

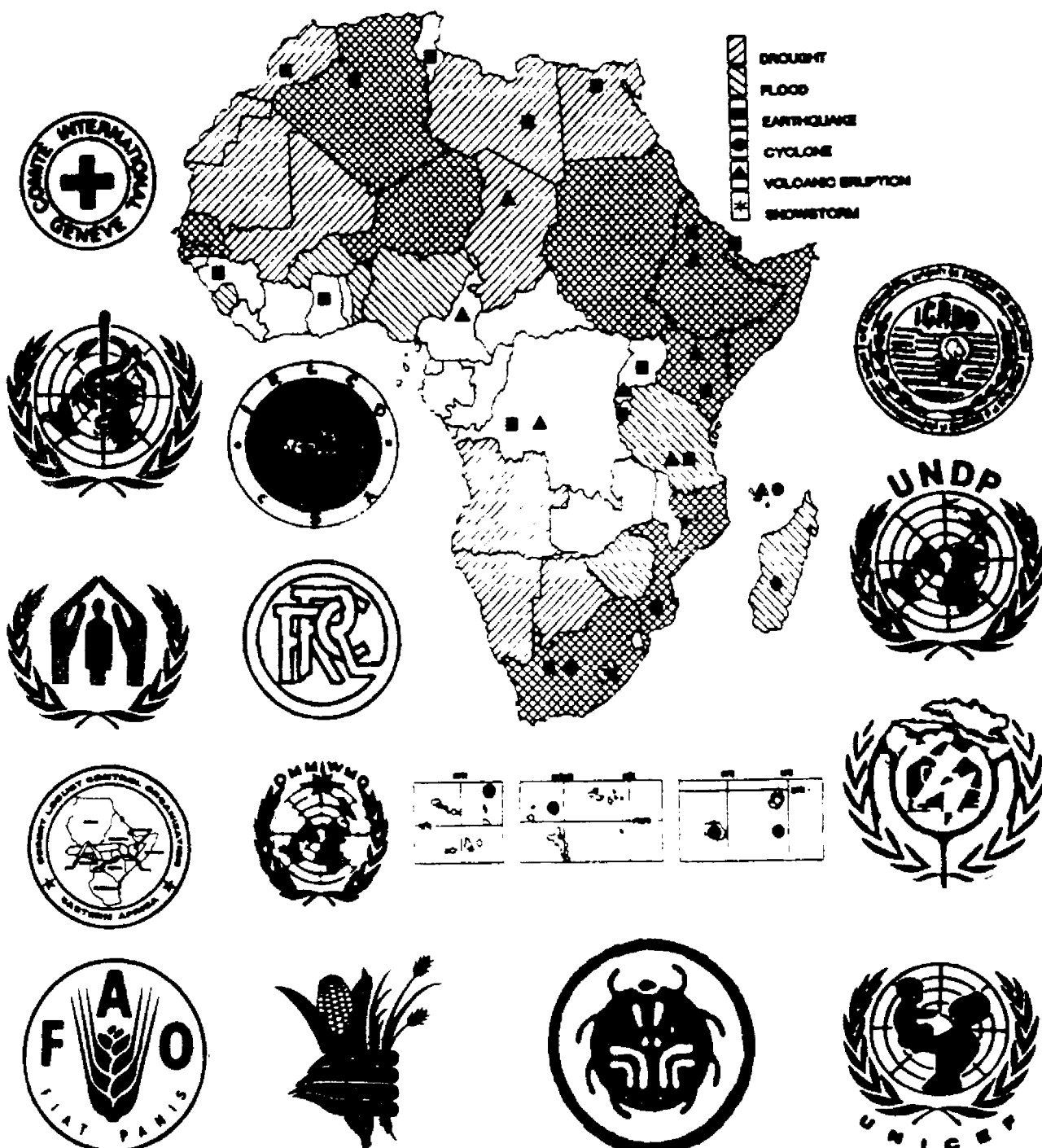
DOCUMENTO ORIGINAL EN MAL
ESTADO

**DISASTERS IN AFRICA:
GUIDELINES FOR
DISASTER PREPAREDNESS AND RESPONSE**



**OAU Secretary-General's Report on
DISASTERS IN AFRICA:
GUIDELINES FOR
DISASTER PREPAREDNESS AND RESPONSE**

*as approved by the 51st Session of OAU
Council of Ministers (Doc.CM/1586(LI))*



Disasters in Africa -- Guidelines for a Plan of Action for
Disaster Preparedness and Response

TABLE OF CONTENTS

Chapter No.	Subject	Page NO.	Paragraph No.
-	Executive Summary	(1)	-
I.	Introduction	1	1 - 4
II.	Definition	1	5
III.	Classification of Disasters	2 - 3	6 - 7
IV.	Extent of Disasters	4 - 6	8 - 23
V.	Efforts undertaken to Mitigate Disasters in Africa	7	24-25
VI.	Guidelines for a Plan of Action for Disaster Preparedness and Response	23	29 - 69

