An Overview of Disaster Management

1st Edition

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Cover Photograph: Building river defense walls, Chosica, Rimac Valley, Peru.
Photo by Andrew Maskrey

Foreword

The informal name for this text has been the "Foundation Module." The information it includes is regarded as the foundation for much of the UNDP/ UNDRO Disaster Management Training Programme (DMTP). This training module describes the components of disaster management and their context within the overall framework of United Nations agencies actively involved in disaster and emergency issues.

This text may be used as the core training material for one and two day workshops to introduce the basic issues of disaster management. The text will also be used as an integral part of training workshops at the regional and country levels.

This training module has been produced for the UNDP/UNDRO Disaster Management Training Programme by the University of Wisconsin Disaster Management Center. The Technical Operational Partners for the DMTP provided valuable advice on the format and content. The principal sources for the content include the UNDP/UNDRO Disaster Manual and six complementary training modules prepared for the DMTP. Intertect Training Services has edited the material, prepared the educational components and illustrated the text. Artifax has provided design and desktop publishing services.

Introduction to this training module

Purpose and scope

An Overview of Disaster Management is designed to introduce the subject of disaster management to an audience of UN organization professionals who form disaster management teams, as well as to government counterpart agencies, NGOs, and donors. The training is designed to increase the audience's awareness of the nature and management of disasters. This should lead to better performance in disaster preparedness and response. By questioning the "inevitability" of disasters, trainees can begin to see mitigation of disasters as a component of development, and disasters as opportunities to further development goals.

This course takes a broad view of disasters. It does not try to separate out problems rooted in environmental degradation as a distinct set of responsibilities. It also includes emergencies which encompass the need to provide assistance to large populations displaced by the forces of civil conflict or other emergencies.

The course's content is based on the UNDP/UNDRO Disaster Manual and follows its principles, procedures, and terminology.

Overall learning objectives

After reading this text and completing the exercises you should be able to do the following:

- identify how disasters affect you
- identify what you can do about disasters
- describe the purpose and function of the United Nations in disaster management
- describe the role of the UN Disaster Management Team
- recognize the phases of disasters
- identify aims and elements of disaster management
- describe three ways in which disasters are linked to development
- describe examples of disaster mitigation activities implemented through development projects
- identify the inter-relationship between natural and human-made disasters and emergencies

Importance of training for disaster management

Why are disasters and disaster management training of concern to country governments, to the UN and, in particular, to UNDP and UNDRO? How can governments and UNDP justify adding disaster management to their long lists of competing priorities? There are several answers to these questions.
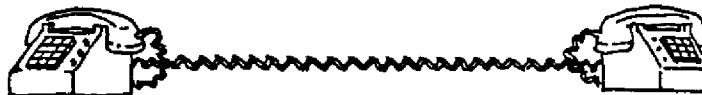
- Governments are increasingly requesting that UN agencies in-country co-ordinate all UN post-disaster assistance and sometimes all international assistance. Therefore, governments and the UN need better communication about their mutual needs and capabilities.

- Disasters are a growing problem. They will become of increasing concern to governments and an increasing part of the UN's principal activities. In disaster-prone countries UNDP's country programmes are inevitably affected by disasters. Projects are set back or suffer delays as a country recovers from the consequences of a disaster.

- Disasters are non-routine events that require non-routine responses. Government and development agencies in general cannot rely on normal procedures to implement appropriate responses. They need to learn and practice special skills and attitudes.

- Disasters are closely linked with at least four other priorities for which UNDP has accepted either a direct or supportive role: displaced persons, refugees and returnees, women in development, and environmental protection. The issues of all these subjects overlap significantly. A training programme in one will support the professional development of UNDP staff in all.

- UNDRO has an established international mandate in this area. It is to coordinate activities promoting preparedness and mitigation as well as the response to disasters. UNDRO's interests are represented in the field by UNDP. It is incumbent upon both agencies to promote a marked increase of awareness and competence in disasters, and to involve other concerned UN agencies.

