Chapter

1

Living with risk - focus on disaster risk reduction

1.1 Setting the scene: understanding disaster risk reduction

The power and drama associated with natural disasters have always fascinated people. Prior to the widespread use of global communications, disasters seldom had the possibility to influence decisions and events beyond the area of immediate impact. The initial reaction of people who were not immediately affected by the tragedy was to organize urgent specialized services or other forms of help to respond to the needs of the victims.

This chapter intends to set the scene and discuss the strategic shift from disaster management practices towards an integrated disaster risk reduction approach in the context of sustainable development, including the following:

- *natural disasters shaping the agenda;*
- *learning risk reduction values from earlier societies;*
- *the shift towards disaster reduction;*
- *International Decade for Natural Disaster Reduction (1990-1999);*
- *International Strategy for Disaster Reduction;*
- *disaster risk reduction: a shared responsibility;*
- *understanding the meaning of disaster and risk reduction; and*
- *defining a few key terms.*

For more information on trends in hazards, vulnerability and disaster impact, see chapter 2.2.

Natural disasters shaping the agenda

In the final years of the 1990s, several powerful natural disasters occurred in different parts of the world, in countries large and small, industrialized or agrarian, technologically sophisticated or traditionally focused. The types of natural hazards that triggered these disasters varied from the seemingly unexpected occurrence of earthquakes, to more predictable seasonal floods and periodic storms.

Other less immediate and slowly evolving hazards such as drought and environmental degradation affected even more people with potentially greater costs for their future. More than anything else, the media images of natural disasters at the close of the 20th century underscored the human consequences and social dimensions of these events.

One need only recall the power of Hurricane Mitch that damaged up to 70 per cent of the infrastructure in Honduras and Nicaragua in 1998, devastating the economies of all the Central American countries, which are yet to recover fully.

One year later, the worst cyclone in 100 years hit the Indian state of Orissa, affecting ten times as many people as Hurricane Mitch, destroying 18,000 villages in one night. At the end of 2001, the powerful typhoon Lingling caused extensive damage and over 500 fatalities in the Philippines and Viet Nam.

Floods of a previously unremembered scale occurred several times in the past ten years; in Bangladesh, China and Southern Africa, famously in the latter case where people had no recourse but to seek safety in trees. In 1999, Mexico experienced its worst floods since 1600. Almost 300,000 people were made homeless.

In 2002, unprecedented flooding occurred in many countries, with particularly severe events causing losses of more than US$ 15 billion in European countries in the Elbe, Danube and Vltava river basins. In August 2002, the World Meteorological Organization (WMO) stated that "floods in more than 80 countries have killed almost 3,000 people and caused hardship for more than 17 million worldwide since the beginning of the year".

The trend during the last three decades shows an increase in the number of natural hazard events and an increase in the number of affected populations. However, even though the number of disasters has more than tripled since the 1970s, the reported death toll due to these disasters has halved.

Despite losses of US$ 30 billion in 2000, an amount that is only moderate in comparison to the average annual loss of the past decade, both the number of major natural disasters and their costs have increased rapidly in recent years.

In 2000, the insurance industry recorded 850 major loss events in the world, one hundred more than the previous record year in 1999. While the losses recorded in 2000 were lower than the US$ 100 billion incurred in 1999, they provide little comfort to the overall trend during the past decade. Overall, the 84 great natural disasters recorded in the 1990s number three times as many as those that occurred in the 1960s. Moreover, the combined economic loss of US$ 591 billion in the 1990s was eight times greater than that of the 1960s.

Ten thousand people died in natural disasters in 2000, compared to more than 70,000 in the previous year, or over 500,000 in the previous ten years. These figures must be treated with caution, as the accompanying social and economic cost of disasters is difficult to estimate.

By and large, insurance claims tend to be misleading as an estimate of the economic impact of disasters. For the 1999 floods in Austria, Germany and Switzerland, at least 42.5 per cent of damage was covered by disaster insurance. But in Venezuela the same year, only four per cent of flood damage was covered.

Generally, disaster statistics tend to be more precise on a smaller scale; in particular on the national and regional level where the evaluation of damages is undertaken in a more systematic manner, based on agreed methodologies.

However, this is not the case in all regions and notably in Africa, where the lack of coherent disaster-related figures means the impact of disasters is highly underestimated. In addition, large disasters receive much media attention and the setbacks that these events create in the development process are well noted. Some experts estimate that if the economic impact of the smaller, localized, but often recurrent disasters were assessed, all of these figures would be much higher.