Annexes

- I. Rapporteur's Report on the Inter-Agency Meeting on Disasters in Africa
- II. Bibliographic references
- III. Recorded disasters in Africa
- IV. Directory on Disasters management
- V. Glossary of Disaster related terms
- VI. Activities of some relevant organizations dealing with disasters in Africa

Report of the Secretary-General on
Disasters in Africa - Guidelines for a Plan of Action for
Disaster Preparedness and Response

E X E C U T I V E S U M M A R Y

Disasters vary in form, cause, duration and intensity. The severity of the effects of disasters depends on the efforts of man in creating less risky environment. The causes of disasters include drought, wars, civil strife, floods and epidemics. The effects of disasters include elevated mortality rate, disabilities, increased disease entities, displacement of people, reliance on food aid and environmental deterioration.

Many African countries initiated a number of steps to mitigate disasters. UN Bodies and Agencies, donors, international and regional organizations have also been deploying significant efforts to combat disasters in Africa.

There is no standard disaster preparedness and response plan. All possible formats of such a plan must contain elements that can make it more effective. All countries must be prepared to deal with disasters and to prepare their own plans. The objective of planning must be to anticipate the probable event, assess its consequences and effects, and to tackle the disaster by planning and preparedness. This includes physical preparedness as well as information and training to develop community self-reliance and participation.

The principles of disaster preparedness planning include clarity, flexibility, continuity, public awareness, dissemination of information, training at different levels, co-ordination, practising and evaluation. Disaster prevention and preparedness consists of a wide range of measures, both long and short-term designed to save lives, limit the extent of damage and cater for rehabilitation.

REPORT OF THE SECRETARY-GENERAL ON
DISASTERS IN AFRICA - GUIDELINES FOR A PLAN OF ACTION
FOR DISASTER PREPAREDNESS AND RESPONSE

I. Introduction

Disasters have been affecting different parts of the world. In Africa, they are due to a number of causes that include mainly: drought, locust, wars, civil strife, floods, cyclones, food shortage, epidemics and technological disasters. Disasters have become the order of the day as they occur more frequently and are deadlier and more destructive.

2. The cumulative effects of disasters include; injuries, disabilities, sudden death, risk of communicable diseases, spread of epidemics, deterioration of health conditions, malnutrition, famine, psychological problems, mounting food import bills, increased dependence on food aid, increased number of refugees and environmental deterioration.

3. Preparedness is essential for rapid effective response to disasters. The nature of the response should be determined by the characteristics of the disaster.

4. This document has two major objectives. First, it seeks to sensitize the African populations, African Governments and the leaders on the disasters that occur in Africa and their extent, and second it focuses on the guidelines for the formulation of a plan of action to mitigate disasters in Africa.

II. Definition

5. For the purpose of this document, the definition of a disaster is 'an event, concentrated in time and space, on which a society (or a community) undergoes severe danger and incurs losses of its members and physical appearances, to such an extent that the social structure is disrupted and the fulfillment of all or some of the essential functions of the society is prevented

