

## **PART III**

### **DISASTER PREPAREDNESS**

**Chapter 9 – The planning of disaster preparedness**

**Chapter 10 – Legislation for disaster preparedness**

**Chapter 11 – A tropical cyclone warning system**

**Chapter 12 – Flood fighting**

**Chapter 13 – Evacuation of danger areas**

**Chapter 14 – Public information and education**

**Chapter 15 – Test exercises in disaster preparedness**

**Chapter 16 – Emergency operations and disaster relief action**

## CHAPTER 9

### THE PLANNING OF DISASTER PREPAREDNESS

The preceding section, Part II, has been concerned with disaster prevention which can be described as the product of long-term programmes aimed at overcoming or neutralizing the effects of adverse natural phenomena. If these programmes succeed, disasters would only rarely occur in the areas involved, whilst if the programmes are only partly successful, as would normally be the case, severe disaster might still be avoided and beneficial results would be achieved by a smaller death toll and less material damage than would have occurred if the need for disaster-prevention measures had been ignored.

The present section, Part III, is concerned with disaster preparedness which is seen in action in the short-term or emergency measures which come into force when conditions such as those of a tropical cyclone approach and bring with them the threat of a disaster. These measures remain in force until some time after the conditions have passed, because emergency action is required not only on the approach of a tropical cyclone, but also when it is actually present with all its force over an area and then in the aftermath.

Thus in an integrated disaster plan there are two categories of measure. One category is of a permanent nature, known as prevention, and includes a structural component – levees, dams, reservoirs, etc. – and a non-structural component – land use and zoning, building codes, etc. The other category, known as preparedness, consists of emergency measures which, however, must also be planned well in advance. Each of these categories is essential and should be viewed not so much as a separate undertaking but entirely as a supplementary part of an overall system for protecting life and property.

#### A Disaster-preparedness Board

In Chapter 3 on the planning of disaster prevention, reference was made to the desirability of establishing a disaster-preparedness organization in each country which is affected by tropical cyclones. Such an organization would be concerned with the planning and implementation of programmes for dealing with a disaster emergency. The organization, which might be called a Disaster-preparedness Board, would not be responsible for the long-term action involved in disaster prevention. However, the Board would regard measures for disaster prevention as providing the basic structure on which disaster preparedness would be founded. The Board would, therefore, advise the appropriate authorities as to requirements and priorities for the strengthening of disaster prevention.

Disaster preparedness must involve almost every sector of the community and it would probably be found that the Board was inevitably very large. Accordingly much of the work might usefully be delegated to subcommittees or to working groups or working parties assigned specific tasks. Decisions as to which official and non-official bodies should take part in the planning and implementation of disaster preparedness should depend on the structure of the administration in each country. Important tasks would clearly fall upon the ministries or departments responsible for transport, highways, public works, health, social welfare, agriculture and forestry, communications, housing, education and, on the technical side, meteorology and hydrology. In order to ensure that a complete, integrated organization is set up, one of the responsible ministries or departments should be given the primary responsibility for initiating and co-ordinating all the arrangements that are required, whether planning, operational, administrative or financial. The authority responsible for the national budget should also be involved since many if not all of the activities will require funds. The wide experience of non-governmental bodies such as the National Red Cross Society in disaster planning and emergency relief should also be utilized to augment the efforts deployed by official agencies.

The National Red Cross Society and similar bodies should therefore be invited to participate in planning the organization for disaster preparedness and should be given an operational role in appropriate aspects of the emergency measures.

### **Involvement of the general public**

Whilst the planning and implementation of disaster preparedness call for formal or official activity, it should be appreciated from the outset that co-operation by a knowledgeable public is indispensable. In many sectors of the work, the best-laid plans can work successfully only if the general public is sufficiently well informed to participate actively and effectively. It is therefore essential to engender a spirit of disciplined self-help amongst the population so that people will know what they should do and will know that their own performance is a basic requirement for success. Moreover, in emergencies there will arise a host of unforeseen contingencies in which individual members of the public will need to exercise initiative and display their resilience and resourcefulness. In such circumstances, people who understand the objectives and procedures of disaster preparedness can be of great service to themselves and to the rest of the community.

In the whole organization of disaster preparedness, it is important to recognize that there is everything to gain by encouraging all who can do so to contribute, whether on a professional or a voluntary basis. Through the proposed Board and its subcommittees and through the quite numerous working groups that will be needed, adequate scope should be available for all concerned to play a full part at their proper levels in appropriate projects.