These statistics also do not appropriately reflect the millions of poor people whose lives are indirectly disrupted by the economic impact of natural disasters. Their ability to raise a modest income is reduced and the prospect of escaping poverty postponed. Similarly, the loss of women's

Figure 1.1

Economic and human impacts of disasters*, 1973-2002
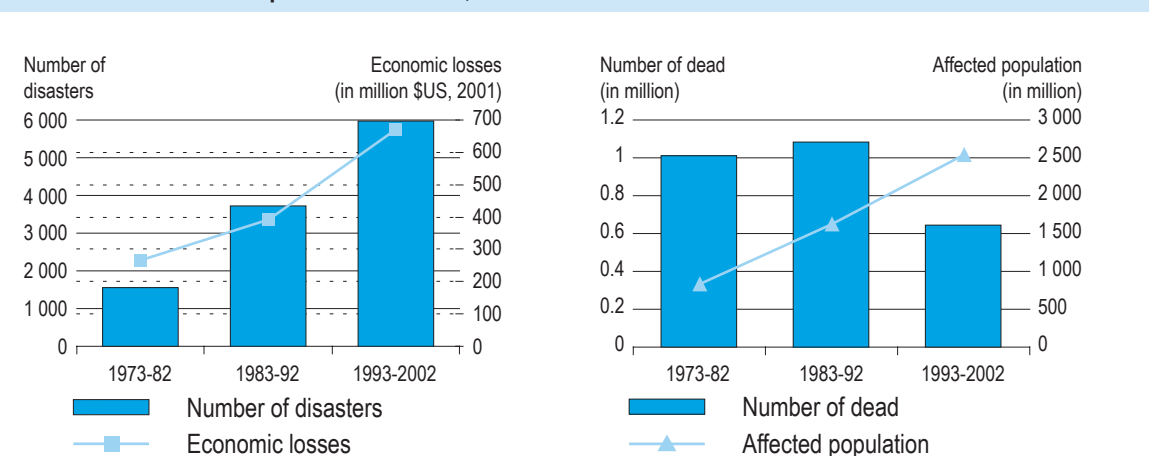
Source: EM-DAT: The OFDA/CRED International Disaster Database - www.em-dat.net - Université Catholique de Louvain - Brussels - Belgium, 2004
*Note: Includes drought, earthquake, epidemic, extreme temperature, famine, flood, industrial accident, insect infestation, miscellaneaous accident, land/debris-slides, transport accident, volcano, wave/surge, wildfire and windstorm.

home-based work space, supplies and equipment can have serious repercussions for the household economy but these losses to workers in the informal sector are rarely documented. While all of these losses may be modest in absolute economic terms, they are socially devastating.

There is a demand from the development sector for reliable and systematic data on disasters to assess socio-economic impact in the short term. In the long term there is a need to measure the consequences of the many smaller and unrecorded disasters. While attempted in limited areas, a need remains to document consistently these losses that are often recurrent and that are eroding the capacities of communities to grow and develop.

Whatever the scope of a hazard to induce a crisis, it is now widely understood that prevailing conditions within any group of people in a society determine the extent of their susceptibility or resilience to loss or damage.
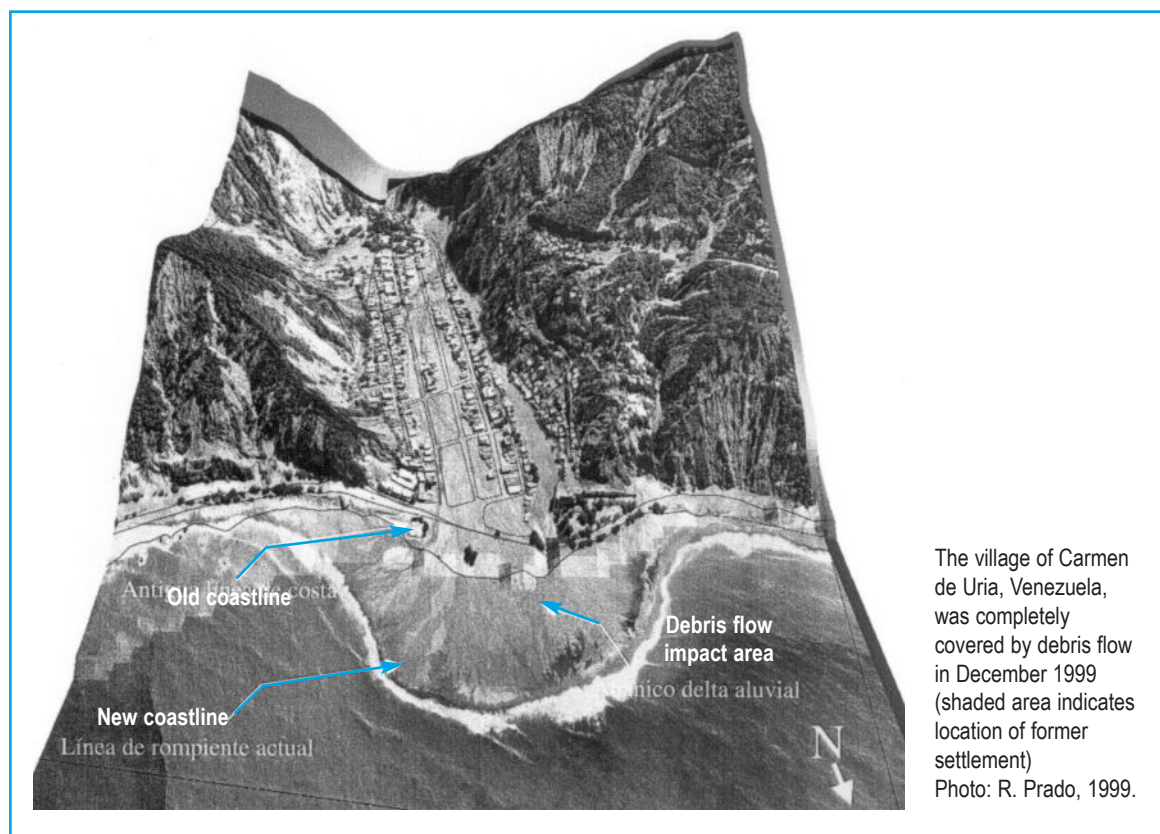
There is recognition across a growing number of professional fields and in some governments that different population segments can be exposed to greater relative risks because of social or economic inequalities that create more vulnerable everyday living conditions. Because of this, disaster reduction

has become increasingly associated with practices that define efforts to achieve sustainable development.

