

II. GENERAL PREPAREDNESS MEASURES

1. Emergency plans

Any pre-disaster planning begins with the identification and understanding of the natural and other hazards likely in the area under consideration. The analysis will continue with the calculation and assessment successively of vulnerability, elements at risk, specific risk and, finally, risk itself. These terms have been defined⁴ as follows:

- *Hazard* meaning the probability of occurrence, within a specific period of time in a given area, of a potentially damaging phenomenon.
- *Vulnerability* meaning the degree of loss to a given element at risk or set of such elements resulting from the occurrence of a phenomenon of a given magnitude and expressed on a scale from 0 (no damage) to 1 (total loss).
- *Elements at risk* meaning the population, buildings and civil engineering works, economic activities, public services, utilities and infrastructure, etc., at risk in a given area.
- *Specific Risk* meaning the expected degree of loss due to a particular phenomenon and is a function of both hazard and vulnerability.
- *Risk* meaning the expected number of lives lost, persons injured, damage to property and disruption of economic activity due to a particular phenomenon, and consequently the product of specific risk and elements at risk.

The results of this work (some of which may be presented in the form of "hazard maps") will indicate clearly where the planning priorities should lie, and the nature of the steps which will need to be taken to reduce the risk.⁵ They will also go some—although not the whole—way towards identifying the resources which are likely to be available for use in an emergency.

There is no such thing as a standard, all-purpose emergency plan, although one format for a typical plan which could well be found useful is shown in figure 1. This is an abridged version of that used in Tasmania. There are, however, certain elements which any plan must contain if it is to be effective. At the outset, it should define clearly and precisely the situation for which it is designed, distinguishing between the nature and magnitude of the threat or threats, and the specific local factors which are expected to influence the possible and desirable actions in response.

There should follow a statement of the aim of the plan, so that its purpose and its limitations will be understood and appreciated.

A plan must be realistic and adaptable: just as there can be no standard plan there will be no "ideal" disaster. It must therefore lay down what resources the planning area can, and will be expected to, provide, and how and when they will be called forward. Broadly, resources can be grouped into manpower, equipment and finance. This exercise will be based on the expected needs for the type and severity of disaster, and once completed will indicate how much in the way of additional resources will be required from outside the area. Naturally a balance must be sought between the three groups of resources. Manpower will perhaps be of little avail without equipment, or funds for its purchase; equipment will be useless if there is no-one to operate it. Resources of any kind can be wasted if their provision and use are not properly co-ordinated.

⁴ "Natural Disasters and Vulnerability Analysis", published by UNDRO, Geneva, 1982.

⁵ In some countries—the United States of America is an example—officials may be held legally liable if they are not prepared to respond properly to emergencies, or if recognized potential hazards are not included in their emergency plans.

FIGURE 1

TYPICAL STRUCTURE OF A DISASTER PLAN

INTRODUCTION	Legislative Authority Related Documents
THE AIM	
DEFINITIONS AND ABBREVIATIONS	
THE COUNTRY (REGION, STATE)	Topography Climate Demography Industry Government Organization
THE THREAT	History Natural events (by type) Industrial etc. accidents (by type)
COMMAND AND CO-ORDINATION	Powers and responsibilities at each level Command authorities and posts Description and role of Emergency Service
PLANNING GROUPS	Arrangements for sectoral planning (Medical, Transport, Communications, etc.)
EXTERNAL ASSISTANCE	Arrangements and authority for requesting assistance from outside the planning area
EMERGENCY OPERATIONS CENTRES	
ACTIVATION OF ORGANIZATION	Warning Systems Receipt and Dissemination of Warnings
OPERATIONAL INFORMATION	
COUNTER DISASTER ORGANIZATIONS	Government Departments Department of Defence Local Government Voluntary Organizations Arrangements for Liaison
ADMINISTRATION	
FINANCIAL PROCEDURES	
SUPPLY	Emergency Purchasing Procedures Powers for Requisitioning
PUBLIC INFORMATION	Announcements (requiring action) Information releases Emergency Broadcasting Multi-language broadcasts
SUB-PLANS	Communications; Police; Fire Services; Medical; Rescue; Welfare; Housing; Public Works; Transport; Power; Registration and Tracing Service.

A planner will be wise, however, if he remembers the inadvisability of committing all his resources at once when there is evidence to indicate that conditions will become worse as time passes, or that while they will remain stable, they will be of long duration. Men will require relief and rest after a certain period; equipment will require maintenance; consumable supplies may not be easy to replace and rationing may be essential. The quantity of external resources required may therefore be greater than a simple arithmetical calculation would indicate.

A plan must be adapted to the people for whom it is written. It must not attempt to force people to conform to it. People who have been overtaken by a disaster often display a considerable, and to some, surprising, capacity for conquering misfortune and for working out how they can best help themselves and each other. Planners who recall the experience of war, or who have seen their plan tested in a major emergency, will perhaps more readily understand this than those who perforce are working from first principles.

A plan must provide for the concerted and co-ordinated effort of several—perhaps many—different organizations, some official and, possibly, some voluntary. This is true whether the organizations are on the same level, or on different levels: community and provincial, provincial and national, national and international. The logical consequence of this is that plans at each level must be harmonized with those of the level(s) above, in order to ensure the adoption of a common policy, doctrine and procedure.

A plan must establish a command and control structure, with procedures for the reception and dissemination of warnings (if these can be expected for the kind of emergency in question), and for the acquisition of information: both these elements lead in turn to the need to plan for effective and reliable communications at the site, between the site and the emergency operations centre, and between the operations centre and higher decision-making levels.

A plan must, so far as practicable, use existing structures rather than create new ones. In the atmosphere of crisis and pressure which commonly attends any disaster situation, it is better, whenever practicable, not to ask or require people to change habits of work or their professional associates. Only at major city level and above will it be generally possible to have professional, full-time staff engaged in emergency preparedness and ready at a moment's notice to initiate and conduct relief operations. In some countries, this may not be possible even at the national level. It is however important that those who will be called upon to assume responsibilities under the plan should be clear about the manner in which they will be expected to discharge them. Any plan will be more effective if it has been written with the active co-operation of those who will be required to execute it, and professional planners must never be tempted to operate alone, without consulting individuals and organizations who will be involved.

A plan must, therefore, be written, so that it will be remembered; simple, so that it can easily be followed; communicated, so that everyone will know about it; tested, so that its theory can be proved; revised regularly, so that it will be up-to-date; and easily accessible to those who need it.

The principles of what has been said so far apply as much to specialized plans as they do to general plans.

It will almost certainly be found necessary to have both categories of plan, with the special plans dealing with particular kinds of emergency (a plan for dealing with accidents involving hazardous chemicals will be rather different from one concerned with flood fighting), and/or with particular kinds of countermeasure—evacuation, for example, which might be needed in both the situations just cited. The important thing is to avoid setting up different organizational structures: just as in emergency the planner should rely whenever he can on existing structures, so in different kinds of disaster he should rely on his existing counter-disaster structure. This may demand some ingenuity in his original devising of the structure he will need, and possibly some extra work; but this is what makes planning so interesting and worthwhile.