- In their role as Resident Co-ordinators, UNDP Res Reps and field office staff need to train with their sister agencies in the procedures of implementing a co-ordinated and appropriate disaster response.

- The world community takes considerable interest in disasters. Governments and the UN system have high profiles in these events which are observed closely by the media. UN agencies and governments must prove their competence in order to project a positive image of providing appropriate support.

Training methods

This module is intended for two audiences, the self-study learner and the participant in a training workshop. The following training methods are planned for use in workshops and are simulated in the written module. For the self-study learner the text is as close to a tutor as can be managed in print.

Workshop training methods include
- group discussions
- simulations/role plays
- supplementary handouts
- videos
- review sessions
- self-assessment exercises

The self-study learner is invited to use this text as a workbook. In addition to note-taking in the margins, you will be given the opportunity to stop and examine your learning along the way through questions included in the text. Write down your answers to these questions before proceeding to ensure that you have captured key points of the text.

This training module includes two short videos. The self-learner would benefit from making arrangements to view these videos and from reviewing the accompanying discussion questions.

PART **1** HAZARDS AND DISASTERS

1 HAZARDS AND DISASTERS

After reading the material and completing the exercises you should be able to:
- identify the major hazards and how they affect society
- describe some of the causes of disasters
- describe key issues regarding hazards and vulnerability
- define the key terms of disaster management

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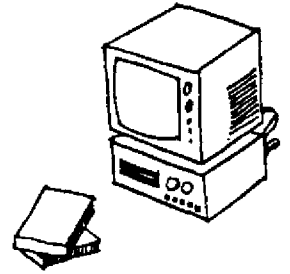
CHAPTER 1

Introduction to disasters

Q.
How do you define "hazard" and "disaster"?

A.
Write your ideas in the following space, then compare
your definitions with those provided in the text.

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Before going any further we should establish a common understanding of the
terms *hazard* and *disaster*.

Definition of hazard

A hazard is a rare or extreme event in the natural or human-made environment
that adversely affects human life, property or activity to the extent of causing a
disaster.

Definition of disaster

A disaster reflects the impact of a hazard, causing a sudden or major misfortune,
normally resulting in at least one of the following:

- casualties (death and injuries)
- rapid decline of basic essentials (for example, food availability) leading to life
  threatening conditions
- damage and loss of property
- loss of infrastructure
- loss of essential services or means of livelihood.

These losses often mean that the disaster-afflicted group or community
requires external assistance to cope in part or in totality with the immediate
effects of the disaster.

A term closely related to disaster and used throughout this module is
emergency. "Disaster" suggests an intense time period and level of urgency.
Whereas a disaster is bound by a specific period in which lives and essential

Fig 1.1.

*A disaster as the
interface between
hazards and vulnerable
conditions.*

(Based on a diagram by
Ian Davis published in the
Ideas RRDC Bulletin,
October 1984.)

Root causes

Poverty/underdevelopment
Exploitation

Socio-economic pressures

Migration from the area
Inequitable patterns of land ownership
Population growth
Urbanisation
Deforestation
Lack of education/illiteracy

Vulnerable conditions

Unsafe siting of buildings/settlements
Unsafe forms of building
Unsafe construction
Crops that do not easily resist hazards

Political changes needed

Hazard

Earthquake
Flood
Cyclone
Tsunamis
Drought
Civil strife
Volcanic eruption

DISASTER

Technical remedies needed

property are immediately at risk, an emergency can encompass a more general period in which

- there is a clear and marked deterioration in the coping abilities of a group or community, or
- coping abilities are only sustained by unusual initiatives by the group or community or by external intervention.

The disaster problem

This section will describe certain phenomena leading to disasters and emergencies: disaster trends, where they occur and who is most affected by them.

From the outset it is worth reminding ourselves that disasters and emergencies are all too often regarded as aberrant events, divorced from "normal life." In reality, however, the opposite is true. Disasters and emergencies are fundamental reflections of normal life. They are consequences of the ways societies structure themselves, economically and socially; the ways that societies and states interact; and the ways that relationships between the decision makers are sustained. Hence a flood or an earthquake is not a disaster in and of itself. The disaster stems from the fact that certain communities or groups are forced to settle in areas susceptible to the impact of a raging river or a volcanic eruption. It is essential to make a distinction between hazards and disasters, and to recognize that the effect of the former upon the latter is essentially a measure of the society's vulnerability.

