

MUDFLOW DISASTER MANAGEMENT

7.1. Policy framework for disaster management

7.1.1. Definition of disaster management

Disaster management is the understanding and anticipation of the hazards to which people, their immediate environments and the structures of their societies are exposed. It includes the determination and application of measures to prevent or lessen the detrimental consequences of those hazards, and to cope with a disaster emergency should a disaster occur. Disaster management consists of a set of operational activities, policy and administrative decisions which pertain to the preand post-disaster stages at all levels of a disaster emergency, such as risk reduction, relief, rehabilitation and reconstruction.

At the pre-disaster stage these activities are called disaster mitigation; they include early warning, preparedness planning, and the ongoing monitoring, evaluation and revision of the preparedness plan as necessary (Fig. 7.1).

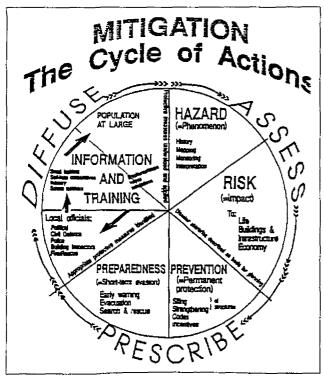


FIGURE 7.1 Mitigation—The Cycle of Actions.

7.1.2. Principles of disaster management

Effective disaster management is carried out jointly by government and public services and may be done in cooperation with intergovernmental and non-governmental organizations at the international level. It includes three essential components: (i) hazard and risk analysis to define the types and extent of disasters which may occur; (ii) planning and decision-making to organize the response to natural hazards; and (iii) creation of implementation mechanisms. The basic principles of disaster management may be described as follows:

- 1. The first priority of disaster management is the protection of the people most at risk. The second priority is the protection of critical resources and systems on which communities depend;
- 2 Disaster management must be an integral part of national development plans and objectives;
- 3. The effectiveness of disaster management rests upon an understanding of the hazard risks faced by a community and the capabilities existing within that community prior to an imminent disaster threat;
- 4. Disaster management is based upon interdisciplinary collaboration among people in governments, non-governmental organizations, research and training institutions, and the commercial sector of the affected society;
- 5. Disaster management is only as effective as the extent to which commitment, knowledge and capabilities can be immediately applied in areas affected by disasters. To achieve this, international, national and local coordination is essential in order to develop appropriate levels of self-reliance in the affected areas.

7.1.3. Mudflow management

The management of mudflow disasters specifically, includes the following activities:

- Consideration of the social aspects of disaster management;
- · Policy appraisal and review;
- International cooperation for disaster relief and mitigation planning;
- Establishing an institutional framework and strategy for disaster reduction;
- Hazard and risk analysis;

- Disaster management planning in vulnerable areas;
- Establishing an institutional framework and strategy for disaster reduction;
- Mudflow forecasting, monitoring and early warning;
- · Public information, education and training;
- Legislative support and land-use management;
- Integration of land-use planning in the national development planning process;
- Organization of search and rescue, evacuation and relief;
- Emergency planning;
- Post-disaster assessment.

Some of these topics have been covered in the preceding chapters; others will be discussed in the following sections with regard to the technical aspects of disaster management

7.2. Social aspects of disaster management

Poverty

Vulnerability to disasters could be reduced if the capacities of the populations at risk were not limited by poverty. Disaster studies show that in general the wealthiest segments of the population either survive a disaster unaffected or are able to recover from it quickly. Poverty contributes significantly to vulnerability. It often forces people in urban areas to live in zones of high hazard risk, areas prone to mudflows and landslides, or to settle on low river banks which are often flooded. Poverty forces many people to move from homes in areas of low risk to other parts of the country

which may be hazardous zones, making them the first to suffer from disasters. They are often even forced to look beyond the borders of their home country in their search for better jobs, better living conditions or even simply for economic survival, posing new challenges to modern society as refugees and displaced persons.

Population growth

There is a direct relationship between population growth and the increase in losses from disasters. As population grows, larger numbers of people are competing for a limited amount of resources, land and employment opportunities. This limitation of resources can lead to overcrowding, conflicts and migration. The demographic explosion is predominantly observed in developing countries (Fig. 7.2).