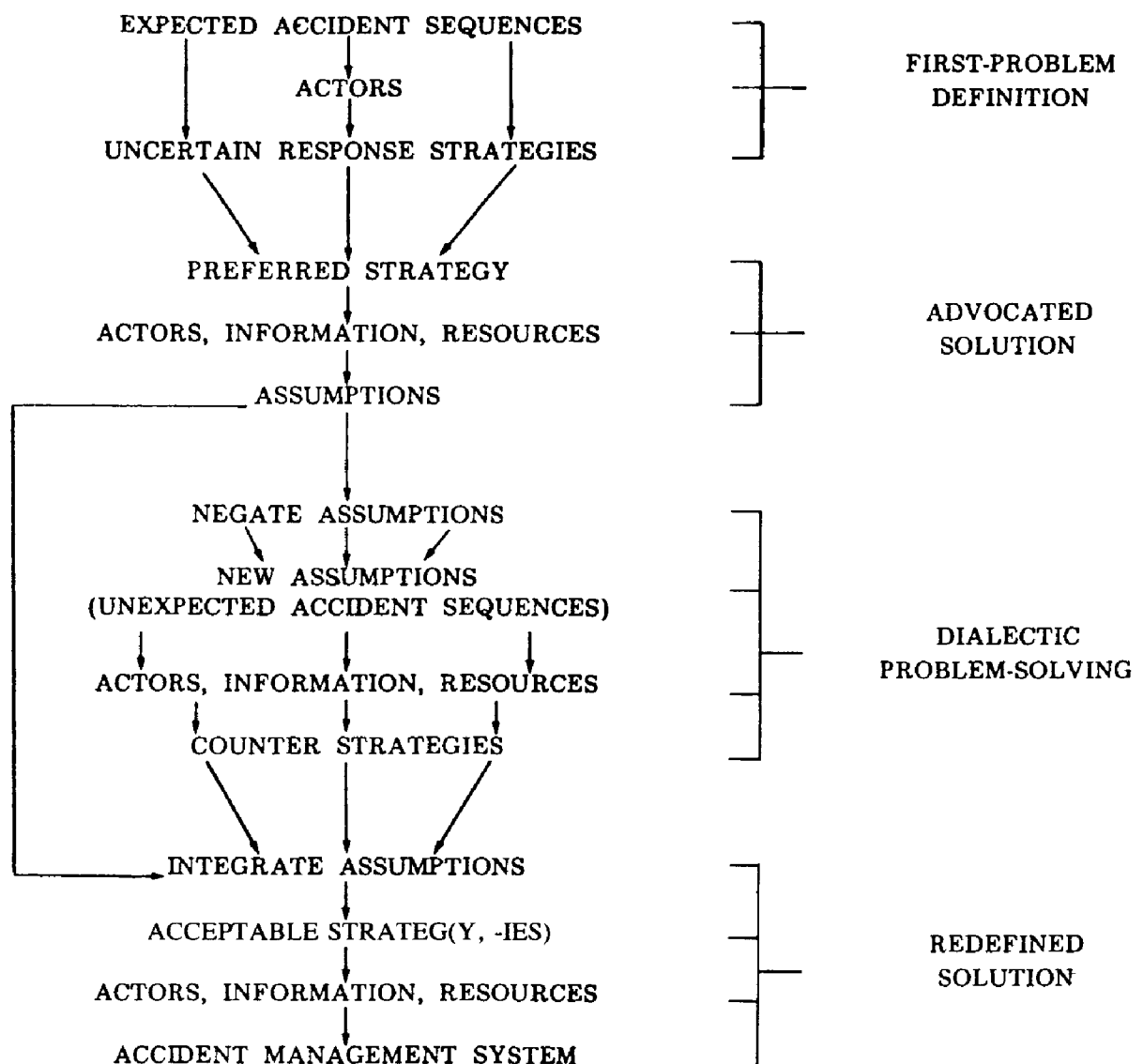
In later sections of this volume some of the matters so far briefly mentioned will be considered in more detail.

A valuable commentary on the process of planning appeared in an article⁶ on preparedness for nuclear accidents. Its lessons are, however, of wider application. In dealing with the requirement for an integrated response in a "total accident management system" by organizations already in existence, the author says

our hypothesis is that the greater the implicit consensus among groups, the greater our concern for gaps in their responses. Each organization has a dominant professional bias and its own collective wisdom or "mindset". Such devices are important for minimizing normal uncertainties internal to an organization, but these values and assumptions lead to greater uncertainties within the overall accident management system. Explicit and implicit value differences exist between each of the organizations expected to be involved in responding to a major accident. The more the implicit values and assumptions separating these groups can be discovered and questioned, the more differences, and hence gaps, between groups will appear. Such a questioning can lead to greater self-examination both individually as an organization and collectively as part of an accident management system. However, the more fundamental the issues and need for self-examination, the less is the willingness by each to do so, especially with others in the management system

FIGURE 2

A dialectical planning process for accident management



⁶ "Planning for large-scale accidents" by D. W. Fischer, Institute of Industrial Economics, Breiviken 2, 5000 Bergen, Norway. Published in "Energy", vol. 6, pp. 93ff., by Pergamon Press, Oxford, England, 1981.

The need is to create and structure this fundamental questioning process in the pre-accident phase rather than after an accident occurs. Some process for questioning the values inherent in developing such a system is necessary. A dialectical planning process is one way of attempting to create a more comprehensive and realistic accident management system. Such a process can lead to the fundamental questions of who should be involved in the system, how they should be involved, and which (unexpected) responses should be planned for before they occur. The pre-accident planning approach suggested could prove useful in determining sources of conflict in ideologies and using them creatively in the design of the entire management system. Certainly, a dialectical planning approach is one way to overcome the existence of a rigid "mindset" or attitude.

Figure 2 is (the author's) attempt at portraying a dialectical planning process. The process consists of confronting the existing regulations, expected accident sequences and expected responses with their opposites. The negation of the standard assumptions undergirding the existing regulatory and accident response systems is then followed up with the creation of new responses based on the opposite set of assumptions which leads, in turn, to different groups, resources, and information needs. Out of these opposite assumption pools can emerge a composite management system created by both sets of assumptions with a greater possibility of resiliency for meeting unexpected accident sequences. This process represents the purposeful use of conflict in confronting preferred strategies with their opposite by varying the assumptions involved by the existing stakeholders.

The end result is an integration of a wider set of assumptions leading to a better strategy for incorporating a wider set of responses into one overall management system. This system, then, allows for responses and counter-responses to be predetermined prior to an accident when stress is not present. In this way implicit assumptions of one's self and others are brought to light and planning rigidities can be exposed and countered.

2. Legislation

It will be essential for the effective operation of the plans that sufficient legal powers exist for their execution. The conferment of responsibility without power is, in terms of disaster preparedness and relief, worse than its opposite.

It is clear that there is no commonly accepted practice in deciding what matters should be treated in legislation, and what should be contained in disaster plans. Legislation for disaster *prevention* is not touched upon here, because it is discussed in volume 9 of the present series. An approach to the problem which has the merit of drawing attention to the multiplicity of matters to be covered is to be found in the "Guidelines for Disaster Prevention and Preparedness in Tropical Cyclone Areas".⁷ This approach recognizes that preparedness means not only a readiness to undertake relief operations, but also to begin the reconstruction process at the earliest possible moment; and it recognizes further that just as the phases of prevention, preparedness, relief and reconstruction form the "disaster continuum", so they merge into one another and some at least may be under way concurrently.

The "Guidelines" recommend that legislation for disaster preparedness, especially where there is not yet any preparedness organization in being, should include directions about:

- (a) The monitoring of natural phenomena, the issue of warnings and the actions that should then be taken;
- (b) The conduct of emergency measures (e.g. 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 school children, 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;

⁷ Published jointly by the Economic and Social Commission for Asia and the Pacific, the World Meteorological Organization and the League of Red Cross and Red Crescent Societies, Geneva/Bangkok, 1977.

- (i) Financial measures, and
- (j) The definition of authority and responsibilities and, if required, the establishment of appropriate agencies

It will be probable (and it is recommended) that legislation will include as a minimum the procedure for declaring a state of emergency, the emergency-related duties of authorities forming part of the normal structure of government as well as those of bodies specially established to prepare for and deal with emergencies, the powers those authorities will enjoy; and related financial provisions.

Some countries will find it appropriate to couple arrangements for a state of war with those for a natural disaster and emergencies created by accidental events, and cover the whole in a single act of the legislature (figure 3). Others may prefer to employ a very short act which gives wide powers to the appointed minister to operate by regulation, with or without the need to lay those regulations *ex post facto* before the legislature for ratification (figure 4). The decision as to which legislative formula to adopt will probably be dictated—or at least influenced—by the kind of counter-disaster organization which is favoured.

At least two models for disaster legislation have been provided from the United States of America. They are: (a) the Example State Disaster Act, published in 1972 and which is particularly intended for domestic use; and (b) a "Model of National Legislation for Disasters", published by the Inter-American Defense Board in 1976. This draws upon the Example State Disaster Act, a Peruvian Decree of 1972, and the Hawaii State Plan for Emergency Preparedness of 1971.

The second of these models is interesting because it proposes language covering intergovernmental arrangements for natural disaster prevention, relief and recovery activities, and specifically deals with what sometimes proves to be a difficult problem, namely the exercise of professional skills by relief workers who are not normally licensed to practise them in the country to which they are sent.

This model also foresees intergovernmental arrangements between States without a common border, although it does not enter into many of the other questions which need to be dealt with when international assistance is being contemplated or provided.

The Red Cross Disaster Relief Handbook,⁸ which offers valuable guidance on national disaster relief plans, devotes a separate section to the legislative aspects. A summary is given in the ESCAP/WMO/LRCS "Guidelines" cited earlier and is in part repeated here 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 this central body should be placed with the government department whose normal services and activities relate most closely to the needs created by natural disasters, 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.⁹

Simply because it is impossible to predict the nature and extent of the damage resulting from every disaster event, it is impracticable to attempt to lay down in legislation any specific measures for long-term recovery and reconstruction. However, it is usually obvious which ministry or department of government will be charged with one or another part of the reconstruction process. 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 at least the most important aspects, which will generally include:

⁸ League of Red Cross Societies, Geneva, 1976.

⁹ This proposal for the location of a central body has been contested on the ground that its placing in a sectoral Ministry (e.g., Social Affairs) encourages a curative, rather than a preventive, approach to disaster thinking. See vol. 9, "Legal Aspects", in the present series, pp. 41-42.