Hazards: a brief introduction

While a good case can be made that all disasters are ultimately human-made, there are nevertheless clear differences in the types of hazards that expose human vulnerabilities. The norm is to distinguish between natural and human-made hazards.

Natural hazards can be sub-divided into two main categories: sudden onset and slow onset types. Sudden onset hazards span a wide range of natural phenomena such as earthquakes, tsunamis, tropical storms, floods, volcanic eruptions and, possibly, pest infestations. Slow-onset hazards include droughts and rising sea levels.

Human-made hazards include war and civil-conflict, as well as ecological and technological hazards. In many instances the latter two are inter-related. An ecological hazard, for example, may result from the mass erosion of top soil as a consequence of extensive deforestation. A technological hazard can arise from chemical wastes dumped into rivers or an explosion in a nuclear plant.

The number and range of hazards are considerable, and expanding. So, too, are the complexities of disasters.

Compound and complex disasters

Increasingly throughout many parts of the world one type of hazard can trigger a disaster which in turn triggers another hazard and subsequent disaster. For example, a drought may lead to a famine which in turn lead to a civil conflict that results in the mass displacement of people. A flood may force people to seek refuge across an international border where conflicts ensue between refugees and local communities.

Such compound hazards/disasters need not happen sequentially; they can also occur simultaneously. Thus, people caught between contending forces in a civil war find that in the midst of a major drought they have no means either to grow food or to receive outside assistance.

In a growing number of countries, "complex disasters" are also becoming more evident. Essentially a complex disaster reflects a set of political conditions which either directly leads to or compounds a disaster or emergency situation. The single most prevalent political condition of a complex emergency is civil conflict, resulting in a collapse of political authority in all or part of a country. In such cases, at least one of three situations arise:

1. The government's ability to assist the disaster-afflicted becomes severely constrained.
2. The government becomes extremely suspicious of or uninterested in afflicted people who have fled from non-government to government held areas.
3. The government or opposition groups actually create or compound a disaster through actions that generate refugees and the mass displacement of people.

The disaster becomes "complex" because either the collapse or diffusion of political control makes assistance highly problematic. Solutions ultimately depend upon agreements with all parties involved in the conflict to permit assistance to be provided to recognize civilian noncombatants, agreements that are seen essentially as compromising fundamental aspects of sovereignty for what have been labelled as "new mechanisms of humanitarian assistance" (for example, corridors of tranquility).

Magnitude of the disaster problem

The magnitude of each disaster, measured in deaths, damage, or costs for a given developing country increases with the increased marginalization of the population. This is caused by a high birthrate, problems of land tenure and economic opportunity, and the lack or misallocation of resources to meet the basic human needs of an expanding population. As the population increases, the best land in both rural and urban areas is taken up, and those seeking land for farming or housing are forced to accept inadequate land. These offer less productivity and a smaller measure of physical or economic safety. The following sections consider each of these issues.

An analysis of disaster trends would be easier if there were clearer patterns and more consistent evidence about what is happening around the world. It should be possible to state unequivocally that disasters occur with greater frequency and are having an increasing impact on people, their environment and their economy. Unfortunately, the data on this is too uneven to make sweeping statements. Nevertheless, we can make several observations that have the cumulative effect of describing the overall level of concern caused by disasters.

Some studies have shown that the average number of hazard events have stayed rather constant during this century. However, losses from the disasters caused by those hazard events are growing. It can therefore be assumed that earthquakes, tropical storms, and floods, for example, may not happen more often and that they are not necessarily larger natural events. However, they continue to have a major impact on large numbers of people as well as on economic investments and development. These factors, both directly and indirectly, generate human-made emergencies which, conservatively speaking,

are currently responsible for at least 30 million refugees and displaced people around the world.

