OFFICE OF THE UNITED NATIONS
DISASTER RELIEF CO-ORDINATOR
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Disaster Prevention and Mitigation

A Compendium of Current Knowledge

Volume 10

PUBLIC INFORMATION ASPECTS

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FOREWORD

The Office of the United Nations Disaster Relief Co-ordinator (UNDRO) presents the tenth volume in the series entitled "Disaster Prevention and Mitigation". The purpose of these publications is to provide the international community with a comprehensive review of existing knowledge of the causes and characteristics of natural pehnomena and the preventive measures which may be taken to reduce or eliminate their impact on disaster-prone developing countries.

These volumes are prepared in accordance with General Assembly resolution 2816 (XXVI), which calls upon the Office of the United Nations Disaster Relief Co-ordinator to promote the study, prevention, control and prediction of natural disasters, including the collection and dissemination of information on technological developments.

The aims of these studies are, first, to identify the existing knowledge and expertise which may be applied directly toward the prevention of natural disasters, particularly in developing countries and, secondly, to identify the gaps in current knowledge which require concerted action by the international community.

During the last two decades the international community has become increasingly alarmed by disasters, which have tended to be more destructive as they affect ever larger concentrations of population. While the response of the international community has been focussed primarily on relief action, it is now realized that the actual and potential consequences of disasters are becoming so serious and increasingly global in scale, that much greater emphasis will henceforth have to be given to planning and prevention. The effects of natural phenomena must be viewed not only in humanitarian and broad social terms, but also - and primarily - in economic terms.

Natural disasters are a formidable obstacle to economic and social development. In terms of percentage of gross national product, the losses caused by disasters in some disaster-prone developing countries more than cancel out

any real economic growth. There has thus been a growing awareness by Governments of the need to focus more attention on disaster preparedness and prevention, and a recognition of the fact that disaster prevention and pre-disaster planning should be an integral part of national development policy.

The "International Strategy for Disaster Prevention", proposed by UNDRO and approved by the General Assembly at its twenty-ninth and thirtieth sessions, will provide the conceptual framework for national and international action in the prevention and mitigation of natural disasters. This strategy will harness the collective human and material resources of the world towards removing the scourge which natural disasters represent for many disaster-prone developing countries. The present series on "Disaster Prevention and Mitigation" provides one of the inputs for the formulation of the strategy.

Public information and public education can do much to help awaken and alert the general public to the short-term and long-term dangers of disasters, and can help to bring about greater public awareness and encourage public action to prevent or mitigate the harmful effects of natural phenomena. Such programs are vital if communities are to respond to the international strategy and bring it to a successful conclusion.

This volume, Public Information Aspects, provides general and specialized knowledge and techniques which can be directly applied to the prevention and mitigation of disasters. It applies the results of several decades of social science research into the nature of individual human behaviour, and of institutions and organizations, under disaster conditions. It takes into account the changing social structure of many countries brought about by rapid urbanization, rising literacy and new communication technologies, and suggests both traditional folk media and mass media approaches to problems.

The core of the study treats public information policy and procedures. It examines the public information responsibility of various levels of government, as well as the responsibility of the public-at-large to implement measures of preparedness and prevention. The need for public education and

the training of specialized personnel to carry out these tasks is made evident, as is the necessity for public information practitioners to apply and adapt these suggestions to suit their own national circumstance.

All the publications in the series "Disaster Prevention and Mitigation" are addressed to a broad range of users, including high-level government officials, administrators, technical experts in the field and specialists in the various areas of disaster prevention. They are also designed to guide officials at the national and regional level in the formulation of policies for preventive measures against the types of natural phenomena affecting their region.

The Office of the United Nations Disaster Relief Co-ordinator invites the readers of this volume, Public Information Aspects, to provide the United Nations with their comments and suggestions.

This publication was prepared by the Office of the United Nations Disaster Relief Co-ordinator in collaboration with Mr. Brian H. Taylor. The production of this volume, as well as the other monographs in this series, was made possible by the active co-operation of the United Nations Environment Programme (UNEP).