III. Classification of disasters

6. Disasters could be classified into two different approaches.

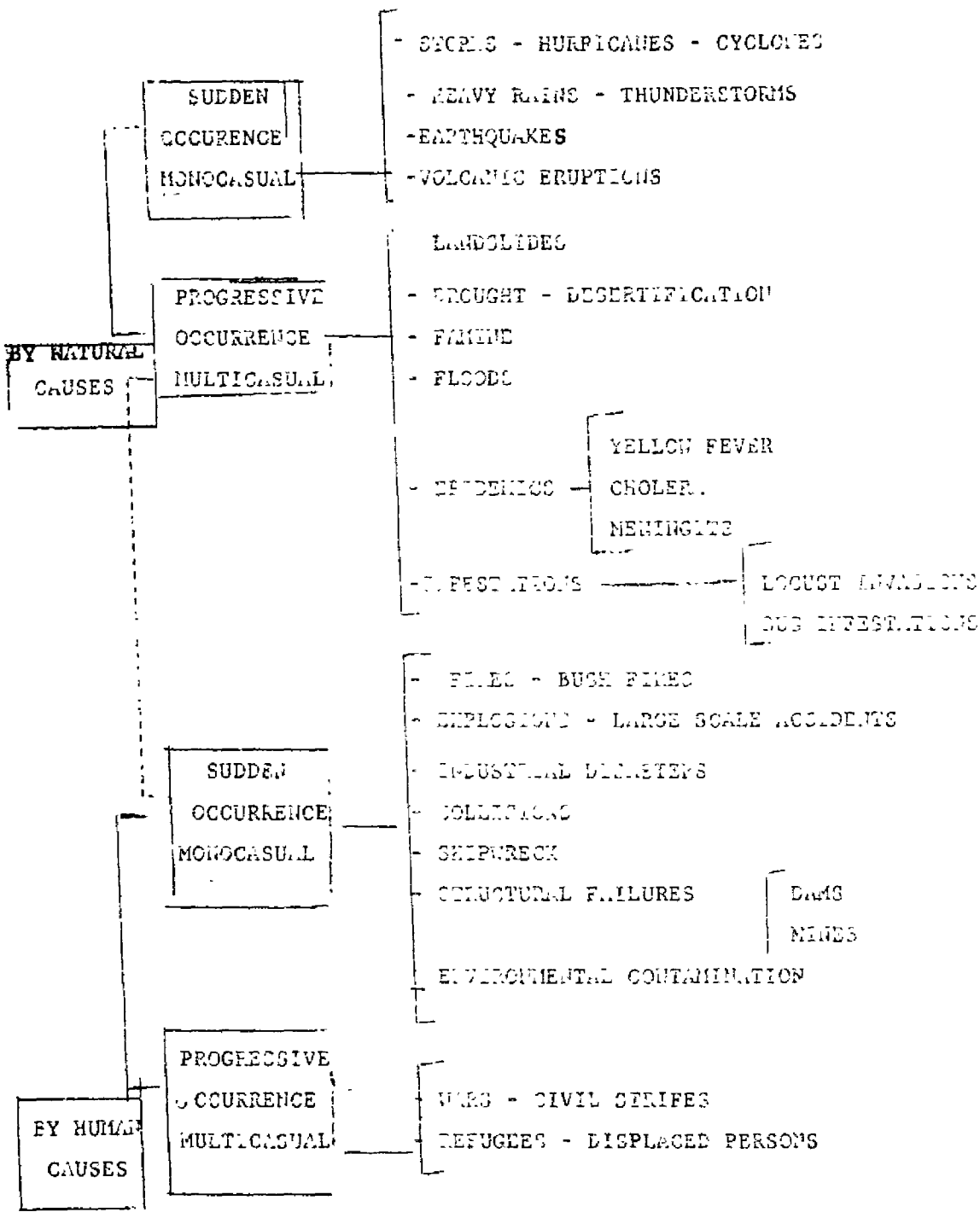
(A) Natural versus man-made (by origin of the disaster)

(B) Sudden onset versus slow-onset (by behaviour of the disaster)

7. For the purpose of this document, which is disaster preparedness and response, the classification is based on both approaches. This classification is not strict or exhaustive and it could be a combination of both.

Figure 1

SYSTEMATIC CLASSIFICATION OF DISASTERS



IV. Extent of Disasters in Africa

8. The African continent has been vulnerable to a wide range of disasters. Droughts have hit the Sahelian zone twenty times since the Sixteenth Century. Africa faces a prolonged drought, one that is no longer confined to the Sahel but is extending fast to Southern Africa as well as Eastern Africa. It is estimated that usable pastoral areas in the arid and semi-arid lands have been reduced by 25 percent since the drought of 1961. It is also generally believed that droughts occur somewhere in Africa every year, that two or more drought occurrences affecting large areas of the Continent come about every decade and that extremely protracted and widespread spells of drought occur once every 30 years.

9. Today, most desertification is caused by the increase in human and livestock populations, over-grazing, expansion of agricultural land and demand for fuel wood. At present, 450 million people in Africa burn about 300 million cubic meters of firewood each year. In the first half of the 1980s it was estimated that as much as 742 million hectares of land in Africa equivalent to 26 per cent of the Continent's land area, was undergoing desertification. It is noticeable that the desert creeps into the land area at the rate of six million hectares per year.

10. Locusts have been a perennial disaster for Africa since biblical times. Africa is perpetually under attack by three groups of locusts the Desert Locust, the Migratory Locust and the Red Locust. Together these contribute to serious food deficit in the entire continent. The spread of locusts in Africa has caused widespread disasters in 1966/67.

11. Human population continues to increase at 2.2 per cent while food production has not gone beyond 2 per cent per year, registering decreases in per capita terms. In addition, urbanization in Africa at 6 per cent remains the highest in the world and indicates that availability of labour in rural areas has become a major problem. Demand for increased agricultural output for basic nutritional needs constitutes a challenge to available resources. A disaster can have a variety of effects on food supplies and subsequently on the nutritional status of the affected population.

12. The problem of refugees, displaced persons and returnees has become increasingly serious in some parts of Africa and its root causes are drought, famine, wars and political upheavals. The number of refugees in Africa is about five million. Not only do the categories require on-going assistance but also close attention for the reintegration with their own community or elsewhere.

13. Disasters like severe storms, heavy floods or torrential rains that caused considerable damage to crops, physical infrastructure and transport system have affected the Sudan, Somalia, Djibouti, Tanzania and Malawi. Between 1987 and 1989, 21 countries were affected by floods. Out of the affected population of 3,260,000, the number of death recorded was 326.

14. Earthquakes are rare in most African countries, although risks are high in zones, e.g. Algeria, and present but lower in Senegal, Rwanda, Uganda, Malawi and Ghana. Volcanic eruptions have also occurred in Senegal in 1977 and in Cameroon in 1983 and 1986 (Lake Nyos).