Causal factors of disasters

Poverty

The most important single influence on the impact of a disaster is poverty. All other factors could be lessened if the affected population were not also limited by poverty. Virtually all disaster studies show that the wealthiest of the population either survive the disaster unaffected or are able to recover quickly. Across the broad spectrum of disasters, poverty generally makes people vulnerable to the impact of hazards. Poverty explains why people in urban areas are forced to live on hills that are prone to landslides, or why people settle near volcanos or rivers that invariably flood their banks. Poverty explains why droughts claim poor peasant farmers as victims and rarely the wealthy, and why famines more often than not are the result of a lack of purchasing power to buy food rather tha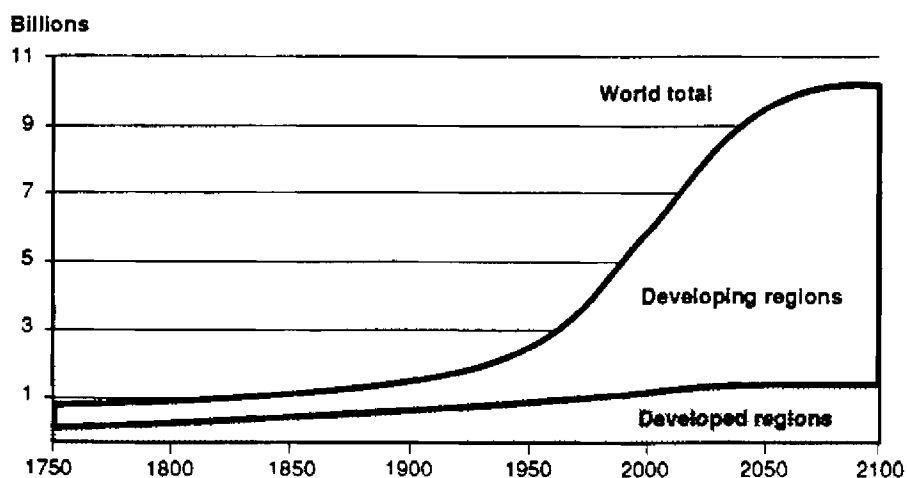n an absence of food. Increasingly, poverty also explains why many people are forced to move from their homes to other parts of their countries or even across borders to survive. Such crisis-induced migration poses considerable challenges both in terms of immediate assistance to the displaced and of longer-term development.

Population growth

There is an obvious connection between the increase in losses from a disaster and the increase in population. If there are more people and structures where a disaster strikes, then it is likely there will be more of an impact. The growth of population has been so spectacular that it is inevitable that more people will be affected by disasters because more will be forced to live and work in unsafe areas. Increasing numbers of people will be competing for a limited amount of resources (such as, employment opportunities, and land) which can lead to conflict. This conflict may result in crisis-induced migration. Such growth occurs predominantly in developing countries, resulting in various contributors to disasters.

