



Chapter 3

Policy and commitment: the foundation of disaster risk reduction

- 3.1 National institutional frameworks:
policy, legislation and organizational
development
- 3.2 Municipal authorities
- 3.3 Regional cooperation, interaction
and experience
- 3.4 Community action



3.1 National institutional frameworks: policy, legislation and organizational development

"The world is increasingly interdependent. All countries shall act in a new spirit of partnership to build a safer world based on common interests and shared responsibility to save human lives, since natural disasters do not respect borders."

Yokohama Strategy and Plan for Action for a Safer World, 1994

Disaster risk management must be the responsibility of governments. However, its success also depends on widespread decision-making and the participation of many others. Policy direction and legal foundations assure legitimacy but it is the professional and human resources available, on the ground, that are a true measure of success.

There must be a systematic approach to relate local decision-making processes with larger administrative and resource capabilities such as those devised in provincial or national disaster plans and risk reduction strategies.

The various roles which policy, law and organizations play in creating a sustained public administration environment sensitive to the identification and management of risk are reviewed in this section.

As both conditions and needs vary with geography, as well as with a wide range of professional interests involved, some examples of selected institutional frameworks are presented regionally while others are presented according to subject matters.

In each case, the institutional processes involved and organizational lessons cited may hold a much wider appeal and relevance to emerging initiatives elsewhere. This chapter will discuss the following:

- *introduction to institutional frameworks for disaster reduction;*
- *policy frameworks in practice;*
- *national planning processes, with multisectoral responsibilities;*
- *risk reduction plans linked to specific responsibilities, policies and practices;*
- *some important limitations in institutional and policy frameworks; and*
- *means for overcoming limitations.*

Introduction to institutional frameworks for disaster reduction

The programme of the International Decade for Natural Disaster Reduction (IDNDR) not only provided an institutional framework for countries, but also introduced basic concepts of disaster reduction to administrators and other specialists who may not have identified their work within the larger context of disasters. It began to shift policy emphasis from post-disaster relief and rehabilitation to a more proactive approach of disaster preparedness and mitigation.

This began a new era in disaster and risk reduction concepts, with an important role

assigned to national planning and legislation. Many countries prepared national action plans for disaster risk management and presented them to the World Conference on Natural Disaster Reduction held in Yokohama, Japan, in 1994. Subsequently, countries have been able to report on their activities at regional or sectoral meetings and at the concluding IDNDR Programme Forum in 1999.

For a long time, the state was considered the centre of all authority as well as action in dealing with disasters. Communities were considered generally unaware of the hazards they faced. As a result, disaster management was most often understood as providing relief to victims, aiding recovery

following an event, and rebuilding damaged infrastructure. This *modus operandi* was perpetuated by those international funds and local emergency allocations that typically became available more readily after a disaster rather than before.

Historically, few resources have been devoted to routine hazard identification or to support sustained risk management strategies in areas prone to natural hazards. This may result from an institutional disregard of the economic value of risk reduction in contrast to the cost of replacing lost assets.

Alternately, it may reflect the persistent difficulty in demonstrating cost-efficiencies involved in saving lives and public property from disasters before they occur. Nonetheless, it remains that the relative economies of disaster reduction are most commonly aired in public discussions following disasters.

While disaster management and response coordination can benefit from centralized command, there is a need to decentralize disaster risk reduction efforts. Where the decentralization of power and devolution of governing authority is pursued, risk reduction at the local level also needs to be encouraged and supported. Responsibility for risk reduction has to be coordinated by municipalities, townships, wards or local communities.

This may require altered structural arrangements in which the mutual understanding of rules and regulations should be explicit, transparent and

uniform. National authorities, UN and development agencies and financial institutions need to implement projects in risk reduction not only with national governments but also those in which local authorities, the private sector, academic institutions and community-based organizations have major roles to play.

However, in many countries there are currently few local institutions engaged in or which have adequate capacities to oversee risk reduction strategies on a continuous basis. Almost all countries and most local communities have a designated authority responsible for responding to crisis situations when they happen; many fewer have a recognized office monitoring potential risks and motivating public and private action to minimize their possible consequences before they occur.

A change in the emphasis of government functions requires that a consensus be developed on the roles of government agencies, technical institutions, commercial interests, communities and individuals themselves. Governments have vital roles to play in disaster risk management, ideally serving as a “central impulse” and serving to support sustainable efforts, but there is now widespread recognition that they also must focus their limited resources and serve as coordinating bodies if they are to become more effective. If they are to be relevant in such a role, there is a corresponding responsibility for subsidiary competencies and increasingly localized capabilities to come into force.

Box 3.1

Risk reduction and government action

The following functions are important means by which governments can integrate disaster risk awareness into official responsibilities:

- Disseminate basic public information about the most likely hazards to affect a country or community, along with measures on how to reduce risk.
- Develop integrated institutional capacities to assess and respond to risk in the context of social, economic and environmental considerations of the society.
- Support opportunities that enable scientific and academic institutions to contribute to risk management policies in a manner that is accessible to the whole community.
- Initiate partnerships with local networks, community organizations and advocacy groups knowledgeable about how to organize locally to reduce hazards and increase resilience.
- Encourage the combined participation of government agencies, technical specialists and local residents in the conduct of risk assessments.
- Ensure public understanding of standards and codes designed for the protection of private and public assets and critical infrastructure.
- Promote and encourage public participation in the design and implementation of risk and vulnerability strategies at local and national levels.



Policy frameworks in practice

Asia

Disaster risk management is a concept that is interpreted differently in various Asian countries. This reflects either the predominant hazards threatening individual countries or stems from an historical outlook of what has commonly constituted disaster management responsibilities. For example, in India, the national authority for disaster management had been with the Ministry of Agriculture for many years, reflecting that country's historical concerns with flood, drought and famine. Elsewhere other government institutions tended to concentrate on the emergency services associated with post-disaster rescue, relief, reconstruction and rehabilitation, as well as maintaining public law and order during times of crisis.



Broader concepts of risk management have begun to take hold more recently in some Asian countries at national levels. Thailand has revamped its disaster management system in 2002 and set up a new department of disaster management in the Ministry of Interior.

In addition to Viet Nam, discussed below, elsewhere in South-East Asia both Cambodia and Lao People's Democratic Republic have established or reconfigured their national disaster management offices with support from the UNDP. Cambodia particularly has made considerable progress in structuring national policies increasingly focused on disaster risk awareness and management, with accompanying national training programmes led by the Cambodian Red Cross Society.

The Philippines is considering new legislation to widen the scope of its Office of Civil Defence and the National Disaster Coordinating Council. Following the establishment of its Disaster Management Bureau in the renamed Ministry of Disaster Management and Relief in 1992, the government of Bangladesh implemented a comprehensive disaster management programme in 2000-2002.

Increasingly, more Asian countries are also including some reference to disaster risk reduction in their national development plans. Over the last

decade, UNDP has supported capacity-building projects for disaster risk management in more than ten Asian countries.

Case: Viet Nam

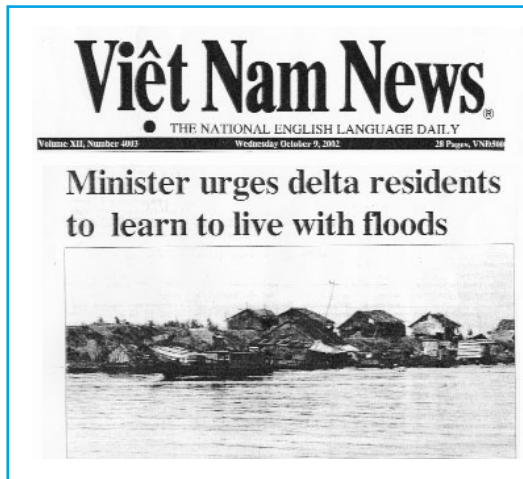
Viet Nam provides a particularly useful example of a sustained commitment to improving its attention to disaster risk reduction. Since 1993, it has pursued a methodical strategy of enlarging its consideration of hazard and risk factors in relationship to national development objectives. At the same time it has proceeded to expand its institutional capabilities.

Proceeding from the recognition that its geography will continue to expose the country to floods, storms, tropical cyclones, marine hazards and less frequent inland droughts, the country has done an admirable job of creating and continually expanding the capabilities of a national Disaster Management Unit (DMU).

While the DMU is entrusted with the responsibilities of emergency warning and management, the overall strategy is motivated by a foremost consideration of identifying, preparing for, and managing hazardous risks. It is no accident that these most common hazards are associated with water, as historically water both on land and off-shore, has been a critical resource for centuries of Vietnamese society.


The country has more recently made a sustained commitment in formulating a 20-year strategic plan for disaster risk management. Of particular note it has embarked on a strategy for inhabitants of the Mekong River delta to "live with the floods". A series of measures has been employed that range from relocating particularly vulnerable communities to safer ground, to altering the cropping calendar.

An innovative programme that is possibly unique in the world introduced the concept of opening temporary "emergency kindergartens" where parents can leave their children under supervision at the time of emergency, when parents are otherwise preoccupied with securing personal possessions and other resources crucial for their livelihoods.



Việt Nam News
THE NATIONAL ENGLISH LANGUAGE DAILY
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Minister urges delta residents to learn to live with floods



"Flood waters have inundated the [Cuu Long (Mekong) delta] area for the past three seasons - this is a long enough period to review our approach. We need to reconsider policies related to security and food security for people living in flood stricken areas. If we make local people dependent on relief, we'll kill their self-reliance which in turn will destroy development."

Lê Huy Ngo, Minister of Agriculture and Rural Development, Viet Nam, 2002

These efforts are showing positive results, encouraging the government and the people to continue working in this direction. They have been largely influenced by in-country expertise and analysis following each hazardous event with additional encouragement being provided by international support. These increasingly sophisticated activities have been supported over several years by international organizations including UNDP and the International Federation of Red Cross and Red Crescent Societies (IFRC), bilateral assistance organizations including the United States Agency for International Development (USAID), and in the case of environmental measures, by NGOs such as the World Conservation Union (IUCN).

Many ministries have been involved too, included those of agriculture and rural development, defence, police, fisheries, construction, transportation, health, as well as the national committee for search and rescue. Meetings are organized to exchange and integrate the benefits of their experiences and to plan for future flood and storm preparedness and mitigation practices.

Further measures are planned to develop the policy of Living with Floods to be implemented in association with the socio-economic development underway in the Mekong River delta. While local authorities will be constructing more residential areas, particularly attention is being given crucial to infrastructure of water supply, drainage and sanitation.

Flood-prone provinces are now required to plan for the more appropriate use of land and to take account of crop schedules better suited to the likelihood of floods. This approach is a good

example of the beneficial effects of combining natural resource management activities with agricultural, forestry and fisheries initiatives to reduce flood damage at the same time as enhancing local production, sustainable livelihoods and development.

A further developmental benefit of this approach is that both local authorities and the general population have become more aware of how closely related flooding is to the socio-economic conditions that determine their well-being. The previously more vulnerable population is now beginning to change their earlier reliance on response capabilities to ones now motivated more by preventing the damaging consequences of floods.

They are even seeking to benefit from the natural occurrence of annual floods along the Mekong River. In addition to restructuring production activities and making improvements in physical infrastructure to minimize flood damage, additional plans are underway to take advantage of flooding by expanding aquatic methods of production and increasing fishing and related marketing opportunities. The social sector has not been overlooked as efforts have also been made to institute various collective community services to meet people's immediate needs during the time of threat or crisis.

Case: Republic of Korea

In 1997, the government of the Republic of Korea created the National Institute for Disaster Prevention (NIDP), to update its national disaster management and prevention policies. Organized under the Ministry of Government



Administration and Home Affairs, the primary mission of NIDP has been to perform its own research and then to apply those findings to develop independent design capabilities for disaster management and prevention systems.

With 30 full-time researchers, NIDP is responsible for collecting, compiling, and analysing information on disasters. This material then provides the basis for improved disaster impact assessment, improved mitigation practices, better integrated disaster management policies, and the promotion of wider international cooperation.

Activities have included the development of an online management system for areas exposed to specific hazards, evaluating recovery and response systems and developing a comprehensive management system. NIDP has also completed the compilation of disaster impact assessment

standards, and conducts an annual International Disaster Prevention Cooperation Seminar to maintain public, policy and professional interests in disaster risk reduction.

In order to illustrate some of the strategic changes and favourable developments in disaster risk reduction in Asia, both India and China have embarked on comprehensive national programmes. Together these countries account for almost one-third of the world's population, and they also share many of the same hazards. For centuries they have taken risk into account in a variety of technical and administrative ways. More recently, both countries have reoriented national disaster management strategies to take greater account of disaster risk reduction. Their efforts are summarized in the following case examples.