- (a) Restoration of public services and utilities, including communications, electric power, water supply and sanitation, and hospital services.
- (b) Repair of public buildings;
- (c) Repair of roads, bridges, dams, dykes, airports, railways and harbours;
- (d) Replenishment of national emergency stockpiles, such as food, seeds, medicaments, etc.
- (e) Needs of the private sector, including housing, employment, financial assistance, etc;
- (f) Use of international credit and gifts from abroad;
- (g) Rehabilitation of victims of a disaster, especially those who have been disabled or handicapped;
- (h) Prevention of epidemics; and
- (i) Compensation or other assistance for damage to premises and crops.

FIGURE 3

Analysis of Civil Defence Act, New Zealand, 1962, as amended, April 1977

ANALYSIS

Title			
1 Short Title	22 Declaration of state of civil defence emergency	38 Powers of local authorities	
2 Interpretation	22a State of civil defence emergency may be declared in district not affected by emergency	38a Specific functions and powers of regional councils	
3 Act not to derogate from certain other Acts	22b Declaration of state of civil defence emergency may be limited in purpose	39 Assistance by Regional Commissioner to local authorities	
PART I	23 Communication to Parliament	40 Powers of local authorities in case of national emergency or civil defence emergency	
ADMINISTRATION	24 Duration of state of national emergency	41 Power of delegation	
4. Secretary for Civil Defence	25 Duration of state of civil defence emergency	42 Powers of Chairman and other officers in urgent cases	
5 Director of Civil Defence	26 Extension and termination of state of civil defence emergency	43 Contracts by Chairman or other officers of local authority or Local Controller in urgent cases	
6 Deputy Director and other officers	PART IV	44 Minister's power of direction	
7 Officers to act under direction of the Director	DUTIES AND POWERS OF LOCAL AUTHORITIES	45 <i>Repealed</i>	
8. Functions and powers of Director	27. Local authorities to plan for civil defence	45a Compensation for loss of or damage to personal property	
9 Delegation of powers of Director	28 Local authorities may unite for civil defence	45b Right to compensation restricted if person entitled can claim other compensation or damages	
10 National Civil Defence Committee	28a Time limit for preparation of plans	46 Financial provisions	
11 Functions of National Civil Defence Committee	29. Local Controller of Civil Defence	PART V	
11a Power to appoint subcommittees	30 Group Controller of Civil Defence	MISCELLANEOUS PROVISIONS	
12 Planning committees	30a Regional Controller of Civil Defence	47 Protection from liability	
13 Preparation and approval of national civil defence plans	31 Joint plans	48 Requisitioning powers	
14 Obligation to conform to operative plan	32 Plan to be submitted to Regional Commissioner for approval	49. Evacuation of places and buildings	
PART II	32a Plan to be submitted to Regional Council in certain cases	50 Closing of roads and streets	
CIVIL DEFENCE REGIONS	33. Objection to Regional Commissioner's decision	51 Removal of vehicles, etc.	
15 Civil defence regions	33a Obligation to conform to operative local or joint plan	52 Entry on premises	
16 Regional Commissioners	34 Operative plans to be available for inspection	53 Civil defence police	
17 Functions and powers of Regional Commissioners	34a Review of operative plans	53a Civil defence traffic officers	
18 Deputy of Regional Commissioner	34b Confirmed plan to become inoperative if modification not made within 6 months	53b Local authority traffic officers to have extended authority during national emergency or civil defence emergency	
19 Director may authorise Regional Commissioner to act for another Regional Commissioner	35 Effect of change in boundaries of districts or constitution of new districts	54 Absence on duty not to affect employment rights	
20 Regional Civil Defence Committees	36. Local authorities may unite in contracts for civil defence purposes	55 Regulations	
PART III	37. <i>Repealed</i>	56 Obstruction or personation of officers	
DECLARATION OF NATIONAL EMERGENCY OR OF CIVIL DEFENCE EMERGENCY		57 Penalty for offences	
21 Declaration of state of national emergency		58. Consequential amendments	
		59 Repeal	

FIGURE 4

**Commonwealth of Dominica
Emergency Powers Ordinance**

**Chapter 245
EMERGENCY POWERS (HURRICANE, EARTHQUAKE,
FIRE OR FLOOD)**

AN ORDINANCE to make provision for the welfare and the safety of the community in cases of hurricanes, earthquakes, fires or floods.

(16th July, 1951)

1. This Ordinance may be cited as the Emergency Powers (Hurricane, Earthquake, Fire or Flood) Ordinance.

2. (1) It shall be lawful for the President, after the occurrence in this Island of any hurricane, earthquake, fire or flood, to declare by proclamation in the *Gazette* that a state of emergency exists.

(2) No such proclamation shall be in force for more than one month, without prejudice to the issue of another proclamation at or before the end of that period.

(3) Where a proclamation of emergency has been made, the occasion thereof shall forthwith be communicated to the Legislative Council, and if the Legislature is then separated by such adjournment or prorogation as will not expire within five days, a proclamation shall be issued for the meeting of the Legislature within five days and the Legislature shall accordingly meet and sit upon the day appointed by that proclamation, and shall continue to sit and act in like manner as if it had stood adjourned or prorogued to the same day.

(4) Where a proclamation of emergency has been made, and it is impossible to communicate the occasion thereof to the Legislative Council owing to the dissolution or the expiring of the term of the Legislative Council and members of a new Legislative Council have not yet been elected, a proclamation shall nevertheless be issued for the meeting of the Legislature within five days, and thereupon notwithstanding the provisions of any Act or Ordinance to the contrary, the members of the late Legislative Council shall assemble and the Legislative Council shall stand revived and shall sit as the competent body of the Legislature but only for the purpose of considering such proclamation of emergency and the Legislature shall accordingly meet and sit upon the day appointed by that proclamation.

3. (1) Where a proclamation of emergency has been made and so long as the proclamation is in force, it shall be lawful for the President to make orders securing the essentials of life to the community and for the preservation of the health, welfare and safety of the public.

(2) Orders made under this section may, without prejudice to the generality of the power conferred by subsection (1) of this section, provide—

- (a) for the requisitioning of all forms of transport;
- (b) for requisitioning and regulating the supply and distribution of food, clothing, water, fuel, light and other necessities of life, and for fixing maximum wholesale and retail prices in respect thereof;
- (c) for the requisitioning of private lands, buildings and premises;
- (d) for conferring on any person the right of entry on or passage through or over any private lands, buildings or premises;
- (e) for the demolition of any building or other structure deemed to be dangerous;
- (f) for the disposal of the dead and for dispensing with inquiries under the Coroners Ordinance, and from the provisions of the Registration of Births and Deaths Ordinance;
- (g) for the payment of compensation in respect of anything done under any order made under this Ordinance.

(3) Any order so made shall be laid before the Legislative Council as soon as may be after they are made, and shall not continue in force after the expiration of seven days from the time when they are so laid unless a resolution is passed by the Legislative Council providing for the continuance thereof.

(4) The orders may provide for the trial by Courts of summary jurisdiction, of persons guilty of offences against the order; so, however, that the maximum penalty which may be inflicted for any offence against any such order shall be imprisonment with or without hard labour for a term of three months, or a fine not exceeding four hundred and eighty dollars, or both such imprisonment and fine, together with the forfeiture of any goods or money in respect of which the offence has been committed: Provided that no such orders shall alter any existing procedure in criminal cases, or confer any right to punish by fine or imprisonment without trial.

(5) The orders so made shall have effect as if enacted in this Ordinance.

(6) The expiry or revocation of any orders so made shall not be deemed to have affected the previous operation thereof, or the validity of any action taken hereunder, or any penalty or punishment incurred in respect of any contravention or failure to comply therewith, or any proceeding or remedy in respect of any such punishment or penalty.

4. No action shall be brought against any person for anything done in good faith in the exercise of any powers conferred by any order made under this Ordinance.

DISASTER PREPAREDNESS IN INTERNATIONAL LAW

An excellent example of legislative provision for international assistance is to be found in the Convention between the Federal Republic of Germany and the Grand Duchy of Luxembourg, signed on 2 March 1978.¹⁰ Although this is, of course, a Convention between adjacent States and contains articles made necessary because of that particular situation, the text would require only comparatively minor changes to make it suitable for emulation in many other instances. The successive articles describe:

- (a) When and by whom assistance will be given;
- (b) By which authorities it can be requested;
- (c) The very simple frontier formalities, for men as well as equipment (with provision for the waiver of even these formalities if the situation so demands);

¹⁰ *Convention entre la République fédérale d'Allemagne et le Grand-Duché de Luxembourg sur l'assistance mutuelle en cas de catastrophes ou d'accidents graves.*

- (d) Arrangements for exemption from taxes and duties;
- (e) Lifting of restrictions on the trans-border movement of certain articles;
- (f) Granting of overflying and landing rights for aircraft;
- (g) Chain of command relating to teams rendering assistance;
- (h) Cost-sharing arrangements;
- (i) Waiver of civil liability and protection of third parties,
- (j) Administrative pre-arrangements, including use of radio communication, and the holding of joint exercises: and
- (k) Exchange of scientific and technical information, and training.