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INTRODUCTORY NOTE

This monograph is about public information, and how public information — or public education — policies put into practice can be used to prevent or mitigate disasters.

The monograph is subtitled 'A Compendium of Current Knowledge'. It is supposed to contain a body of knowledge about public information policies and practices in times of disaster.

There is no single body of knowledge, however, and those concerned with public information have to be aware of the literature in a number of adjoining areas. This is why the volume includes bibliographical references to a considerable number of research studies.

The volume is arranged so that the first two chapters discuss the nature of a disaster and the public reaction (and the differing public information needs), while the next two chapters discuss the public information functions of governmental and non-governmental organisations. The centre of the book (chapters 5 and 6) is concerned with public information theory and practice, and public education and training. These lead to the need for more specialised information, and three chapters follow on mediated information systems, personal communications and the nature of messages. The monograph concludes with a chapter on future needs and several annexes containing more detailed information.

Public information is treated very broadly in this volume. It is taken to mean not only government information disseminated to the general public, but also information about disasters flowing between official bodies and along unofficial channels, and as an exchange between government and the general public. It does not mean just the provision of news releases and the issuing of a public alert, but rather all public information and public education material aimed at both general and specialised audiences, such as government departments, institutions and other such bodies, as well as any exchange or feedback resulting from this kind of dissemination.

I. THE EVENT

1. What is a disaster?

Disasters occur in many forms. Some last only a few minutes, during which the incredible violence of a natural phenomenon leaves behind a devastated landscape; others extend over many years in which the marks of violence may be hard to discern at any particular moment. This volume is concerned with natural phenomena, though natural and other disasters are often inextricably linked together, one leading to the next in a chain of events. Many of the actions urged in this volume would certainly be appropriate to all disasters.

A natural hazard is a condition of the environment. Where and how man builds can aggravate the hazardous conditions for those humans living there. The term 'disaster' can refer to the physical consequences of the phenomenon such as property damage, injuries and deaths, or to the longer-term social and economic consequences stemming from the event. A useful definition has been proposed which includes both the physical event and the social consequences:

> "...an event, concentrated in time and space, in which a society (or a community) undergoes severe danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfillment of all or some of the essential functions of the society is prevented." 1/

1/ Fritz, Charles E., "Disaster", in Contemporary Social Problems, Merton and Nisbet (eds), Harcourt, New York, USA, 1961.

2. Impact on national development

It is undeniable that disasters create enormous havoc. The devastating earthquake that struck Managua, Nicaragua in December 1972 killed more than 10,000 people. Hurricane Fifi, which hit Honduras in September 1974, resulted in costs of damage — in terms of capital alone — amounting to over US $150 million, while production losses were considerably higher. The productive capacity of the country was seriously undermined for years to come owing to the destruction of plantations and means of communication and the loss of capital goods. 2/ It is estimated that the November 1970 cyclone which struck East Pakistan (now Bangladesh) claimed more than 300,000 lives, while crop losses amounted to US $65 million. The same storm and resultant flooding drowned 60 per cent of the inland fishermen in the area and destroyed 65 per cent of the total fishing capacity of the coastal region. It has been estimated that in the ten years prior to 1974, the world suffered more than 400 major natural disasters, resulting in 3.5 million deaths, with a further 400 million people affected. 3/

The effects on the developing countries, particularly those that have a high incidence of disasters, have been devastating. In the Sahel region, for example, the United Nations Food and Agriculture Organisation estimates that the drought cut in half the gross national product of the six countries most affected : Chad, Mali, Mauretania, Niger, Senegal and Upper Volta. Floods in India are responsible for damage estimated at US $116 million each year, primarily to crops. Tanzania loses about 4 per cent of its gross national product each year from drought. The floods which devastated the Philippines in 1972 rolled that country's development efforts back by three to five years. It has been estimated

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2/ Economic Commission for Latin America. Report of the Damage Inflicted on the Honduran Economy by Hurricane Fifi and its Repercussions. (E/CEPAL/AC.67/2) 11 October 1974.