Safe areas

Marginal areas

Unsafe areas

As population continues to grow, settlements spread to marginal and even unsafe areas.
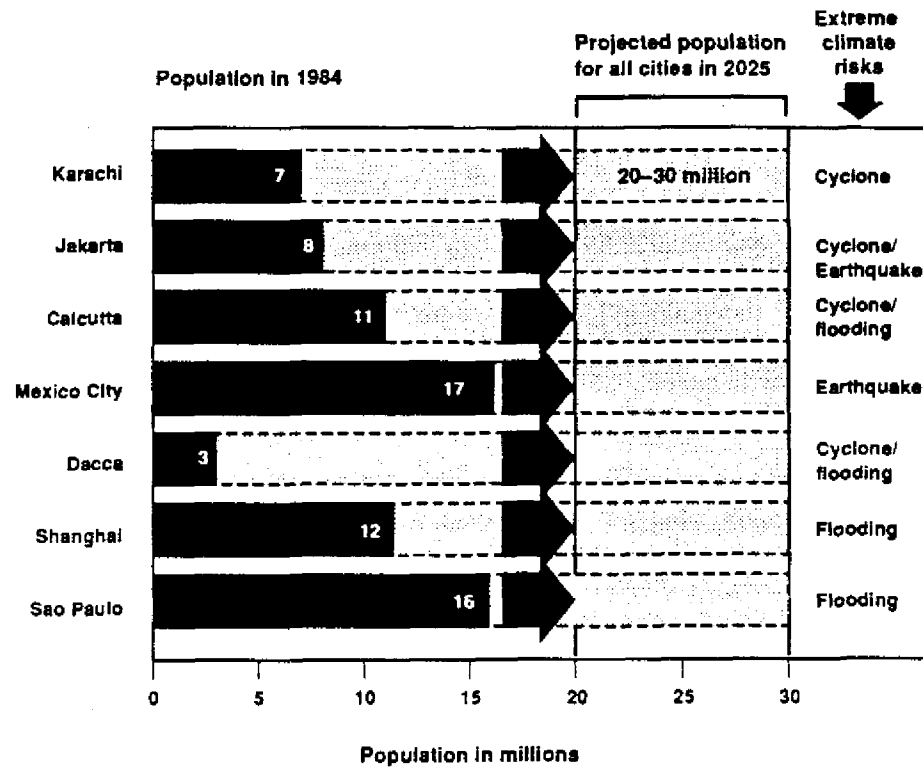
Billions

Fig. 1.2.

Population growth, 1750-2100.

Source: Thomas Merrick, et. al , "World Population in Transition," *Population Bulletin,* Vol. 42, No 2 (1986).

Rapid urbanization

Rapid population growth and migration are related to the major phenomenon of rapid urbanization. This process is also accelerated in developing countries. It is characterized by the rural poor or civilians in an area of conflict moving to metropolitan areas in search of economic opportunities and security. These massive numbers of urban poor increasingly often confront diminished options of availability of safe and desirable places to build their houses, however humble. Here again, competition for scarce resources, an inevitable consequence of rapid urbanization, can lead to human-made disasters.

Fig. 1.3.

Population projections for some disaster-prone cities.

Population in 1984 — Projected population for all cities in 2025 — Extreme climate risks

City	Population 1984	Risk
Karachi	7	Cyclone
Jakarta	8	Cyclone/Earthquake
Calcutta	11	Cyclone/flooding
Mexico City	17	Earthquake
Dacca	3	Cyclone/flooding
Shanghai	12	Flooding
Sao Paulo	16	Flooding

20–30 million

Population in millions

Many landslides or flooding disasters are closely linked to rapid and unchecked urbanization which forces low-income families to settle on the slopes of steep hillsides or ravines, or along the banks of flood-prone rivers. Many earthquake victims in urban areas have been impoverished families whose sites have failed rather than their houses, usually through landslides onto the house or out from under it.
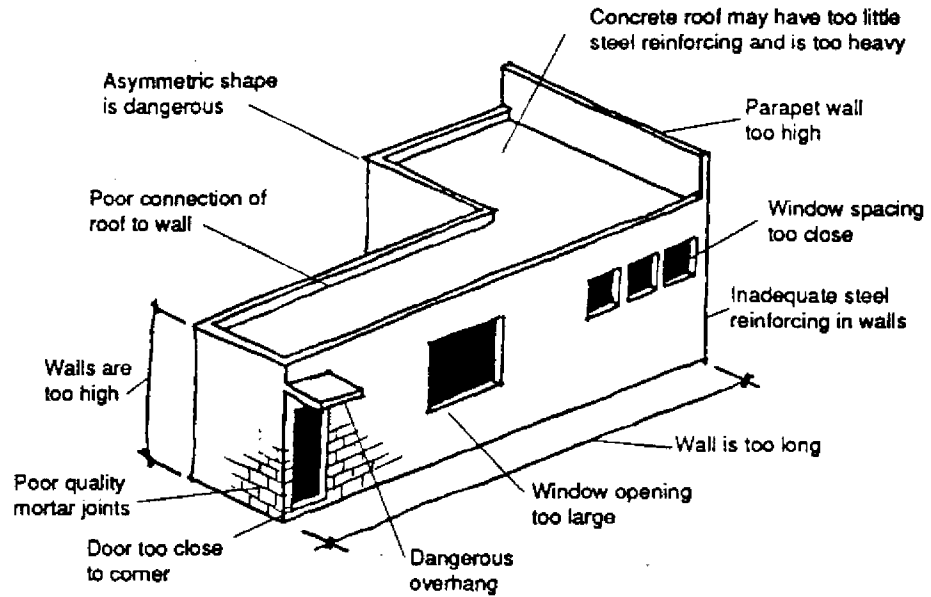
Fig. 1.4.
*Houses precariously
sited on the edge of a
ravine in an
earthquake prone city*