As already stated, the effective co-operation of the public and its self-reliance in the unexpected incident are dependent upon its knowledge of the reasons for disaster preparedness and the objectives to be sought. The public should appreciate the various dangers that can arise from tropical cyclones, e.g. flying debris, floods and storm surge. An important aspect that should not be overlooked in the quest for public awareness is the tendency for changes in population to occur, notably when people move from a relatively safe to a high-risk area. This is a problem that presents additional hazards and should be given due attention by responsible authorities.

### **Population changes in vulnerable areas**

It has been realized in recent years, notably in the United States, that in the coastal areas of countries which are vulnerable to tropical cyclones the population is increasing much faster than the national average. The high rate of population growth results from the attraction of coastal areas for living and recreation. But for zoning laws and building codes the growth rate would be much higher. In these areas there is an even greater need for public awareness of danger than in those communities where the population is relatively stable and where a fair proportion of the inhabitants have personal experience of the dangers that are brought by a tropical cyclone.

It will be evident that in the planning of disaster preparedness an assessment should be made of population trends in vulnerable areas. Such an assessment would indicate the areas where the regulations governing future development and building should be strictly enforced in order to avoid a high risk of a major catastrophe. The assessment would also help to provide planning guidance on the requirements for escape routes and the arrangements to be made for evacuation. In these particular matters it is most important that all sectors of the administration as well as the population should fully understand the potential risks as they exist at the time and how they would be affected by any decisions to relax zoning laws and building codes and to postpone problems of escape routes and evacuation.

### **Scope of disaster preparedness**

The state of disaster preparedness in a country is a measure of the capability of the country and its people to take the various steps needed to safeguard lives and property during three successive phases: when disaster threatens, while the adverse conditions that could result in disaster actually exist and during the recovery period that follows.

These steps must be planned well in advance and must be tested in exercises based on tropical cyclones of varying severity and postulating different effects. These exercises should reveal any important defects in the whole system of preparedness. Such defects should be corrected urgently so that all involved in a potential disaster situation would have confidence and efficiency in obeying the instructions that are issued and carrying out all assigned tasks.

The organization for disaster preparedness has many components which are interrelated so that the aim must be to seek high efficiency in each element because otherwise the whole system would fall short of the required level of efficiency. The arrangements for disaster preparedness should have a secure foundation, in other words they should have all necessary legislative backing.

A balanced programme of disaster preparedness should have at its heart a national disaster control centre with sub-centres at regional and local levels. An essential operational feature would be the issue at appropriate times of tropical cyclone warnings for which the national Meteorological Service would have responsibility. On the issue of a warning all elements of the disaster-preparedness organization would be brought to the highest state of readiness and the hydrological authorities would be alerted to the possibility that a need for the issue of flood warnings might arise.

In the face of an approaching tropical cyclone, the organization for disaster preparedness would take, or make itself ready to take, a wide range of measures concerned with flood fighting, various emergency operations and disaster-relief procedures, the implementation of escape routes and evacuation plans. These subjects and others already mentioned are discussed in succeeding chapters.

### Structure of disaster preparedness

The effective mitigation of the impact of tropical cyclones upon a country depends to a great extent upon the provision at national levels of an adequate framework incorporating policies, programmes and guidance to enable action to be taken at community level where the emergency organization must function at high efficiency and have regard to all the fine details in the plans to be implemented. Indeed, planning and the implementation of plans form a continuous process from national to community levels. In emergency the major tasks are apt to fall upon communities. It is at this level that evidence will be found whether the overall planning has been sufficiently comprehensive and co-ordinated to develop the necessary high degree of motivation among the responsible people as well as among the general public in carrying out the whole range of measures which the emergency demands.

In order to emphasize the importance of the planning and action roles at the local level, it may be mentioned that in the United States plans are being made for improving the capability at local government level for rapid and effective response to save lives and protect property in the event of any threatened or actual emergency. In adopting this objective it is realized that local communities must not be left to fend for themselves using their own resources but must receive government help in planning, in all requirements to implement plans and, as required, during an actual emergency.