The relationships between human actions, environmental stewardship, climate change, and disaster risks are becoming ever more crucial. Disasters not only affect the poor and characteristically more vulnerable countries but also those thought to be well protected. In recent years, Canada, Czech Republic, France, Germany, Poland, United Kingdom and United States experienced record-setting floods of such magnitude that previously accepted procedures for protection and the utility of structural barriers have had to be re-evaluated.

The El Niño/La Niña events of 1997-1998 were the most intense occurrences of the cyclical climatic variation during the 20th century. Beyond representing costly economic variations to normal climate expectations, these events also created conditions around the world which led to extensive flooding, extended drought conditions and widespread wildfires.

The extraordinarily heavy rainfall associated with Hurricane Mitch caused a landslide at the Casita volcano in Nicaragua that was 18 kilometres long and 3 kilometres wide. It totally destroyed three

Old coastline

New coastline

Debris flow impact area

The village of Carmen de Uria, Venezuela, was completely covered by debris flow in December 1999 (shaded area indicates location of former settlement)
Photo: R. Prado, 1999.

towns and killed more than 2,000 people. In 1999, torrential rains triggered the landslide of denuded and unstable slopes in Venezuela resulting in more than 20,000 fatalities.

Less than two years later, one of the earthquakes in El Salvador caused a landslide that buried almost 700 houses of a well-established neighbourhood. While the houses may once have been safely situated, uncontrolled development or unregulated land-use practices such as deforestation and slope-mining on the hill above them created a hazardous situation that might have been avoided. Other earthquakes of recent years in Algeria, Colombia, El Salvador, Greece, India, Italy, Peru, Taiwan (Province of China), and Turkey have also shaken complacent official views about building practices.

The most severe winter storms in a century swept through Canada in 1998, through Western Europe in 1999, and the following year in Mongolia, with even greater loss of livelihoods and longer-term consequences because of the decimated flocks of nomadic herders. In 2001, disastrous floods and mudslides caused more than 800 fatalities, most extraordinarily in the Algerian capital, Algiers.

The economic and public health consequences of uncontrolled wildfire and related conditions of severe atmospheric pollution proved to be widespread and severe, blanketing neighbouring areas in Central and North America, South-East Asia, Southern Europe, and Australia.

In general, in these cases, the drama of such disasters and the urgent international activity to provide emergency relief commands the attention of the international media for only a few days. However, the consequences of disasters last much longer and are more poignantly measured in isolation – lives lost, livelihoods disrupted, property destroyed and environments damaged. These losses impede human development and often erode previously hard-won individual and national accomplishments. They also compromise current and future resources upon which societies and future generations depend.

Learning risk reduction values from earlier societies

There are early historical examples of societies protecting their people and their important resources. This was accomplished first by anticipating potential catastrophes based on knowledge of hazardous conditions and possible destructive events, then by investing in protective measures.

Almost 2,000 years ago, the Chinese invented an ingeniously simple seismograph that indicated the direction of the epicentre and measured the force of earthquakes. Over more than 1,000 years, the Chinese constructed protective dykes in anticipation of the annual flooding of the Yangtze and other major rivers.

The Incas, living in the Andes between the 13th and 15th centuries, took great care to create terraces on steep slopes to conserve the scarce soil and water necessary for their crops. Many of these terraces remain today, as do similar constructions maintained for over 1,000 years in the mountain provinces of Indonesia and the Philippines.

Low-lying countries in Northern Europe, such as the Netherlands, are famous for constructing an extensive system of sea dykes that have both reclaimed land and protected inhabitants from flooding since the 18th century.

Structures were also built elsewhere to provide protection from floods. Embankments in Shanghai, China and similar constructions in Singapore have protected lucrative commercial and port activities since the middle of the 19th century.

In Viet Nam, villagers have been obliged over the centuries to clean, repair and strengthen their crucial irrigation channels and sea dykes prior to the start of every annual cyclone season. This has been recognized as a necessary precaution to ensure the continued cultivation of rice, on which the society has always depended.

Anticipating the consequences of drought and seeking to invoke protective measures against famine, officials in India devised policy measures and risk reduction practices from an early period. An early example of such foresight is contained in the 1874 'Administrative Experience Recorded in Former Famines. Extracts from official papers containing instructions for dealing with famine, compiled under orders of the Government of Bengal', by J.C. Geddes.

Principles for famine relief were prepared by the Indian Famine Commission in 1878, when it cited, as its first instruction, the need, "to be fully prepared for famine or scarcity". In the former state of Madras too, civil administrators were advised by the Madras Famine Code of 1883 "to monitor grain prices as an indicator of famine". These precautions and many more detailed instructions became enshrined in the Bengal Famine Code in 1895, later revised and published in more than 300 pages by the Bengal Secretariat in Calcutta in 1913. Many of these administrative instructions and preparedness procedures remain relevant 100 years later.