15. Seasonal disasters like cyclones and hurricanes are confined to the Indian Ocean island and coastal countries like Mauritania. Snow storms are restricted to Lesotho.

16. The disposal of toxic wastes in African countries appeared in the headlines in mid 1990 when some tons of toxic wastes came from outside Africa. This sparked off protests and condemnation within and outside Africa by governments, international organisations and environmental groups.

17. The environmental and health hazards of toxic industrial wastes are fairly well-known. The diversity of environmental and health impacts will increase with an equal rise in the diversity of the types of toxic industrial wastes. The containers carrying toxic wastes usually yield to the corrosive action of the substances which escape into the surrounding area. These waste substances are usually absorbed through the food chain, from the soil to vegetation and crops which are eaten, or from the water system to reservoirs and household water.

18. Some of these wastes are radioactive materials which are extremely harmful to human health through exposures. In addition, irreversible damage is inflicted upon the ecosystem which in turn affects agricultural production and related activities. Thus hazardous industrial wastes that need very sophisticated technology to handle are added to the list of Africa's environmental crisis.

19. Numerous infections of bacterial, viral and parasitic origin are known to be capable of causing large scale epidemics of disaster proportions. These include: meningitis, yellow fever, cholera and malaria.

20. Control of these diseases in Africa is far from satisfactory. Surveillance and control technologies are not as widely and effectively used as they should be; national capabilities will have to be strengthened and their technologies will need adapting to the requirements of national health systems.

21. The food crisis can be seen in all its manifestations in different parts of the continent. When we look at the vast migration of people from the rural to the urban areas, when we look at the younger people whose body weights do not reflect their ages and when we look at the nutritional status of the people in refugee camps and the displaced persons.

22. Despite changes in the climatic patterns resulting in heavy rains during late 1990s, a large number of African countries are still stricken by drought and desertification. The cumulative effect of other disasters witnessed during the 1990s has also made some countries face acute and large scale food shortages as well as the burden of mounting food import bills and increased dependence on food aid. The combination of these factors is a formidable obstacle to economic and social development since it limits food and agricultural production and raises the spectre of famine, hunger and malnutrition once again.

23. Annex 3 gives a detailed account of the recorded disasters in Africa.

V. Efforts undertaken on Disaster Prevention and Preparedness Matters in Africa

24. Many African countries are now intensifying their efforts to mitigate disasters in the Continent. Annex 4 indicates the offices established at the national level for the management of disasters.

25. At the national level, some countries established early warning systems that do not only serve their own countries but also neighbouring countries, e.g. Ethiopia, Senegal.

26. There are a number of integrated programmes in Africa for combating disasters. Some of these programmes have been undertaken by the disaster specific organization e.g. OILSS and IGADD. The other programmes have also been undertaken by non-disaster specific development organizations e.g. ECOWAS, SADC, WARDA, ALCA, IITA, etc.

27. The UN organizations and specialized agencies, with disaster specific programmes include UNICEF, UNDP, UNCTAD, UNCTEP, UNCTD, UNCTD, UNCTD, UNCTD, UNCTD, FAO, World Bank, etc., as well as the NGOs (national and international) particularly ICRC and IFRC have deployed significant efforts in combating disasters. Some of these organizations can make resources available upon request by national governments when a disaster strikes.

28. Significant activities have also been undertaken by inter-governmental organizations like the Common Organization Against Locust and Grasshopper Plagues (COALAW), Desert Locust Control Organization for Eastern Africa (DLCO-EA), and the International Insect Locust Control Organization of Central and Southern Africa (IRLCO-CSA) to control insect pests and diseases.

VI. Guidelines for a Plan of Action for Disaster
Preparedness and Response

29. Disaster preparedness could be defined as a readiness to predict, prevent, respond to and cope with the effects of a crisis. Preparedness should not be limited to short-term measures undertaken during a warning period before the impending impact of a disaster event; it must be supported by legislation and involve national operational planning, education and training of the population at large; the technical training of those who will be responsible for emergency intervention operations; as well as undertaking in-country stock-piling of supplies; and emergency funding arrangements.

30. In compliance with the OAU resolution OM/585 (1) and the ECA Resolution 645 (XXIII) the guidelines for a plan of action for disaster preparedness and response we prepared by the OAU and considered by the inter-agency meeting. The guidelines are supposed to help African countries in formulating national plans to combat disasters.

31. The African continent has been vulnerable to a wide range of disasters, a situation which calls for adequate contingency planning to improve arrangements to cope with disasters.

32. It is not possible to prescribe a uniform pattern of national preparedness or contingency planning for all countries since their resources, administrative structure and infrastructural facilities vary widely. However, it is not appropriate to recommend a rigid set of guidelines for all disasters even for the same country since each disaster has its own peculiarities. However, a disaster preparedness plan is a two-stage process: the first to prepare an outline plan establishing the types of hazards to be addressed and the procedure to be followed. The second consists of developing comprehensive plans to deal with the specific need for individual disaster.