Transitions in cultural practices

Disasters have a greater impact as a by-product of change. Obviously, all societies are constantly changing and in a continual state of transition. These transitions are often extremely disruptive and uneven, leaving gaps in social coping mechanisms and technology. These transitions include nomadic populations that become sedentary, rural people who move to urban areas, and both rural and urban people who move from one economic level to another. More broadly, these examples are typical of a shift from non-industrialized to industrializing societies.

One example of the impact of these transitions is the introduction of new construction materials in a society that has only used traditional materials. This often results in new materials being used incorrectly. In disaster prone areas, inadequate new construction techniques may lead to houses that cannot withstand earthquakes or wind storms. Compounding the problem is that the new community where the disaster victims find themselves no longer has a social support system or network to assist in the relief and recovery from the disaster (generally, this is less true in Africa). The population becomes increasingly dependent on outside interveners to help in this process.

Conflicting as well as transitional cultural practices can also lead to disasters, for example, as a result of communal violence triggered by religious differences.

Asymmetric shape
is dangerous

Concrete roof may have too little
steel reinforcing and is too heavy

Parapet wall
too high

Poor connection of
roof to wall

Window spacing
too close

Inadequate steel
reinforcing in walls

Walls are
too high

Wall is too long

Poor quality
mortar joints

Window opening
too large

Door too close
to corner

Dangerous
overhang

Fig. 1.5.

*New house badly
built using modern
materials.*

Environmental degradation

Many disasters are either caused or exacerbated by environmental degradation.
Deforestation leads to rapid rain run off, which contributes to flooding. The
destruction of mangrove swamps decreases a coast line's ability to resist tropical
winds and storm surges.

The creation of drought conditions — and the relative severity and length of
time the drought lasts — is mainly a natural phenomena. Drought conditions
may be exacerbated by: poor cropping patterns, overgrazing, the stripping of
topsoil, poor conservation techniques, depletion of both the surface and
subsurface water supply, and, to an extent, unchecked urbanization.

Fig. 1.6.

*Deforestation for
"development"*

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Lack of awareness and information

Disasters can also happen because people vulnerable to them simply didn't know how to get out of harm's way or to take protective measures. This ignorance may not necessarily be a function of poverty, but a lack of awareness of what measures can be taken to build safe structures on safe locations. Perhaps some people did not know about safe evacuation routes and procedures. Other populations may not know where to turn for assistance in times of acute distress. Nevertheless, this point should not be taken as a justification for ignoring the coping mechanisms of the majority of people affected by disasters. In most disaster-prone societies, there is a wealth of understanding about disaster threats and responses. This understanding should be incorporated into any efforts to provide external assistance.

War and civil strife

In this text war and civil strife are regarded as hazards, that is extreme events that produce disasters. War and civil strife often result in displaced people, a target population of this training programme. The causal factors of war and civil strife include competition for scarce resources, religious or ethnic intolerance, and ideological differences.

Q. *Of the six causal factors of disasters discussed above, how would you rank them for the region in which you live?*

A. List the most serious contributor first.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

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CHAPTER 2

The disaster management team

The first chapter was a brief introduction to the subject of hazards and disasters. But, before we go further into describing the nature of disasters, we will introduce one aspect of your role in the management of them.

One of the primary purposes of this overall training programme is to introduce the concept of managing disasters as a team. The objectives of disaster management through team work include

- a forum for communication, information exchange and developing consensus
- a format for coordination, eliminating duplication and reducing gaps in services
- the possibility of being more effective through pooled resources

Fig. 2.1.