Case: India

The Indian government has shown great interest in strengthening organizational planning to lessen disaster impacts. It is dedicated to developing a more comprehensive national strategy to link risks with development objectives and environmental concerns that go far beyond more effective relief services.

The severe repercussions of the 1999 cyclone in the state of Orissa and the 2001 earthquake in the state of Gujarat have intensified commitments to alter the long-standing relief commissioner system and to revise national policies of risk reduction. Technical agencies, educational institutions, commercial interests, international finance and insurance investors are all being included in the development of a major reorientation of how the country perceives risk and intends to monitor and manage it in the future.

Initiatives have been continuing to revise disaster policies and to adopt more comprehensive approaches to identifying and managing risks in various state governments. Following the devastating Latur earthquake in 1993, and supported in part by the World Bank, the state of Maharashtra totally revamped its disaster risk management policies by drawing on both international and national expertise in the design of improved administrative legislation and building standards.

Box 3.2

Learning the lessons, after Typhoon Rusa

In one day from August 31 to September 1, 2002, Typhoon Rusa devastated the middle and eastern coastal areas of the Korean peninsula. It was the most severe natural disaster in the modern era of Korean history causing more than US\$ 4.3 billion of property damage, with more than 27,000 buildings destroyed and 31,000 hectares of agricultural land inundated. Nearly 250 people were dead or missing.

Most of the casualties were caused by slope failures, landslides and flash floods. In addition to extraordinarily heavy rainfall, equal in some places to almost two-thirds of the average annual, reckless development was considered to be one of the primary factors that increased the prevailing conditions of vulnerability in the urban areas affected.

The government of the Republic of Korea amended the Natural Disaster Countermeasures Act within a matter of days to provide the basis for the declaration of a special disaster area. Subsequently, the government has drawn on the experience of Typhoon Rusa to make several improvements in its disaster management system.

Significantly, a task force was established under the office of the prime minister to undertake the planning of comprehensive flood mitigation countermeasures. Additional measures were employed by the government to introduce a natural disaster insurance programme. Recognizing the relationship between local development over recent years and the changing nature of risks, it was decided essential to strengthen the national disaster impact assessment procedures which had been in force since 1996.

Having also suffered badly from earlier earthquakes in the mid-1990s, the state of Uttar Pradesh embarked on a similar programme encouraged by the Asian Development Bank in 1999. The creation of the new state of Uttaranchal in 2000 has provided the opportunity to consider the most appropriate forms of disaster management structures for its mountainous topography.

State governments are being encouraged to update their legislation, strategic plans, disaster management codes, manuals and procedures on the basis of experience gained and taking account of technological developments.

Most notably, a tangible result of this process has been the decision taken by the Indian government in 2002 to alter almost 50 years of practice by relocating all disaster and risk management issues, with the sole exception of drought concerns, from the Ministry of Agriculture to the Ministry of Home Affairs.

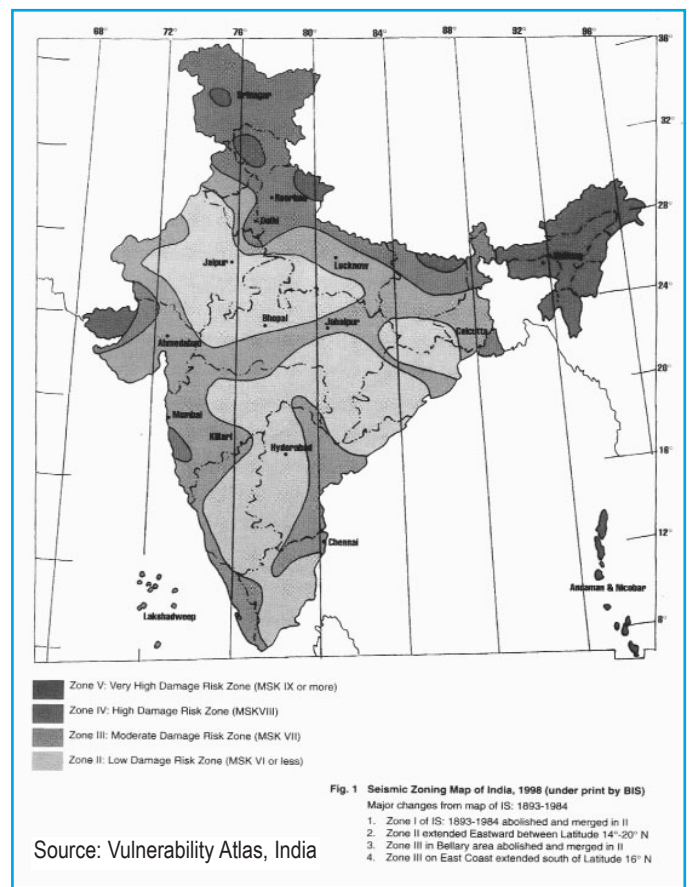
This reflects an important departure from the previous association of natural disasters only with the more narrowly focused concerns of food security. While droughts still occur, to a significant extent through practiced management capabilities, India has banished the likelihood of famine from the country.

The important Ministry of Home Affairs is directly responsible for the coordination of the operational aspects of government. Its influence proceeds from the national direction of the civil service, through various state jurisdictions, down to local government's implementation of policies. As such, in broadening its responsibilities to include the many other risks that threaten the country and peoples' livelihoods the relocation is an important step to integrate disaster and risk management more fully into the national, state and local planning and administrative processes.

A High Powered Committee on Disaster Management (HPC) was constituted by the national government to review all existing preparedness and mitigation arrangements initially for natural risks and subsequently for human-induced risks. With a broad multidisciplinary approach, the committee includes technical

specialists, respected academics and key civil servants, in addition to eminent public and political figures. It was mandated to recommend measures for strengthening organizational structures, as well as to propose comprehensive models for all aspects of disaster management responsibilities at national, state and district levels.

The HPC has made many wide-ranging recommendations that deal with the constitutional and legal frameworks of disasters in the country. They range from matters of creating new organizational structures and institutional mechanisms, and means to promote the realization of cultures of preparedness, quick response, strategic thinking and prevention.



The organizations responsible for implementation have been identified and time frames proposed for the realization of each recommendation. The HPC has dealt with a wide spectrum of issues that hinge directly on disaster management aimed at bringing about measures that ultimately become a part of the national psyche. Important recommendations of the HPC include:



- Identify disaster management as a listed responsibility in the national constitution to be shared by national and state government authorities.
- Legislation at the national and state levels – drafts of a national act for calamity management and a model state disaster management act have been prepared and submitted to the government for consideration.
- Maintain a sustained focus by constituting a Cabinet Committee on Disaster Management.
- Create an all-party national committee for disaster management, chaired by the prime minister, renamed the National Council on Disaster Management with an expanded scope to include human-induced disasters. The council and its designated working group will be institutionalized as permanent standing bodies of government.
- Create a nodal Ministry of Disaster Management for sustained and focused efforts in the areas of disaster preparedness, mitigation and management.
- Establish a National Centre for Calamity Management (NCCM) for strategic and policy formulation at the earliest opportunity, with a structure as evolved as HPC.
- Establishing a National Institute for Disaster Management as a national centre for the creation of knowledge and its dissemination, working through complementary linkages with other institutions for the purposes of training and capacity-building.
- Establish state of the art emergency control rooms, linked in a network between national and state capitals, with additional headquarters placed in particularly disaster-prone or vulnerable districts.
- Integrate disaster reduction strategies with development plans.
- Designate at least 10 per cent of budgeted reserved funds at the national, state and district levels be earmarked and apportioned for schemes that specifically address disaster prevention, and preparedness measures or activities.
- Develop and provide precision Geographic Information Systems (GIS) and digital maps of all states, districts and urban centres with essential spatial and non-spatial data at appropriate scales.

Reports of the HPC and its National Disaster Response Plan have been circulated widely throughout India and among many international organizations, already triggering additional action by them. The state governments of Madhya Pradesh and Gujarat have developed comprehensive policies on disaster management, in the latter case backed up by the passage of an act on disaster management.

Additionally, the states of Assam, Bihar, Karnataka, Orissa, Uttar Pradesh, Uttaranchal, and some others also are finalizing legislative bills relating to local frameworks for disaster management.

Elsewhere, at local levels of administration, states are undertaking exercises for capacity-building and the greater involvement of community participation through the local Panchayati Raj which are elected organizations working at the grass-roots level.

The HPC has now been converted into the working group on disaster management, envisaged to provide background material and analyses to enable the National Committee to formulate recommendations after taking account of many viewpoints. Three sub-committees were constituted to:

- formulate a national policy framework and determine an agenda for priority initiatives over the next few decades;
- establish immediate actionable points for both the national and state governments, including legislative and institutional measures; and
- develop the defining parameters of a national calamity.

Two additional sub-committees were convened to provide specific recommendations on the management of trauma and the development of disaster management plans at community levels.

The process outlined here has acted as a very effective catalyst, and has generated important developments in many states. It has defined the functions and responsibilities of various authorities, official agencies and professional organizations. The methodical approach to implementation provides the basis for a structured system of accountability related to the responsibilities of all participants.

In this spirit, the National Committee on Disaster Management has been constituted with members of

major political parties to suggest the necessary institutional and legislative measures needed for a mutually agreed national strategy for effective and long-term disaster management.

In addition to addressing the specific steps required for the reconstruction and rehabilitation in Gujarat following the 2001 earthquake, this effort marks a milestone in broadening national consensus among all the political parties with the intended goals of dealing with major future disasters and setting parameters to define a national calamity.

The driving motivation has become one to stem the premature and needless loss of financial and social capital, which sets back national development by years. These measures require that more time and energy be devoted to prevention and mitigation measures, in order to prepare the country to face disasters without loss of precious resources and social capital.

In 2003, the National Committee on Disaster Management prepared an agenda note and submitted it for the consideration of the prime minister. The presentation noted that there were unattended issues in disaster management which required immediate attention for a comprehensive disaster management strategy to be in force. This collective policy highlighted paths leading towards comprehensive disaster management, and emphasized the importance of transcending reactive response to more proactive prevention and mitigation strategies, given the increasing frequency, complexity and intensity of disasters.

The prime minister has been urged to consider disaster management as an agenda of the entire government, and for it to become a movement across the country. Recommendations need to be implemented to inculcate a culture of prevention and to proceed towards realizing the objective of a disaster-free India.

Case: China

During the course of the IDNDR, the Chinese government recognized that working for disaster reduction would require a long-term commitment and it has worked with dedication and political commitment at the highest levels of responsibility to fulfil those objectives.

Following the introduction of ISDR in October 2000, the Chinese government established the Chinese National Committee for International Disaster Reduction (CNCIDR), consisting of 30 agencies. These included representatives from the state council, ministries, national committees and bureaus, the military services and additional social groups.

As an inter-ministerial coordinating institution headed by a state councillor, CNCIDR is responsible for designing a national disaster reduction framework. In this capacity it develops guiding policies, coordinates relevant departments in the conduct of specific programmes and supervises disaster reduction work undertaken by local governments. The office of CNCIDR and its secretariat are located in the Ministry of Civil Affairs.

An additional advisory group of 28 senior specialists in related fields has been formed to provide guidance to the national committee. Particular attention has been given to applying science and technology in disaster reduction initiatives.

By embracing the importance of disaster reduction activities, China has proceeded to integrate the subject into overall national economic and social development planning. The core element of this process is the progressive implementation of the National Disaster Reduction Plan of the People's Republic of China (NDRP), scheduled to run from 1998 to 2010.

The NDRP was launched by the Chinese government, formulated on the basis of the overall national development policies reflected in the Ninth Five Year Plan for

It is very important for China to form an overall legislative system that relates to disaster reduction, and the experience of other countries would be invaluable. To do this will require financial and technical support from UNDP and other channels.

China response to ISDR questionnaire, 2001.



National Economic and Social Development, and the 2010 Prospective Target Outline for national accomplishments. The design of the plan received important support and technical assistance from UNDP, further demonstrating the essential links between disaster risk reduction and national development interests.

The NDRP was based on several fundamental policies that demonstrate both the breadth and the depth of interests that have been marshalled to implement a national strategy for disaster reduction. The primary one is to serve the advancement of national economic and social development. In this respect, the top priority is assigned to disaster reduction activities, while recognizing that there will still be the requirement to combine these with disaster response and emergency relief efforts at the time of crisis. However, the measure of success can only be gauged by an obvious reduction in the direct economic losses caused by natural disasters.

The roles of science, technology and education are considered to be of particular importance in working together to build disaster reduction into a national concept. Public awareness and knowledge about disaster reduction are an important component in realizing this aim. It also remains

important for China to be involved closely with international developments in the subjects concerned, and therefore it must strive to strengthen its own efforts of international exchange and multinational cooperation.

