is therefore incumbent upon those who are responsible for rehabilitation services to work in close association with the medical and hospital services, and related welfare organizations, so that a reasonably rapid and accurate assessment may be made, as soon as practicable after the emergency phase has ended, of the size and nature of the additional case load which will have to be accepted.

#### THE ROLE OF THE COMMUNITY

In many countries, the bulk of the work of caring for and rehabilitating the disabled is in the hands of voluntary organizations, and these may not be able to raise sufficient public support to enable them to carry on even their ordinary work to the extent to which it is needed. When faced with a sudden and massive (absolute or proportionate) increase in the call for their services, the voluntary bodies ought to be able to seek and obtain additional government funding. Voluntary bodies themselves should be prepared to assist unstructured community or even individual effort, particularly for the less severely disabled. As the draft "World Programme of Action Concerning Disabled Persons" puts it:

"Important resources for rehabilitation exist in the families of disabled people in their communities. Every effort should be made to help disabled people to keep their families together, to enable them to live in their own communities, and to support family and community groups who are working with this objective. In planning rehabilitation and supportive programmes, it is essential to take into account the customs and structures of the family and community and to promote their abilities to respond to the needs of the disabled individual".

Thus, whether the appropriate path be that of individual family rehabilitation, or retraining in an institute with the intention of ultimate absorption into the open labour market, or training for work in a sheltered workshop for those unfortunate people who will never again be able to live anything approaching a normal life, Governments and voluntary associations alike should include in their preparedness planning the procedures and the financial provisions necessary to deal with post-disaster disabled persons.

It is all too easy for this matter to be overlooked or forgotten. One quotation will serve to illustrate that among the variety of aspects related to disasters and their aftermath, restoration to health by means of rehabilitation is not given the prominence it deserves. "In all its duties the Office of Emergency Preparedness is primarily concerned with the disaster

victim, seeking to restore shaken morale and advise what government programmes are available and where to apply for such help as removal of debris, disaster unemployment claims, restoration of homes and how to obtain loans for reopening a business". 18/

#### THE ROLE OF THE MEDIA

When the initial shock and confusion of a disaster has subsided, the media can be very helpful in drawing public attention to the needs of the disabled disaster victims, and in enlisting public sympathy with them.

People often tend to forget that there are those who, in addition perhaps to losing their homes and belongings, have also lost their health. In contrast to the injured who in the long run, after adequate treatment, recover their health and continue with their usual activities, disabled victims suffer permanent physical and/or mental disability and will therefore have to come to terms with a totally different life. The

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18/ "Let them know they are not alone - Establishing Communication with the Disaster Victims" John R. Coleman, Information Director, United States Office of Emergency Preparedness. Paper presented at Flood Experts Meeting, NATO Committee on the Challenges of Modern Society, Venice, Italy, October 1970.

human tragedies brought about by the disaster will sooner or later recede into the background and so will the disabled victims. In many countries which have experienced major disasters during the last ten years, some at least of the people who became physically and/or mentally disabled are still waiting for rehabilitation services and the necessary technical aids and equipment. They have thus become a heavy burden on the national economy as well as on their families. Not infrequently, they have had to resort to begging on the street in order to maintain a bare livelihood.

There are both humanitarian and economic motives for re-integrating disabled persons into society, and the media should be used to make them known to, and understood by, the general public. "The dignity and the right to security of the disabled person is no less than that of a normal individual and... everything possible must be done to rehabilitate the disabled in order to restore them to as normal a life as possible in the society in which they live". 19/

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19/ WHO, Twenty-ninth World Health Assembly, Report on Specific Technical Matters, Document WHA 29/24, p. 28.

As to the economic motives, disability prevention and rehabilitation are not only goals in themselves, but are means to achieve economic benefits for society in general "... to provide society with a means of regaining the disabled person's economic contribution and/or reducing the cost of institutional care, sickness benefits, disability pensions, etc." 20/

Disabled people are often not able to fulfil what society defines as useful tasks, and even if they can, they are not able to compete on equal terms on the open labour market. Thus, they become the object of discrimination. This discrimination is reinforced by negative attitudes and behaviour, leading in turn to the exclusion of disabled from many social and cultural activities. Features in the design and construction of public and private buildings often prevent participation by the disabled in ordinary daily activities, and so contribute to further social isolation.