On the fragile char lands inhabited by the poor in Bangladesh, women engage in extensive homestead gardening and raise crops with medicinal properties for home health care. Preserving seeds, conserving water, composting to improve poor char soil, constructing housing resistant to strong winds, and planting seedlings to stabilize the shifting char lands are common activities evolved over time by women to make life safer during floods.

Traditionally, Pacific Islanders built their houses from local, lightweight but strong materials that could absorb torrential rains, yield superficially to the high winds of typhoons and withstand the shaking of earthquakes. Local crop preservation techniques were also used as a hedge against possible drought or other conditions of food shortage.

Traditional practices of farmers around the world have been influenced by locally-developed knowledge of weather patterns or naturally occurring indicators in plants and animals to forecast particularly harsh conditions. Though imprecise, these methods demonstrate an awareness of potential risk that have led people to consider alternate courses of action in order to protect their livelihoods.

More recently, with the increase of scientific knowledge, policies have been developed in some countries that try to protect people from the forces of nature or to control those forces. Sometimes those efforts have grown from concepts seeking to prevent or to reduce the immediate consequences of potentially hazardous conditions and the adverse effects that they could cause to surrounding life, habitation and property. It must be noted that they have met with mixed success over the long term, but additional experience has also been gained along the way.

Following extensive flooding that covered almost three-quarters of the country in 1987, Bangladesh officials launched an extended Flood Action Plan to study more than 25 different dimensions of flood prevention. Over three years and with an expenditure of several million dollars, an exhaustive multidisciplinary evaluation was conducted of the many different administrative, structural, social and economic aspects of both productive capacities as well as risks of flooding in the country.

The resulting recommendations overwhelmingly suggested the need for much greater investment in "flood-proofing" societies by learning to live with the inevitable floods in a way that would minimize harm and loss, rather than trying to prevent the powerful forces of nature. Findings were ultimately guided by the fact that almost the entire riverine country of Bangladesh is a highly fertile flood plain. The country would neither exist, nor be as productive as it is without the annual floods continually renewing and extending its landscape.

By contrast, the Japanese experience of monitoring volcanic activities associated with Mount Usu in Hokkaido is a telling example of how science and technology can save lives and assets when they are linked to effective early warning and evacuation procedures. Similarly, scientific monitoring showed an immediate threat posed by the possibility of Mount Pinatubo's crater lake breaching its walls and disastrously flooding villages on the flanks of the

volcano. This early warning allowed Philippine officials to drain the lake safely in a controlled manner, with full public awareness and preparations for evacuation had it been necessary.

In another example of developed experience, long-accepted policy measures and operational principles originally conceived to prevent forest fires are now understood to have created conditions of excessive fuel accumulation. This resulted in much more intense, uncontrollable and ultimately more costly wildfires at a later date. Now, more subtle measures are being employed in managing the relationship between natural fire hazards, human use of forested natural resources and sustainable environmental benefits.

The shift towards disaster reduction

It is important to establish a common understanding of the basic tenets of disaster risk reduction as this review addresses them. The outlooks, abilities and practices that are presented here are distinctive from those elements and understanding conventionally related to emergency or disaster management. Over the past 30 years, there has been a continuous evolution in the practice of crisis or disaster management. These bodies of practice have been known, variously, as civil defence, emergency assistance, disaster response and relief, humanitarian assistance, emergency management, civil protection, disaster mitigation and prevention, and total disaster risk management.

The subject of disaster risk reduction in the modern era draws its relevance largely from earlier contributions and previous practices in the field of civil defence and later disaster management. In this respect, the traditional focus has been on the preparation and improved operational capacities for more timely and effective response to an impending event, or the provision of urgent services to restore basic requirements of the public if a disastrous event has already occurred. In many places political commitment and the allocation of resources to address hazardous conditions have been concentrated overwhelmingly on short-term emergency contingencies.

There is no doubt that the role of relief assistance during the acute phase of a crisis will remain important and needs to be enhanced at all levels. However, the question must be asked: can modern societies afford to value their social and material assets only after they have been lost in a disaster?

By contrast, in more recent years and perhaps motivated at least partially by the frequency and severity of major disasters during the past decade, those people associated most closely with affected populations – local political authorities, a broad range of professional and commercial interests, public organizations, educational institutions and community leaders – are progressively recognizing the essential public value of sustained efforts to reduce the social, economic and environmental costs of natural hazards.

This translates into the need for much greater attention on implementation of protective strategies which can contribute to saving lives and protecting property and resources before they are lost. It is for this reason that a more holistic approach that emphasizes vulnerability and risk factors has coalesced around the concept of risk reduction, or disaster risk management.

There has, for example, been a tidal change in the understanding of these issues in countries in Central America over the past years, following the repeated devastating effects of natural disasters since 1998. European countries too have been forced to re-assess their respective exposure to risks, as they have been experiencing unacceptable and recurrent losses from natural hazards that exert increasingly severe consequences.

Although for different reasons, in such varied Asian countries as China, India, Japan, Thailand and Viet Nam, more emphasis is being placed on the identification and management of risks as part of development planning. Additional human and material resources are slowly being allocated to risk reduction activities from sources other than emergency contingency funds.