Objectives outlined by the NDRP include efforts to:

- develop projects that advance the social and economic development in China;
- increase the application of scientific and technical experience in disaster reduction work;
- enhance public awareness about disaster reduction;
- establish comprehensive institutional and operational structures to realize disaster risk management; and
- reduce the direct economic losses associated with natural hazards.

The NDRP has also outlined key activities that should be pursued nationwide. One of these is to implement the plan at provincial levels and then at local levels of responsibility. The provinces of Guangdong, Jiangxi, Yunnan, and Shanxi have all issued plans for disaster reduction. In others, such as in Heilongjiang, the national government is working closely with the provincial authorities to initiate a local strategy.

Table 3.1

Administrative and legal arrangements for disaster risk management in Asia

Country	Focal point for disaster management	National action plans	State and provincial disaster reduction plans
Bangladesh	Ministry of Disaster Management and Relief, Disaster Management Bureau	<ul style="list-style-type: none"> • National Disaster Management Plan • Standing Orders on Disaster 	<ul style="list-style-type: none"> • Operation Sheba: relief and rehabilitation plan for districts of Chittagong, Cox's Bazar, Noakhali, Feni, Laxmipur, Rangamati, Khagrachhari, Bandarban. • Flood Action Plan
Bhutan	Ministry of Disaster Management and Relief, Disaster Management Bureau	<ul style="list-style-type: none"> • No plan exists. Disaster management issues are contained to a limited extent in the National Environmental Strategy of 1989 and in Bhutan Building Rules of 1983. 	
Cambodia	National Committee for Disaster Management	<ul style="list-style-type: none"> • No plan exists except the five year strategy plan for the development of the National Committee for Disaster Management. 	

Country	Focal point for disaster management	National action plans	State and provincial disaster reduction plans
China	China National Committee for International Disaster Reduction	<ul style="list-style-type: none"> The National Natural Disaster Reduction Plan of the People's Republic of China Laws of People's Republic of China on Protecting against and Mitigating Earthquake Disaster Hong Kong Contingency Plan for Natural Disasters 	
India	National Committee on Disaster Management, Ministry of Home Affairs	<ul style="list-style-type: none"> High Powered Committee Disaster Management Plans National Contingency Action Plan Drought Contingency Plan 2000 	<ul style="list-style-type: none"> Action plan for reconstruction in earthquake affected Maharashtra. Anti-disaster plan for the State of Tamil Nadu. Cyclone contingency plan of action for the State of Andhra Pradesh. Action plan for reconstruction in earthquake-affected State of Gujarat. Contingency plan for floods and cyclones in Chennai. District disaster management action plan for Nainital. Village Contingency Plan, 2002 (OXFAM Trust, Hyderabad).
Indonesia	National Natural Disaster Management Coordinating Board (BAKORNAS PB), Ministry of Peoples' Welfare and Poverty Alleviation Focal point for disaster management	<ul style="list-style-type: none"> National Action Plan 	<ul style="list-style-type: none"> Forest fire and haze disaster in Mount Merapi disaster management. Tsunami disaster in Banuwangi.
Iran	Ministry of the Interior		<ul style="list-style-type: none"> UN System Disaster Response Plan (involves several ministries and the Red Cross & Red Crescent).
Japan	Cabinet Office	<ul style="list-style-type: none"> Disaster Countermeasure Basic Act, (basic plan for disaster reduction) 	<ul style="list-style-type: none"> Operational plans for disaster reduction, local plans for disaster reduction.
Kazakhstan	Emergency Agency of the Republic of Kazakhstan	<ul style="list-style-type: none"> National Plan 	
Korea, DPR	Ministry of Government Administration and Home Affairs		
Korea, Rep of	Korean National Disaster Prevention and Countermeasures Headquarters	<ul style="list-style-type: none"> Natural Disaster Countermeasure Act Fifth Basic Disaster Prevention Plan 	
Kyrgyzstan			
Lao PDR	National Disaster Management Office, Ministry of Labour and Social Welfare	<ul style="list-style-type: none"> Disaster Risk Management Plan 	



Living with Risk:
A global review of disaster reduction initiatives

Country	Focal point for disaster management	National action plans	State and provincial disaster reduction plans
Malaysia	Central Disaster Management and Relief Committee, Inter-Ministerial Committee	<ul style="list-style-type: none"> · National Haze Action Plan · Flood Action Plan 	
Maldives	Ministry of Home Affairs, Housing and Environment and National Council for Protection and Preservation of the Environment	<ul style="list-style-type: none"> · National Action Plan 	
Mongolia	State Permanent Emergency Commission	<ul style="list-style-type: none"> · Civil defence law · Law on environmental protection · Law on water · Law on air · Law on hydrometeorological and environmental monitoring 	
Myanmar	Central Committee for Disaster Prevention and Relief, Ministry of Home and Religious Affairs		
Nepal	Ministry of Home Affairs	<ul style="list-style-type: none"> · National Action Plan for Disaster Management 	<ul style="list-style-type: none"> · Emergency preparedness and disaster response plan for the health sector
Pakistan	Disaster Preparedness and Relief Cell in Cabinet	<ul style="list-style-type: none"> · National Disaster Plan · Karachi Emergency Relief Plan 	<ul style="list-style-type: none"> · Model district plan - disaster relief cell · Punjab provincial flood action plan · Earthquake plan for towns and cities in the seismic regions · Sind provincial disaster plan · Disaster preparedness plan Kasur Tehsil
Philippines	National Disaster Coordinating Council, Office of Civil Defence, Ministry of Defence	<ul style="list-style-type: none"> · National Calamities and Disaster Preparedness Plans 	<ul style="list-style-type: none"> · Contingency plan for Taal volcano · Regional disaster preparedness plan for Tacloban City · Contingency plan for Mayon volcano
Singapore	Ministry of Home Affairs, Singapore Civil Defence Force and Singapore Police Force	<ul style="list-style-type: none"> · Civil Defence Act · Emergency or Contingency Plan · Fire Safety Act · Civil Defence Shelter Act 	
Sri Lanka	National Disaster Management Centre, Ministry of Social Services and Housing Development	<ul style="list-style-type: none"> · National Disaster Management Plan 	<ul style="list-style-type: none"> · Coastal environmental management plan for the west coast of Sri Lanka · Major disaster contingency plan
Tajikistan	Ministry of Emergency Situations and Civil Defence	<ul style="list-style-type: none"> · Joint plan with Russian Federation until 2005 	
Thailand	National Civil Defence Committee, Ministry of Interior	<ul style="list-style-type: none"> · National Civil Defence Plan 	

Country	Focal point for disaster management	National action plans	State and provincial disaster reduction plans
Turkmenistan			
Uzbekistan		· Disaster Management Plan	
Vietnam	Department of Dyke Management and Flood Control of the Ministry of Agriculture and Rural Development. Secretariats of the Central Committee for Flood and Storm Control responsible for emergency responses to disastrous events.	· Strategy and Action Plan for Mitigating Water Disasters in Vietnam	

Source: Asian Disaster Preparedness Centre, Bangkok.

The Americas



Prior to 1990, both official and public opinion about disasters in Latin America and the Caribbean concentrated almost exclusively on developing humanitarian response and improving preparedness capacities linked to civil defence or military institutions. In North America, the predominant activity was for government agencies to provide funds for local communities and individual residents to rebuild after a disaster had occurred.

Several important institutional changes in emphasis and priorities started to develop though. This began in 1985 in Mexico following the major earthquake that badly damaged parts of the capital, Mexico City. In Colombia in the same year, a major volcanic eruption obliterated the town of Amero with the loss of 25,000 people.

From this time until the mid-1990s, some official disaster organizations created prevention offices in name, but their roles were still largely limited to strengthening efforts in disaster preparedness, conducting basic hazard mapping and promoting early warning systems at the national level. Few human or financial resources were committed and existing legal and institutional arrangements impeded any major changes.

It was also during this time that the US Federal Emergency Management Agency (FEMA)

departed from its earlier preoccupations of providing emergency assistance and reoriented its own activities towards vulnerability and risks. It began to give more attention to providing disaster mitigation information and to seeking incentives for making safer and more disaster-resilient communities.

A major shift is now taking place in many other countries in the Americas, from the north to the south, and throughout the Caribbean. The changes have also been supported by a process of regional cooperation. Even more impetus was provided by the combination of extremely severe social, economic and environmental consequences of several disasters in the final years of the 1990s. Taken together, these events provided stark and unavoidable lessons to leaders in the region.

Linking risk reduction with development policies and environmental concerns is becoming more common in several Central American countries, especially where the severe effects of Hurricane

Box 3.3
A shift in political approach

Following the eruption and mudslide of Nevado del Ruiz in 1985, Colombia has been a pioneer in promoting a systematic approach to integrated disaster management. The 1989 creation of a National System for Prevention and Response to Natural Disasters demonstrated a shift in institutional responsibility for natural disasters, from a strong focus on response to one of more preventive action.



Mitch decimated earlier investments made in national development. Some of these are reflected in the policy frameworks outlined in the following case examples.

Case: Guatemala

In 1996, Guatemala reformed its disaster legislation and created the National Coordinator for Disaster Reduction (CONRED) with an expanded range of responsibilities. Comprising a supervisory council of representatives from different development departments, disaster response agencies, and civil society it has provided a better sense of focus on risk issues for a wider circle of interests.

By working with the Ministry of Planning, a national risk reduction system is being established and efforts are underway to incorporate multisectoral risk reduction strategies into the country's National Poverty Reduction Plan. These activities complement a longstanding disaster response division in government and the maintenance of an emergency operations centre.

Case: Nicaragua

More recently, Nicaragua too, has expanded its national programme for risk reduction. Aided by UNDP, it has designed a new disaster risk management strategy. Studies have been commissioned to analyse the suitability of the Nicaraguan legal framework for disaster management requirements and to evaluate the implications for the government, municipalities, the private sector and citizens.

Early in 2000, the Nicaraguan National Legislative Assembly passed a new law creating the National System for Disaster Prevention, Mitigation and Attention and officially established the National Risk Reduction Plan as a primary operational instrument.

The institutional concept is built upon a broad and comprehensive approach to risk reduction issues and is intended to be implemented on a decentralized basis. The strategy and the legislation are considered by some commentators

to be the most advanced examples for disaster reduction in the region at the present time, drawing as they do on both the administrative authorities of the national civil defence organization as well as the more analytical and technical capabilities of the professionally-regarded Nicaraguan Institute for Territorial Studies.

Both Swiss bilateral development assistance and World Bank support have been enlisted to strengthen the provision of technical abilities and to augment human resources. The key to future success will be the extent to which productive relationships can be forged among other government departments and development agencies to highlight their respective roles in risk reduction.

Case: Costa Rica

In 2000, the Ministry of Agriculture in Costa Rica created the Risk Management Program in the Agricultural Planning Secretariat. Concern for agricultural losses increased with the impacts of El Niño in 1997-1998, and with the recurrence of flooding and drought. The creation of the programme was also motivated by decisions taken at the Central American Presidential Summit held in 1999, where disaster and vulnerability reduction dominated the agenda.

This development reflects the importance given to disaster and risk reduction by the Central American Integration System's (SICA) specialized agricultural sector organizations, the Regional Advisory Board for Agricultural Cooperation and the Central American Agriculture and Livestock Advisory Board.

Case: Dominican Republic

Following the destruction caused by Hurricane Georges across the Caribbean in 1998, the Inter-American Development Bank (IADB) and the World Bank provided almost US\$ 100 million to the Dominican Republic for reconstruction work. After the further severe social and economic consequences of Hurricane Mitch, in 2000 the IADB provided an additional US\$ 12 million to the Office of the Presidency specifically for the development of disaster reduction programmes.

These funds were targeted to help modernize the country's strategic approach and institutional frameworks for disaster risk management. The following year, three consulting consortiums developed a national hazard and vulnerability information system, trained trainers in community-level risk and environmental management, and conducted training in modern risk management techniques for civil servants.

They also advised on the development of national public awareness campaigns and on the design of revised legal and institutional frameworks for risk management. Finance was provided to acquire materials and equipment needed by risk and disaster management organizations and associated scientific institutions.

Case: Canada

Following an assessment of the national consequences of a particularly severe ice storm in 1998, and other events which highlighted serious questions about the vulnerability of the country's infrastructure, in 2001, Canada created the Office of Critical Infrastructure Protection and Emergency Preparedness (OCIPEP).