33. Disaster preparedness and response are usually multi-sectoral and inter-disciplinary and therefore require the involvement of a number of ministries, sectors and specific areas, at the same time. Nevertheless, experience has shown that when guidelines for plans do not exist or are inadequate, the effects of a disaster on the country and its people become worse.

34. In small countries, the guidelines for the main plan of action can be operated quite satisfactorily at the national level because this is where the main business of government is managed. In larger countries, it is preferable to have the guidelines of the main operation or action plan at regional, state or provincial levels. The reason for this is that normal day-to-day government business is managed at these levels. Dealing with disasters is basically an extension of normal government functioning.

35. Action in relation to the state of a disaster is the responsibility of governments, but the effectiveness of governmental and non-governmental organizations in planning and preparedness for their disaster relief operations can be greatly enhanced by the development of community responsibility, understanding and skills. The role of the government must be to initiate the programme of disaster preparedness, and the administration that become responsible for implementing it and maintaining its effectiveness.

36. Disaster preparedness is a sensible analysis of possible situations with a view to determining how authority and responsibility for action should be delegated, what local human and material resources exist and how these can be earmarked and deployed. This precautionary planning should be complemented by a programme of public education and training, so that all elements of the population can understand what is being done, what they must do and how to do it. It also includes strengthening of institutions and expertise as well as the creation of stock piles of food and supplies.

37. Countries vulnerable to disasters need to establish an adequate mechanism to serve as a point for relief operations and to co-ordinate activities at different levels. The establishment of National Disaster Management Unit headed by a Minister for a senior officer and affiliated to the office of the President or Prime Minister on a standby and permanent basis, is an important step. The Unit would help in improving preparedness, in advance planning, in co-ordinating activities and organizing relief programmes. The specific functions of the unit would be determined by the vulnerability of the country to disasters and the availability of resources. Figure 2 gives a detailed account of the organizational structure for formulating a plan of action to mitigate disasters. The same structure could be used for operations.

38. The Co-ordinating Committee will be composed of senior officers representing all ministries in the country dealing with food and medical supply, imports, employment, storage technology etc. The Committee could be assigned the task of keeping a watch over the supply situation, receiving relief aid, identifying any logistical, administrative, financial or supply constraints. The Committee could also identify activities at the field level and the preparation of an overall field plan and the periodical review of the implementation of the relief programme.

39. In some cases, the need may arise to establish a sub-committee involved in disaster management and planning at the field level. This sub-committee could go down to the village level so as to acquire the knowledge of village life and accordingly propose the relevant recommendations for mitigating disasters.

40. Issues like who makes a declaration concerning disasters, the release of financial resources, the aims and objectives of the plan, etc..., should be reflected in the Plan itself. The Plan needs to be tested for validation and should also be up-dated every 2 to 3 years to ensure continuity. It should not

be a paper document, but a practical one. The emergency plan could also be integrated into the existing developing projects, e.g. Primary Health Care (PHC) Programme.

41. To achieve the strategy shown in Figure 2, the following is required:

- (i) Leadership by principal officers of every ministry and district officers to provide the essential motivation;
- (ii) Knowledge and understanding;
- (iii) Co-operation;
- (iv) Commitment; and
- (v) Effective training.

Figure 2: Suggested Organizational Structure of a Plan of Action to mitigate Disasters