There is a growing recognition underlying such a rationale; the risk of disasters is fundamentally linked to environmental problems and unresolved issues essential for sustainable development. More countries now accept that political leadership cannot be allowed only to follow the loss and destruction of social assets and economic resources.

Disaster reduction policies and measures need to be implemented with a two-fold aim: to enable societies to be resilient to natural hazards and ensuring that development efforts do not increase vulnerability to those hazards.

It is equally significant that the reduction of risks is viewed as a continuous series of endeavours pursued across social, economic, governmental and professional sectors of activity. Instead of being understood as a specialization of security, emergency services or experts, comprehensive disaster risk reduction needs to involve many segments of society – starting with those members

of the public who are themselves most exposed to anticipated hazards.

This understanding is essential if communities are to become more resilient to the effects of hazards so that disaster losses can be reduced in coming years. Such socially engrained and professionally routine activities make the news much less often, perhaps because they are mostly concerned with people doing their work, focused on incorporating risk awareness into their daily existence. It is difficult to report on 'what did not happen'. Nonetheless, they are the key to successful, and sustainable, disaster reduction strategies.

Figure 1.2

Some large impact* natural disasters in the last 30 years
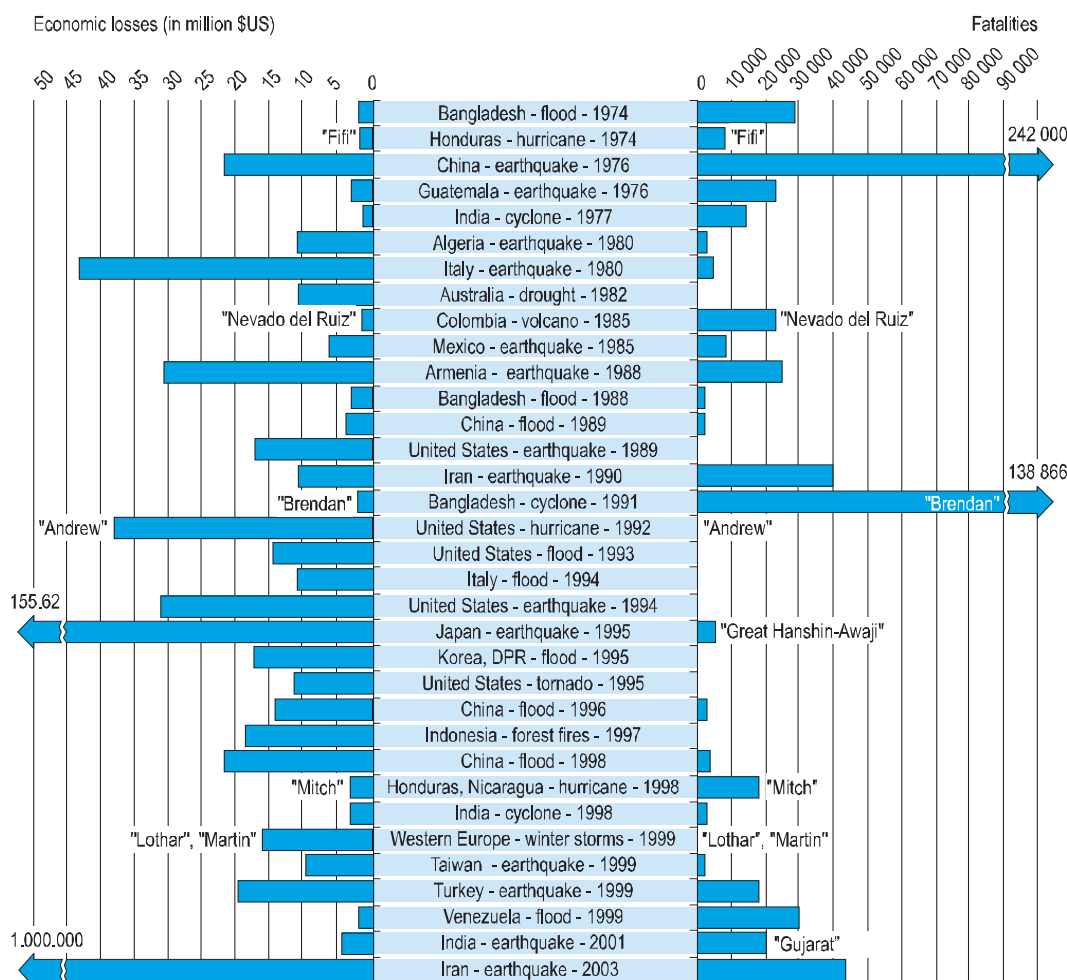
Source: EM-DAT: The OFDA/CRED International Disaster Database - www.em-dat.net - Université Catholique de Louvain - Brussels - Belgium, 2004
*Note: Includes disasters with at least 2000 people killed or 10 billion $US of economic losses (2002 $US value)

International Decade for Natural Disaster Reduction

IDNDR
1990 - 2000
Building a culture of prevention

International Decade for Natural Disaster Reduction (1990-1999)

Given the increasing concern about the impact of disasters, the UN General Assembly declared 1990-1999 the International Decade for Natural Disaster Reduction (IDNDR). Under the theme 'Building a Culture of Prevention', work was done to advance a wider commitment to activities that could reduce the consequences of natural disasters. Initially, IDNDR was influenced by largely scientific and technical interest groups. However, a broader global awareness of the social and economic consequences of natural disasters developed as the decade progressed.