Rapid urbanization

There is also a direct relationship between rapid population growth and migration, and growing urbanization, especially 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 growing numbers of urban poor people increasingly find fewer options for safe and desirable places to live. Here again, overcrowding and competition for scarce resources, which are inevitable consequences of rapid urbanization, can lead to man-made disasters. Many landslide and flood disasters are closely linked to rapid and unchecked urbanization, which forces low-income families to settle in hazardous areas. Many disaster victims in urban areas are impoverished families whose houses have been destroyed, often by landslides.

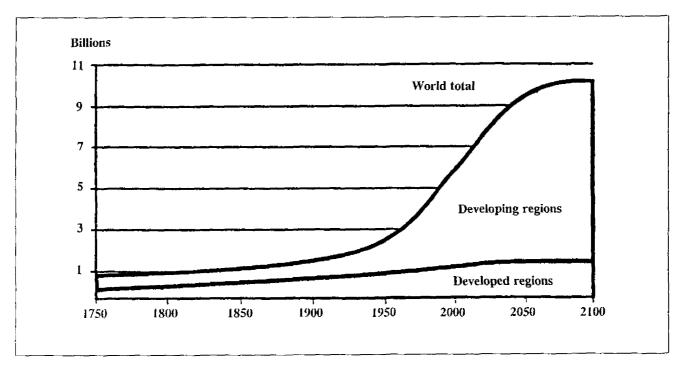


FIGURE 7.2 Population growth, 1750-2100 Source Thomas Metrick, et al., "World Population in Transition", Population Bulletin, vol. 42, No. 2 (1986).

Transitions in cultural practices

Societies are in a continual state of change and transition over time. Many of these inevitable changes lead to an increase in the society's vulnerability to disasters. The transitions are often extremely disruptive and uneven, leaving gaps in social coping mechanisms and technology, which become evident in disaster emergency situations. Typical examples are nomadic and rural people who move to urban areas and from one social environment to another. More broadly, these examples are typical of a transition to an industrialized society. The impact of these transitions is better seen in the introduction of new construction materials and building designs in a society that is accustomed to traditional materials and designs. The latter are often more appropriate to local economic and social conditions and may lead to increased vulnerability of the population. In a newlyformed community, the disaster survivors may not have a social system or network to assist in the relief and recovery from the disaster. The traditional coping mechanisms may be forgotten in the new setting, and the population becomes increasingly dependent on outside help in this process. Transitional cultural practices can also lead to civil conflict, for example, as a result of communal violence triggered by religious differences and traditions.

Lack of awareness and information

Disasters often occur because people in a vulnerable area simply do not know how to take precautionary measures. They will not be aware of safe evacuation routes and procedures, or where to turn for assistance in times of acute need. Such uncertainty is most often the result of a lack of awareness concerning hazards in the area and what measures can be taken to build safe structures in safe locations. In other disaster-prone societies, there is a traditional understanding about disaster threats and responses. This understanding should be incorporated into any efforts for self-organizing in emergency situations.

7.3. Public information and education

7.3.1. General remarks

The primary purpose of public information and education is to generate interest among the local people towards disaster mitigation practices. Disaster awareness facilitates quick dissemination of warning messages and evacuation in the face of an imminent mudflow. People knowledgeable about mudflows and the possible structural and non-structural measures which will mitigate their destructive effects can play an effective role in a mudflow disaster mitigation and prevention programme.

Information about the mechanisms of mudflow should be included in the curriculum of all schoolchildren living in areas vulnerable to such hazards. The general public should be briefed about the mudflow hazard in their area at a community gathering. A simple hydraulic model demonstration such as that shown in

Figure 6.3 (Chapter 6) is usually of interest to the public because they can see for themselves how a mudflow occurs.

The public can also be informed about mudflow hazards through pamphlets. An example of such a pamphlet distributed to people entering the hazardous area around Mt. St. Helens is reproduced in Appendix C.