The press, radio and television can play an active role in conveying the message that the disabled have the same needs and aspirations as anyone else, but face difficulties in realising them. The public should be led to understand that disability must be viewed as a relationship between the individual and the environment, for it is the latter which determines the effects of a disability on an individual's daily life.

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20/ Ibid.



"Awareness", in short, is the objective - awareness of the steps which can be taken to protect the already disabled, awareness of the need for care in preventing new disabilities, awareness of the contributions which individuals, families, communities and society in general can make to rehabilitation, and awareness of the (sometimes special) contributions which the disabled themselves can make to family, community or society.

The promotion of "awareness" is in general terms a chief aim and function of the media. Methods to achieve it range from the simplest pamphlet or poster to the most sophisticated audio-visual techniques. These skills exist in the media: this is an opportunity to use them for constructive purposes.

## CHAPTER IV

### THE CARE OF THE DISABLED - ----- CAN ORDINARY PEOPLE HELP? -----

Of the estimated 500 million disabled persons in the world today, most live in developing countries. Moreover, most natural disasters also occur in developing countries. In rural areas, and also in urban slums, the disabled (whatever their disability may be) find themselves totally dependent on others because of lack of rehabilitation and technical aids. The gap between needs and available services has been judged by the World Health Organization to be 98.9%, that is, of all persons needing particular services at a particular time, only 1.1% in fact received them.

It is not sufficiently widely realised how greatly the disabled members of a community are dependent upon others because of their physical and/or mental impairments or disabilities, nor that they are unable to respond to emergency warning as others do. Their difficulties may be increased because some of the disabled may also be illiterate; and some may suffer from more than one kind of disability, e.g. the deaf and blind. In order that they may receive the help they need, they should be identified in the community and community workers and volunteers provided with specific instructions and guidelines about how they can best assist

disabled persons when a disaster occurs. At present, many people do not realise the special kinds of help needed for different kinds of disablement; and there is an almost total lack of information as to how to provide assistance.

WHO proposes two principal strategies: "(1) Prevention of disability, through all types of measures, within and without the health sector, that contribute to a reduction in the incidence of impairment. If impairment is already present, measures should be taken to reduce the severity or postpone occurrence of disability and handicap. (2) Provisions of rehabilitation using the primary health care approach. Community-based rehabilitation services (with an appropriate system of supervision and referral) should be provided, with the aim of total coverage of all populations. These services deliver at least the most essential care, and form an integral part of the national socio-economic development programme." 21/

The guiding principles to be followed in working out a disaster preparedness plan and undertaking relief activities for disabled persons are the three concepts on which the WHO strategies are based, i.e. prevention of disability, measures to reduce the severity of disability, and community-based rehabilitation.

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21/ "Disability Prevention and Rehabilitation"  
Report of the WHO Expert Committee on  
Disability Prevention and Rehabilitation.  
Technical Report Series 668, Geneva 1981.

The prevention of disability in disasters, i.e. preventing injuries from becoming temporary or permanent disabilities, chiefly concerns the medical and para-medical personnel who are called upon to administer first-aid at disaster sites. 22/ This subject is dealt with in Chapter II. Here, the focus is on those who are already disabled when a disaster strikes.

The disabled may be an integral part of a community, but they nevertheless have a special status in an emergency because they are dependent on the help of others, and/or on technical aids. This dependence may be total or only partial, but it renders the disabled, as a minority group, extremely vulnerable. The major aim of the guidelines developed here is to reduce the incidence of injury (which could of course lead to even further impairment and disability) by developing measures to protect the disabled in a disaster and by training and instructing personnel to give the requisite assistance.

In some countries, a WHO Manual "Training the Disabled in the Community" is now (1981-1982) being tested or applied. Those who in this programme are trained to train others have a responsibility to incorporate in their work emergency disaster instructions to the disabled. The ILO is also involved in developing community-based vocational rehabilitation services in isolated rural areas, e.g. in Indonesia.

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22/ In Guatemala, 31% of 100 victims questioned said that medical personnel were not careful enough in this respect.