3/ Statement of the Hon. J.M. Segal, Representative of the United States of America, before 1620th session of the Second Committee, UN General Assembly, 30 October 1974.

that the damage caused by typhoons alone in southeast Asia between 1961-70 amounted to almost US $10 billion — $500 million more than the total global assistance provided by the International Bank for Reconstruction and Development during the same period.

Many of the fifty-one countries on the United Nations combined lists of 'least-developed' and 'most seriously affected' have had major natural disasters requiring international assistance during the past five years. Nearly two-thirds of these countries have no disaster plan of any kind and less than half have any permanent national disaster organisation, according to a publication of the US United Nations Association.4/ Bangladesh, Chad, Ethiopia and Honduras are countries on that combined list whose development plans have been postponed, and virtually destroyed, by natural disasters in the past few years. Disaster preparedness and prevention are necessities for such countries.

3. Kinds of disasters and information needs

Earlier classifications of natural disasters used conventional categories, such as hydrological (floods, storm surges and tsunamis), meteorological (hurricanes, cyclones, typhoons or tornadoes) and geophysical (earthquakes and volcanoes). These were extended to encompass hazards like drought, frosts, pests and diseases, and technical or man-made causes such as floods resulting from dam collapse or mass poisionings. Hazards, or disasters are, to some extent, shaped by the perceptions of the victims. On being asked to list the disadvantages under which they labour, northwestern Nigerian farmers mentioned drought, damage from locusts and other pests, sickness, weeds and shortages of both good farming land and well drinking water.

These relatively simple categories have been overlaid by more complicated classification schemes of various researchers, such as one who specified four dimensions of disasters: total scope, speed of onset,

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4/ Acts of Nature, Acts of Man: the Global Response to Natural Disasters, United Nations Association, United States of America, New York, N. Y., USA, June 1977.

duration and degree of social preparedness. 5/ Another describes nine dimensions : frequency, predictability, controllability, cause, speed of onset, length of possible forewarning, duration, scope of impact and destructive potential. 6/ A third describes four types of disasters : an instantaneous-diffused type which immediately demolishes the entire community; an instantaneous-focalised type which demolishes part of the community but leaves the rest intact; a progressive-diffused type which affects whole communities gradually; and a progressive-focalised type, such as a localised flood. 7/

A major problem is that some types of natural catastrophes occur only rarely in the same location. The city of Skopje, Yugoslavia was levelled by earthquakes in 518, 1555 and 1963. A mudflow similar to that which took 25,000 lives in Yungay, Peru, had destroyed the valley up to 10,000 years before. Most communities are faced with hazards which may become dangerous once in every ten, or fifty or a hundred years. Of course, some major exceptions occur in the developing countries, such as the annual flooding in India.

Obviously, any disaster prevention and mitigation activity, such as giving the public timely advance information about evacuation procedures, is going to be a very different task depending upon whether the community is dealing with a recurring annual event or a catastrophic once-in-a-lifetime occasion. Hazard surveys, prior to the establishment of a disaster plan, are a necessity for realistic public information policies.

5/ Barton, Allen H., Communities in Disaster : a Sociological Analysis of Collective Stress Situations, Doubleday, Garden City, N.Y., USA, 1969.

6/ Dynes, Russell R., Organised Behaviour in Disaster, D.C. Heath Co., Lexington, Mass., USA, 1970.

7/ Carr, Lowell J., "Disaster and the Sequence-pattern Concept of Social Change", American Journal of Sociology, 38, 1932.

4. Stages of disasters and information needs

Just as the kind of disaster produces various and differing information needs, so do the stages of a disaster. Several researchers have constructed a chronology of these events. Two writers in the early nineteen-fifties suggested eight time periods : pre-emergency, warning, threat, impact, inventory, rescue, remedy and recovery. 8/ One specialist looks at the stages in terms of group and organisational activities related to community processes. 9/ Another suggests five major phases :

Adjustive - normal monitoring of the environment;
Protective - probability that a specific disaster might occur (warning period);
Survival - impact of the event;
Remedial - recuperation, usually short-term measures; and
Integrative - long-term adjustment to the change. 10/

Each of these phases has a communication aspect. For example, in the adjustive phase, information about disasters is usually transmitted through the everyday behaviour of the community — through folklore, story-telling and the school system — although there may be a long-term public education programme for this purpose. The protective phase encompasses official and unofficial warnings,while the survival phase gets us into complex interpersonal and mediated communication networks. As we pass through the crisis period into the remedial phase, we see once more the need for long-term public education programmes aimed at preventing or mitigating the next disaster.