The importance of properly informing inhabitants of a hazardous area about mudflows is clearly illustrated by the case of the town of Armero, Colombia, destroyed by the 1985 Nevado del Ruiz mudflow. Despite the fact that a volcanic hazard map clearly showing the areas vulnerable to volcanic mudflow disasters was available, the people at risk were not properly informed of the danger. Consequently, most of them were unaware of what action to take in the event of a mudflow, and as a result many lives which could have been saved were lost. (See Chapters 6 and 8 for additional details.)

7.3.2. Teaching material

The following topics should be covered in public information and education schemes:

(a) Disaster history

The history of disasters in the local region can provide valuable accounts of the magnitude of the past events, the extent of damage and the experiences of survivors. Teaching material based on the historical information should identify safe spots and access routes. Precursor phenomena should be clearly described.

(b) Causes and mechanisms of mudflow

Knowledge about the causes and mechanisms of mudflows can help people to understand the conditions under which a mudflow is likely to take place. Hence, they can react more knowledgeably when an evacuation order is issued in an area exposed to mudflows following volcanic activity or sustained rainfall.

(c) Shelters and routes for evacuation

The location of shelters and evacuation routes should be well publicized. This will facilitate a systematic evacuation during an eventual mudflow.

(d) Role of leaders

The people who are expected to take up leadership roles during evacuation and relief operations should be properly trained to perform their roles effectively during a mudflow emergency. They should be taught how to take rational action and to prevent panic among the population facing a mudflow disaster.

(e) Warnings and their dissemination

The population should be informed in advance about how warning messages will be disseminated and what to do on receiving such messages.

(f) Evacuation exercises

As noted previously, evacuation will not work in a real disaster emergency if it has not been rehearsed by responsible officials, emergency organizations and the population at risk. (See Section 6.6 of Chapter 6 for guidelines on how to carry out an evacuation exercise.)

7.4. Strategy for institutional design

There are several important steps in the design of institutional arrangements for disaster reduction. The governmental framework for disaster management should have the potential and the will for change and improvement as the knowledge of disaster management grows and local communities become more self-reliant with increasing social and economic development. The government should recognize the potential for disaster mitigation and preparedness and undertake its coordination at the national, regional and community levels. The government should provide an example of disaster mitigation practice by establishing appropriate procedures. For effective disaster preparedness and risk reduction a clear allocation of roles and responsibilities is essential, as well as the clear distribution of tasks between the central, provincial and local governments, and the implementing agencies.

The fact that countries operate in different economic and political environments needs to be taken into account in considering the required institutional arrangements. Both the international and national political situation as well as the state of the national economy may be crucial issues which predetermine national priorities.

7.5. Policy appraisal

All government policy issues need to be assessed to prevent the build-up of vulnerability caused by the unintended effects of economic and social development. Development structures must be examined to ensure that they are not increasing the vulnerability of the given area. Sectors requiring specific attention in this regard are agriculture, building codes and regulations, land-use planning, infrastructural and community development, social security support services, forestry, and water resources, among others.

Governmental policy on risk reduction should provide clear answers to questions such as is any aspect of governmental policy contributing either directly or indirectly to the settlement of hazardous areas, or to exacerbating the vulnerability of communities occupying those areas? What modifications are required to existing development strategies in order to reduce that vulnerability?

Evaluating the effectiveness of disaster mitigation must take into consideration existing government policies, practices and institutions A government may change its policies to others which at first sight do not appear relevant to disaster management. For example, subsidies for agricultural development in disaster-prone areas may be cut, but then reestablished in less disaster-

prone areas to which people will thereby be encouraged to move. The same type of argument applies to many other public programmes aimed at reducing national vulnerability and general exposure to hazards.