## PROTECTION OF THE DISABLED

There are two factors which determine the nature of the protection and assistance required when a disaster occurs: one is the type of disaster, and the second is the kind of disability that is present.

### (a) The Disaster

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For the purpose considered here, disasters can be divided into two categories: those in which no warning period occurs, and those in which a warning period permits the implementing of precautionary measures such as evacuation, or a local move to safe shelter. Exceptionally heavy rainfall in the catchment area of a major river, for example, could well lead to extensive flooding in the lower reaches, but the time of greatest danger in the areas likely to be affected could be predicted some hours in advance. It is true that with increasing frequency the course and speed of major storms can be forecast with some accuracy, that activity presaging a probable volcanic eruption can be detected, and that sometimes earthquakes can be predicted. But all these events - and many other kind of disaster or emergency - can occur without prior warning. Furthermore, warnings (even if given by the competent scientific authority) may be accidentally or even deliberately not passed on to the general public. It would therefore be dangerous to regard evacuation as the sole, or even the main, panacea to be applied in the protection of the disabled - or indeed of the community in general. It is however important.

The tidal wave and cyclone disaster in Andhra Pradesh in 1977 cost some 25,000 lives and it has been noted that among those who died, most were the young, the old and the weak. It can perhaps be assumed that those designated as the "weak" were in fact the physically and/or mentally disabled because this group is least able to save itself if no special assistance is provided.

b) The Disability

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The disabled do not form a homogenous group. "Disability" is often today equated with restrictions on physical mobility. But the deaf and those with impaired hearing, the blind and those with impaired vision, the mentally retarded and mentally ill, and people with various medical impairments also have problems, and problems that demand solutions different from those appropriate for persons who are simply less than fully mobile. Guidelines must therefore take into account the different needs of each of these groups and also provide for the multi-disabled who may require individual assistance.

EMERGENCY PLANNING FOR THE DISABLED 23/

Ensuring that community emergency organizations are alive to the needs of disabled persons is an important job of today's emergency managers. How can emergency planners respond to the special needs of the disabled?

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23/ This section is adapted from an article in "Emergency Management Newsletter" (edition of 6 November 1981) published by the Federal Emergency Management Agency, Washington, D.C., U.S.A.

The following list of questions should be considered when developing or upgrading emergency management plans in the community:

1. Are services for the disabled included in the community's emergency plans?

There are visual, hearing, mental and mobility disabilities. All these groups have special needs. Has information been sought about these needs and how to meet them?

2. Were the views of the disabled taken into account in making the plans?

If there are existing organizations for the disabled in the community, always contact these organizations for advice when developing emergency plans. They also can provide expertise in creating self-help and awareness programmes.

3. Does the emergency organization have a way of identifying the disabled during an emergency ?

Is it known who the disabled in the community are? Where they live and work? And what special provisions have been made for them? Have emergency contingency plans at a disabled person's place of employment been established?

4. How are the emergency needs of the disabled recognized in the community?

Laws and building codes may require planning for disabled persons, but community support may be a more influential method to address these special needs. Make known what actions for the handicapped have been taken in the community and elsewhere.

5. Have local shelter areas been checked to see if they will be able to handle disabled persons?

All refuge areas must be equipped with, or have readily available any specialized equipment that may be needed by the disabled. Temporary shelter following evacuation must adequately meet a variety of needs for them.

6. How can it be demonstrated that meeting the emergency needs of the disabled will improve life-safety for the entire community?

Disabled persons can be self-sufficient and serve as valuable resources in emergencies, and their greater awareness and wider participation in emergency planning will benefit everyone.

7. Are the disabled included in community preparedness exercises, and how can they assist in an emergency?

Do they, and the community, know what to expect in an emergency? Also, what activities most need volunteers? Which would be suitable for disabled volunteers? Try communications, incident reporting, and research, among others.



The task of an emergency manager is to ensure that the critical emergency needs of the members of the community - the able-bodied as well as those with special needs - are met. Working with the disabled, involving them in this vital community process, will result in a higher degree of preparedness for them and the entire community.