The Yokohama Strategy and Plan of Action for a Safer World (Yokohama strategy), conceived at the World Conference on Natural Disaster Reduction in Yokohama in 1994, stressed that every country had the sovereign and primary responsibility to protect its people, infrastructure and national, social or economic assets from the impact of natural disasters. The importance given to socio-economic vulnerability in disaster risk analysis underlined the crucial role of human actions in reducing the vulnerability of societies to natural hazards and related technological and environmental disasters.

The 1995 IDNDR focus on 'Women and Girls: Keys to Prevention' was an example. This campaign encouraged local and national initiatives highlighting women's capabilities in disaster contexts. This in turn encouraged the need for wider participation of local communities to become involved in hazard and risk reduction activities, working together with a progressively broader range of professional interests and abilities identified as being related to the subject.

Box 1.1

The role of science and technology

The idea of launching a decade dedicated to natural disaster reduction came from the scientific community. It was motivated by a desire to expand the scope of scientific and technical abilities in disaster reduction.

Science and technology play key roles in monitoring hazards and vulnerabilities, developing an understanding of their continually changing patterns and in developing tools and methodologies for disaster risk reduction. The dissemination and application of new strategies and measures to protect lives, livelihoods and property within societies experiencing change are key areas of work for the scientific and technical communities.

Scientific knowledge and technical expertise have to be shared as an integral part of multidisciplinary technical cooperation. Efficient disaster reduction requires interaction among scientists, decision-makers and informed citizens.

However, the limitations of science and technology in responding to the problems of people and political processes identifying and managing risks need to be carefully considered. An over-concentration on technical abilities at the expense of the human aspects that compose the economic, social and political dimensions of societies will provide disappointing results in sustained commitments to risk reduction. In particular circumstances, science and technology can be misapplied, sometimes provoking or aggravating risks to a society.

The scientific and technical applications relating to each aspect of disaster risk reduction are addressed extensively throughout this review.

World Conference on Natural Disaster Reduction, Yokohama, 1994

Yokohama Strategy and Plan of Action for a Safer World

Basis for the strategy

"Natural disasters continue to strike and increase in magnitude, complexity, frequency and economic impact. Whilst the natural phenomena causing disasters are in most cases beyond human control, vulnerability is generally a result of human activity. Therefore, society must recognize and strengthen traditional methods and explore new ways to live with such risk, and take urgent actions to prevent as well as to reduce the effects of such disasters. The capacities to do so are available."

Principles

Although expressed in 1994, the following principles contained in the Yokohama strategy are possibly more relevant now to risk reduction than when they were conceived.

The Yokohama principles are as follows:

1. Risk assessment is a required step for the adoption of adequate and successful disaster reduction policies and measures.
2. Disaster prevention and preparedness are of primary importance in reducing the need for disaster relief.
3. Disaster prevention and preparedness should be considered integral aspects of development policy and planning at national, regional, bilateral, multilateral and international levels.
4. The development and strengthening of capacities to prevent, reduce and mitigate disasters is a top priority area to be addressed so as to provide a strong basis for follow-up activities to IDNDR.
5. Early warnings of impending disasters and their effective dissemination are key factors to successful disaster prevention and preparedness.
6. Preventive measures are most effective when they involve participation at all levels from the local community through the national government to the regional and international level.
7. Vulnerability can be reduced by the application of proper design and patterns of development focused on target groups by appropriate education and training of the whole community.
8. The international community accepts the need to share the necessary technology to prevent, reduce and mitigate disaster.
9. Environmental protection as a component of sustainable development consistent with poverty alleviation is imperative in the prevention and mitigation of natural disasters.
10. Each country bears the primary responsibility for protecting its people, infrastructure, and other national assets from the impact of natural disasters. The international community should demonstrate strong political determination required to make efficient use of existing resources, including financial, scientific and technological means, in the field of natural disaster reduction, bearing in mind the needs of the developing countries, particularly the least developed countries.

Box 1.2

Yokohama message

"We, the States Members of the United Nations and other States, having met at the World Conference on Natural Disaster Reduction, in the city of Yokohama, Japan, from 23 May to 27 May 1994, in partnership with non-governmental organizations, the scientific community, business, industry and the media, deliberating within the framework of the International Decade for Natural Disaster Reduction, expressing our deep concern for the continuing human suffering and disruption of development caused by natural disasters, and inspired by the *Yokohama Strategy and Plan of Action for a Safer World...* adopted the following Principles, Strategy and Plan for Action."

International Strategy for Disaster Reduction

The IDNDR provoked the recognition that disaster reduction was a social and economic imperative that would take a long time to fulfil. As the successor to IDNDR, the UN General Assembly founded the ISDR in 2000 to continue to promote work and commitment in disaster reduction. It has worked to shift the primary focus from hazards and their physical consequences to emphasize more the processes involved in incorporating physical and socio-economic dimensions of vulnerability into the wider understanding, assessment and management of disaster risks. This highlights the integration of disaster risk reduction into the broader context of sustainable development and related environmental considerations.