7.6. Legislation for land-use management

Systematic hazard and risk analysis can contribute significantly to risk reduction through the application of land-use policy. One of the principal objectives in the establishment of DHA was to assist countries to justify and initiate the studies required for such analyses in order to promote the formulation of national disaster reduction policies and programmes (see Section 7.10.1 for additional details)

The following information, which is essential for the preparation of disaster management plans, should be made available at the national level:

- 1. National hazard maps. It may turn out to be more cost-effective to begin the preparation of national disaster preparedness and mitigation plans by adopting an "all-hazard approach". That is, to take into consideration all possible hazards which might occur in an area and assigning to each of them relevant priorities based on specific studies for fast-onset natural hazards (such as earthquakes, rock avalanches, mudflows, landshdes, and floods), slow-onset natural hazards (desertification, deforestation and increase of runoff patterns, erosion, siltation, etc.), and hazards which could be man-made (for example, dam failure, chemical pollution, fire).
- 2. National risk analysis maps indicating major existing developments and elements at risk, including detailed demographic data.
- 3. National risk analysis maps indicating major planned developments and elements at risk, including detailed demographic assessments and changes.
- 4 National risk analysis maps indicating all key facilities, facilities for the production of hazardous materials, lifelines and population concentrations at risk.
- 5. Disaster management strategy documents and procedures, indicating priorities for risk reduction programmes.
- 6. Land-use maps to help determine structural elements at risk in disaster-prone areas, as well as to provide information required for use in risk analysis and land-use zoning.
- 7. Local land-use zonation and building codes for disaster-prone areas, integrated into the national land-use zonation and building codes
- 8. Once priorities have been established for risk-reduction programmes, regional and local hazard and risk analysis maps should be prepared, as well as land-use maps.

It should be stressed that the national, regional, subregional and local preparedness and risk-reduction plans should form an integral part of the development plans of the country.

7.7 Integration of land-use zoning into the comprehensive planning process

The function of land-use planning is to determine the types and amount of land-use needs, thereby determining a total land-use pattern for urban and rural development. Land-use zoning should be introduced into comprehensive planning in order to distribute available resources according to national priorities set up to achieve social and economic planning goals

Land-use zoning becomes a crucial issue for disaster prevention, and it is particularly important that it be regulated in disaster-prone areas. Poor and non-existent control in hazardous areas maintains the risk of natural hazards at unnecessarily high levels and has a cumulative effect, magnifying disaster risks over time. The private sector may be unaware of the existence of specific risks in given locations and may develop lands against its own interests. Land-use planning helps in decisionmaking concerning the sites of important public and private industries, it determines the proper uses of land and promotes the coordination of investments made by both the government and the private sector in hazard-prone areas. It may include requirements for open space and force established industries to move from hazard-prone areas, limit the height of buildings or prohibit certain types of housing, depending on the types of hazards faced.

Land-use zoning is a type of non-structural measure. In general, non-structural measures are much less costly as compared with structural ones, as mentioned in Chapter 4, although they require a much more selective approach concerning the application of global knowledge and experience. Land-use regulations are easier to implement before major industrial installations become operational. Changing the regulations afterwards may involve substantial additional funds for making any adjustments. Regulations may be especially problematic within existing settlements. Relocation of neighbourhoods or settlements may also have negative consequences in socio-economic terms. Laws and regulations are essential for disaster reduction practice, because they establish safety standards and constitute a core element for public education and training, since preventing disasters is, in many instances, neither technically nor economically feasible. It is only through appropriate land-use zoning, physical planning, urban design and construction measures that it may be possible to offset the effects of severe hazards in a world of rapid urbanization and population growth

There are persistent problems in the introduction and use of public laws and regulations for the purpose of disaster management. Sometimes, they are hastily drafted and enacted after a disaster in order to lessen political pressure. They may even be based on inappropriate models irrelevant to the culture. Another problem concerns law enforcement. Many poor countries simply cannot afford to set up an adequate system to control and enforce the regulations. Consequently, legal controls lose essential public respect. There is also the problem of poverty. New standards and building codes require additional expenditures and are often wrongly consid-

ered irrelevant to the needs of the poor By contrast, the poorest people are among the first to benefit from clear land-use zoning and the exclusion of hazardous areas for all kinds of settlements.