#### THE DISABLED IN THE URBAN ENVIRONMENT

Increasing urbanization in developing countries over the past 10-15 years has meant - among many other things - an increase in the number of disabled persons in urban slums and small shanty-towns around big cities. Large numbers of migrants, mostly farmers and peasants, have left rural areas and have come to the cities in the hope of finding work. In peripheral slum belts around cities, migrants live in conditions of considerable poverty, and in areas often highly susceptible to disasters. Traditions of rural life may continue to exist side by side with an urban life distinctly different and apart. Because many migrants work in the 'informal sector' they are not registered anywhere, nor are they included in the national census. For this reason they remain outside any existing governmental social and economic welfare programmes, and this has particularly adverse effects for the disabled and their families.

It is important to locate disabled persons living in urban slums and to ensure that they are included in this programme of instruction. But it is a difficult task to find them, because urban slums are not communities with well-established human networks. The migrants who live there share poverty and proximity, but do not experience the social cohesiveness nor enjoy the benefit of definite help-patterns they had in their rural village.

Community workers must be trained for case-finding (calling on any locally acknowledged leader or respected long-time residents for assistance) and providing primary assistance in emergencies. They should record a simple description of the disability, note the name and address and forward this information to the local and/or regional health centre. In this way, the information can be collected by the Public Health Department or other appropriate government offices, and be eventually utilized for a national rehabilitation programme. (Such a procedure is quite distinct from a disability survey, which demands highly qualified personnel to make accurate assessment of impairments and disabilities in terms of functional limitations and the accompanying change in social role of the individual). These case-finding and recording functions should whenever possible be integrated with those of related services such as primary health care, schools and community development programmes. Home visits constitute a valuable approach to help establish human contacts and communication and to assist in constructing the necessary technical aids as well as showing their proper use.

Community workers, when visiting households, should be aware of four general principles: protection, reassurance, information and guidance, all of which are inter-related. The fact that they can offer information regarding mechanisms of increased self-help, provisions for technical aids if needed, in and of itself provides a sense of protection to a disabled person. Most disabled can do more than their self-evaluation allows and hence encouragement and reassurance are of the utmost importance. In developing countries the extended family is the basic social unit and it is rare to find the disabled and the elderly living by themselves. Community workers must involve all family members in the processes of protection, reassurance, information and guidance, so that they can give effective assistance in an emergency, whether it be in the presence or absence of community workers.

Disabled people and disaster survivors in general prefer to receive help from their families and friends, rather than from officials. Within urban and rural communities, there are kinship structures and networks of friendships which should be utilized in establishing definite help-patterns in times of disaster. The initial response to a person's need tends to come first from relatives, who provide shelter, food and clothing, and render other personal services; then the community starts to take over and provide other things beyond the capability of the family; and only then does "the government" enter the picture. But, as has been shown, the community leaders have a part to play long before

disaster strikes. They have to identify the location, size and nature of the disabled population, and disseminate information to the families and others concerned. Their task is made more difficult where, as too often happens, there is a high level of illiteracy. Oral and pictorial means, if not practical demonstrations also, will have to be adopted to provide the necessary instruction. Whenever possible and suitable, however, leaflets should be prepared so that families may have a more permanent reminder of what should and should not be done if an emergency should occur.

## GUIDELINES

### All Disabled Persons in Emergency Situations

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1. When it is known that a disaster or other emergency is likely to occur, the disabled should if possible be alerted before the general public. Fear of the unknown is added to the natural fear of danger and for those who are already disabled and old, the psychological effects are even greater.
2. The disabled often take longer than other people to make necessary preparations once a warning has been given. They should therefore be instructed to have at hand an emergency bag with the most essential items they need. This should be ready at all times.

3. If disabled persons live in high-risk areas, they must be informed what specific action they can themselves take to counter the effects of the probable event. It may not always be possible for people to come immediately to their aid, however many plans may have been prepared.
4. All disabled persons should be given instructions regarding survival techniques, in case relatives and friends or specially assigned assistants have been killed or injured. They should be shown, for example (a) how to protect themselves against fumes, gas and other contaminants; (b) what action to take if their clothes or anything else is on fire in the room; (c) how to breath when there is little oxygen available; (d) how to survive when buried under rubble, an avalanche or other heavy objects.
5. To the extent possible, depending on the kind of disability, disabled persons should be taught how to treat themselves in case of burns, heavy bleeding, skin lesions, etc. They should be provided with a first-aid kit which should be kept in a readily accessible place.
6. Disabled persons should be shown where potential hazards are located in their dwelling place, e.g. the location of the main fuse box, the main water valve, and the gas tap. They must know where the fire extinguisher is placed. Candles and matches should be placed in reach, in case of a major power failure.