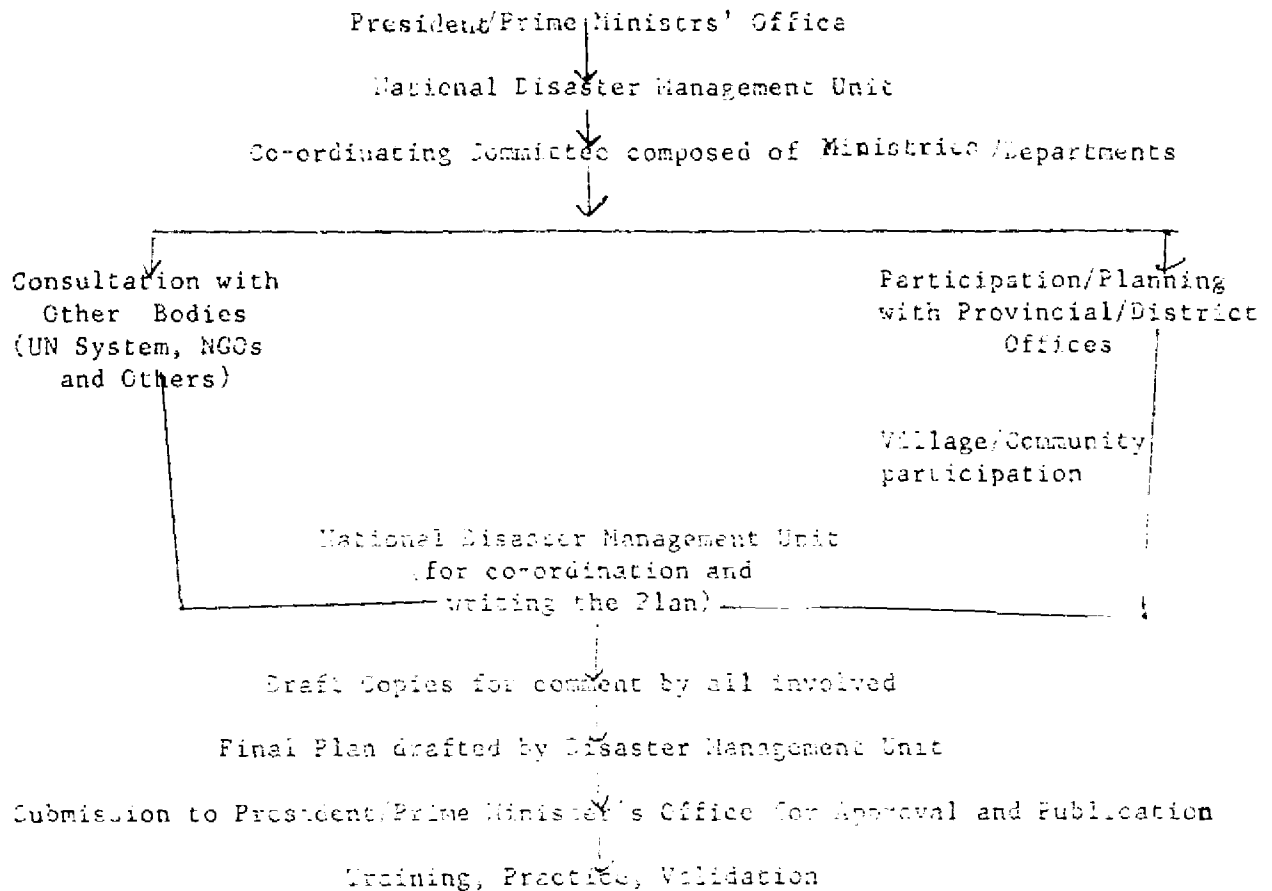


Figure 3: A Possible Format for Disaster Plan of Action

1. Introduction : National Policy, General concept for disaster action.
Potential disaster threat. Related documents.
2. Purpose of the Plan: Defining National priorities.
3. Definitions and Abbreviations
4. The Country/Region/ State/Province: Climatic conditions. Topography. Industry.
Demography. Government organizations.
5. Relationship with Other Plans
6. Disaster/Threat: History/Review. Events (by type)
7. Main requirements for dealing with disaster.
8. Planning Groups: Different levels/sectors. Naming emergency co-ordinators for key sectors such as health, public works to support national disaster action.
9. Emergency powers: Disaster legislations. Other legislations.
10. Country-disaster Resources:

In prone areas: need for prepositioning of food, medicines and logistics and initiating of reforestation.
Establishing an early warning system. Use of indicators to predict disasters. Establish ment of an international communication system.
Management of a logistic system for local mobilization and counter disaster action in case of isolation.
11. Organization - Organizational structure:

Organization for counter disaster operations.
Allocation of roles and tasks at all levels.
International assistance arrangement and management. Co-ordination of planning and organizational measures. Formulation of policies on:

 - who calls for appeals;
 - who determines the needs;
 - to whom information should go.

12. Preparedness measures:
General. National level. Provincial or regional level.
Training and public awareness programmes.
13. Communications
14. Operational Control and Co-ordination:
Responsibility for operational control and co-ordination.
National emergency operations centre. Provincial or
regional emergency operation centre (s).
15. Warning arrangements:
General. Agencies from which warning originates. Trans-
mission of warning. Dissemination and public broadcast
of warning. Multi-language broadcast. Communication
and notification to all concerned, eg. Police, Fire
Brigade, Medical, Reserve, Public Works, Power, Transport,
etc.
16. Operation/Implementation of the Plan:
Stages of implementation. Counter-disaster operations.
Establishing a suitable operation centre capable of
handling emergency and co-ordinating emergency response,
involving many services. Identification of on-going
technical co-operation programmes which can facilitate
development of national disaster programmes and
objectives. Activation of emergency operations centre(s)
at different levels. Control and co-ordination of
operations. Duration of disaster operation.
17. Recovery : Statement of policy for recovery. Responsibility for
recovery programmes.
18. Post-disaster Review :
Responsibility. Review of Plan and Organization.
19. Support Measures :
Training at different levels. Public awareness.
Financial procedures. National Budget reserve. Supply.
20. Viability of the Plan:
Responsibility for ensuring viability.
21. Annexes : Distribution list. List of definitions. List of resources.
Functional diagram of organization. Duties and responsi-
bilities of National Disaster Management Unit. Detailed
information on warning. Precautionary measures on receipt
of warning. Outline for public awareness. Outline for

training. Allocation of roles and tasks to resource organizations.