The potential need for international assistance following radiation accidents led the International Atomic Energy Agency (IAEA) to develop, as long ago as 1966, drafts of:

- (a) A multilateral agreement to which the Agency would be a party;
- (b) A multilateral agreement to which the Agency would not be a party;
- (c) A model bilateral agreement between two States; and
- (d) A model bilateral agreement between the Agency and a State.

The drafts did not include any provisions concerning liability, and the privileges and immunities to be enjoyed were limited to those specifically enumerated in the texts.¹¹ These questions have however been addressed by IAEA in further models prepared in 1983, and published as INFCIRC/310.

Prior to that, the Nordic Mutual Emergency Assistance Agreement in connection with Radiation Accidents had been signed in October 1963, with the participation of Denmark, Finland, Norway and Sweden and the IAEA itself. The majority of subsequent bilateral or multilateral arrangements have been concerned with the exchange of information, rather than with the details of assistance procedures

Another specific case, this time for a natural disaster, is to be found in the Agreement, signed in May 1982, between Canada and the U.S.A. concerning the fighting of forest fires. The Agreement authorizes the direct exchange of firefighting resources among participating departments and agencies in the two countries. It covers all forms of equipment, from aircraft to hoses and hand tools, infra-red scanners and, of course, personnel. The scale of the problem¹² renders the magnitude of the resources potentially required beyond the scope and capability of either country individually.

Particular problems may arise if units of foreign armed services are offered for, or engage in, relief operations. Where they are already stationed in a country hit by a disaster, "status of forces" agreements which exist may be sufficient for the purpose. If no agreement has been negotiated in advance, arrangements may be made to provide armed forces' relief units to work under the auspices of the United Nations, or a bilateral agreement may be concluded between the countries concerned.¹³

¹¹ The texts have most recently been reproduced as annexes to document GOV INF/392 of 17 August 1981, by the IAEA, Vienna

¹² On the average the amount of merchantable timber burned annually between 1968-77 equalled one-quarter of the annual harvest. The area of commercial timber burned in 1981 actually exceeded the combined area logged in the provinces and territories of Canada

¹³ For a discussion of the legal status of disaster relief units made available through the United Nations and circumstances if the disaster relief unit has a legal status separate from that of the United Nations, see the Comprehensive Report of the Secretary-General, *Assistance in Cases of Natural Disaster*, United Nations Economic and Social Council, New York, 13 May 1971 (E/4994). A proposal for a Standard Status of Forces Agreement was put forward by the Government of Canada in United Nations document A/AC.121/17 of 19 June 1968. This dealt principally with peace-keeping forces but could be adapted, *mutatis mutandis*, to forces engaged in post-disaster operations

Although not having the character of legislation, norms and standards have from time to time been proposed to regulate international disaster relief operations, with the general aim of removing some of the practical obstacles which have been experienced over the years.¹⁴ ¹⁵ There still remains technically in force the Convention establishing an International Relief Union, signed at Geneva in 1927, but States were recommended by the Economic and Social Council to withdraw from it. In 1983, a proposal was developed by the United Nations Disaster Relief Co-ordinator for an international convention on expediting the delivery of emergency relief.

3. Financial measures and compensation

In considering the matters to be covered in preparedness legislation, it was noted that "financial measures" should be included. It is clearly important that authorities charged with the responsibility for directing or carrying out relief operations should not be hampered by any lack of the necessary authority to spend public funds. The detailed arrangements for achieving this end will naturally vary according to the type of governmental structure in each country, but in principle there should be created either a permanent Emergency Reserve Fund or an Emergency Funding Committee which would be empowered to vote the necessary money if the Legislature were not in session at the time an emergency were declared.

Where central government places limits on the expenditures which may be incurred by regional or local authorities, or on the amounts which may be raised by them by means of local taxes or through the money market, legislation may be necessary to exempt from these restrictions expenditures made by local authorities in the course of discharging their emergency responsibility.¹⁶ The legislation may introduce less onerous restrictions, or may have the effect of giving automatic *ex post facto* approval to expenditures. This kind of legislative action is a long-term preparedness measure, and it should not be forgotten that routine pre-disaster activities or needs, such as training exercises or the replacement of perishable supplies in stockpiles or the testing and maintenance of equipment, also cost money. It may be possible to include expenses of this nature in the regular budgetary process, and so to subject them to the normal control by central government, but it might well be considered more satisfactory to have them regarded in the special category as being related to the discharge of emergency responsibilities.

Financial arrangements during an actual emergency operation may on the other hand be made by regulation or decree under the provisions of a proclamation of a State of Emergency. When regulations of this kind are drafted so as to be ready for immediate use in the event of an emergency, they would usefully include provision for price controls at wholesale and retail levels, waivers of customs duties on relief supplies and of landing fees for aircraft carrying them, and compensation for people who render personal services to, or whose property is used by, emergency relief authorities. It may also be necessary to consider the question of compensation for those whose property is destroyed or damaged in the disaster itself or as a necessary concomitant to the relief operation.

Compensation for loss or damage may be paid by insurance, either private or official, or from central funds, or—in the case of oil pollution—from funds established under the terms of international agreements. These are mentioned in chapter III, section 6, of this volume. Private insurance policies often include protection against earthquake risks as well as the more usual fire and flood, but compensation for damage caused as a result of war or civil strife or commotion will not always be given under standard policies.

The government, the insurance industry and the insured persons or organizations themselves are all involved in this aspect of pre-disaster planning. Some of the steps which can be taken fall within the

¹⁴ "Office of the United Nations Disaster Relief Co-ordinator—Report of the Secretary-General", document A/32/64 of 12 May, 1977, annex II

¹⁵ "Model Rules for Disaster Relief Operations", Policy and Efficacy Studies No. 8, published by the United Nations Institute for Training and Research, New York, 1982

¹⁶ See, for example, section 138 of the Local Government Act, 1972, which applies in England and Wales

definition of disaster prevention, and are noted here only for the sake of completeness; others are equally clearly directed towards disaster preparedness. For example, when a proposal for a national scheme for natural disaster insurance in Australia was made in 1978, there were considered to be many difficulties in implementing it.¹⁷ These included:

- (a) An excessive degree of intervention by the Government in activities traditionally the responsibility of the private sector;
- (b) A probable need for compulsion of both insured persons and insurers if the scheme were to be fully successful;
- (c) Concern that (in so large a country) the hazards selected to be covered would not be applicable in all States;
- (d) The need for a major re-organization of the existing arrangements, and the possible reduction in the level of reinsurance available from the international market; and
- (e) Potential calls on central government funds of so large and unpredictable a nature that budgetary planning would be disrupted.

None the less, some positive measures were proposed to achieve the desired results. Among them were assistance in the development of sound premium rating methods; risk reduction through improved policies relating to land use and building codes; better dissemination of information of relevance to risks involving natural hazards; gathering of information from disaster areas on the actual conditions experienced; arrangements for the insurance industry to be given access to the area in the aftermath of a major disaster and for co-operation from State authorities in the speedy and co-ordinated assessment and payment of claims.

This last measure is of particular relevance for the emergency planner. A specific example of what can be done in this area comes from the United Kingdom where, in anticipation of a possible Thames tidal flood, an action plan was drawn up by the British Insurance Association in consultation with the Chartered Institute of Loss Adjusters and the Insurance Brokers' Association. The plan called for local centres to be set up in affected areas, with expert staff to man them, arrangements to deal with cases where people were unable to contact their own insurers, and a central operations room. An explanatory leaflet was also issued to the public informing them about the action to take before, during and after a flood so that they would get maximum benefit from their insurance policies. A somewhat similar arrangement now prevails in parts of the United States of America. In seven coastal states, joint underwriting associations have been formed and have agreed to operate "single adjuster programs" with the National Flood Insurance Program in cases of wind and water damage.

People may none the less experience considerable difficulty in making claims, and delay in receiving payment, if their policies and records have been lost in the disaster itself. It is indeed far from uncommon for the benefits and proceeds of insurance policies, both private and governmental, to remain unclaimed until they finally revert to the Government, if national legislation provides for that disposition. If it does not, then the funds are at the disposal of the insurance companies. Advice should therefore be given to people that records of policies, etc., should be kept in a quite separate and safe place, so that they will be accessible after a disaster event affecting their residence. Records of this kind may also be kept centrally, under a voluntary scheme such as that operated by the National Center for Claims Information in the United States.¹⁸

In some countries, legislation has been used to establish natural disaster insurance protection. In Spain, there has been since 1940 an Insurance Compensation Syndicate, although its powers have varied over the

¹⁷ "Natural Disaster Insurance: A Policy Information Paper issued by the Treasurer", Australian Government Publishing Service, Canberra, 1979.

¹⁸ The Center operates from 1629 K Street, N.W., Washington D.C., 20006.

years. By an Act of 16 December 1954 it was given new powers with the merger of the "Syndicate for Disaster Risks Compensation in relation to Property" and the "Personal Accidents Syndicate". The Syndicate, however, only steps in when certain pre-conditions, mostly relating to the magnitude of the disaster, are fulfilled.