7. All disabled persons should carry a paper with the following information:
  - i) Full name.
  - ii) Full address - or description of home (in rural areas).
  - iii) The name of a person to be informed in case of death.
  - iv) Description of disability (if this is not immediately apparent) and of any special medicine that is being taken.
  - v) The name of a physician, address and telephone number (if any).

#### The Physically Disabled

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1. For those who are tetra- and paraplegic (loss of mobility in arms and/or legs, usually accompanied by loss of peripheral sensations) a bed with wheels and/or a wheelchair must be made available, so that the disabled person can be moved swiftly. If such facilities do not exist, they can be constructed at small cost. A simple wooden platform at the height of a normal bed (so that the tetra-plegic who is totally immobile can be moved over to it) should have two small wheels at the head end, and two handles at the foot end. Anyone can lift up the two handles and move the patient easily. In the absence of a wheelchair, a kitchen chair can be fitted with four small wooden wheels. Paraplegics usually have the use of their arms and can assist in the transfer from the bed to a chair.

2. All persons with impeded movement due to malformation, loss of one of the limbs, spasticity, and lack of co-ordination, should be given additional aids, suitable for the particular case. For example, even if an amputee normally does not use crutches, they should be made available to him for emergency evacuation. Experience has shown that in emergency any simple device that could possibly be helpful (even if it is not used in daily life) is better than none at all.

Community workers (if possible, those with knowledge of social work) should consult the disabled person and find out what his or her particular needs are, and how they can be met.

#### The Blind and Those With Impaired Vision

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1. People who are blind or only partially sighted may well be totally dependent on household members or neighbours to lead them out of the house to a place of safety. Even if such a person has a guide dog, it may itself become confused or disoriented in emergency.
2. All instructions relating to emergencies should be distributed also in Braille.
3. For those persons who are not acquainted with Braille, emergency plans should be explained orally, and in detail. Relief maps of the area in which the person lives, should be provided and explained.

4. The disabled person should be made familiar with the designated places of assembly and/or shelter, e.g. the church or schoolhouse, and the way leading to them. He should be accompanied there from time to time.
5. Two family members or friends should be assigned to assist when a warning is issued and if an emergency occurs without warning.
6. In case the disabled person has to rely on his own resources, a white cane should be provided: but when familiar objects are out of their accustomed places, its use cannot be relied upon to enable a blind person to move about safely.
7. Particular care should be taken to see that those who are blind, or have impaired vision, receive their proper share of food and clothing distributed after a disaster.
8. If a shelter or safe area has to be used for more than a short period, ropes should be placed along the more frequently used routes, e.g. to the place where meals are served, the medical unit, the toilet facilities, etc., so as to guide the blind to them.

The Deaf, and those with impaired hearing ;

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The Mute :

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1. Those who are deaf, or who have difficulties with hearing, are unable to listen to any warning system, radio message or public loudspeaker, and so follow official instructions in case of emergency. It may be assumed that, in most instances, family and



friends will not know enough sign language to communicate what is happening, and furthermore that the deaf person will not be trained in lip reading. For this reason, the immediate family and neighbours must be made aware of the difficult problems they will have to face, and two persons should be designated to be responsible for helping.

2. To assist rescue and medical workers, those who cannot hear or cannot speak should wear a sign, prepared in bright colours, in a visible place on the jacket or blouse.
3. Easily recognizable symbols, transmitted by sign language, should be adopted to indicate the nature of the warning to the deaf person.

a) Earthquakes:

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A movement with both hands, held palms downwards at waist level, indicating rhythmic shocks, pointing to the ground from time to time.

b) Cyclones, Hurricanes:

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Quick, circular movements with the right hand, pointing to the sky from time to time.

c) Floods, Inundations:

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Waving movement with right hand just above the ground.

d) Volcanic Eruptions:

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Place fingers of both hands together to form a " ", then point in direction of volcano and make circular movements with right hand.

e) Tidal Waves:

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Point in direction of the ocean and make large undulating movements with the right hand.