22. Authorization

23. Map References.

42. In view of the fact that there is no standard disaster mitigating plan, all possible formats of the plan must contain certain elements that will make the plan more effective. The format in Figure 3 illustrates the areas which need to be covered when writing or preparing an action plan for mitigating disasters. Generally, the plan must:

- define clearly and precisely the situation it was designed for and the magnitude of the threat,
 - be clear so that its objectives, purposes and limitations are understood.
 - be simple, communicable, tested, revised regularly, up-dated and be so easily accessible to those who need it,
- specify the desirable local factors that can respond to the threat.
- group the available resources in the area (manpower, equipment and finance). This point will facilitate knowledge of what additional resources are required,
 - provide co-ordination of different organizations and institutions,
 - establish a command and control structure with a procedure for the reception and dissemination of warnings and the acquisition of information,
 - Use existing structure rather than create new ones,
 - be written with the active co-operation and participation of those who will be required to execute it.

Legislation

43. Under normal circumstances, the government should find out whether existing legislations would allow them sufficient powers to impose the requisite control in an emergency situation. If not, new legislations or executive orders could be drafted for implementation in the event of a disaster. This will ensure sufficient legal powers for the execution of the Plan. Such legislations should include:

- Monitoring the disaster and the action to be taken;
- Dissemination and public broadcast of warning;
- Conduct of emergency measures, e.g., floods and evacuations;
- Measures for restoration of buildings, equipment, health, epidemic control, education, training, information, preservation of social order, traffic control, rehabilitation, redefinition of authority, responsibility and financial measures;
- Declaring a state of emergency because of the disaster;
- Transmission of warning and notification to all concerned;
- Requisitioning supplies held by producers and traders;
- Mobilizing transport and storage facilities available in the private sector;
- Facilitating handling and storage at different points;
- Introducing and administering statutory rationing;
- Imposing price control;
- Regulating manufacture, movement, storage and distribution of supplies;
- Creating, on a permanent and standby basis, a National Disaster Management Unit;
- International assistance -- including when and by whom assistance will be given, who requests it, exemption from taxes and duties, granting of over-flying and landing facilities.

Financial Measures

44. There should be a National Permanent Emergency Reserve Fund and a National Emergency Funding Committee which is empowered to allocate money for carrying out relief operations. These charged with the responsibility of carrying out relief operations should not be hampered by either lack of authority or non-availability of public funds.

45. Financial arrangements during an actual emergency operation may be made by regulation or decree under the provisions of a proclamation of a state of emergency. In addition, compensation for loss or damage may be paid by insurance companies or from Central Government Funds.

Organization

46. There must be a pyramid structure and a provision for effective co-operation among ministries./departments/organizations/institutions designed to prepare for and contend with a disaster in the country. Such a recognized structure should ensure the continuity of the plan for mitigating disasters.

47. There can be integrated upward building planning from village to region, region to co-ordinating committee, co-ordinating committee to National Disaster Management Unit, coupled with a downward flow of responsibility to the regions from the National Disaster Management Unit which is affiliated to the President or Prime Minister's Office. There should also be National Centre during disasters.

48. Prior to a disaster, an emergency operation centre could be established. The centre could be a police station or military headquarters or a mobile centre. It should be responsible for managing the effects of a disaster in a specified area. It could have links with hospitals, fire brigade, military, information centre and mass media. Responsibilities and standing instructions have to be defined for carrying out the appropriate tasks at different levels when the Plan becomes operational.

49. Within the framework of the Plan, sub-committee/groups could be established for various sectoral disaster activities.

Community Participation

50. Community participation is essential and has to be developed for planning and management of disasters including evacuation, temporary shelters, feeding, sanitation, provision of immunization, detection of cases, implementation of control measures during an outbreak of communicable diseases, first aid, etc. This requires some public information, training and education and is an area of responsibility in which NGOs can assist and play an important role.

51. It is generally recognized that if there is a community will, the chances of progress in achieving the objectives of the plan action are enhanced. The removal of constraints, if any, calls for co-operation between the National Disaster Management Unit or province/ district offices and the political leadership. Resources should be provided for community participation.

Declaration of Disaster

52. There is need for official recognition of the occurrence of the disaster, its extent and the action needed to mitigate it, at the national and international levels. The prompt declaration of a state of emergency or national major action has to be based on pre-determined criteria and key indicators which differ from disaster to disaster and from one sector to another.

Communications

53. It is necessary to keep the public media and the international community informed about the disaster, its extent, steps being taken and the assistance required to combat the situation. This attitude could prevent the circulation of wild rumours about the disaster and enhance confidence in the government.

54. Information management has wider implications and usually covers the following points :

- (i) Information in;
- (ii) Information assessment,
- (iii) Decision-making; and
- (iv) Information and decision out.

55. In case of a breakdown of communication, temporary equipment will have to be provided for use by emergency services. Steps should be taken thereafter to repair and enhance the existing communication system. The reliability of communications, the content of messages and transmission of warnings are vital as action and speed of public response depend on them. The severity of the disaster consequences could be reduced if a timely warning is given coupled with an effective and efficient state of disaster preparedness and action on warning. Meteorological information could be useful in forecasting some disasters, e.g. floods, storms.