The UN disaster management team
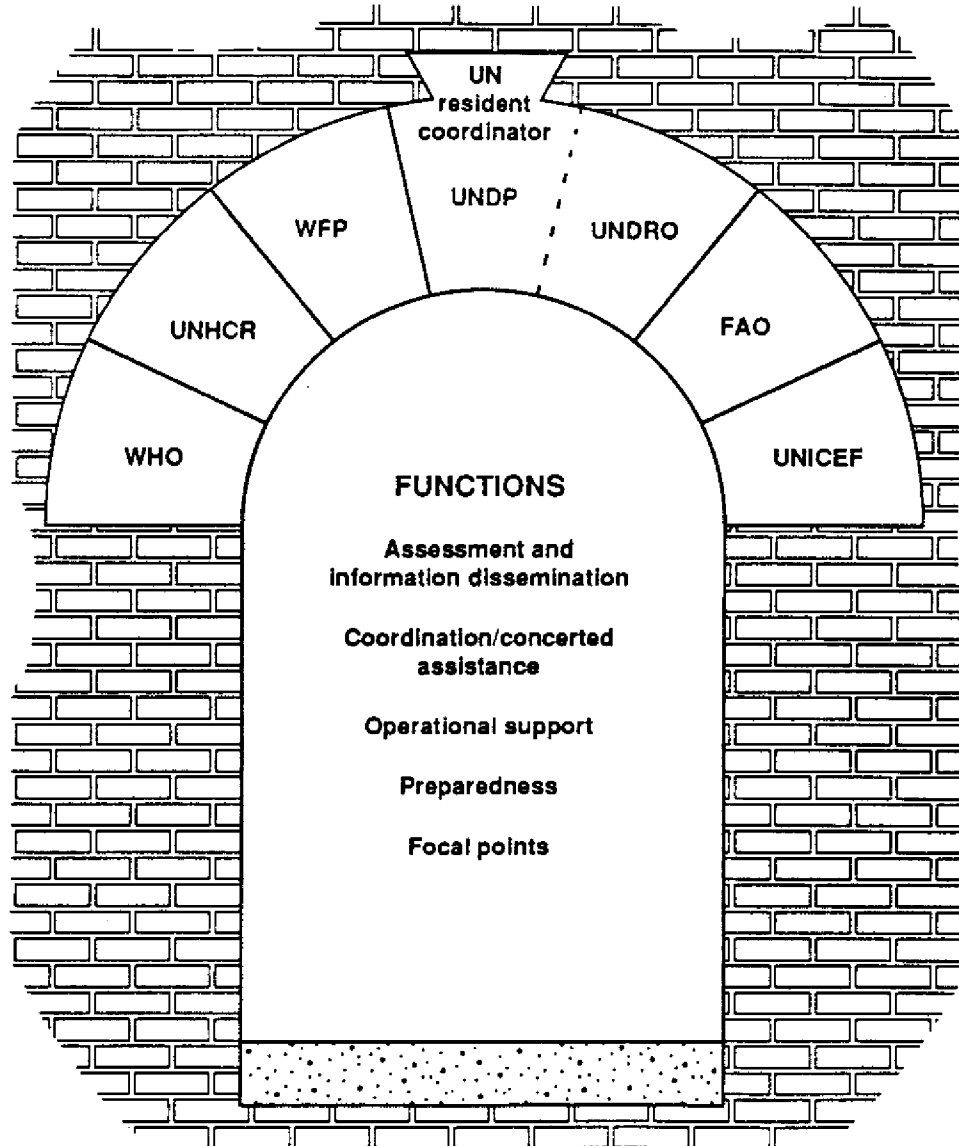
The United Nations Disaster Management Team

The United Nations General Assembly believes that the objectives of team management are applicable to the UN agencies oriented to emergencies. They have mandated that a standing UN Disaster Management Team (UN-DMT) be formed in each disaster-prone country, convened and chaired by the UN resident coordinator. The composition of the UN-DMT is determined by taking account of the types of disaster to which the country is prone and the organizations present, but should normally include a core group consisting of the country-level representatives of FAO, UNDP, UNICEF, WFP, WHO and, where present, UNDRO and UNHCR. It may be enlarged to include additional representatives or project personnel from other relevant agencies when an emergency arises.