Legislation for the special purpose of providing insurance coverage for agriculture, in countries where agriculture is a particularly important part of the national economy, exists in several forms. Mauritius has set up a Sugar Insurance Fund.¹⁹ The Board administering the Fund is empowered to pay compensation within a (sugar) factory area in the event of a cyclone, drought, or excessive rainfall; and individual compensation in the event of a fire on a cane plantation

In Japan, where agriculture is practised on a large number of small farms rather than on a few large holdings, disasters tend to cause heavy financial losses for farmers who lack the capital resources to meet or absorb them. To afford some measure of protection for farmers, an insurance scheme was formulated in 1947 and is known as the Agricultural Loss Compensation System.²⁰ In the light of experience the system has been expanded and strengthened and is currently applied to such crops and commodities as rice, wheat, barley, silkworms and cocoons, livestock and fruit. The system is basically one for mutual relief among farmers. A joint reserve fund has been formed through the contribution of mutual relief premiums from the farmers, and the Government has provided subsidies to the mutual premium and also office expenses for the mutual relief operations, with a view to stabilizing agricultural management and improving productivity.

The fundamental principle of the operation of the system is that the risks are shared widely and not just by local sub-divisions. Thus the insurance programme is centralized in the Federation of Agricultural Mutual Relief Associations which is able to function, by means of branch offices, down to community level. Moreover, the Federation is able to conduct re-insurance schemes on a nationwide basis. Figure 5 illustrates the organization in being

Another example of harvest insurance under Government sponsorship comes from Costa Rica. Since 1970 an Integral Harvest Insurance Scheme has been operated by the National Insurance Institute (a State monopoly.) This covers up to about 80 per cent of the value of the crop(s) which may be damaged by natural phenomena beyond human control. It is especially interesting because it embodies elements of disaster prevention (no crop loan will be given by a bank unless a request for insurance has been submitted), of agricultural extension and development (because certain minimum technical standards are demanded from the farmer), of economic planning (as some control can be exercised over the different kinds of agricultural production), and of social engineering (since insurance coverage helps to even out a farmer's income over good years and bad)

It is not the intention to examine these concepts and formulations in detail, but simply to draw attention to the need to give some thought to them and their possible application in the particular circumstances of a country. Disaster insurance is a complex and technical matter, which has recently been attracting an increasing amount of attention internationally.²¹

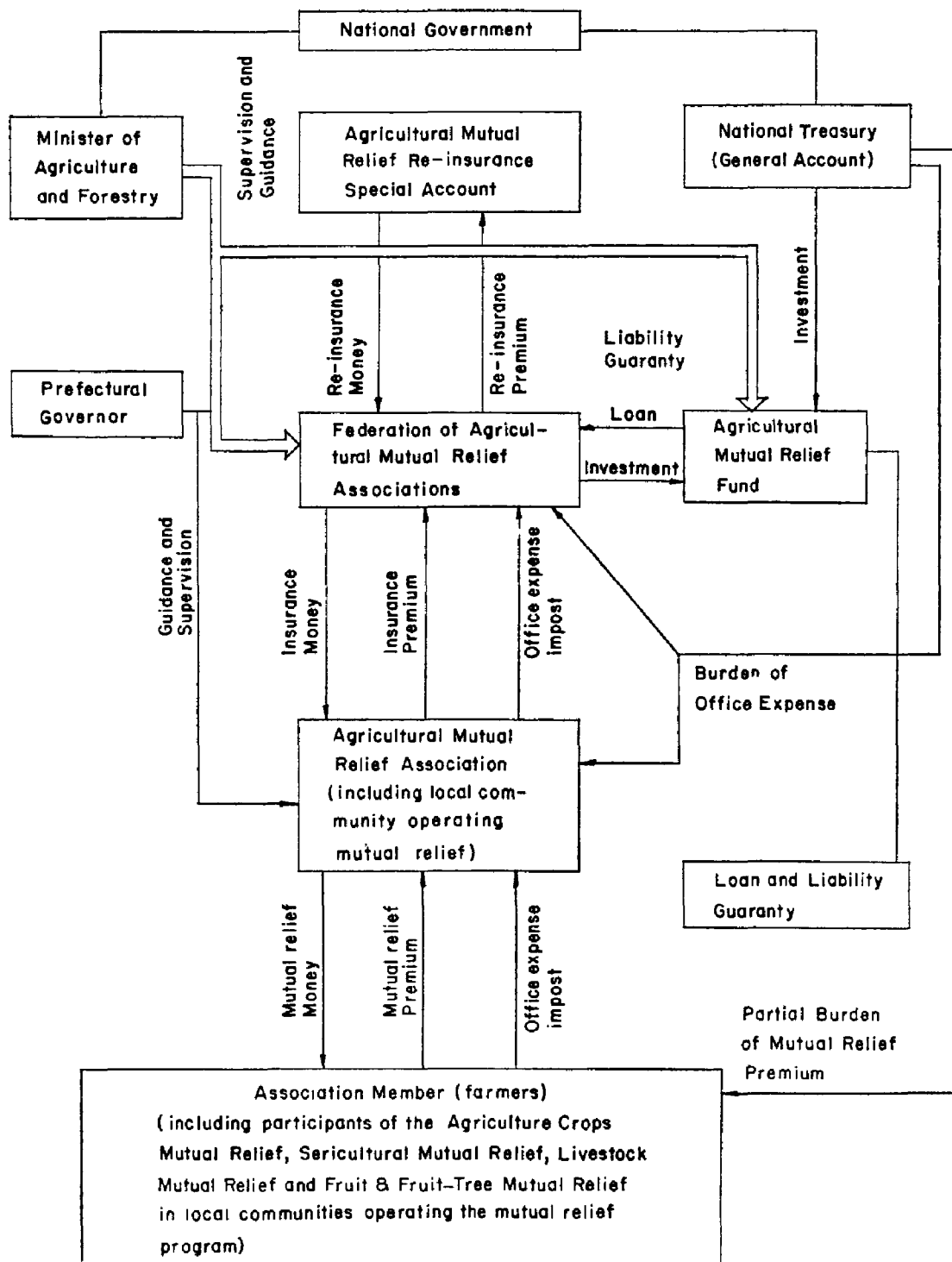
¹⁹ By the Sugar Insurance Fund Act, 1974, as amended

²⁰ The scheme is fully described in the Proceedings of the Regional Seminar on Community Preparedness and Disaster Prevention (Tokyo 1976), published as Water Resources Series No. 49, by the United Nations, New York, 1978

²¹ See for example, the proceedings of the "International Working Group on Natural Disaster Insurance" Geneva, 1983 (organized by UNDRO, UNESCO and the Association Internationale pour l'étude de l'économie de l'assurance) in the "Geneva Papers on Risk and Insurance" published by the Association. Collected papers from a Seminar "Insurance and Natural Disaster Management" have been published by the James Cook University of North Queensland, Townsville, Australia, 1983

FIGURE 5

Organization of the agricultural loss compensation system in Japan



4. Organization

The fundamental principles of organizations designed to prepare for and contend with a disaster or other emergency differ very little from those applicable in other activities of life which require human beings to work together. There must be "pyramid" structures or substructures, and there must be provision for interplay between them at all levels.

Probably the chief factor which distinguishes between different national disaster organizations is the presence or absence of sanctions which enable the enforcement of a desired action. A government which draws its own power base from the country's armed forces is more likely than not to have an organization modelled upon the military example, with the ultimate sanction of disciplinary action available to each level above the lowest. Others may find it appropriate to designate the military as the agency responsible for counter-disaster operations, because of the mix of skills readily available and the disciplined way in which they can be utilized. In other countries, there will often be found a structure which, while able to draw freely upon military assistance if it is needed, relies chiefly upon civilian resources and depends to a great degree upon voluntary co-operation between organizations, whether they are official or unofficial in nature.

There are naturally exceptions to these generalizations. For example, Turkey *instructs* public departments to collaborate with the national Red Crescent Society, and while relief operations are under the charge of a Central Co-ordination Committee chaired by a senior civil servant, their conduct rests with the Red Crescent, assisted by the military. A model under consideration for Tanzania envisages an upward building of integrated planning from village to region, coupled with a downward flow of responsibility to the regions from the Office of the Prime Minister through a Commissioner for Regional Administration. Voluntary agencies would be associated with the organization only at national and regional levels. An organization of this kind responds to the circumstances of a country with a large land area, comparatively sparsely populated outside the main towns (there are only 5 places with a population in excess of 50,000), and in which it is deliberate policy to bestow considerable powers upon village councils.