The office was established to enhance the protection of Canada's critical infrastructure from disruption or destruction and to act as the government's primary agency for ensuring civil emergency preparedness. The minister of national defence is responsible for this organization which supersedes Emergency Preparedness Canada (EPC). With a necessarily broader mandate than the EPC, OCIPEP takes an all-hazards approach, recognizing that different hazardous events can have similar impacts.

OCIPEP provides national leadership to enhance the capacity of individuals, communities, businesses and governments to manage risks to their environment, including cyberspace. Through the former EPC, a great deal of experience in preparedness, response and recovery activities has been gained, resulting in Canada's increasingly comprehensive ability to cope with emergency situations.

There have always been efforts across the nation to mitigate disasters, including land-use zoning

guidelines and structural protective features such as the Red River Floodway in Manitoba. However, it was recognized that a need existed to address hazard mitigation in Canada in a more systematic way.

A National Mitigation Workshop was hosted by EPC and the Insurance Bureau of Canada in 1998, attended by academic, private sector and government representatives. It concluded that a comprehensive national mitigation initiative would be a positive step towards the long-term goal of reducing vulnerabilities to, and losses from, disasters.

These ideals have been reinforced by participants of the ongoing Canadian Natural Hazards Assessment Project (CNHAP) in which a community of scientists, scholars and practitioners in the natural hazards and disasters field came together in 2000 to conduct a major new examination of the national understanding about the causes and consequences of natural hazards and disasters.

As a part of the process of such multidisciplinary discussions regarding emergency management and disaster reduction, the government announced in June 2001 that OCIPEP would lead consultations on the development of a National Disaster Mitigation Strategy (NDMS). These consultations have similarly included all levels of government, private sector and non-governmental stakeholders, in order to solicit their input and participation in defining the framework for this new national strategy.

OCIPEP has used discussion papers to stimulate a national dialogue about the NDMS in order to solicit views from various stakeholders about the best-suited scope, policies and mechanisms for coordinating and implementing a national strategy.

Meanwhile, the federal government continues to conduct interdepartmental discussions about federal mitigation activities, through an Interdepartmental Mitigation Coordinating Committee. Participants include representatives from all relevant federal departments who are reviewing preparedness and mitigation initiatives and conducting analysis to identify areas where additional attention is needed.



Case: Colombia

The National Plan for the Prevention of Disasters, released in Colombia in 1998, gave little attention to risk reduction practices during non-crisis situations. More recently, however, the National Council for Social and Economic Policy has incorporated disaster reduction measures explicitly into individual sector responsibilities of the National Development Plan.

The 1999 earthquake in the coffee belt of Colombia, and the creation of the Fondo para la Reconstrucción y el Desarrollo Social del Eje Cafetero (FOREC) for the reconstruction effort, provided the opportunity to further enhance institutional and technical capabilities. FOREC is a relevant model and success story useful as a reference for similar situations in other places.

The National Council then proceeded in 2001 to develop a strategy for the short- and medium-term implementation of the National Disaster Prevention and Management Plan. By citing the work to be accomplished during the next three years and outlining the first steps for the consolidation of the National Plan in the medium-term, the resulting strategy has become an improvement to the earlier National Plan for the Prevention of Disasters.

This national effort also seeks to meet the goals of ISDR and to comply with the initiatives expressed in the Meeting of the National Council for Social and Economic Policy. It cites four goals that have to be met if the strategy is to be implemented successfully:

- strengthen public awareness campaigns on natural disasters;
- initiate regional and sectoral planning for disaster prevention;
- institutionalize the national disaster prevention and management plan; and
- communicate the national plan to the public and to the authorities.

By identifying explicit objectives of work to be done and indicating the individuals responsible for their achievement, it is anticipated that the strategy

will expedite the mitigation of natural disaster risks in Colombia. This national effort seeks to accomplish the goals of ISDR and to comply with the initiatives expressed in the Meeting of the Americas conducted in the Framework of the Andean Community.

Case: Bolivia

In Bolivia too, a comprehensive national policy for prevention and risk management has been established. Consistent with the intentions of the Andean Regional Programme for Risk Prevention and Reduction (PREANDINO), the minister of sustainable development and planning is committed to incorporating disaster prevention in the planning system through the National Plan for Prevention and Risk Mitigation.

It is anticipated that necessary legislation will enable the introduction of risk reduction factors into various sectoral initiatives. This can then enable a more readily perceived relationship between the objectives of risk reduction and sustainable development. The government has already been pressing ahead with several national programmes aimed at incorporating risk management practices into development activities.

These include a Programme for Risk Prevention and Reduction financed by UNDP and the World Bank. Another programme, financed by the German Agency for Technical Cooperation (GTZ), is the Local Risk Management Programme. In the housing sector, the National Housing Subsidy Programme financed by employer contributions includes a prevention and risk mitigation component.

The Ministry of Agriculture, Livestock and Rural Development is implementing a national food security monitoring and early warning system which will monitor the impact of natural hazards on agricultural production. UNESCO, working jointly with the same ministry, is also progressing in its support for a programme that links development and risk issues with the El Niño phenomenon.

Table 3.2

Disaster institutional frameworks in Andean countries of Latin America

Country	Institutional Framework	High-level programmes for promoting prevention	Prevention plans	Prevention in development plans and control mechanisms
Bolivia	<p>A national policy for prevention and risk management was established in 1999 and modified in 2003. The new law establishes the execution of prevention measures to the Minister of Defense (MD). At the same time, Ministry of Sustainable Development is responsible for formulating prevention policies and incorporating them in the planning processes. Prevention policies and Official statements on prevention at national level are ad hoc and relate mainly to prevention programmes during rainy periods or associated with health and agricultural campaigns. With reference to the Regional Andean Programme for Risk Prevention and Mitigation (PREANDINO), the minister of sustainable development and planning (MDS) has announced the government's commitment to formulate policies and strategies that incorporate prevention into the planning system. Formal decisions: The MDN has been made legally responsible for execution of prevention measures and MDS for development of prevention policies and the incorporation of them within planning and investment processes.</p>	<p>The government has recently advanced several national programmes to incorporate prevention into development practices, such as the Programme for Risk Prevention and Reduction financed by UNDP and the World Bank. Another Programme financed by GTZ is the "Local Risk Management Programme". In housing, the National Housing Subsidy Programme, financed with 2 per cent of employer contributions, includes the Prevention and Risk Mitigation Sub-Programme. The Ministry of Agriculture, Livestock and Rural Development is implementing the National Food Security Monitoring and Early Warning System, which is responsible for monitoring the impact of natural disasters on agricultural production. PREANDINO promotes the coordination of all initiatives, for which it is supposed to establish frames of reference through the national plan, by identifying policies, programmes and projects of national interest and defining policies to frame national measures. Actually, PREANDINO-CAF, GTZ and MDS have signed an agreement to develop these processes at national, sectoral and local level. UNESCO, jointly with the MDS, is supporting a programme in connection with El Niño phenomenon. Recently has been approved an important BID prevention loan that includes prevention plans elaboration.</p>	<p>There are plans in the health and agricultural sectors but they are focussed mainly on relief. In the health sector, there is a preparedness and response plan and in agriculture, the ministry has drawn up an agricultural emergency plan. National and sectoral plans initiated within the context of PREANDINO are being prepared. Under PREANDINO-GTZ-MDS agreement, sectoral and local pilots prevention and mitigation plans are in process. This programme includes development of methodologies for the elaboration of prevention and mitigation plans at national, sectoral and local level.</p>	<p>Proposals for prevention have been incorporated in the Comprehensive National Plan for development (encompassing the economic and Social dimensions) and in National Plan to reduce desertification. There is a draft of the National Planning System standards that includes risks reduction. Guidelines are being prepared to incorporate prevention into local development plans. Also, there has been progress with land use plans. MDS has prepared policy guidelines for land use with risk consideration. This Ministry develops methodological guides for regional and local land use plans considering risk reduction. Some sectoral measures, as in agriculture, include proposals for reducing vulnerability. They have not, however, been integrated into plans for development. The development of the agreement between PREANDINO, GTZ and MDS includes the strengthening of this kind of incorporation processes.</p>
Colombia	<p>Official statements: There has been a national policy on prevention and risk management since 1989, encompassed in Presidential Directive No. 33 of 1990 and Education and Health Ministry Orders No. 13 of 1992 and No. 1 of 1993.</p> <p>Formal decisions: The National Plan for Disaster Prevention and Management was established in Decree 919 of 1989 and Decree 93 of 1998. The prevention decision is a state decision. The policy is maintained even though national governments change. Land use plan for municipalities (Law 388) establishes the due consideration to prevention.</p>	<p>Until very recently there was no commitment at high political levels to promote the preparation of departmental and municipal disaster prevention and management plans. Presently, in the context of PREANDINO, there is considerable commitment by the National Planning Department and some deputy ministers. This is reflected in the National Economic and Social Policy Council and in plans which will provide for a national effort to consider prevention in development plans and actions. In higher education, risk management issues are being promoted as an element of the basic syllabus.</p>	<p>Colombia has prepared the first prevention plan in the Andean Subregión, but it was not implemented during more than a decade. There are specific plans, such as the plan for the El Niño phenomenon and specific contingency plans. Little attention is given to undertaking planning exercises during periods of no apparent threat. Plans are more typically considered in new situations when a phenomenon is imminent. Some cities, such as Bogota, Medellín and other have developed a big experience in prevention plans.</p>	<p>The present government's national development plan includes a chapter on prevention and risk mitigation. Within individual sectors, energy and health has been shown progress, in the latter case, mainly at decentralized levels. Most departments and capital cities included the subject in the government plans during changes of administration in 2001. Many references are, however, strictly rhetorical declarations. Presently all the institutions are implementing the National Economic and Social Policy Council, with specific prevention proposals being considered in each development area. Municipal land use plans include risk consideration. Recently more than 60 plans were review to improve the criteria for elaboration.</p>



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Country	Institutional Framework	High-level programmes for promoting prevention	Prevention plans	Prevention in development plans and control mechanisms
Ecuador	<p>Official statements: In recent years, official statements have been made showing the government's commitment to furthering prevention and risk management policies, mainly at presidential, vice-presidential and some decentralized levels, in connection with the problems of disasters and within the context of PREANDINO. Formal decisions: There are no formal decisions on prevention, but there are decisions associated with PREANDINO initiatives. Within that framework, the national government has decided to strengthen the process of incorporating prevention in development through the participation of national, sectoral and decentralized working groups.</p>	<p>There has been no official promotion of prevention programmes but only direct action of the National Planning office. However, there is support for high-level initiatives promoted by international organizations, including PREANDINO.</p>	<p>Under PREANDINO framework, the President's Planning Office has finished a draft of National Prevention Plan. The Health, Water Supply and Energy sectors have also prepared a preliminary version of its prevention plans. Actually they have been reviewed. At this moment other five sectors are starting the process of plan elaboration.</p>	<p>The President's Planning Office has integrated prevention issues into the national planning system. Although the National Plan was drawn up prior to these efforts, its incorporation is being promoted for inclusion in the plans of decentralized jurisdictions. This includes terms of reference for provincial development plans, which already include risk prevention aspects in the strategic planning process. However, plans are yet to be finalized. Decentralized pilot are advancing in this matter (Quito)</p>
Peru	<p>Official statements: There have been no official statements on prevention during the past decade. Only prior to the 1997-98 El Niño episode were a few statements issued about actions taken to prevent damage. Currently, the subject has not been mentioned in official speeches.</p> <p>Formal decisions: There is not a legal framework for disaster reduction but a proposal for a General risk management law has been prepared. Official decision has been taken for prevention within sustainable development. Under PREANDINO framework, the government has created The Multisectoral Comision of the National Strategy for Development Risk Reduction (CMRRD) in 2002, dependig of the Chair of the Council of Ministers, which is in charge of the elaboration of the national strategy for disaster reduction within development processes. Organizations in nine sectors have been invited to participate, and individual sectors formally decided to establish sectoral committees. There has been a National Civil Defense System (INDECI) since 1972 with responsibility for prevention, emergencies and rehabilitation. In 1997, the government decided to reactivate the multi-sectoral ENP Study Committee, a body that coordinates scientific institutions. This has been maintained and the decision has proven to be a good one. In 1998, the government transferred responsibility for mitigation work on rivers from INDECI to the ministry of agriculture. After this INDECI recovered its initial responsibilities.</p>	<p>The Executive Committee for El Niño Reconstruction launched an Urban Mitigation Study Programme. Although lacking in legal endorsement, fifteen cities were studied with UNDP support until February 2001. This programme was transferred to INDECI. PREANDINO also aims to incorporate prevention in national and sectoral development planning. Due to the fact that there is not a Ministry in charge of Planning, the Chair of the Council of Ministers leads PREANDINO in Perú. CMRRD, GTZ, PREANDINO-CAF and BID have made an agreement to make synergies supporting the activities of CMRRD under a common programme at national, regional and local levels.</p>	<p>CMRRD has been advancing in the elaboration of the national strategy for risk reduction into development process. Actually this Comision has finished the diagnosis of hazard, vulnerabilities and risks and have identified some political proposals. PREANDINO committees are also preparing diagnostics for sectoral plans.</p>	<p>There have been some very limited attempts to incorporate prevention issues within specific sectors. An institutional limitation is the country's lack of national planning bodies, although other channels have been identified through the public investment structures working with individual projects. There are local experiments in planning and the development of projects, for example, in the basin of the River Rimac where Lima and eight other district municipalities have mitigation plans, emergency contingency plans and risk studies with microzoning maps. These municipalities regularly update their plans and keep the public informed in what is the most advanced experiment in local work. Actually, CMRRD, PREANDINO and GTZ decentralized pilots oriented to incorporate risk reduction in local plans are in progress.</p>