7.8 Rescue and relief

The highest possible priority should be given to the rescue of survivors in the immediate aftermath of a mudflow. Food and shelter must also be provided for them. The availability of personnel, equipment and material for rescue and relief may be quite limited, if not non-existent in a remote mudflow-stricken area, unless relief measures have been planned in advance. This is often the case in many poor countries. Furthermore, if the base of the relief operations is far from the affected area a quick relief operation is often hampered, if not impossible.

A fresh mudflow deposit is usually too soft to bear the weight of rescue staff and equipment unless the debris consists mostly of large boulders and stones. Hence, planks, sheets of plywood, doors, etc., must be used as supports. The use of heavy earth-moving equipment such as bulldozers can be ruled out in most cases. Helicopters are suitable for bringing in rescue personnel and equipment, to deliver relief goods, and to rescue those trapped by a mudflow on hillocks or roofs

Ropes, shovels, chain-saws, water pumps, picks, axes, and the like are useful for recovering people caught in mud and debris. An abundant supply of water is needed in order to remove mud from the victims' bodies. First-aid kits should be available for immediate rescue and relief operation. A good communications network between the operations centre, the field office, workers and pilots is of vital importance. Since normal communication lines are frequently destroyed, alternative communications via radio or satellite link should be foreseen and organized.

In a major mudflow disaster, the relief operation often requires the help of the civil defence organization, the army, the police, government offices and international organizations. Therefore, coordination and smooth information flow are very important. Since further mudflow discharges may occur, necessary precautions should be taken for this eventuality

7.9 Damage assessment

Damage assessment should be carried out immediately after the rescue and relief operations have been completed. The purpose of damage assessment is to collect data on the extent of both human and material losses and damage, to identify the causes and mechanisms of the mudflow and to decide upon the necessary measures for reconstruction and rehabilitation. The findings can provide valuable guidance for the planning of preventive structural and non-structural measures for the mitigation of future mudflow disasters.

A comprehensive damage assessment would include the collection of the following types of information:

A. Human losses. Number of:

- A 1. Dead (bodies counted and identified).
- A.2. Missing (whereabouts unknown).
- A.3. Severely injured (loss of one or more limbs, sight or hearing, or requiring hospital treatment for more than one month).
- A.4. Injured (requiring admission to hospital for less than one month).
- A.5. Lightly injured (injuries which can be treated by first-aid workers without further assistance).

B. Loss of dwellings. Number of housing units:

- B.1. Completely vanished.
- B.2. Partly vanished, by percentage (75%, 50%, 25%).
- B.3. Completely destroyed.
- B.4. Partly destroyed, by percentage (75%, 50%, 25%).
- B.5. Completely demolished because of damage.
- B.6. Partly demolished because of damage, by percentage (75%, 50%, 25%).
- B.7. Completely buried.
- B 8 Partly buried, by percentage (75%, 50%, 25%).

C. Personal belongings. Monetary value of:

Household effects and valuables in houses destroyed, demolished, rendered unusable or damaged by mudflow.

D. Agricultural losses Hectares/tonnage/monetary value of.

- D.1. Arable land destroyed, rendered unusable or lost, or covered with infertile material.
- D.2. Arable land damaged, rendered temporarily unusable by flooding, etc., but restoration to normal use expected by next ploughing/planting season.
- D.3 Commercial timber lost.
- D.4. Growing crops—total loss, no harvest possible.
- D.5. Growing crops—harvest partly unrecoverable by percentage (75%, 50%, 25%).
- D.6 Harvested crops—total loss.
- D.7 Harvested crops—partly destroyed or rendered unusable, by percentage (75%, 50%, 25%).

E. Livestock. Number of:

- E.1. Dead (carcasses counted).
- E 2. Missing (whereabouts unknown).
- E.3. Affected (animals for which food and water are not available).

F Public works. Number of those:

- F.1. Out of service (physical damage to buildings and/or equipment on a scale which will require 14 days or more to repair).
- F 2. Unusable (physical damage requiring less than 14 days to repair).
- F.3 Partly usable (reduced service possible).