Some Governments have based their organization upon voluntary principles (for example, there is no compulsion upon people to join or remain in organizations like the Red Cross or Civil Defence) but have provided in legislation that when a state of emergency has been declared, powers of command, as distinct from those of persuasion, may be exercised by those in positions of authority. New Zealand offers an interesting example of a country which has democratic government, a large territorial area in relation to its population, physical features which often make surface communication difficult between one region and another, a major threat (earthquake) to its capital city and surrounding areas (on both islands) but a comparatively low risk of occurrence, and insufficient human and financial resources to maintain more than a small professionally trained cadre of emergency planners and relief managers. The solution adopted has been one which has found favour in many countries, not all of whom face quite the same combination of problems as does New Zealand. It is to place reliance upon civil defence.

In 1981 some of the arrangements—and some of the difficulties still being experienced—were outlined by New Zealand's Director of Civil Defence, who noted that

Since 1962 each territorial local authority—city, borough, town, district or county council—has been required by law to maintain a civil defence plan or to unite with one or more of its neighbours in maintaining a joint plan.

The Mayor (or Chairman) has the statutory right to declare a state of "local civil defence emergency" to exist in the district if there is a threat to public safety (other than from acts of war). Such a declaration confers special powers on the local authority itself, its Controller of Civil Defence, the Police, and certain other people in authority. These authorities may set aside some rights of the individual in the interests of public safety. A wide range of equipment, supplies and other material may be compulsorily requisitioned; the evacuation of places and buildings may be ordered; roads may be closed; vehicles removed; and forcible entry of buildings or land authorized.²²

He went on to describe some of the real problems which might be encountered, so underlining the fact

²² "Civil Defence Response to a major Earthquake", address by Major-General R. H. F. Holloway, Director of Civil Defence, Wellington, at a conference held at Napier, New Zealand, 31 January-3 February 1981. Published by the Royal Society of New Zealand.

that an organization on paper, however effective it may appear, does not necessarily result in an efficient organization on the ground.

However the ability of territorial local authorities to plan against possible disaster or to operate effectively through their civil defence organizations in an emergency varies widely. Civil defence is a vastly different activity between a sparsely populated but territorially large county on the one hand and a densely populated urban district on the other.

The widespread nature of the threat and the limited resources usually available in rural areas combine to make civil defence planning and effective control in an emergency hard to achieve.

Urban districts also have difficulty in achieving community self-help because, as time goes on, a smaller proportion of an urban population works and lives in the same area. The business and industrial areas of towns and cities are populated during the working day with people far from their homes, where their real interests lie in time of danger. The ideal of civil defence sector, post, or even street wardens known by all, familiar with a particular area and available at any hour on any day can rarely be attained. Yet without a network of wardens the controllers cannot easily be provided with the essential two-way communication they must maintain with people in the disaster area.

Tourist centres that may quadruple their population in holiday seasons also present a problem not easily accommodated in the current concept of civil defence.²³

Changes in local government structures throughout New Zealand have affected the basic organization of civil defence and required changes to be made in it. Regional, and updated national, plans have been made and published. These define methods of operation, at all levels, and show how the resources of Government departments can be used. Yet

On the face of it civil defence is a comprehensive system for mitigating the effects of disasters that, by their nature or magnitude, cannot be dealt with by the normal emergency services.

The concept of community self-help is more than a formalization of the normal reaction of people facing a common danger. The need to have some preparations and organization in every district led logically to the civil defence responsibilities placed on territorial local authorities. Given the size, population and resources of New Zealand there is no practical alternative. Yet in considering the situation which a large earthquake could create, there are serious shortcomings in a system that places so great a reliance upon non-professional, largely untrained and inexperienced groups of local volunteers. The belief that disasters are all manageable at local authority level has persisted throughout the life of civil defence and has handicapped preparations for a large earthquake. Regional organization and planning, however, give some hope of a better development of counter-disaster measures and the mobilization of all the resources that may be needed.²⁴

In the Americas, and particularly in most mainland Latin American nations, the military tend to play a greater role: this is inevitable where Ministers in departments of government involved are sometimes themselves senior service officers. In 1975 and 1976 the Inter-American Defense Board published two volumes under the title "A Special Study on Disaster Preparedness and Relief Operations". The Council of Delegates, in a resolution approving the text of the second volume, set out its position plainly:

WHEREAS...

2. Military organizations are ideally suited to providing immediate assistance that may be required during disaster relief operations;
3. Collective military assistance in disaster relief operations contributes to the welfare and security of the Continent...

(THE COUNCIL) RESOLVES...

2. To recommend that the Governments develop or modify their disaster preparedness, as appropriate, in accordance with (the second volume of the Study).²⁵

In another United States' document "An Illustrative National Disaster Preparedness Plan"²⁶ upper- and mid-level organigrams were offered (figures 6 and 7), with the intention of illustrating how one could achieve objectives defined as:

- (a) Reliance upon the existing government structure for the development and implementation of a Plan, as well as for disaster response actions and resources;
- (b) Obtaining the commitment and support of agencies having useful resources and expertise, through their involvement at every stage;

²³ Ibid.

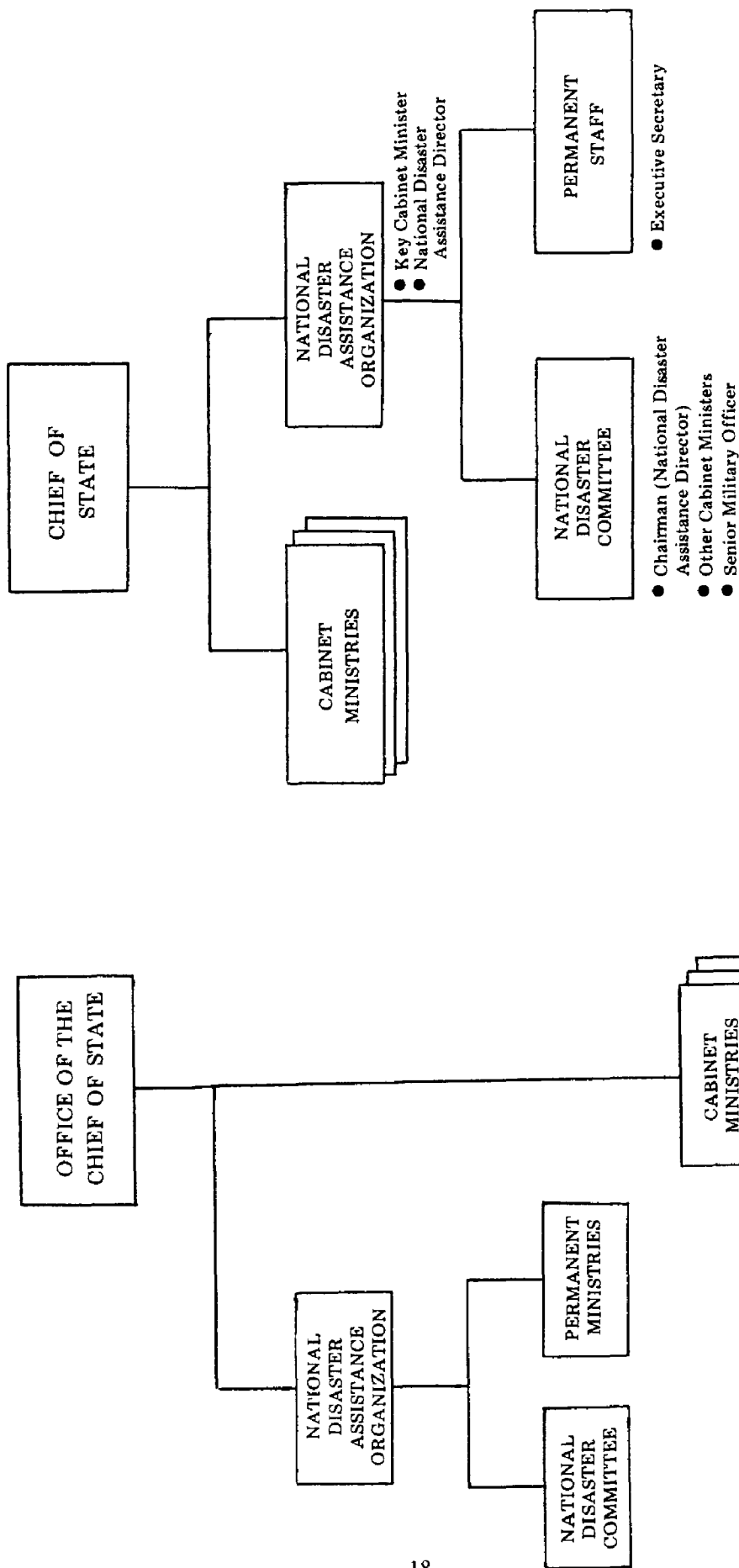
²⁴ Ibid.

²⁵ I.A.D.B. Council of Delegates, Session 683, 28 October 1976, Resolution CIII.

²⁶ Prepared for the Office of U.S. Foreign Disaster Assistance by contract, May 1979.