These signs, each with the word for the disaster above the appropriate sign, should be drawn on paper so that the deaf person can memorize them.

4. Those with impaired speech may not be so severely handicapped in coping with an emergency, except insofar as their disability is symptomatic of mental retardation. However, they may have difficulty in communicating to rescue workers, or medical personnel, the nature of their injuries - especially if these are internal and not immediately apparent. In the stress of an emergency, it may be a test of patience to try to understand what a mute person is attempting to communicate. Thus, rescue and other workers should be warned if a mute person is, for example, trapped so that possible spinal injuries may be appropriately treated; in any case, an injured person who is also mute should be so labelled at the triage stage as a notification to hospital staff. A family member or neighbour should be made responsible for giving the necessary warnings, according to the circumstances.

those who are deaf-mute, or mute, should be encouraged to write down their immediate needs and show the paper to others around them. Those who are illiterate should have assistance in learning how to signal their basic needs by drawing symbols that are comprehensible to others. It is important that those who cannot speak carry a small notebook with pencil inside; preferably the book should be attached to the body or clothing so as to prevent accidental loss.

#### The Mentally Retarded and the Mentally Ill

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1. Because there are so many kinds of mental illness, definite guidelines for specific cases cannot be given. One difficulty with the mentally handicapped is that they are often unable to comprehend the nature of the events surrounding them; even more is this so when the familiar pattern of life is suddenly disrupted by, say, an earthquake. Attention must be devoted to preventing them from injuring themselves (or injuring themselves further) by reason of uncontrolled or uncontrollable behaviour. Similar considerations apply to those who suffer from fits (e.g. spastics). Hysteria may easily be manifested by the mentally handicapped in the early stages of an emergency, and it is important that any such outbreak be dealt with firmly and promptly, so that the possible spread of hysteria to other, often distraught, survivors may be avoided.

The involvement of family members and friends, familiar with the particular problem, is of the utmost importance. The family must play an active role in assistance during a disaster and should be made aware of their responsibility. Since mental illness is often manifested by unexpected reactions which do not correspond to reality, those who live close to and share the daily life of a mentally disabled person are most likely to interpret reactions correctly. Community workers should assign two family members and/or friends to accept the responsibility to remain at the side of their disabled members in an emergency.

The family should be advised to have a supply of drugs to calm the mentally disabled person in a situation of heightened fear. Anti-convulsive drugs should be available for those who have epileptic and other kinds of fits.

#### The Multi-Disabled

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1. It would be almost impossible to list all combinations of multiple disabilities. Community workers must listen to individual needs, as perceived by the disabled person, and try to respond by providing appropriate advice to both the disabled person and the members of the family. Constructing special technical aids requires an innovative approach and if rehabilitation personnel are available their advice and help should be sought.

## RECOMMENDATIONS

There are several ways of effective implementation of these guidelines:

- a) Governments should include them in their manual of disaster preparedness and in their disaster co-ordination and relief plans.
- b) Governments should take an active lead in publicizing the information through the public media. Pamphlets, posters and local radio programmes can be utilized to increase the general knowledge regarding the disabled and the particular problems they face in emergencies.
- c) The Ministry with responsibility for Public Health and Social Welfare should be instrumental in instructing all health personnel and social workers to disseminate the knowledge down to the community level.
- d) The Ministry with responsibility for Education should provide information to primary and secondary school teachers so that they may make children aware of the problems and needs of other disabled children and encourage them to offer all the help they can.
- e) Courses in community health and disability prevention should be included in the curricula of medical schools.
- f) If any kind of community-based rehabilitation programme is already operating in the country, or if the manual "Training the Disabled in the Community" is being field-tested, instructions for assisting the disabled in disaster should be included.

- q) If institutions for the physically disabled, for the mentally retarded and mentally ill exist, their staffs must be instructed how to assist those in their care in emergencies of whatever kind.
- h) Voluntary organizations active in disaster relief assistance should be instrumental in relaying the information to volunteers, such as Peace Corps workers, the Scouts, and similar groups.