Country	Institutional Framework	High-level programmes for promoting prevention	Prevention plans	Prevention in development plans and control mechanisms
Venezuela	<p>Official statements: Following the devastating mudslides in Vargas State in 1999, reference to prevention concepts are being incorporated as part of development policy. It began to appear in national and municipal statements. The subject was also one of the main concerns of senior government spokesmen involved with reconstruction programmes.</p> <p>Formal decisions: Important steps are being taken to incorporate prevention in development processes. This is most evident in the Education sector which has been attentive to these matters for some time, and has set up a maintenance programme for incorporating changes in school buildings. Immediately after the Vargas events in 1999, the ministry of science and technology (MCT) formally institutionalized a disaster risk management policy with tools for its implementation. Financing was provided to support risk management, preparedness and disaster relief strategies. The national government joined PREANDINO to coordinate and promote these activities at all levels, and is now working within that framework to define strategies. The informal National Committee for prevention and Mitigation has prepared a legal proposal for risk management which has been submitted to the National Assembly . Some municipal bodies, such as those of Chacao, Sucre, Baruta, Maracaibo, Valencia and Alcaldia Mayor, as pilots of the PREANDINO, have formally decided to proceed with the incorporation of prevention in development management.</p>	<p>The MCT has set up the Risk Management and Disaster Reduction Programme which takes an integral approach to support the inclusion of risk management into development planning and sectoral and local actions, despite its emphasis on scientific development and the introduction of technologies into all risk management and disaster relief processes. PREANDINO implemented a global programme in December 2000 with objectives to coordinate the handling of disaster risks, to incorporate risk reduction issues into development policies and to support national, sectoral and local exchanges among countries. There are other sectoral programmes such as one to reduce vulnerability to socio-natural disasters in the education sector and another in the ministry of the environment and natural resources to prepare risk maps for land use planning.</p>	<p>There are no prevention plans but national and sectoral plans are in the process of being completed with the support of CAF cooperation. There are some territorial initiatives at PREANDINO pilots but no prevention plans exist for many municipalities. Only Vargas state has elaborated studies and proposals for disaster risk reduction in the area supported by national and local institutions.</p>	<p>A start has been to incorporate prevention issues in the National Development and Social Sector Plan as well as in a few regional plans. Initiatives in the utilities sector have partially incorporated prevention within certain subsectors such as hydroelectric power generation and in thermal power generation. Only very few municipalities have seismic microzoning and geodynamic risk maps for use in new techniques for municipal planning. JICA is supporting an interesting study for three municipalities of Caracas Metropolitan Area oriented to mitigation and preparedness. It has been coordinated with PREANDINO Pilot.</p>



Africa

The African continent is highly vulnerable to disasters from natural causes, particularly from hydrometeorological ones that regularly result in drought and floods. Equally important, the vulnerability to hazards is high, and rising. With the exception of a few examples, such as the Ethiopian Disaster Prevention and Preparedness Commission, historically throughout much of the continent, disaster management has focused on responding to recurrent emergency conditions and disasters rather than engaging in more sustained prevention activities



A major shift is now taking place in many countries, particularly in those that have been affected seriously, again, by drought or floods. The increasing impacts of climate change and variability on both the social and economic dimensions of African societies have also demanded more political attention.

The severe earthquake that shocked Algeria in May 2003 is a reminder of the real threats posed by earthquakes, especially in Northern Africa. This event particularly highlighted the necessity of a sustained risk management strategy composed of legislation and building codes that can reduce the impact of such a rapid-onset event that is not so easily predictable.

Despite their irregular frequency and relatively low level of impact, volcanic risks in Africa have demonstrated complex emergency situations. In the case of Nyiragongo in the Democratic Republic of the Congo, the consequences of the volcanic eruption were compounded by conflicts and political instability among the affected population. This very complex situation highlighted the need for disaster preparedness and prevention measures.

However following the event, a contingency plan has been prepared in collaboration between the provincial authorities in the Democratic Republic of the Congo and officials in neighbouring Rwanda. The municipal authorities of the city of Goma have also started thinking about creating a local civil protection capability, backed up by a legal framework in the immediate region. UNDP,

the UN Office for the Coordination of Humanitarian Affairs (OCHA), ISDR and the Council of Europe are all working towards developing interagency collaborative efforts to address the most critical medium to long-term disaster reduction needs of Goma.

Other issues in disaster risk management still remain major challenges for many African countries. These include the need to decentralize the authority and the operational capabilities to deal with hazards and risks at the sub-national and local levels. There is a continuing requirement to engage public participation and the social or institutional elements of civil societies in the decision-making and implementation of risk reduction practices, especially within local communities. At most national levels of responsibility, there is much that can be done to integrate disaster risk management into countries' social and economic development plans.

Subregional organizations can be very useful in supporting national initiatives to build capacity to identify and manage risks. They can be instrumental in sharing experiences among countries, as well as developing practical means of building cooperation among the various professional and academic institutions through sharing information, undertaking joint activities, and by complementing each other's professional abilities.

East Africa

Throughout many parts of East Africa, and more especially in the area of North-Eastern Africa, sometimes referred to as the Greater Horn of Africa, drought and famine are common. As a result, strategies to provide protection from famine through drought-resistant forms of food production and other related forms of technical assistance and emergency aid characterized the 1970s and 1980s. Currently emphasis is given to food security through agricultural production, improved rural access to food and markets, and the protection or management of pastoral animal herds. Taken together these measures strive to focus on developmental issues and seek broadly based forms of economic activity that can make livelihoods more sustainable in an often harsh and challenging environment.

Limitations remain with often absent and even existing legislation in many of the countries concerned. One major drawback in dealing with recurrent hazards is that much of the attention given to severe or threatening conditions focuses heavily on responding to already bad situations, rather than implementing strategies that anticipate possible risks and seek to minimize or prevent the worst consequences of a disaster.

Uncertainty may also be created within existing legal frameworks because of the different levels at which decisions can be made, or without a consistent application of coordination.

While efforts are underway to varying extents, countries can promote the adoption of national policies, update or expand legislation, and construct financial modalities and agreements. It may be an even more productive use of scarce resources if these issues can be undertaken increasingly on a regional basis to support common policies and mechanisms, especially as the hazardous events and many of the inhabitants too, often range beyond a single country's borders.

The experiences of two countries in the Greater Horn of Africa – Ethiopia and Kenya – demonstrate how each has managed past disasters and the initiatives they have taken based on that experience to improve their respective capacities in disaster risk management. In both cases the subjects of hazards and risk management have become associated much more closely with national development goals, objectives and programming initiatives, backed up with legislated frameworks.

Case: Ethiopia

As droughts and famines have been recurring phenomena in Ethiopia for many years, the country has developed a notable system of hazard monitoring and emergency response capabilities. In the wake of the famine episodes of 1970s the government established its Relief and Rehabilitation Commission (RRC) in 1974. An early warning system was created in 1976 that initially concentrated on relief efforts related to food security. Later, having recognized the limitations, the RRC broadened its approach to address the management of additional risk factors.

The highly centralized nature of the system was also seen to hamper its early warning effectiveness.

However, even with its own organizational modifications and improvements over ten years, the country still suffered immense losses from drought conditions in 1984-1985. The problems encountered highlight the importance of a wider set of relationships essential to disaster risk management. There was a failure to respond to early warning reports which had been publicized, because of mistrust between the government and international donors about the authenticity and accuracy of the information. This led to multiple, uncertain or disputed interpretations of conditions, and resulted in inaccurate estimates of both consequences and immediate needs by international agencies. While delays worsened the extent of the crisis, there was also a protracted recognition of the inadequate logistical capacity available to respond to the ever more pressing needs.

Based on these past experiences and mindful of the linkages between drought, food shortages and famine, the government established a more comprehensive strategy. The National Policy on Disaster Prevention and Management (NPDPM) was created in 1993 with a primary focus on sustained economic and agricultural development. Attention was also given to the practical details of coping with food scarcity, relief procedures, decentralized early warning systems, and maintaining seed and fund reserves, schemes for efficient food deliveries to those most in need, and programmes for livestock preservation.

A key feature of the Ethiopian NPDPM was its linkage of relief issues to more basic and ongoing development activities. All line ministries were required to incorporate disaster reduction measures into their development goals and programmes, as well as to relate them to any eventual relief operations. The policy assigned specific responsibilities to various officials at different levels.

These policies evolved into the National Disaster Prevention and Preparedness Commission (DPPC) in 1995, addressing the wider aspects of disaster prevention, preparedness, emergency response and rehabilitation. It was established at



national level, having overall coordination of disaster prevention and preparedness activities. There are committees established at various levels of administration through which disaster tasks are performed.

Box 3.4

Ethiopian National Policy on Disaster Prevention and Management

The regard for the Ethiopian National Policy on Disaster Prevention and Management (NPDPM) achievements was based on the driving principles of its policies:

- No human life shall perish for want of assistance in time of disaster.
- Provision of relief shall protect and safeguard human dignity and reinforce social determination for development.
- Relief efforts shall reinforce the capabilities of the affected areas and population, and promote self-reliance.
- Adequate income shall be assured to disaster-affected households through employment generating programmes that provide access to food and other basic necessities.
- Contribution to sustainable economic growth and development shall be given due emphasis in all relief efforts.
- All endeavours in relief programmes shall be geared to eliminate the root causes of vulnerability to disasters.
- Disaster prevention programmes shall be given due emphasis in all spheres of development endeavours.
- The quality of life in the affected areas shall be protected from deterioration due to disaster.
- The assets and economic fabric of the affected areas shall be preserved to enable speedy post-disaster recovery.
- Best use of the natural resources of the area shall be promoted.

The ways by which NPDPM worked illustrates the importance given to maintaining a strong relationship with the social and economic values of the community. The community was encouraged to play the leading role in the planning, programming, implementation and evaluation of all relief projects. The role of line departments in this regard was to be subservient. Clearly defined focal points for action for different tasks were distributed among different levels. Such coordination centres needed to be properly empowered and to have necessary resources to undertake their responsibilities.

Precedence was given to areas where lives and livelihood were more seriously threatened. Relief was directed to the most needy at all times, and no free distribution of aid was to be allocated for able-bodied members of the affected population.

Ethiopia has constructed an elaborate institutional framework for natural disaster and risk management, incorporating preparedness, prevention and mitigation measures. This is a major departure from the past, when relief operations were the dominant focus of disaster management. The country has established four levels of focal points for coordination of disaster and risk management through disaster prevention and preparedness committees, at national, provincial, zone, and local (Woreda) levels.

The National Disaster Prevention and Preparedness Committee (NDPPC) is the overall body charged with the responsibilities at the national level for all matters regarding disaster prevention and management. The national office is replicated at the other levels and contains a similar membership composed of the following representatives:

- a chairperson designated by the government;
- Ministry of Finance;
- Ministry of Agriculture;
- the head of the regional affairs sector in the office of the Prime Minister;
- Ministry of Health;
- Ministry of Defence; and
- Ministry of Planning and Economic Development and External Economic Cooperation.

Other members include the presidents of regional councils (or provincial, zone councils at subordinate levels) and the Disaster Prevention and Preparation Commission (DPPC). Other agencies drawn from donors and civil society are included on an ad hoc basis depending on the nature of the disaster.

Four other government bodies are also associated with the work of the NDPPC at national level:

- Emergency Food Security Reserve Administration;
- National Disaster Prevention and Preparedness Fund;
- National Early Warning Committee (replicated at the provincial, zone and Woreda levels); and
- Crisis Management Group (replicated at the provincial, zone and Woreda levels).