ISDR also provides a global framework for action with the objective of reducing human, social, economic and environmental losses due to natural hazards and related technological and environmental phenomena. It aims at building disaster resilient communities by promoting increased awareness of the importance of disaster reduction as an integral component of sustainable development. Its strategies build on lessons from IDNDR, the experience of the Yokohama Strategy and the Geneva Mandate of 1999.

In January 2000, through resolution 54/219, the General Assembly established two mechanisms for the implementation of ISDR; the Inter-Agency Secretariat and the Inter-Agency Task Force on Disaster Reduction. This was reconfirmed in resolution 56/195 in December 2001.

The General Assembly also called upon governments to establish national platforms or focal points for disaster reduction, and to strengthen them where they already exist, with a multisectoral and interdisciplinary approach.

Inter-Agency Task Force on Disaster Reduction

The Inter-Agency Task Force on Disaster Reduction (IATF/DR) was established in 2000 as the main forum within the UN system for devising strategies and policies for the reduction of disaster risks and vulnerabilities. It is tasked with identifying additional needs to improve disaster reduction policies and programmes, and further recommending remedial or additional action as may be considered necessary. In both cases, particular attention is given to ensuring complementary action by the different UN agencies involved in disaster reduction endeavours.

The Task Force is chaired by the UN Under-Secretary General for Humanitarian Affairs and is composed of up to 14 representatives of agencies and organizations of the UN system, up to eight representatives from regional entities and up to eight representatives of civil society and relevant professional sectors. The Director of the ISDR Secretariat acts as the Secretary of the Task Force.

In its first two biennia, the Task Force established four Working Groups to address climate variability, early warning, vulnerability and risk analysis, and wildland fires. An interest group focused on drought has drawn members from the Task Force to reflect the specific requirements of drought risks that cut across the other areas of attention. At present, the Task Force is reviewing its areas of focus and new subjects are being addressed, such as climate change, urban risk management, data management and preparation for the World Conference on Disaster Reduction in 2005.

Inter-Agency Secretariat of the ISDR

The Inter-Agency Secretariat of the ISDR (UN/ISDR) is the focal point within the UN system for coordination of strategies and programmes for disaster reduction and to ensure synergy between disaster reduction activities and activities in the socio-economic and humanitarian fields.

The Secretariat also serves as an international clearinghouse for the identification, management and dissemination of information pertaining to the current state of knowledge and range of activities underway that contribute to the progress of disaster risk reduction efforts around the world.

In part, this publication of a global review of disaster reduction initiatives reflects a growing international knowledge base about the subject and extends that information to an expanding field of collaborators. By means of this publication, *Living with Risk: A global review of disaster reduction initiatives*, ISDR seeks to advocate wider understanding and to further the greater multidisciplinary engagement of disaster risk reduction in practice. The many examples which it contains show that communities can become safer for their inhabitants, and disaster risks can be reduced by accomplishments working through political, professional, institutional and public forms of collaboration.

The Secretariat also develops activities such as advocacy campaigns to promote wider understanding about natural hazards and disaster risk to motivate a worldwide commitment to disaster reduction. A particularly important role is to encourage both policy and advocacy activities by promoting national committees, networks or platforms dedicated to disaster reduction, and working in close association with regional initiatives. Regional outreach programmes have been established in Latin America and the Caribbean and in Africa to this effect. Arrangements are proceeding to collaborate further with additional regional institutions in Europe, Asia and the Pacific.

The Secretariat has a facilitating role, bringing agencies, organizations and different disciplines together, providing a common platform and understanding of the scope of disaster risk reduction. In this regard, one main function of the Secretariat is to support the Inter-Agency Task Force on Disaster Reduction for the development of policies on disaster reduction.

Framework for action for the implementation of the ISDR

The Task Force, supported by the ISDR Secretariat, formulated in 2001 a framework for action for the implementation of ISDR with four main objectives:

- increase public awareness to understand risk, vulnerability and disaster reduction;
- promote the commitment of public authorities to disaster reduction;
- stimulate multidisciplinary and intersectoral partnerships, including the expansion of risk reduction networks; and
- improve scientific knowledge about the causes of natural disasters, as well as the effects that natural hazards and related technological and environmental disasters have on societies.

It also incorporates two additional activities specifically mandated to the ISDR Secretariat by the UN General Assembly:

- continue international cooperation to reduce the impact of El Niño and other aspects of climate variation; and
- strengthen disaster reduction capacities for the development of early warning systems.

In pursuing these objectives, the framework for action outlines the following areas of common concern:

- recognition and incorporation of special vulnerability of the poor and socially marginalized groups in disaster reduction strategies;
- environmental, social and economic vulnerability assessment with special reference to health and food security;
- ecosystems management, with particular attention given to the implementation of Agenda 21;
- land-use management and planning, including appropriate land use in rural, mountain and coastal areas, as well as unplanned urban areas in mega-cities and secondary cities; and
- national, regional and international legislation with respect to disaster reduction.

In 2003, following the completion of the preliminary version of Living with Risk: A global review of disaster reduction initiatives, the ISDR Secretariat in conjunction with UNDP developed a framework for guiding and monitoring disaster risk reduction (see chapter 6).