But since the isolation of the disabled, the lack of information and technical aids is greatest in rural areas, it is extremely important that the guidelines be made known to those who work in, or are concerned with the problems and development of rural areas - for example:

- 1) churchmen, priests, pastors, missionaries;
- 2) school teachers;
- 3) district or community nurses or midwives;
- 4) the local doctor, religious healer or medicineman;
- 5) the mayor, chairman of a local council or other similar official, who usually fulfills a political function, but deals also with social problems, and knows about the people in the community;
- 6) people working in rehabilitation and primary health care;
- 7) personnel working with National Committees of or for disabled persons.

CHAPTER V

DISASTER PREVENTION - CAN IT HELP THE

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THE DISABLED?  
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As has been noted elsewhere, much of the responsibility for the care of the disabled - particularly residential care - tends to fall on voluntary organizations, although some government resources may be employed, directly or in support of the voluntary bodies, for these purposes. Almost never is there enough money for the necessary capital, maintenance, and running expenses of residential homes, sheltered workshops and medico-surgical facilities dedicated to the treatment and alleviation of disability.

Because of the shortage of funds, organizations and even governments of some developing countries are accustomed to seeking financial assistance from overseas, from funding sources in traditional donor countries. All too often such sources will limit their examination of such requests to things like building costs, first and maintenance costs of machinery, and so on, and compare them with norms established for the country concerned in order to ensure - as they rightly should - that their money will be well spent and that they will receive proper value for it.

In general terms, concern should be aroused in funding sources if the facility for the disabled is, or is to be, located in high-risk areas which are (i) seismically active or known to be traversed by seismic faults; (ii) river-flood plains; (iii) tidal wave flood plains; (iv) subject to tropical storms; or (v) in the vicinity of active volcanoes.

To this list of natural hazards, there should be added the potential man-made hazards which create high-risk areas of their own, e.g.: (i) areas downstream of a dam which will be affected by any sudden release of stored waters; (ii) sites beneath which mining has taken place and where back fill of mine workings has not been practised; (iii) sites in the shadow of industrial refuse tips; (iv) sites in the vicinity of industrial plants subject to explosion risk; and (v) sites located near major airports, and particularly those along the extended centre-line of the main runway(s).

Fire is an ever-present risk, since it may result from the effects of a natural disaster (particularly earthquakes) or from faulty equipment, technology, or action, or simply from human carelessness. Old and densely built-up residential areas where timber structures abound and faulty energy-supply installations are commonplace are some of the worst places in which to locate facilities for the disabled: unfortunately, those disabled people who tend to be most in need of help, and many of the facilities for them, are most often to be found in precisely these places. It is equally in



these parts of cities that water supplies are apt to be unreliable. Their failure at any time, but especially immediately after a disaster, adds measurably to the risk of damage from fire. Prolonged failure of supply can also create health hazards, either from drinking impure water or by the effect on sewage disposal systems. For disabled people, these common results can be especially dangerous.

Thus, the kinds of questions which should be asked by funding agencies are: if the country concerned experiences earthquakes, is the building designed to be proof against shocks of the magnitude which may be expected? If the country suffers from cyclones, will the building withstand high winds? Is it to be built in an area which is unlikely to be affected by flooding? Is it located at a safe distance from a hazardous site - for example, a chemical manufacturing plant? Will there be proper equipment to extinguish fire, and are there adequate fire escapes? Has provision been made for emergency or alternative water and power supplies?

All these and many other similar questions may have to be answered in the negative, because the applicant agencies fear that too high an estimate, made necessary by the inclusion of the necessary features, will invite outright rejection. The funding sources, for their part, if their examination of the project presented to them has been superficial or limited, may be able to congratulate themselves on "getting a bargain" because of having to spend less but they may at the same time not even be aware of the risks they are creating.

Building location, construction standards, provision of hazard warning systems, evacuation planning, available access for fire and rescue services: all are factors which may one day affect the safety of disabled people (and for that matter, of children and the elderly who, insofar as they are less able to cope readily and fully with emergencies, share many of the problems of the disabled). The timely consideration of these matters is itself an element in the disaster prevention process - that is, of preventing an extreme event from assuming disastrous consequences.