G Lifeline services:

- G.1. Railways (damaged/destroyed length).
- G.2. Roads (damaged/destroyed length).
- G 3. Key bridges (number of damaged/destroyed bridges).
- G.4. Irrigation (length of damaged/destroyed canals).
- G.5. Electricity (extent of damage; i.e., whether totally or partly destroyed and the possibility of intermittent service).
- G.6. Gas (extent of damage).
- G.7. Water supply (extent of damage)
- G.8. Sewerage (extent of damage)

H. Distribution and depth of debris material (area and depth):

The distribution and depth of the following debris material should be mapped and the map should be supplemented by informative photographs:

- H.1. Boulders.
- H 2. Stones.
- H.3. Gravel, sand or silt.
- H.4. Mud or clay.
- H.5. Driftwood.
- H.6. Miscellaneous debris (e.g., remains of vehicles, houses, bridges, etc., destroyed and transported by the mudflow).

I. The following data are also essential:

- I1. Rainfall data.
- 1.2. Distribution of slope failures.
- I.3. Location and size of natural dams.
- I.4. Location and size of landslides.
- I.5. Precursor phenomena identified.

7.10. International organizations dealing with disaster management

The mandates of several departments, agencies and organizations of the United Nations system include one or more aspects of disaster management at the international level, including the provision of humanitarian support in disaster mitigation as well as emergency relief and response. Among these are the United Nations Department of Humanitarian Affairs (DHA), the United Nations Children's Fund (UNICEF), the World Food Programme (WFP), the United Nations High Commissioner for Refugees (UNHCR), the World Health Organization (WHO), the United Nations Development Programme (UNDP), the Food and Agriculture Organization of the United Nations (FAO), the World Meteorological Organization (WMO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO). Intergovernmental organizations such as the International Organization for Migration (IOM) and the Federation of Red Cross and Red Crescent Societies, as well as many international non-governmental organizations (NGOs) also deal with various aspects of disaster management. The International Decade for Natural Disaster Reduction (IDNDR), proclaimed in 1989, provides a promotional and conceptual umbrella for concerted international action during the 1990s for prevention, preparedness and

mitigation of natural, technological and environmental disasters. The IDNDR Secretariat is an integral part of the UN-DHA.

7.10.1 United Nations Department of Humanitarian Affairs (DHA)

The mission of the Department of Humanitarian Affairs is to reduce human suffering and material damage caused by natural and man-made disasters through coordinating and mobilizing the collective efforts of the international community for effective disaster mitigation and emergency relief DHA's mandate comprises both pre- and post-disaster activities such as preparedness and mitigation planning, promotion of disaster awareness, emergency relief and coordination of the relief response, and analysis and exchange of knowledge related to either natural and technological disasters or humanitarian action in conflict situations. The Emergency Relief Coordinator (Under-Secretary-General for Humanitarian Affairs) provides the Secretary-General's authority and leadership for DHA's objectives.

Within DHA, the task of pre-disaster reduction rests with the Disaster Reduction Division (DRD), which brings together the Secretariat for the International Decade for Natural Disaster Reduction (see Figure 7.10.3) and DHA's Disaster Mitigation Branch (DMB). This Branch plays a major role in the planning and consultancy support of technical measures related to the assessment, prediction and mitigation of disasters at the country level. Among these activities are: (i) identifying those disaster scenarios which represent the greatest risks, and providing advisory services on risk assessment and the application of emergency preparedness methods at the country level; (ii) the selection of disaster mitigation projects as required and which are compatible with the national interest of the country: (iii) to facilitate the application of disaster mitigation practices with a primary focus at the national level, which demands close cooperation not only with the country concerned, but also with other related United Nations executing agencies; (iv) to promote and increase public awareness of the need for establishing disaster mitigation strategies, through conferences, seminars, etc.

Disaster relief activities are carried out through the Relief Coordination Branch (DHA-RCB) whose task is to coordinate international efforts to provide assistance and material for emergency relief and rescue operations.

The Disaster Management Training Programme (DMTP), jointly managed by DHA and UNDP, was launched in response to the need to provide training in the management of natural and man-made disasters. This programme has been in operation since 1990. The principal objectives of the DMTP are to: (i) raise awareness and provide a framework for global disaster management training; (ii) promote and provide advice on the formulation of projects to mitigate the impact of disasters; (iii) improve field coordination by increasing the cohesion and professionalism of the UN and other partners (nationals, NGOs, donors) in emergency management; and (iv) promote and develop a general understanding of the continuum within which disaster management and development are interlinked.