FIGURE 6

National Disaster Assistance Organization: example of alternative plans of organization



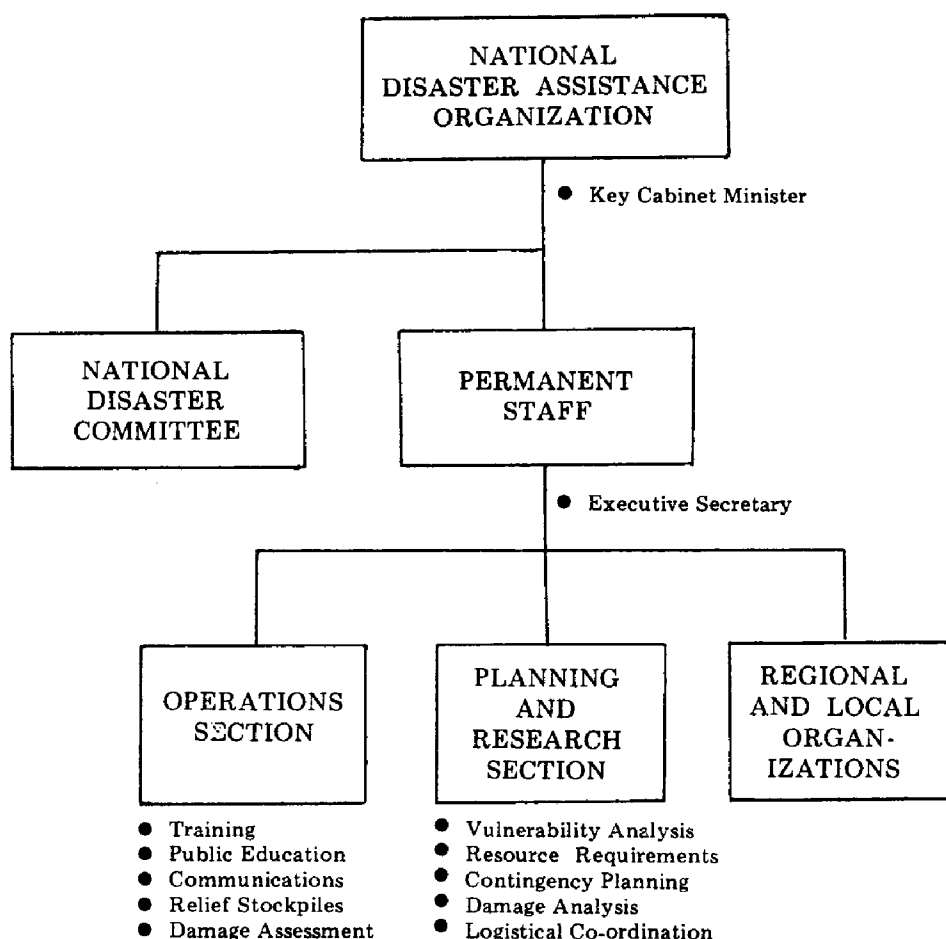
- (c) Centralizing control at a high-level, politically established position to ensure continuity and the use of the plans and procedures when needed; and
- (d) The design of a structure which would itself support the same continuity.

Both the upper-level alternatives, however, seem to suffer from the same weakness, in that they appear to permit continuing access to the highest level by individual ministries despite the presence in the National Disaster Committee of the ministers themselves. While it is of course true that access would be needed for questions unrelated to the emergency, it seems curious that this would need to be shown in an organigram dedicated to disaster assistance organization.

Figure 7, which is applicable in a smaller country, should be compared with figure 8 which shows a mid-level organigram as applicable in the United States.

FIGURE 7

National Disaster Assistance Organization: detailed plan of organization and functions

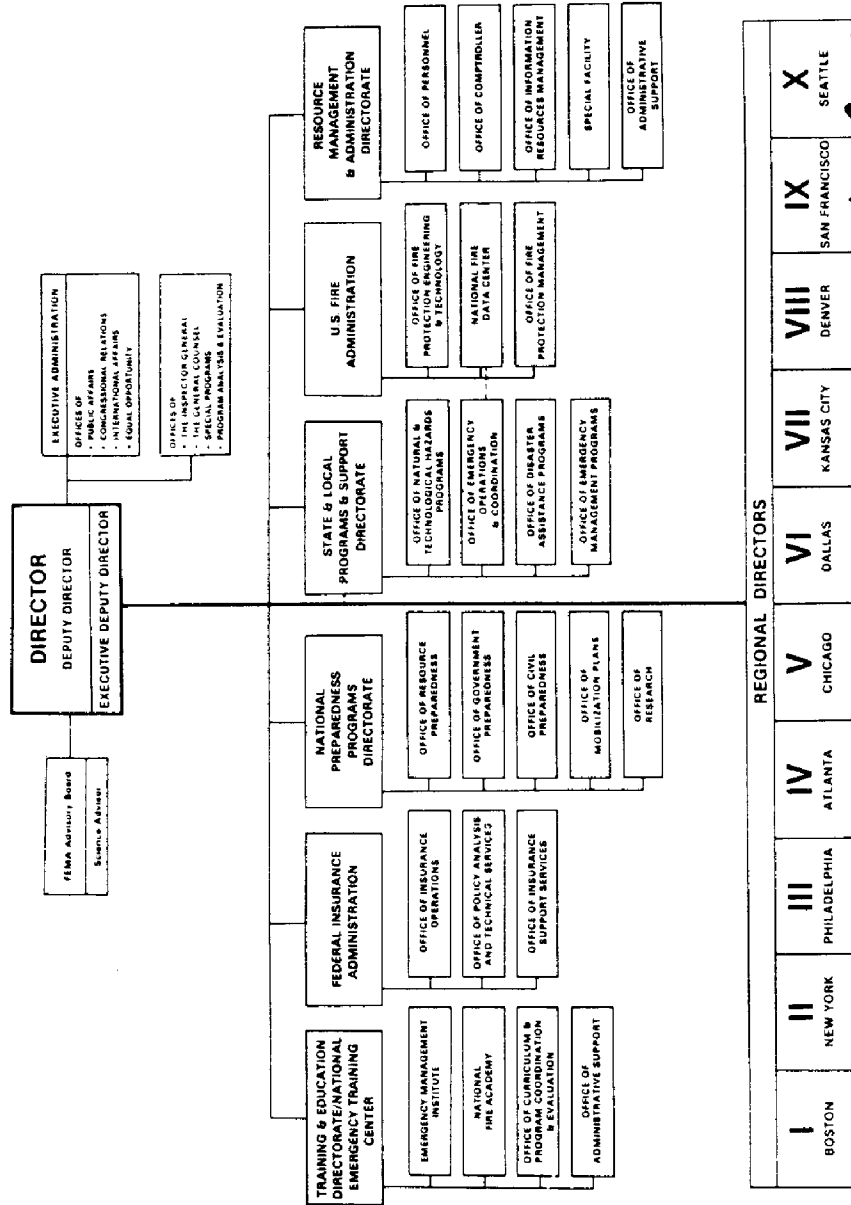


If we examine in more detail the requirements which any emergency organization must fulfil, it will be seen how the principles and objectives stated (effective co-operation, avoidance of changing already recognized structures, and central control) come together. The essentials are extremely clearly summed up by the Australian Counter Disaster College, which also underlines the importance of adjusting the planned organization not only to the threats but also—a point sometimes overlooked—to the resources available. The design must thus allow for:

- (a) *Control structure.* In setting up the control structure, account must be taken of the need for:

FIGURE 8

ORGANIZATION
FEDERAL EMERGENCY MANAGEMENT
AGENCY



Approved
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- (i) Headquarters/control points—types and facilities suited to the task;
 - (ii) Delegation of responsibility and of authority; and
 - (iii) Liaison capability.
- (b) *Warning.* Warning factors must be assessed, and maximum use of available warning time built into the system.
- (c) *Information gathering capability.* Information is the lifeblood of any operation; the assured capability for acquiring information is therefore an essential part of the organization.
- (d) *Communications.* Information must flow up, down and across the chain of control. Adequate communications to ensure this flow must be established, and hence must provide for back-up in cases of equipment/system breakdown and also maximum flexibility.
- (e) *Mobility.* There can be no guaranteed prediction of disaster site, area or requirement. Operations cannot always be mounted from static bases or sites; mobility of operation must therefore be ensured. Examples include:
- (i) Operation around a wide periphery of damage and destruction;
 - (ii) Operation of forward/mobile headquarters; and
 - (iii) Transport of equipment, stores and personnel.
- (f) *Trained staff.* The number of untrained persons that may effectively be used in times of emergency usually depends on the number of trained staff available. Such trained staff must be efficient and effective in such roles as: headquarters duties; administration; communications; rescue; fire-fighting; medical duties; welfare activities; engineering, etc. The roles required will obviously correspond to the community's needs to mitigate the effects of disaster. If adequate training is not possible, a fresh assessment of organizational capability must be made.²⁷

It is not readily apparent from the literature that the organization adopted should make specific provision for the calling for assistance from outside the immediate geographical area of responsibility of the organizational unit involved. This applies as much to the case of a village council vainly attempting to grapple with the effects of localized flooding as it does to a government overwhelmed by the effects of a great earthquake. There should be a mechanism for agreeing upon what aid is needed, for channelling the request upwards, (or, in the case of governments, outwards), and for receiving the assistance when it arrives.²⁸ The subject falls partly within the area of planning, partly in that of organization, and, nationally, in the area of legislation. In some countries with a federal structure, legislation may also be required by a state government. Correspondingly, organizational arrangements for dealing with requests received at higher, or international, levels must be made. Here the Australian model, which provides for the temporary secondment of staff from Commonwealth (federal) ministries to the Natural Disasters Organization during emergencies, is one which works well and could profitably be emulated.