8/ Powell, J.W., An Introduction to the Natural History of Disasters, (disaster research project), College Park, Maryland, USA, June 30, 1954.

9/ Dynes, Russell R., Organised Behaviour in Disaster : Analysis and Conceptualisation, The Ohio State University, Columbus, Ohio, USA, 1968.

10/ Williams, Harry B. Jr., Communication in Community Disaster, Ph.D. dissertation, University of North Carolina, Chapel Hill, N.C. USA, 1956.

It is sometimes difficult to distinguish the various phases of multiple disasters occurring at the same time. Earthquakes can lead to building collapse and fire, and even landslides or floods. Recovery from the primary effect of an earthquake can be happening at the same time as the full impact of these secondary effects is felt.

There are differing information needs throughout these various time periods. For example, many disasters exhibit warning signs beforehand, often long before any official warning messages. But even the most obvious warning signs are not always observed or, if observed, are not always interpreted correctly. Even if they are understood, people do not always respond in the most useful way. This observation-interpretation-action chain should form part of any long-term public education programme, as is evident in the earthquake warning system in China described in Annex I.

Once the disaster occurs there is a widespread need to know what is happening amongst the population. Interpersonal chains of communication spread across the community supplement media coverage. There is a convergence on official sources, on community centers and on communication systems like the telephone. This usually leads to breakdowns at the very points where information needs are greatest, often hampering rescue work. An efficient disaster plan would incorporate public information safeguards to avoid these consequences.

5. Disasters and public information

An adequate disaster plan can reduce the destructive consequence of even the most disruptive events. During the nineteen-fifties, 13,000 people were killed and over a million homes were destroyed or flooded in Japan during eleven major typhoons and floods. Yet when the strongest earthquake for forty years struck Niigata in June 1964, only eleven people were killed and about 120 injured, largely because of a well-known and detailed master plan. Over half the city's 300,000 inhabitants were directly affected by the earthquake; 17,000 buildings were damaged or destroyed and an additional 11,000 buildings were inundated in subsequent flooding. Almost all public utilities were disrupted and over half the land area of the city flooded to a depth of one to two metres.

There are many examples of what happens when there is no such preparation in advance: emergency organisations duplicating each other's work, sometimes not even aware of each other's existence, and appeals which produce an over-abundance of useless articles merely adding to the bureaucratic confusion.

A crucial factor in the development and functioning of an efficient disaster plan is communication. Authority, co-ordination and certainly information cannot be maintained without adequate communication. However, communications technology is often installed without consideration of alternatives or backup systems, and the human element is often disregarded. Informal person-to-person communication within organisations, as well as within the general public, is not given the same attention that is bestowed on official warning systems using mass media. Efficient communication requires planning and rehearsal like any other complex human endeavour. (Figure 1. A diagram of a feasible warning system).

Communications are as vital to society as they are to individuals within the society. They are the means by which networks of relationships which make up society are formed. Communications are especially important when disasters strike: they are the means of warning the community of impending threat; they are the way by which the nature and extent of the threat is evaluated and explained; they are essential for creating or re-creating community organisation following the impact of a disaster. In fact, communications are so important that centres of communication are often, and equally, centres of operational control.

Any disaster plan must include the collection and dissemination of three kinds of information: on operational plans and procedures; on available resources of facilities, material and personnel; and on recommended protective behaviour at both the organisational and individual levels. Without these kinds of public information a community's response to disaster will be much less effective than it could be.