It would be appropriate for each local authority to set up a permanent Disaster-preparedness Committee. This would function within the framework of the Disaster-preparedness Board and in co-operation with the Board's sub-committees and working groups. The local Disaster-preparedness Committee would include representatives of the following bodies:

- Local authority (nominated members of the town council);
- Civil Defence;
- Police;
- Public Works;
- Public health and medical services;

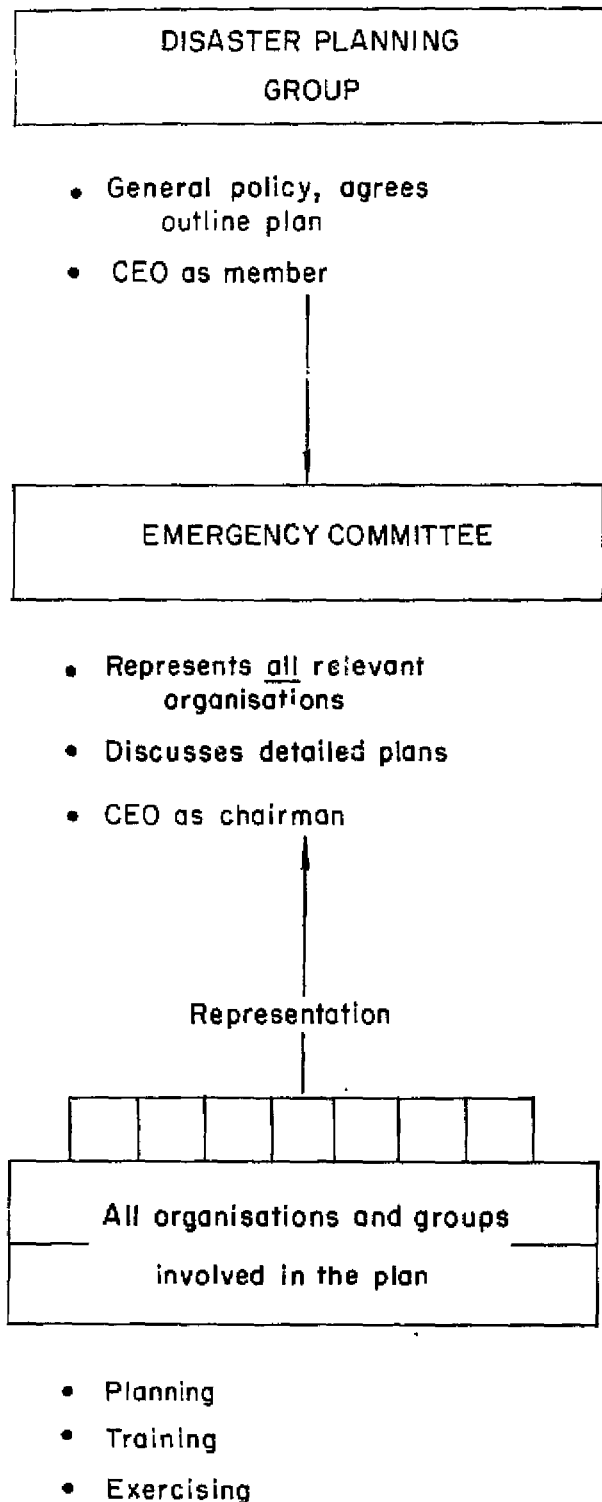
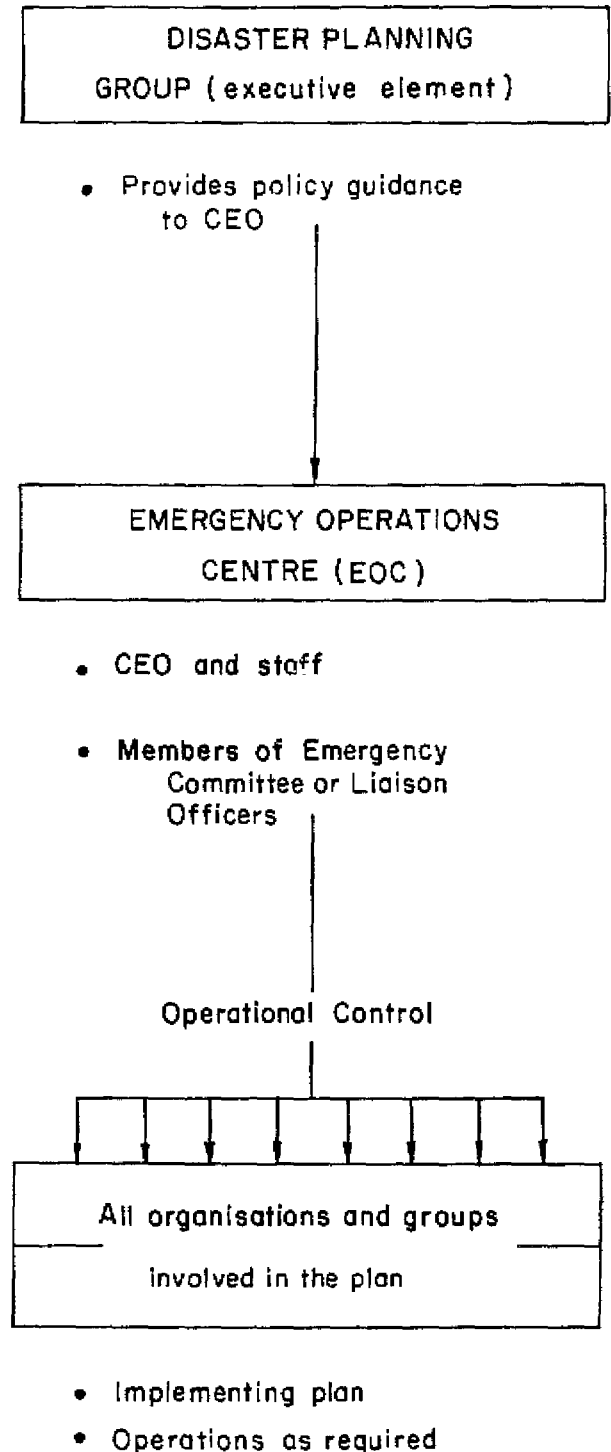
A. IN PLANNINGB. IN OPERATIONS