56. The development and use of satellites have brought many benefits through improved communication and weather forecast. However, in addition to the advantages (e.g. covering large portions of the earth, data are quantitative, etc.), satellite systems have disadvantages (e.g. interpretation of data can be expensive requiring advanced equipment, physical limits -- e.g. measuring surface wind velocity).

Survey and Assessment of the Situation

57. The first step in coping with a disaster situation consists of surveying, collecting and analysing information about the situation. Such information could be received from and verified by the early warning system or the department designated by the government or from other sources. Lack accuracy in survey and assessment will result in new problems in addition of to those already created by the disaster.

58. The National Disaster Management Unit established and affiliated to the office of the President/Prime Minister, should be mandated to collect the necessary information about disaster management and disaster situation including, when applicable.

(a) Pre-disaster

- .Accessibility to the disaster site;
- .Identification and mapping of hazardous zone,
- .Identification of the needs that can be met from within the country, from immediate neighbours and from the international community for combating the disaster;
- .Co-ordination of the activities of the various resource organizations.

(b) Post-disaster

- .Nature, causes, possible effects, scale and extent of the disaster;
- .Approximate number of houses destroyed, assessment of exposure to climate and the proportion of survivals who need emergency shelters;
- .Resources required;
- .Logistic problems
- .Allocation of the tasks which need to be undertaken to response to the disaster.

59. Assessment of the sectoral requirement such as health care will include health programmes, hospitals, availability of medical supplies, risk of outbreak communicable. Disaster, inventory of health facilities, the condition of water supply and the sanitation system. Information needs may differ from one sector to the other.

60. Sectoral or institutional planning committees such as hospitals, planning committee should be established to cater for management of casualties, receiving, sorting out, storage and distribution of medical supplies preparedness for epidemic outbreak. The hospital planning committee should consider community participation in all major aspects of first aid.

Logistic

61. Many logistic problems can be expected to arise in a disaster situation resulting in the need to import larger quantities of supplies than normally required. Movement of internal supplies would also depend on the logistic network. Apart from the transportation network, various activities like loading, unloading, storage, handling, inadequacy of port clearance, etc... have to be catered for. It is essential that the logistic implications are thoroughly assessed. A close coordination of procurement handling, transport and distribution functions is needed to ensure smooth flows of supplies. The existing logistic systems should be used in an integrated manner.

Procurement of Supplies

62. Usually governments have four options to secure the required supplies:

- (i) Maintenance in-country emergency reserves;
- (ii) Procurement from local sources or reserve stocks;
- (iii) Imports from neighbouring countries and other;
- (iv) International assistance.

Supply/Distribution System

63. Formal distribution system functions poorly in disasters. Thus distribution through government-controlled outlets or relief community systems could ensure equitable shares of the available supplies. Free distribution, if possible, should be avoided.

Evacuation

64. In some disasters, e.g. floods, volcanic eruption, it may be necessary for people to move temporarily from areas at risk to areas that are safe or safer. Preparedness planning must provide for the eventuality of evacuation of people from dangerous areas under the following circumstances:

- (i) In anticipation of the impact of the disasters;
- (ii) During the impact of the disaster; and
- (iii) Post impact.

65. In planning the evacuation, maps/diagrams have to be prepared and should include;

- Hazard maps;
- Population distribution;
- Topographical features;
- Transport network;
- Political boundaries.

Training and Public Education

66. Training is an important aspect of planning to combat disasters. Training should include every strata of the society, from policy-makers to field workers at these levels:

- (a) Technical training - for people who will acquire greater specialized skills;
- (b) Management training and education - for emergency managers and planners and
- (c) Education for general public - for exposure to public programmes or participation in general exercise.

The two major components of training are:

- (a) Preparatory training-provided when no emergency exists, and in order to prepare the people concerned for disasters that may be expected; and
- (b) Emergency training - provided in the context of most likely occurrence of a disaster or immediately following a disaster. The latter will have an element of experience in managing disasters.

Assistance

67. At times of disaster, all security and armed forces, civil defence, fire brigade etc., should be mobilized.

68. Assistance should be planned and requested from other institutions including voluntary groups, of national Red Cross, Red Crescent Societies, NGOs, religious organizations, women organizations, welfare services, etc. Liaison and co-operation between the authorities in the country and the unofficial agencies at the planning stage will enhance the effectiveness of the relief operations when the need for them arises.

Protection of Data and Cultural Heritage

69. The threats posed by disasters like fire, floods, earthquakes, etc., may destroy files of data and information collected, and electronic computers used in the process of collecting data and in conducting research programmes. A mechanism for the protection of data, information, programmes and computers could be established, e.g. using fire-proof sites, provision of adequate measures to extinguish fires. Measures should also be taken to protect historical monuments and other kinds of cultural property. Carrying out inventories, making maps and promoting national awareness are important elements with respect to monuments and cultural heritage. The security of the latter should constitute an important part of the plan of action.