7.10.2 United Nations Disaster Management Team (UNDMT)

A number of UN agencies have special responsibilities and capabilities relating to disaster mitigation and management. UNDP, DHA and representatives of other UN agencies present in the field seek to ensure that all concerned work together in harmony and use their expertise and resources to best effect in helping people to minimize suffering and material loss in disaster-prone areas. United Nations Disaster Management Teams (UNDMT) are formed in each disaster-prone country

Disaster-related roles of the members of the UN Disaster Management Team (DMT)

UNDP Promotes the incorporation of disaster mitigation into development planning, and funds technical assistance projects for all aspects of disaster management. Provides administrative support to the Resident Coordinator and the DMT.

FAO Provides technical advice in reducing vulnerability and in the rehabilitation in the agriculture, livestock and fisheries sectors, with emphasis on local food production. Monitors food production, exports and imports, and forecasts any requirements for exceptional food assistance.

DHA Provides consultancy services and guidance on risk assessment and in planning long-term programmes for disaster preparedness and mitigation. Mobilizes and coordinates international emergency relief assistance and issues consolidated appeals. Assists in relief management and damage assessment if required.

UNHCR Assures the protection of refugees and seeks durable solutions to their problems. Helps to mobilize the delivery of necessary assistance in the country of asylum if it is a developing country.

UNICEF Promotes the well-being of children and women, especially in the areas of child health and nutrition. Assistance includes social programmes, child feeding (in collaboration with WFP), water supplies, sanitation and direct health interventions (in collaboration with WHO). Provides related management and logistical support.

WFP Provides 'targeted' food aid for humanitarian relief, and supports rehabilitation, reconstruction, and risk-reducing development programmes. Mobilizes and coordinates the delivery of complementary emergency and 'programme' food aid from bilateral and other sources.

WHO Provides advice and assistance in all aspects of preventive and curative health care, including preparedness of health services for rapid response to disasters.

comprising representatives of UN agencies which have a specific mandate in emergency situations and are therefore present in the country at either the pre- or post-disaster stage. The UNDMT supports the government of the country in all aspects of emergency management. The composition of a UNDMT is determined by the types of disasters to which the country is prone and by the UN organizations present in the country. The teams normally include the country representatives of DHA, FAO, UNDP, UNHCR, UNICEF, WFP and WHO. They may be enlarged to include additional representatives or project personnel from other relevant agencies when required. The UNDMT is the leading component of the United Nations system for coordination at the field level for both pre- and post-disaster activities.

7.10.3 International Decade for Natural Disaster Reduction (IDNDR)

The IDNDR was created on the basis of an international initiative. Its objective is to promote concerted action to reduce the loss of life, damage and social disruption caused by natural disasters, especially in developing countries. The General Assembly of the United Nations endorsed this initiative in 1989, and proclaimed the International Decade for Natural Disaster Reduction (1990-1999). In May 1994, the World Conference on Natural Disaster Reduction was held in Yokohama, Japan, which adopted the Yokohama Strategy and Plan of Action for a Safer World, calling for the IDNDR to provide a global framework for disaster reduction. The goal of the Decade is to mobilize governments, industry, the mass media and other groups to work together in a concerted effort to reduce the suffering and negative economic impact of natural disasters.

Among the major accomplishments in the first year of the Decade was the creation of 185 IDNDR National Committees at the country level, usually composed of ministers and government authorities responsible for social security, defence, finance, environmental monitoring, civil engineering and housing. The purpose of the National Committees is to promote and coordinate the activities of the Decade within their respective countries. Mitigating the impact of natural disasters must be under-

taken at both the national and regional levels. It is the task of the National Committees to bring together national and local experts along with those organizations which deal with disaster mitigation, in order to facilitate effective interaction with national, regional and international mitigation programmes.