Figure 9 – Outline and functions of the local organization

Fire service;  
Utilities (transport, electricity, gas, water, post and telegraphs);  
Education;  
National Red Cross.

The above list merely gives suggestions. Membership might be wider but care should be taken not to make the committee so large as to become unwieldy.

In addition to the local membership discussed above, certain national and regional officials should be invited to serve. Moreover, the Committee should have constantly available, preferably through membership but otherwise in an advisory capacity, technical advice from the nearest offices of the national Meteorological Service, the national Hydrological Service and others.

The terms of reference and functions of the committee should be clearly set out and would include such matters as the following:

- (a) To keep the population and its property, installations, etc. constantly prepared for an emergency arising from a tropical cyclone or other natural phenomena;
- (b) To keep under review, and to take all appropriate action on, matters likely to reduce danger and devastation from tropical cyclones;
- (c) To supervise generally the warning system and the organization for dealing with emergencies;
- (d) To direct and control rescue and relief work;
- (e) To maintain liaison with the press, radio and television and to organize programmes of public information and education;
- (f) To organize a survey of deaths, injuries and damage after each emergency and to take action on the lessons to be learned.

Once established, the committee should meet as often as necessary until a satisfactory disaster-preparedness plan has been drawn up and action for implementation is proceeding smoothly. Thereafter, the committee should meet regularly and should invariably hold a meeting as the tropical cyclone season approaches. The committee should visit all components of the preparedness organization and ensure that all necessary arrangements have been made for co-ordination, collaboration and teamwork. Particular attention should be given to the warning system and its capabilities.

Figure 9 is taken from a planning guide prepared by the Australian Government and illustrates the framework of a local organization for disaster preparedness. It will be noted that three main groups are involved:

- (a) The Emergency Operations Centre (EOC) headed by a Chief Executive Officer (CEO);
- (b) A Disaster Planning Group which provides policy guidance for the CEO in planning and during the conduct of emergency operations;
- (c) An Emergency Committee consisting of the representatives of local organizations and of leaders of teams with an important role in disasters.

## CHAPTER 10

### LEGISLATION FOR DISASTER PREPAREDNESS

In Chapter 4 on the subject of legislation for disaster prevention, it was stated that in a comprehensive system of legislation relating to natural disaster there would be two basic types of legislation. One category is concerned with long-term construction and reconstruction and with the purposes of disaster prevention; the other is concerned with the legislation for preparedness for an actual emergency and for short-term recovery. It should be emphasized that these two classes of legislation are not entirely separate and independent but are linked by overlapping features as might be expected within a comprehensive system of legislation. For example, legislation for the post-disaster situation should cover rehabilitation and reconstruction. The former is largely concerned with the rapid restoration of stricken populations to a functioning social, economic and physical framework. Reconstruction contains elements of disaster prevention for the future since it passes through a short-term phase and finally becomes part of the existing development planning process.