Preparedness planning in France has embodied these essentials in the ORSEC (Organisation des Secours) Plan, which is implemented wherever a serious disaster occurs which requires the emergency utilization, possibly for a fairly long period, of substantial resources. The types of disaster which would bring the ORSEC plan into action include, among others, flooding and damage by heavy seas, forest fires, major railway accidents and mountain tragedies. For the operation of this plan France has at its disposal large numbers of people and much material as well as more than 200,000 professional and volunteer firemen and 150,000 volunteer relief workers organized in teams.

²⁷ *Australian Counter Disaster Handbook*, chapter 13. Published by Australian Counter Disaster College, Macedon, Victoria.

²⁸ In the case of Bolivia, the whole process is the responsibility of the Director of National Civil Defence, who "maintains relations with ... international organizations co-operating with Civil Defence and co-ordinates with them the assistance they can provide to the (national) system". Unpublished paper (in Spanish) presented by the Asesor General to the Director of National Civil Defence to an international seminar on disaster preparedness held in Achocalla, Bolivia, January 1983.

The basis of the administrative organization of France is the commune headed by the mayor; he is responsible for the safety of the citizens. At inter-communal or department level, the prefect carries the major responsibilities and may be appealed to by a mayor when a disaster occurs which needs additional help over and above the resources of the commune. When a disaster strikes several communes it would be the prefect's duty to take charge and deploy the necessary assistance.

Under the authority of the prefect, each department draws up a plan of action to deal with any disaster which seems likely to stretch the local relief services beyond their operational capabilities. The ORSEC plan is basically an organization for allocating tasks, for maintaining an inventory of resources available in the department, for planning communications and for the mobilization of rescue forces. The plan also contains operating instructions for the various authorities involved, and it lays down the procedure for requesting assistance from higher levels, up to the Ministry of the Interior.

Each department is divided into sectors which generally correspond with the wards which form elements in the normal administrative organization of the country. The resources available in each sector are consolidated into what is described as a "group of intervention" for the implementation of the plan. In each sector an inventory of resources in personnel and materials is maintained and continually reviewed.

To assist the prefect to discharge his responsibilities for organization, staffing and training, and also in the operational phase, there is in each department a staff of appropriate size under a director of assistance. They are concerned with operations, logistics, information and research. Of special importance are five categories of service:

- (a) Liaison and communications;
- (b) Police and information;
- (c) Help and rescue;
- (d) Medical care and mutual aid;
- (e) Transport and works

All these have clearly defined responsibilities and also standing instructions for carrying out their tasks when the plan has to be brought into operation. In training, a good deal of attention is given to flexibility in response to a disaster since at such a time a number of unforeseen incidents may occur.

The ORSEC Plan is co-ordinated by the Ministry of the Interior in conjunction with all other ministries such as Public Works, Transport, Posts and Telephones, Education, Defence, Health, Finance and Foreign Affairs. Other organizations participating in the preparation of the plan were the French Red Cross, the French Fire Service and the National Rescue Federation.

It would be wholly wrong to indicate in a publication of this kind any judgement as to which kind of organization is the best. Value-judgements of this sort can only be made with a full knowledge of the historical, social, economic and cultural factors which combine to give a nation its unique character. Provided that the essential elements are included, that unnecessary complexity is avoided, and that all those concerned are aware of the capabilities and limitations of the organization, a substantial step will have been taken towards the general goal of the protection of the public.

It would be equally wrong to imagine that because an effective organization was in place, no further action would be necessary. Even in countries where repeated disaster events of the same character have occurred, and there has thus been developed a mode of counter-disaster response because the same organizations—even the same individuals within them—have been involved in post-disaster relief and rehabilitation, it is still necessary to have operational plans. A recent example of the dangers of relying on organization and experience only can be found in the case of Tonga. After tropical cyclone "Isaac" in March 1982, assessment and relief work was made more difficult and less rapid not only by the lack of a plan, but also because there was no Emergency Operations Centre (one had to be established when the

magnitude of the event became clear); there had been no training (though it had been intended to undertake annual exercises); and there had been no formal programme of public education.²⁹

THE INTERNATIONAL DIMENSION

Particularly in relation to small island states a regional organization may be valuable in strengthening preparedness activities in individual states and promoting inter-island collaborative action in the event of disasters. In 1981, the Governments of the Caribbean agreed to the establishment, initially under UNDRO management, of a regional project for Pan-Caribbean Disaster Preparedness and Prevention in the area. The Project covers the islands and territories of Anguilla, Antigua and Barbuda, Bahamas, Barbados, Belize, the British Virgin Islands, Cayman Islands, Cuba, Dominica, the Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Lucia, Saint Christopher and Nevis, Saint Vincent, Suriname, Trinidad and Tobago and the Turks and Caicos Islands.

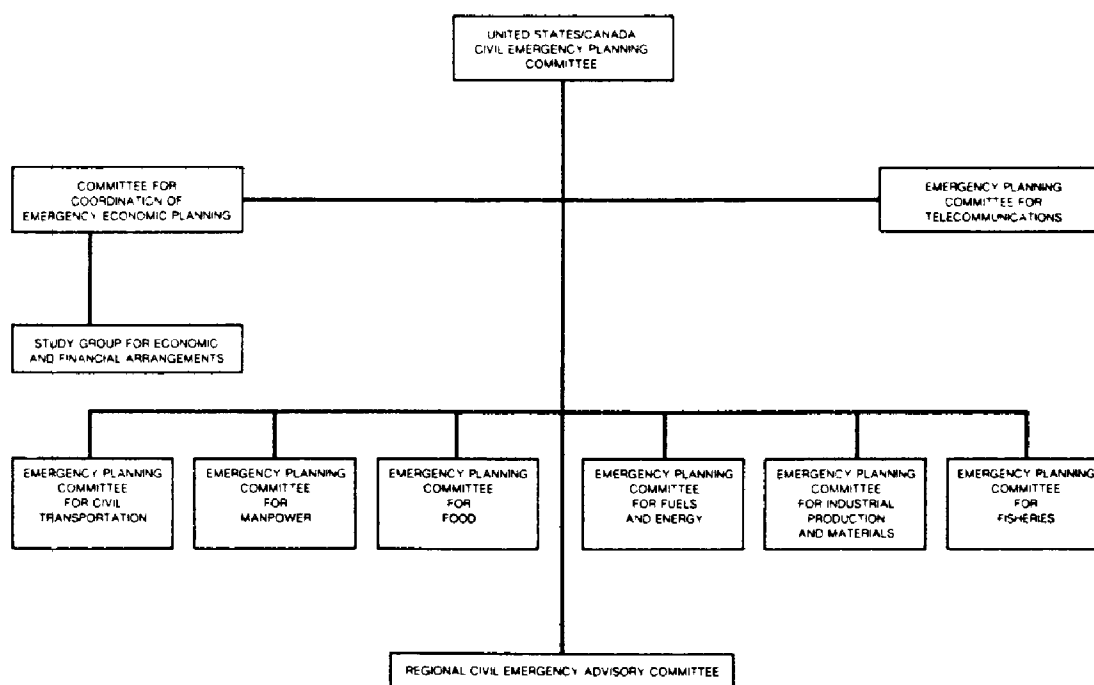
The long-term objective of the Project is to contribute to socio-economic development and environmental protection by developing the individual and collective capacity of the participating countries to mitigate the disastrous effects of natural hazards, and to cope efficiently with disasters when they occur.

An interesting, and at the time successful, attempt was made to set up an active working organization to implement the United States/Canada Civil Emergency Planning Agreement of 1967. The Agreement provides for consultation and co-operation in civil emergency planning between the two parties, with the purpose of ensuring that national emergency plans, formulated independently, are as compatible as considered desirable and possible. There is no actual integrated planning, both countries retaining national control over their own plans.

Between 1967 and 1972 there was considerable activity and the structure shown in figure 9 evolved. Each Committee had developed terms of reference in a common format, functional roles were being

²⁹ "A Report on Cyclone Isaac", by Air Vice-Marshal W. Carter, April 1982 (unpublished). See also "Tropical Cyclone Isaac", Disaster Investigation Report No. 5, by J. Oliver and G. F. Reardon, published by Centre for Disaster Studies, James Cook University of North Queensland, Australia, September 1982.

FIGURE 9



1972 US/Canada Civil Emergency Planning Committee Structure