The original and primary purpose of the UN-DMT is to ensure a prompt, effective and concerted response by the UN system at country level in the event of a disaster. The team should also ensure similar coordination of UN assistance to the Government in respect to post-disaster rehabilitation and reconstruction, and relevant disaster mitigation measures through long-term development programmes. It should be emphasized that for all aspects of disaster management the UN-DMT is in a *support* role of the government.

The UN-DMT recognizes and in no way supersedes the mandates and specific functions of the various organizations in the exercise of those mandates. It supports and assists the office of the resident co-ordinator in the exercise of its system-wide functions. In case the Secretary-General appoints a special representative or lead entity (for a complex or exceptional emergency), the UN-DMT supports and assists that representative/entity.

Country Disaster Management Team

Most disaster prone countries already have a formal or informal disaster management team. It is typically headed by a national disaster focal point body. This body functions in liaison with the Office of the President or Prime Minister, with civil defense organizations, key government ministries, the Red Cross/Red Crescent, and other NGOs and major donors. The UN-DMT needs to interface with this team and, where practical, to be a team member.

Where national officials do not participate in UN-DMT meetings or activities, the resident coordinator should ensure that they are consulted and briefed on all relevant matters. In practice it is vital that the policies of the DMT relate to those approved by the Government even under the pressure of events.
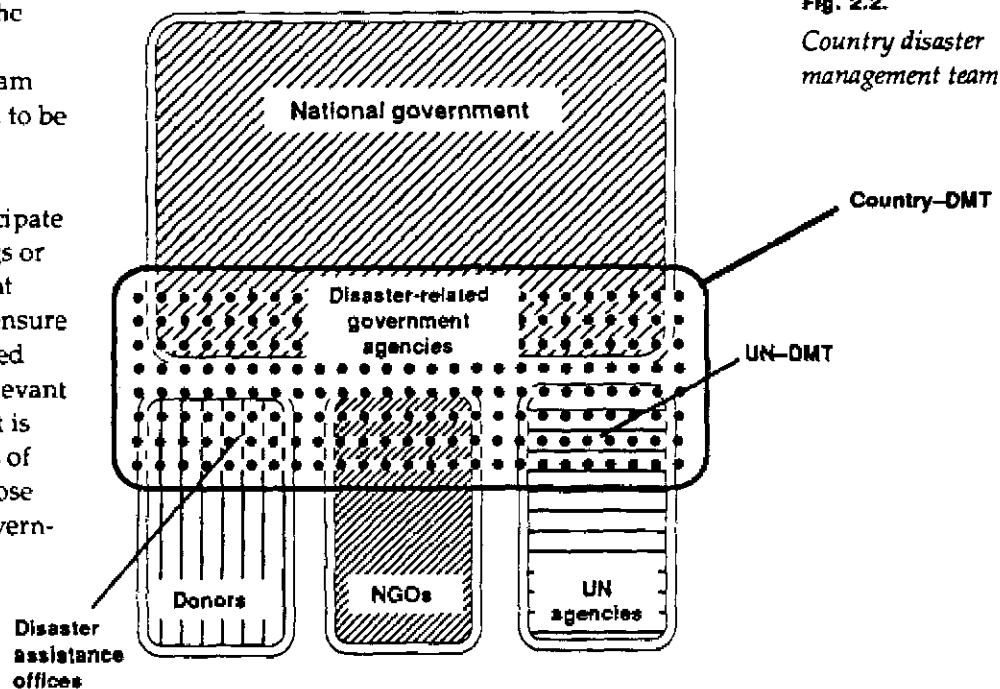

Fig. 2.2.
Country disaster management team

National government

Disaster-related government agencies

Country–DMT

UN–DMT

Donors

NGOs

UN agencies

Disaster assistance offices

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