The present chapter, therefore, which is concerned with legislative aspects of disaster preparedness, should be regarded, within the context of legislation, as supplementary to Chapter 4.

#### Scope of disaster-preparedness legislation

Legislation for disaster preparedness should include a large number of subjects which cover a wide range. The measures to be included in such legislation should cover the following:

- (a) The monitoring of natural phenomena, e.g. tropical cyclones, the issue of warnings and the actions that should follow;
- (b) The conduct of emergency measures such as flood fighting and evacuation;
- (c) The operation of measures related to protection, rescue and relief;
- (d) Measures for the education and information of the population, including schoolchildren, regarding action to be taken in emergency;
- (e) Measures for the restoration of buildings, installations and equipment;
- (f) Health measures, including epidemic control, public health and sanitation;
- (g) Measures for the preservation of social order, for emergency transport, traffic control and crime prevention;
- (h) Measures for rehabilitation;
- (i) Financial measures.

In all the above aspects, the responsibilities should be clearly defined in the legislation and, if required, appropriate agencies should be established in accordance with the legislative provisions. For example, the legislation could empower local authorities to form Disaster-preparedness Committees (see Chapter 9) and could instruct the central government to operate the emergency arrangements by means of a national disaster organization with operational centres and sub-centres near the seat of government and at regional and local levels.

The legislation covering all the items listed above as well as others of an essential nature must be complex and lengthy, as in the case of legislation for disaster prevention. The legislation would consist of various chapters and

include a fairly large number of articles. For more detailed guidance reference should be made to the laws and related ordinances in force in countries such as Australia, Japan and the United States, where the systems for disaster prevention and preparedness have been developed over many years and brought to an advanced stage.

### **Legislation for disaster relief**

The Red Cross Disaster Relief Handbook contains valuable guidance on national disaster-relief plans and devotes a separate section to the legislative aspects. A summary of this section is given in order to illustrate the measures contained in one segment of the legislation for disaster preparedness.

It is proposed in the Handbook that, if no appropriate legislation exists, a Disaster Relief Act should be established which would designate a high-level central body and define responsibilities for disaster-relief planning and action. It is also proposed that in setting up a central disaster-relief body, authority and responsibility should be placed with the government department whose normal services and activities relate most closely to the needs created by natural disasters, such as tropical cyclones, and whose structure provides close administrative links at regional and local levels throughout the country. The department so designated would be given authority to call upon any other branch of government or agency whose services and resources could be utilized in disaster planning and relief.

The legislation for disaster relief would include provision for the following, in addition to the central body referred to above:

- (a) A secretariat to keep plans under review and formulate budgetary requirements;
- (b) Decentralization of relief action, as appropriate, to regional and community levels;
- (c) Financial arrangements, including aid to victims of disaster;
- (d) Price controls in disaster areas;
- (e) Information services, tracing of missing persons and the requisitioning of services, supplies, labour, equipment and so on;
- (f) Regulations for tax and customs exemptions and for free transportation of relief material.

### **Legislation for long-term recovery**

Disaster prevention, disaster preparedness and long-term recovery form a continuous spectrum and legislation for long-term recovery should be included in the legislation for disaster preparedness or, if drawn up separately, should form an integral part of the whole body of legislation concerned with disaster prevention and preparedness.

Whilst many natural phenomena such as tropical cyclones can be predicted with fair accuracy, it is not possible to predict whether disaster will occur or, if one does, the resulting devastation. There are obvious difficulties, therefore, in attempting to lay down in legislation any specific measures for long-term recovery and reconstruction. However, the responsibility for dealing with the various aspects of recovery is normally already settled or easily recognized by ministries or agencies already existing in the government organization. It is probably sufficient therefore for legislation to provide for general contingency plans to be drawn up so that all necessary action can be taken once a disaster has occurred. The contingency plans should cover the following aspects of recovery.

- (a) The restoration of public services and utilities, including communications, transportation of all types, electric power, water supply and sanitation;
- (b) The repair or rebuilding of public buildings;
- (c) The repair or rebuilding of roads, bridges, dams, dikes, runways and harbours;
- (d) The replenishment of nationally owned stockpiles, such as food, seeds, medicaments, etc.;
- (e) The needs of the private sector, including housing, employment, financial assistance, etc.;
- (f) The utilization of international credit and gifts from abroad.