The IDNDR Secretariat is based in Geneva, Switzerland. The Secretariat was made an integral part of DHA in order to continue to bring closer together both operational and promotional efforts in disaster preparedness and mitigation, thus paving the way for the successful attainment of the goals and objectives of the Decade.

7.10.4 Disaster Reduction Division of DHA (DRD-DHA)

The Disaster Mitigation Branch (DMB) and the IDNDR Secretariat have been consolidated to form the Disaster Reduction Division of DHA (DRD-DHA) under the responsibility of the Director of the IDNDR Secretariat in order to achieve improved efficiency in disaster reduction as well as cohesion between targeted disaster reduction activities at the country or regional level carried out by DMB, and those based on strategic approaches of the problem at the inter-country and international levels undertaken by the IDNDR Secretariat.

The DRD is also responsible for the advocacy and application of disaster reduction measures (encompassing preparedness, mitigation and prevention activities) in all disaster-prone countries. DRD activities are multisectoral and inter-disciplinary efforts to strengthen national commitments for the benefit of communities exposed to natural hazards. Effective attainment of this is a result of cooperation with countries concerned and coordination among the UN agencies, donors and technical, international, intergovernmental and nongovernmental organizations.

DRD addresses disaster reduction needs using a twofold approach: through promotion of disaster preparedness (IDNDR) and application of disaster mitigation knowledge and practice (DMB). Thus, DRD represents DHA at the pre-disaster stage in the area of support and coordination within the international framework of related policy development.

CHECK-LIST



Disaster risk reduction planning check-list

Awareness and analysis of risks and options

In order to assess the disaster mitigation needs, policies, and capabilities of a given country, an informed judgement must be made concerning likely hazards and their effects, the adequacy and cost-effectiveness of existing risk reduction and preparedness measures, and the ability of all concerned to act on these measures. The check-list below shows what factors to consider in making this appraisal.

What is the level of awareness of the hazard-related risks among officials in

	central planning and sectoral bodies?
	What impact have disasters (and all forms of hazard impacts) had on devel- opment efforts and on the situation of the most vulnerable groups in society?
	Have data on known hazards (natural and man-made) been analysed? Have hazard maps been prepared? Are the data and maps updated as hazard conditions change, or as new populations or economic activities move into the hazard-prone areas?
	Have the populations, infrastructure, agricultural and industrial economic assets, essential services, and development programmes and investments a risk been fully identified?
	Have specific estimates been made of the likely social and economic impact of each type of hazard on the various elements at risk and on the society as a whole?
	What measures have been taken, or are planned, to reduce the risks? How effective are they? Have additional specific measures been identified as feasible options? Why have they not been adopted or implemented as yet?
rs.	National policies towards disaster risks and development planning
_	and the second s
	Are hazard-related risks considered in development planning? Is there a policy for risk reduction: At the national level? For specific disaster-prone areas?
	policy for risk reduction: At the national level? For specific disaster-prone
	policy for risk reduction: At the national level? For specific disaster-prone areas? Are there institutional mechanisms to integrate risk concerns into develop-
	policy for risk reduction: At the national level? For specific disaster-prone areas? Are there institutional mechanisms to integrate risk concerns into development planning and ensure intersectoral coordination? If/when new human settlements are planned, are natural hazards and risk of
	policy for risk reduction: At the national level? For specific disaster-prone areas? Are there institutional mechanisms to integrate risk concerns into development planning and ensure intersectoral coordination? If/when new human settlements are planned, are natural hazards and risk of disasters considered, and appropriate measures built into the planning?
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13	Warning and other preparedness measures
	Are mechanisms in place which can issue warnings of disaster threats to populations at risk? Are warnings given with sufficient lead time? Do they make clear the risks involved and the action to be taken?
	Are there established arrangements at the local and national levels? Are all concerned aware of their responsibilities, the procedures to follow and arrangements for coordination? Are these plans widely understood and regularly tested?
	Are there adequate communications systems, including backup systems, for use in disaster response?
ŒŜ	Human resources for disaster management
	Is there a training programme for disaster managers?
	Is there a public information and education programme?