Case: Kenya

More recent developments in Kenya have motivated a similar approach, but with different emphasis to reflect the needs of the country. The devastating impact of floods during the El Niño climatic variation in 1997-1998 re-emphasized the need for a disaster management coordination agency in Kenya. This led to strengthening of a National Disaster Operations Centre administered by the office of the president. A series of coordinated activities has been considered, and currently the following institutions operate in association with the office of the president:

- National Disaster Operations Centre;
- Arid Lands Resource Management Project;
- Department of Relief and Rehabilitation; and
- National AIDS Control Council.

In addition, there are other units which operate within various government ministries which have specialized roles. These include such functions as rescue and evacuation, fire fighting, contingency planning and management, research, crowd control and conflict resolution, and activities to combat terrorism.

A national policy on disaster management has been drafted and proposes a framework to coordinate all of these institutions dealing with the different aspects of disaster and risk management. Following extended consultations, a final draft policy framework proposes several new institutions.

The National Disaster Management Authority (NADIMA) would become a crucial coordinating body, with members drawn from relevant ministries and departments, the private sector, NGOs, social and religious bodies. Some international agencies may also be invited to participate. NADIMA's major functions and powers would include:

- authority over disaster management throughout the country;
- reviewing and updating all relevant policies;
- creating and managing a national disaster trust fund; and
- establishing special committees.

A secretariat would be composed to collaborate with sectoral ministries, local government authorities, district committees, and partner agencies. It would service the various committees of NADIMA and conduct the daily activities of the authority. The secretariat would be responsible for consolidating all disaster management related information, and then plan and coordinate all aspects of disaster management. This would entail the preparation of disaster management plans and their related budgets, as well as drafting individual contingency plans for specific types of hazards and risks. It is also anticipated that ongoing roles would include monitoring, evaluating and documenting of lessons learned and applying them to improve performance.

A department of planning and research is expected to undertake the crucial function of advising on future policies and areas that have a bearing on the broader aspects of disaster and risk management. It would pursue programmes for preparedness, early warning, prevention, research, and information management. A different but related department of operations would address the operational aspects of providing relief assistance, responding to acute phases of an emergency, mitigation of hazards, mobilizing resources, monitoring and evaluation.

Southern Africa

In general, Southern Africa has not regularly recorded massive losses from sudden-onset disasters besides periodic floods that have however brought considerable localized losses. Primarily, the major risks that have affected the region have been slow-onset disasters related to drought, epidemic and food insecurity.

In addition, prior to the early 1990s, perceptions of risk in the region were shaped predominantly by armed conflicts and their destabilizing consequences. As a result, the first political engagements with natural disaster reduction in Southern African countries were driven by the protracted ravages of drought or the disruption of livelihoods caused by other emergencies.

To a significant extent since that time prevailing disaster management capabilities have been more



narrowly focused on monitoring agricultural conditions and food availability, or planning emergency relief contingency measures focused almost exclusively on droughts. There are a few regional disaster reduction initiatives now in place, with their antecedents dating back to the 1980s (see chapter 3.3).

Presently, concern is now being expressed more widely across the region about the persistence of drought conditions, unusually heavy precipitation and flooding at other times, and a renewed consideration of climatic variation on livelihoods and food security. As a result, individual countries in Southern Africa are reassessing national needs related to disaster risk management and reorienting earlier national strategies more closely to developmental objectives.

Case: South Africa

A methodical, if protracted, effort to develop a comprehensive national strategy for disaster risk management has been pursued in South Africa by reforming organizational structures and creating new legislation concerning disaster risk management.

As so often happens, it was after a severe crisis – flooding in the Cape Flats of Capetown in 1994 – that the government resolved to assess South Africa's ability to deal with disaster risk management. This initially involved a complete review of disaster management structures and policies.

One year later, the cabinet recommended that a formal structure for disaster management be established. An initial National Disaster Management Committee was formed in 1996 with the intended function of coordinating and managing national disaster management policy. As that body never came into being, in mid-1997 the government approved the formation of an alternate Inter-Ministerial Committee for Disaster Management (IMC).

A Green Paper on disaster management was produced as the first tangible step to establish a formal disaster management policy for the country. It was tabled in February 1998 and provided an important conceptual framework for

public dialogue about disaster management and risk reduction at local, provincial and national levels of interest.

A year later, a policy White Paper was developed by South Africa within the framework of the IDNDR. Key policy proposals included:

- integration of risk reduction strategies into development initiatives;
- development of a strategy to reduce community vulnerability;
- legal establishment of a national disaster management centre;
- introduction of a new disaster management funding strategy;
- introduction and implementation of a new disaster management act;
- establishment of a framework to enable communities to be informed, alert and self-reliant; and
- establishment of a framework to coordinate training and community awareness initiatives.

Importance was also given by South Africa to contributing to joint standards and common practices along the same lines with neighbouring countries and other member states of the Southern Africa Development Community (SADC).

Meanwhile, in order to address South Africa's immediate needs, an interim disaster management authority was composed with representatives from ten national departments. This was later converted into a National Disaster Management Centre (NDMC). However, despite the fact that it has been operational since 1999, it has yet to become a statutory institution.

An Inter-Departmental Disaster Management Committee (IDMC) was also established in the same year to ensure better coordination among government departments at national level. This, however, was intended as an interim measure until such time when the planned statutory structures became functional under a disaster management act.

In 2000, the first disaster management bill was published for public comment. However, the initial enthusiasm and momentum shown by the government seemed to decline with numerous postponements of the tabling of the bill. After another severe crisis – this time, the devastating

floods in parts of Southern Africa in 2000 – political priorities changed as the importance of disaster management policy and legislation resurfaced. The National Council of Provinces called a disaster management conference to consider disaster risk management issues on a regional basis in May 2000, and following that the bill was finally tabled.

During the review process the disaster management bill moved away somewhat from the earlier policy emphasis expressed in the Green and White Papers and focused more attention on intra-governmental institutional relationships and related operational arrangements. The rationale behind the bill was to ensure that unambiguous guidelines could be given through regulations once the legislation was promulgated. The bill provided guidance with respect to the legal establishment of the NDMC, the duties and powers of national, provincial and local instruments of government and funding for post-disaster recovery and rehabilitation.

The bill also provided for an Inter-Governmental Committee on Disaster Management to consist of cabinet members involved in disaster management, members of the executive councils from the nine provinces of the country and representatives of local government.

A further structure proposed in the bill was that of the National Disaster Management Framework, to outline coherent, transparent and inclusive policies on all aspects of disaster management including training and capacity-building.

The bill stipulated the establishment of disaster management centres at all levels of government. As one of the primary functions of the centres would be the assessment of disaster risks, the bill also established procedures for the collection and dissemination of risk assessment information. Emphasis has also been given to measures that could reduce the vulnerability of people in disaster-prone areas. The final disaster management bill was unanimously accepted by parliament and the National Council of Provinces in their final sitting at the end of 2002 and was enacted by the president in January 2003. Following its promulgation, the disaster management act is expected to generate greater involvement by provincial and local government authorities to undertake risk assessment activities.

Case: Mozambique

One of the principal challenges for consecutive governments in Mozambique has been responding to disaster emergencies. Since its independence in 1975, considerable resources have been used for disaster management and institutions have continually evolved to deal with new and challenging conditions. This hard-won experience has produced numerous seasoned disaster and risk management officials throughout different government departments and a well-developed inter-ministerial structure for the coordination of disaster and risk management.

It is much to the government's credit that for some time it has recognized the importance of shifting its emphasis in disaster management from immediate response to long-term mitigation and risk reduction. In the last few years, there has been a dedicated effort by the highest levels of government to establish formal arrangements and procedures that can build capacities for improved disaster risk management in the future.

From as early as 1981, the government was attentive to the need to address the consequences of risk on the society. A Department for the Prevention and Combating of Natural Calamities (DPCCN) was established with the objective of promoting early warning and mitigation activities. During a period of complex national emergency from 1982-1994, DPCCN became a principal conduit for international aid to people displaced by conflict and the victims of repeated floods and droughts, with logistics becoming its predominant activity.

Following improved conditions and changing needs of the country, in 1996 a process began with the support of the World Food Programme (WFP) to formulate a coherent national disaster management policy and to reorient disaster management towards risk reduction activities. During the closing years of the 1990s, this involved sustained efforts to reinvent institutions and revise policies created in the prolonged period of permanent emergency.

As expressed in current national policies, the primary objective has been to break the vicious cycle of continually expending scarce resources for emergency response and reconstruction, only then

such a disproportionate application of available resources historically between relief assistance and risk reduction, it is not difficult to see why effective reform may prove difficult to sustain.

West Africa

In terms of policy and public commitment to disaster risk management, some national capabilities exist in West Africa to varying degrees. However, as occurs elsewhere, much of the attention is given to responding to single emergency or crisis events, and too often, only at the immediate time when they occur. There is considerably less attention or resources committed to sustained disaster reduction strategies, whether they pertain to the prevention, preparedness or mitigation of hazards.

The efforts demonstrated in disaster management so far involve inter-ministerial and cross-sectoral interaction throughout the area, and to a lesser degree the participation of civil society or local communities. However, with a single exception, no other countries in West Africa incorporate disaster risk management in their poverty reduction programmes. Ghana recently developed explicit programmes to mitigate the impact of hazards and to prevent disasters affecting the poor, having included them in its 2002-2004 poverty reduction strategy for the vulnerable and the excluded.

The aftermath of the Jola boat capsizing disaster off the coast of Senegal in 2002 has raised the awareness of the importance of disaster prevention. Several initiatives have ensued, as the Ministry of Interior has developed guidelines for prevention by all sectors and levels of society from the national level to local communities.

Case: Senegal

Statutory responsibility for managing national institutions for disaster management in Senegal lies with an inter-ministerial committee coordinated by the Ministry of Interior. There is also an office of civil protection, acting through the Superior Council for Civil Protection, established in February 1999 responsible for prevention. Emergency response is managed

under the Organization des Secours (ORSEC) National Plan for Organizing Assistance in Case of Catastrophes, established in March 1999.

Civil protection activities in risk reduction and disaster management are decentralized in all 11 regions and 34 departments of the country with the regional commissions headed by the governors, while the prefects head the local department commissions. ORSEC is also decentralized to the regional level and operates through four committees: assistance and safety; police and information; medical and self-help; and works and transport.

Historically there had been several pieces of legislation for the different agencies involved in disaster management. However, these various legal instruments had not been harmonized, nor was there a more integrated approach to disaster and risk management in the country. As several NGOs seemed unaware of their existence and did not participate in their development, they do not seem to have particularly wide public exposure.

Separate plans for prevention and protection have been developed at the national level, as well as for individual functions or components of agencies, such as contingency plans for responding to industrial accidents or hazardous material accidents.

The aftermath of the Jola boat disaster has generated an increased awareness of the importance of disaster prevention. This has sparked a flurry of activity within the government, but also in the familiarity of safety and protection outlooks among the public.

The Ministry of Interior has compiled a risk map and composed a menu of prevention measures for each department and region in the country. These are important steps in that they identify the location, nature, means of prevention and responsible institutions for each type of risk that has been identified. The Ministry has also developed guidelines for prevention action that can be taken by all sectors and levels of society from the national level down to local communities.

Each of the ministries, as well as the office of the president, has newly-designated responsibilities for



disaster risk prevention and management. In addition, a programme is being developed to organize sensitization and training courses on disaster protection in educational institutions throughout the country.

A unified plan is being formulated for prevention that consolidates earlier regional and departmental plans. Under the new guidelines for ministries, the Ministry of Finance and Economy is tasked with integrating disaster prevention in social and economic planning policies to ensure sustainable development. This includes endeavouring to provide adequate financing to reinforce the administrative structures and local capacities for risk prevention. Resources are also being allocated for the development of a facility to train civil protection staff and functionaries in disaster management and, especially, risk prevention practices.

The Senegal experience demonstrates how a national tragedy can motivate renewed commitment and broader political, professional and public involvement in creating a safer and more disaster resistant society.

North Africa

Attention to natural hazards and the related risks they pose to Northern African countries is typically focused on managing the acute phases of an emergency, or the need for emergency relief assistance after the declaration of a disaster, such as a drought or famine.

Natural disasters most often figure in national governmental socio-economic planning in terms of drought. Most of the countries in Northern Africa consider that drought is a structural feature of their socio-economic profiles affecting livelihoods, as well as the national economies.

There are some technical structures in place and institutions dedicated to drought and monitoring specific food security indicators throughout most of the countries of Northern Africa and the arid Sahel region that runs across the continent.

At national levels of interest, there are examples of government institutions involved in the hydrometeorological aspects of hazard monitoring. Typically these include authorities responsible for meteorology, water resources management, agriculture, environment and natural resources.