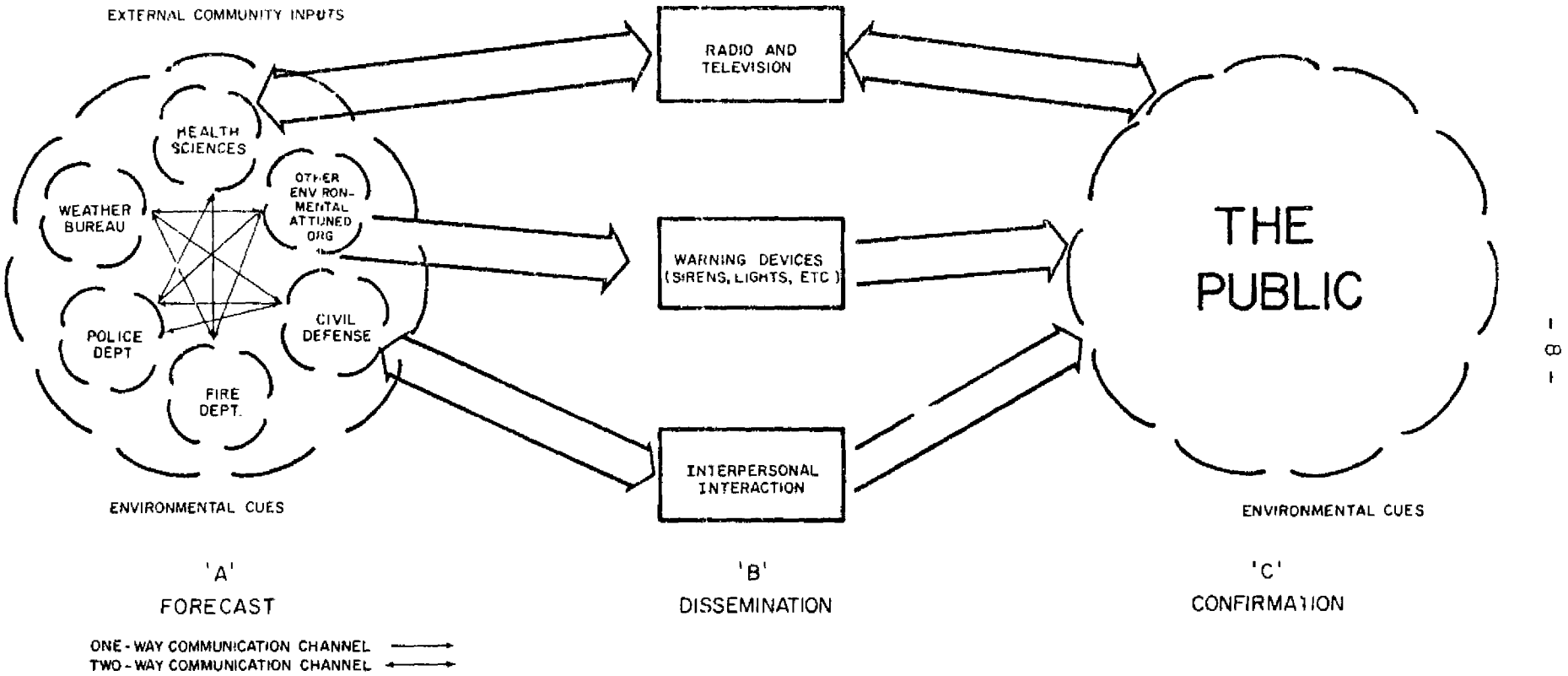

Fig. 1 A diagram of a warning system.

But the problem does not stop there.

"...Every citizen has a responsibility to study the issues which face his society and nation, to collect as much relevant information as he can, to evaluate that information and make a judgement on it. But the average citizen is seriously handicapped in many respects. He does not have access to much information, he is not always in a position to formulate an opinion and make decisions that take account of considerations on a national level, and his decision-making powers may be very limited. As a result, he must look to officials and members of government, from the local to the national level, to take special responsibility in facing the issues, getting and evaluating the relevant information, and making the indicated decisions — especially when the stakes involve the society as a whole." 11/

11/ Beach, Horace, Management of Human Behaviour in Disasters, Department of National Health and Welfare, Ottawa, Canada, 1967.