Disaster risk reduction: a shared responsibility

Governments and communities will benefit by understanding that disaster reduction policy is a wise investment. Direction and resource allocations often need to be provided from higher levels of authority within a society, even as decisions and individual commitment need to grow from the local understanding and participation by those people most immediately affected by disaster risks.

Where governments have not done so already, there is a need to regain a level of wide and inclusive national participation, before a disaster occurs. This public responsibility will require a collective discipline that can be sustained through the education and practice of many trades and professions.

Since disaster reduction is based on a continuous strategy of vulnerability and risk assessment, many actors need to be involved, drawn from governments, technical and educational institutions, professions, commercial interests and local communities. Their activities will need to be integrated into planning and development strategies that both enable and encourage the widespread exchange of information. New multidisciplinary relationships are essential if disaster reduction is to be comprehensive and sustainable.

Vulnerability should be considered in a broad context encompassing specific human, sociocultural, economic, environmental and political dimensions that relate to social inequalities based on age, gender, ethnicity and economic divisions.

Despite its negative consequences, a disaster also offers a good opportunity to formulate forward-looking policies pertaining to social development, economic growth, environmental quality and justice, in addition to other essential values that contribute to sustainability.

Table 1.1		
Different management approaches: crisis management versus disaster risk reduction		
Emergency assistance, crisis management		Disaster risk reduction strategies
1. Primary focus on hazards and disaster events 2. Single, event-based scenarios 3. Basic responsibility to respond to an event.	Emphasis	1. Primary focus on vulnerability and risk issues 2. Dynamic, multiple risk issues and development scenarios 3. Fundamental need to assess, monitor and update exposure to changing conditions
4. Often fixed, location-specific conditions 5. Responsibility in single authority or agency 6. Command and control, directed operations 7. Established hierarchical relationships 8. Often focused on hardware and equipment 9. Dependent on specialized expertise	Operations	4. Extended, changing, shared or regional, local variations 5. Involves multiple authorities, interests, actors 6. Situation-specific functions, free association 7. Shifting, fluid and tangential relationships 8. Dependent on related practices, abilities, and knowledge base 9. Specialized expertise, squared with public views, priorities
10. Urgent, immediate and short time frames in outlook, planning, attention, returns	Time horizons	10. Comparative, moderate and long time frames in outlook, planning, values, returns
11. Rapidly changing, dynamic information usage, often conflicting or sensitive 12. Primary, authorized or singular information sources, need for definitive facts 13. Directed, 'need to know' basis of information dissemination, availability 14. Operational, or public information based on use of communications 15. In-out or vertical flows of information	Information use and management	11. Accumulated, historical, layered, updated, or comparative use of information 12. Open or public information, multiple, diverse or changing sources, differing perspectives, points of view. 13. Multiple use, shared exchange, inter-sectoral use of information 14. Matrix, nodal communication 15. Dispersed, lateral flows of information
16. Relates to matters of public security, safety	Social, political rationale	16. Matters of public interest, investment and safety
Source: T. Jeggle, 2001.		

The integration of disaster reduction strategies with development policies should happen before a disaster occurs, thereby addressing a broad range of social, economic and environmental problems as well. This requires the participation of all relevant sectors in a society such as environment, finance, industry, transport, construction, agriculture, education and health. It also requires different forms of management and outlooks than those typically identified with emergency or disaster management.

The most efficient forms of hierarchical command and control practices for crisis management are much less suited to the deliberate and more widely considered forms of public, private and professional participation in reducing risk and vulnerability in daily life. To be effective, disaster risk reduction practices have to draw their information and inspiration from many different sources in a society and be based on widespread participation.

Difference between a hazard and a disaster

"Strictly speaking, there is no such thing as a natural disaster, but there are natural hazards, such as cyclones and earthquakes. The difference between a hazard and a disaster is an important one. A disaster takes place when a community is affected by a hazard (usually defined as an event that overwhelms that community's capacity to cope). In other words, the impact of the disaster is determined by the extent of a community's vulnerability to the hazard. This vulnerability is not natural. It is the human dimension of disasters, the result of the whole range of economic, social, cultural, institutional, political and even psychological factors that shape people's lives and create the environment that they live in."

Source: Twigg, J. 2001.

Understanding the meaning of disaster and risk reduction

Disaster reduction strategies include, first and foremost, vulnerability and risk assessment, as well as a number of institutional capacities and operational abilities. Essential features of a disaster reduction strategy include the assessment of the vulnerability of facilities crucial to the social and economic infrastructure, the use of effective early warning systems, and the application of many different types of scientific, technical, educational and other skilled abilities.

Sharing information and experience for the purposes of public information and all forms of education and professional training are important for creating a safety culture. Equally, the crucial involvement of local community action new forms of partnership can be motivated by the acceptance of shared responsibilities and cooperation.

Fortunately, modern forms of information access and communications can facilitate the wider exposure and networking that these new and shifting forms of association require. There are fundamental elements in every disaster reduction strategy, but the priorities, relative emphasis, available resources, and specific ways of implementation must take account of practices that are most suited to local conditions, understanding and effectiveness.

Figure 1.3 describes the general context and primary activities of disaster risk management, including the elements necessary for any comprehensive disaster risk reduction strategy. The sections of this review have been organized in consideration of these issues, with less emphasis on preparedness, response and recovery functions.