Similarly, legislation relating to hazard and risk issues is frequently fragmented over different domains such as those of land planning, public works, environmental management, and various other government institutions in charge of single sectoral interests.

There is evidence of some general awareness such as the design and construction of transportation infrastructure in zones vulnerable to flooding and desertification or the management of hydraulic works and river basins in the public domain. However, more fundamental practices related to natural disaster risk management such as risk assessment and early warning systems are not yet routinely integrated into existing legislation.

Most countries have some form of a civil protection authority, but none of the Northern African countries has a national authority dealing specifically with the management of risks overall, nor of natural disasters. Such a limited institutional approach can impede a sustained commitment to managing risks before an acute emergency occurs, or can limit the possibilities for effective coordination at times of serious needs.

The integration of more comprehensive strategies to identify and then monitor risk factors in association with national development objectives remains in early stages in almost all of these countries. Since 2002, several devastating storms or floods have occurred in Morocco, Algeria, Mauritania and Sudan, while severe earthquakes have affected Cairo, most recently in 2002, and Algiers quite seriously in May 2003. These events demonstrate that there is justifiable concern for a more systematic approach to disaster risk management.

Pacific

Pacific small island developing states (SIDS) are diverse in their physical and economic characteristics and exemplify many different cultures, languages and traditional practices. Most of these island states comprise tiny areas of land widely dispersed throughout the Pacific Ocean, so that even within single countries, the distance between islands can be enormous.



Their small size, scattered distribution and relative isolation of many communities characterize development activity differently from that in other parts of the world, and further result in it being quite costly. Human settlements range from traditional rural villages where most people live, to rapidly growing commercial cities.

While there are many forms of land tenure throughout the region, most are based on communal land ownership through which joint community control is exerted over the use of land and many of the decisions that regulate the exploitation of natural resources.

Despite a popular portrayal of the South Pacific as a region of islands with serene beaches, blue lagoons, and an idyllic lifestyle, SIDS have very fragile ecosystems. There is great concern about the consequences of climate change and rising sea levels.

For these reasons, Pacific SIDS are committed to the implementation of development projects to reduce risks to people and property. They have worked to strengthen their national and regional resilience to hazard impacts. The historical record of specific disaster reduction initiatives also shows that Pacific island states have adopted positive approaches in both traditional and more contemporary ways to enable Pacific islanders to maintain a respect for their chosen cultural values.

However, as some major hazards occur only rarely, governments and communities can find it difficult to maintain a high level of awareness and preparedness for specific or individual events alone. The resources available for disaster mitigation have changed over time, too.

In Tonga, local communities need the initial support and direction of government to be active in disaster reduction. They are aware of what is at risk but cannot implement measures on a community basis because of a lack of resources.

Tonga response to ISDR questionnaire, 2001.

Box 3.5

Capacity-building in Pacific island states

A foundation of disaster risk reduction throughout the Pacific is that island communities have inherited a resilient social system. The strength of this system is in its extended family values and communal mechanisms that link to national systems. It requires only a little restructuring and advocacy to integrate these into a practical organizational framework that will foster ownership and promote joint participatory approaches to mitigation management between government and other stakeholders.

The challenges for island states arise from the expanding progress of development on an essentially limited volume of natural resources. This has forced development to encroach on the environment, rapidly increasing community vulnerability to natural disasters. Increasing awareness of mitigation measures through science and technology alone cannot foster preparedness. Links between science and society have to be forged.

Mitigation for Pacific disaster managers means being good facilitators. It calls for skills to build operational networks to make effective use of local resources. It requires building collaboration and technical competence. It means partnership among stakeholders.

In the past years, Pacific island states established strong national coordination units. Importantly, each state has developed a national disaster management plan that establishes the management structures and allocates responsibilities among key organizations. The support plans and operational procedures are critical for including the community in a system that works in partnership with government.

Mitigation pilot projects that can be conveyed through this management approach are providing the building blocks that successfully incorporate mitigation planning into national systems.

Source: A. Kaloumaira, 1999.



Governments became involved in disaster assistance early in the colonial era, taking over responsibilities at independence, often by providing relief assistance and rehabilitation materials following a disaster. Such aid came to be understood by both donors and recipients as unencumbered assistance. As the amount of external or official disaster relief assistance has increased sharply over recent years, so too has community dependency.

A study by a Fijian, A. Kaloumaira (SOPAC-DMU, 1999), illustrates the state of capacity-building for Pacific island states in terms that reflect the basis for the incorporation of disaster mitigation frameworks into national policy outlooks and popular understanding. The relevance and therefore the efficacy of disaster risk reduction is heavily dependent upon the extent to

which it reflects prevailing social, cultural and environmental interests of the people it is intended to serve.

Case: Cook Islands, Fiji, Vanuatu

Examples of the ways in which some Pacific small island developing states have sought to incorporate disaster risk management measures into their national development strategies are summarized in Table 3.3. The examples drawn from the Cook Islands, Fiji and Vanuatu focus on the organizational frameworks and policy aspects those countries have pursued with respect to incorporating disaster risk reduction into larger national interests. These indicative examples should not be considered as being either comprehensive or exhaustive in themselves, nor of the region as a whole.

Table 3.3
Disaster institutional frameworks in the Pacific

Country	Institutional frameworks	High-level programmes for promoting prevention	Prevention plans	Prevention in development plans and control mechanisms
Cook Islands	<p>NDMO coordinates disaster management.</p> <p>National and Island Disaster Management Plans call for the National Disaster Management Council to be responsible for policy issues.</p> <p>Establishment of a US \$30,000 disaster reserve within the Ministry of Finance.</p> <p>The Island Disaster Management Plan stipulates local government to be responsible for local disaster management activities.</p> <p>Red Cross disaster preparedness programme and first-aid training goes hand in hand with broader preparedness plans.</p>	<p>Introduction to disaster management training course implemented in every island of the Cooks reaching at least 35 per cent of the population of each island.</p> <p>Principles of disaster management integrated in the social science curriculum of the education system, so each child learns of these principles in their school years.</p> <p>Coastal Protection Units protecting the airport from being inundated and minimize tidal energy from surging into hotels on the beaches.</p> <p>Radios placed in emergency centres in the northern islands receive national broadcasts from Rarotonga, enabling communities in the Northern Cook Islands to monitor weather and emergency warnings for the first time.</p> <p>Foreshore Protection Committee.</p> <p>EMWIN early warning system for tropical cyclones is in operation.</p> <p>Rarotonga Tourism Vulnerability Pilot Project</p>	<p>Cook Islands Building Code: a report on promoting codes, and their application was completed in April 1999.</p> <p>A Building Control Unit has been set up for compliance and enforcement by the introduction of commercially experienced construction personnel.</p> <p>Disaster Management Work Plan:</p> <ul style="list-style-type: none"> • National Disaster Management Plan for Cyclone Response Procedures • Tsunami Response Procedures. 	<p>Development is being undertaken at the national and political levels through an advocacy strategy, with comprehensive sectoral and societal involvement:</p> <ul style="list-style-type: none"> • Ministry of Transport in the prevention and response to oil pollution • Government Environment Services Unit in climate change • Natural Heritage Unit responsible for community consultation and promotion of biodiversity • NDMO in prevention, mitigation and preparedness activities. <p>Outer Island Development Projects (forestry on Mangaia Island, water reticulation systems, communication systems).</p> <p>Cook Islands government has ratified at least 25 environmental global conventions.</p>

Country	Institutional frameworks	High-level programmes for promoting prevention	Prevention plans	Prevention in development plans and control mechanisms
Fiji	<p>In 1990, the government designated the Ministry of Regional Development and Multi-Ethnic Affairs responsible for natural disasters and the Ministry of Home Affairs for human-caused disasters.</p> <p>NADMO at the Ministry of Regional Development and Multi-ethnic Affairs, manages and coordinates all activities.</p> <p>The national coordination policy is documented in the</p> <p>National Disaster Management Plan 1995 and the Natural Disaster Management Act 1998.</p> <p>Established a National Training Advisory Committee.</p> <p>Fiji Meteorological Service, Mineral Resource Department and the Public Works Department are responsible for monitoring and detecting hazards affecting Fiji.</p> <p>The National Disaster Management Council established the Disaster Management Committee at National Divisional and District levels (DISMAC).</p>	<p>Suva Earthquake Risk Management Scenario Pilot Project (SERMP).</p> <p>Taveuni Volcano Risk Project: updates eruption information for use in preparing risk maps and in developing guidelines for development planning and emergency risk planning.</p> <p>Volcano Hazard Risk Mitigation in Fiji: mapping and understanding volcano hazards on the islands of Kadavu, Koro and Rotuma to</p> <p>develop risk maps, development planning and volcano response plans.</p> <p>Ba Flood Preparedness: providing flood information and preparing flood response plans, conducting local education and awareness activities.</p>	<p>National Disaster Management Plan</p> <p>Disaster Management Work Plan</p> <p>A National Building Code formulated in 1990, but yet to be legislated and implemented. Work is underway to accomplish.</p> <p>Support plans for Cyclone</p> <p>Operational Support Contingency Plan for Taveuni Volcano.</p> <p>Cyclone Preparedness at Community Level: Foundation for the Peoples of the South Pacific "Fiji's Awareness Community Theatre Cyclone Preparedness Programme" uses video and drama to better inform village communities.</p>	<p>A proactive approach to disaster reduction continues to be the cornerstone of Fiji's national effort.</p> <p>A major issue is the restructuring of the NDMO within the Ministry of Regional Development and Multi-Ethnic Affairs.</p> <p>Construction of disaster resistant infrastructure: mitigation measures and strategies are considered at national level (Ministry of Regional Development and Multi-ethnic Affairs), and local levels (District and Divisional Development Committees). This risk management approach adopted throughout the country.</p> <p>PICCAP: Greenhouse Gas Inventories and Vulnerability and Adaptation Assessments. Climate change is integrated into disaster reduction agenda.</p>
Vanuatu	<p>National Disaster Management Act No. 31 of 2000.</p> <p>The National Disaster Management Act provides more power for NDMO to undertake its national responsibilities and for the six provincial councils to become more proactive in disaster management.</p> <p>NDMO coordinates disaster management. It is an information resource for the country at all levels of government (national, provincial, municipal councils, village councils), NGOs, the private sector and communities.</p> <p>Provincial governments must have disaster mitigation as a policy as per the National Management Act.</p>	<p>Professional development programme.</p> <p>Community resilience programmes (CHARM)</p> <p>Community-based volcanic risk reduction.</p> <p>Involvement of the private sector (Telecom Vanuatu, Unelco - power and water facilities).</p> <p>Building cyclone preparedness.</p> <p>Flood mitigation projects.</p> <p>NDMO have initiated a very active program on public education through the Teachers College in Port Vila and several high schools.</p>	<p>National Disaster Management Plan.</p> <p>Disaster Management Work Plan.</p> <p>National Building Code (not yet enacted).</p> <p>Support plan for Ambae Volcano Operations.</p>	<p>In conjunction with the SOPAC-DMU CHARM Programme, Vanuatu is developing a new structure for its NDMO office.</p> <p>In 2002 the NDMO office will be relocated from the Department of Police and linked with the line ministries of the Government.</p> <p>Further important areas of public policy are now in progress, including the review and revision of the National Disaster Emergency Plan, development of support plans, institutional support for the NDMO and training and education programmes.</p>



In Canada, provincial and municipal jurisdictions have legislation, programmes and activities that may not necessarily interface with national level disaster reduction issues.

However, the implementation of disaster reduction measures is likely to occur at the municipal level, including legislation and enforcement.

Canada response to ISDR questionnaire, 2001.

In Germany, the most important risk reduction issue to be addressed concerns the harmonization of duties, responsibilities and legislation between the state government and the different local bodies. The key national issues are:

stronger commitment of the federal government to the coordination of civil protection activities;

stronger integration of disaster mitigation in regional planning by legislation; and

stronger support for interdisciplinary scientific research centres for disaster prevention.

Germany response to ISDR questionnaire, 2001.

National planning processes with multisectoral responsibilities

Authority and external resources normally flow from the apex of political power, while knowledge of the situation, information, local resources, and leadership all rise from the local community. Disaster planning will always be ineffective if confined strictly to a process of central planning and command and control practices. However, it must equally be recognized that various national approaches have to be tailored to the structures and practices prevailing within different countries' needs and conditions.

In order to achieve effective local disaster plans it is essential that provincial, district and local level officials be given power and resources to manage disaster protection activities. However, such systems require national disaster risk reduction plans that are fully compatible with local level provisions. In many countries where power has been devolved to local levels of administrative responsibility, there can be unhelpful discrepancies between policies and practices at various levels of government.

Tools are required to create a culture of prevention against all forms of hazards within local communities. This requires the knowledge of practical and low-cost methods which address hazards that can be conveyed to participants including local leaders, community groups, merchants, commercial and financial interests and local government employees.

Europe

Case: Switzerland

In Switzerland, a long-standing federal forest law recognized the importance of forests with respect to reducing water runoff. Forests also were recognized as a means of protection against avalanches as early as the 19th century, when extreme events revealed the catastrophic effects of large-scale timber cutting, especially in the pre-alpine and alpine regions.



The unhindered felling of trees came to an abrupt end. Simultaneously, many major river training works were commenced, completed or renewed as an emphasis was then placed on protective measures of river engineering.

Natural hazards continued to play an important role in modifying Swiss policies in the 20th century. The risk situation was aggravated further by development in hazardous areas. The social and economic consequences of avalanches, floods and windstorms exerted an impact on policy considerations, but Switzerland has also recognized that absolute safety cannot be achieved by any means.

Great strides have been made in the past years as the country has proceeded from the earlier conventional protection from hazards to develop more integrated risk management. This approach is based on a balanced equilibrium of disaster prevention, response and reconstruction measures. Residual risk which is based on social, economic and ecological criteria must therefore be deemed to be accepted.

In order to establish coherent procedures that take account of the country's cultural, geographical and linguistic diversity, Switzerland gives considerable importance to the "subsidiary principle". This principle is constituted as one on the inviolable rights of the lower hierarchies of official authority and public responsibility.

It establishes that the upper hierarchical levels only exert a degree of political power and only take over those administrative duties that the lower levels of responsibility are not able to cope with, or accept, themselves. Hazard and risk management in Switzerland follows this subsidiary principle also in the political sphere, as there is a distribution of responsibility between federal, cantonal (state) and communal authorities. This equally extends to

individual land and property owners as well as to other various public institutions and organizations.

While the three cornerstones of prevention, response and reconstruction have comparable importance in Swiss disaster management strategies, they relate in a somewhat reverse subsidiary relationship to each other. Great emphasis is placed on prevention. Response must be efficient and smooth in the face of catastrophic events. Reconstruction has to take place subsequently, and to a degree which is necessary, feasible and compatible with far-reaching considerations about the environment. The ultimate aim of the Swiss strategy has been to achieve sustainable development in all aspects of natural disaster reduction.

Beyond its own borders, Switzerland maintains and promotes the exchange of experience with other countries in regard to disaster reduction. It supports international collaboration in sustainable development and the provision of humanitarian assistance when required.

Guided by these principles, the National Platform for Natural Hazards (PLANAT) was created by the Swiss Federal Council in 1997. This extra-parliamentary commission is made up of representatives of the federal government, the cantons, research and professional associations and the economic and insurance sectors. The terms of reference for the first period of its activities from 1997-2000 were to:

- develop a national strategy for dealing successfully with natural hazards;
- coordinate all parties involved in disaster reduction; and
- create more awareness about natural hazards and replace the conventional approach to protection with an enlarged understanding of risk management.

Plans for the second period of activities from 2001- 2003 gave priority to:

- promotion of public relations;
- initiation and support for projects which further integrated risk management;
- support for third party projects that share similar aims; and

- better utilization of synergies among various sectors.

Building awareness about risk reduction through information exchange and education is increasingly considered important by virtually all players in Swiss risk management. An interesting development in this field is the virtual campus initiated by several Swiss universities and research institutes, called the Centre of Competence on Natural Disaster Reduction. Students, researchers and other practitioners working with natural hazards can access courses and risk-related information on their website (also see chapter 4.4).
<<http://www.cenat.ch>>

Moves are also underway to upgrade the Swiss National Alarm Centre, recognizing that communications are important for the routine exchange of information in times of calm as well as during times of crisis.

It is recognized that more finances need to be allocated to build greater awareness for disaster risk reduction among the public and policy makers. It is a bitter fact that individuals and politicians have a short memory, which explains why things normally only start to move in the wake of a disaster such as occurred during the severe winter storms at the end of 1999. As financial resources are always limited, they must be allocated in the most productive manner. Several changes are underway to ensure their most effective use. These include:

- giving preference to non-structural preventive measures, such as the maintenance of watercourses rather than river-engineering;
- shifting resources from reconstruction to preventive measures;
- reallocating resources to increase inter-cantonal collaboration and to avoid duplication; and
- improving the coordinated use of government subsidies and similar incentives for local authorities and communities.

In other cases of national frameworks and policy commitments, impetus may come from different sources. Risk reduction plans may be linked to specific events or designated responsibilities, policies and practices as the following examples drawn from elsewhere in Europe illustrate.



In Portugal we should be prepared for disaster and thus develop adequate policies, including:

defining safety policies;

informing and educating the public concerning risks and the development of a civil protection culture;

improving risk mapping;

promoting the study of seismic impact and other risks facing communities and their social economic patterns;

improving the scope of emergency planning;

defining a national land-use policy;

developing a strategy to strengthen building structures;

providing the financial resources to facilitate compliance with existing codes; and

protecting cultural assets.

Portugal response to ISDR questionnaire, 2001.

Case: Russian Federation

Russia has a comparatively long history of disaster reduction and emergency response with a set of institutional initiatives introduced during the past decade.

During 1992-1993 the national Unified State System of Early Warning and Disaster Mitigation, subsequently, the Russian System on Disaster Management (RSDM) was established.

In 1994 the status of the State Committee on Emergencies and Natural Disasters was elevated and became a federal ministry, the Ministry of the Russian Federation for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM). The institutional coordination of government efforts in disaster reduction was provided through an interagency commission for disaster reduction organized in 1995.

Since its creation, EMERCOM has demonstrated its expanding activities in the field, simultaneously recognized as a state authority in the Russian Federation that has been able to acquire public respect while gaining prestige among other government institutions. It has worked to develop and install a national institutional framework for natural disaster reduction in Russia. It encompasses major elements of legislation, administrative structures at the national level, coordination and implementation mechanisms, and national programmes aimed at emergency prevention and mitigation.

As Russia proceeded into a new period of economic and political development marked by an extended transition to a market economy and democracy, the country has redefined its approaches to environmental security. It has designed new schemes for responding to environmental change and insecurity. In the latter half of the 1990s, Russia adopted a broader concept of national security that shifted from a more traditional security perspective focused mainly on military defence, to a

more integrated concept reflecting a greater emphasis on human security.

The revised concept included a wider and more dynamic approach to considering national risks, such as those emanating from economic instability, organized crime, nuclear contamination, infectious diseases, or food and water insecurity. The mitigation of natural hazards or prevention of potential disasters became an integral part of Russia's national policies for enhancing environmental and human security. These issues were unambiguously placed at the forefront of national agendas after the consequences of the Chernobyl disaster were fully recognized.

New and additional commitments were made to increase the capacity-building process for performance of national policies for natural disaster reduction. This resulted in constructing a diversified institutional framework, including legislation, administrative structures, national programmes, response capabilities, and specific practices in the mitigation of hazards.

Current national disaster reduction policies emphasize three related dimensions: monitoring, forecasting and risk assessment of natural hazards; measures to prevent associated risk of natural hazards; and disaster risk management practices that can mitigate them or alleviate eventual damages that may be associated with them.

Major commitments of national policy include the compilation of an inventory and related databanks on territorial vulnerability to individual natural risks, as well as monitoring and forecasting their potential occurrence. This requires coordination and close cooperation among existing national hydrometeorological, seismological, agricultural, environmental and space monitoring networks. Major problems remain to be tackled to fully synthesize a variety of earlier monitoring networks and to improve the quality, quantity and regularity of data

measurement. Although crucial, monitoring and the related aspects of forecasting have remained weak elements in the national strategy.

National prevention and mitigation policies envisage that physical adaptation measures be undertaken in the areas vulnerable to particular risks, such as the use of hydro-engineering protective measures and by reinforcing seismic stability of buildings. Similarly, the expanded application of zoning measures, improved early warning practices, increased public awareness and more direct public participation in risk reduction are important policy or procedural actions being pursued.

Shifts in national disaster reduction policies have taken place as lessons have been learned from the effectiveness of recent experience with natural disaster mitigation. There is a strong requirement to move from the historical priority of emergency response towards potential risk identification, assessment and the reduction of risks by management and operational practices that can alleviate the severity of potential disaster impacts. There is a growing understanding that it is more economical to prepare properly for the inevitable hazards so as to prevent disasters.

The focal point to accomplish this strategy for disaster reduction in the Russian Federation is EMERCOM. It is a federal body of the executive governmental authority responsible for the implementation of official policy in disaster prevention and mitigation. It is also responsible for the operational management and coordination of government actions in case of emergency.

As technological hazards also constitute a threat to human security in addition to natural hazards, EMERCOM combines responsibilities for the prevention and mitigation of both natural and technological risks, commonly referred to generically as emergencies.

EMERCOM combines a broad range of competences that pertain to national policy formulation. It manages the operational aspects of emergency response, undertakes disaster reduction measures, forecasts and monitors natural and technological risks. Its major goals are the following:

- realization of state policy and undertaking measures to protect the population and territories from emergencies;
- provision of regulation, licensing, control and verification in emergencies prevention and mitigation;
- government management and coordination of activities of federal executive authorities in disaster reduction; and
- collection and processing of information for disaster reduction.

A Commission on Emergencies of the Russian Academy of Sciences elaborates strategies and details specific measures for the assessment of risks and disaster reduction. There is also a special working group on emergencies under the authority of the national president. EMERCOM

Box 3.6

Ministry of the Russian Federation for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters

The main functions of the Ministry of the Russian Federation for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM) include:

- elaboration of proposals and initiatives for national disaster reduction policy and legislation;
- maintenance of the Russian System on Disaster Management (RSDM);
- coordination of activities of governmental authorities at all levels in disaster reduction, including control and supervision of their efforts in emergency response;
- coordination of activities for emergencies forecasting, event modelling, and regional risk assessment;
- public education and training, training of government officers in disaster prevention and response, organization of public information and warning, control over establishment of warning systems;
- research on disaster reduction, development of seismic monitoring and forecasting;
- operational management and coordination of emergency rescue operations and application of disaster response methods in large-scale disasters and catastrophes;
- management of rescue forces, of civil defence and their training;
- coordination of rehabilitation of locations affected by disasters, enhancing social support and public security for the affected population, and provision of humanitarian support;
- management of reserve funds, including government reserves for emergency responses; and
- international cooperation in disaster reduction and humanitarian assistance.

Source: <<http://www.emercom.gov.ru>>.



coordinates horizontal and vertical relationships within the Russian government in disaster and risk management. A sophisticated communications and reporting structure is maintained among the various operational bodies.

Working across sectors, EMERCOM supervises activities of the various line ministries and agencies by working through a coordination body, the Interagency Commission on Emergencies Prevention and Mitigation. This includes representation from various government agencies, including the hydrometeorological service, Ministry of Natural Resources, Ministry of Fuel and Energy, Ministry of Nuclear Energy, Ministry of Agriculture, Ministry of Health, and the state technical inspection service.

This commission exercises major responsibilities to ensure the operational capabilities of the RSDM. It has sectoral and regional branches in all Russian regions. It combines a management structure with emergency task forces and the resources of both federal and territorial executive bodies designated to be responsible for emergencies and disaster reduction.

EMERCOM's vertical structure incorporates six regional centres (central, north-west, northern Caucuses, Volga-Ural, Siberian, and Far-East) with the territorial disaster management bodies in 89 subordinate jurisdictions. According to national legislation, it is the responsibility of territorial authorities to elaborate their respective regional laws to comply with national policies in maintaining task forces for emergencies mitigation and enhancing human security and performing rescue operations. They are also required to provide necessary resources and an accompanying permanent management structure to address disaster and risk management within their respective territories.

National legislation of the Russian Federation in disaster reduction consists of the basic federal law on the protection of population and territories from natural and technological emergencies, adopted in 1994. This is elaborated further by a set of corresponding federal legislation consisting of directives and regulations, as well as laws and acts of subordinate jurisdictions.

The basic federal law provides the legal foundation for disaster prevention and mitigation efforts. It defines the main notion of emergency situations and a set of expected response measures that incorporate principles of protection for the population and territorial assets. It stipulates the expected competencies of state authorities and governmental bodies in taking actions to avoid or limit adverse effects of natural hazards and to enhance human security. It further provides detailed division of responsibilities between federal, regional and municipal authorities. It regulates activities of the public and official rescue forces in emergency activities, and provides additional direction for public preparedness.

Disaster reduction legislation has been expanded considerably at both national and regional levels in Russia during recent years. In 2001, federal authorities introduced four federal laws, 24 governmental legal acts, and 55 directives for federal ministries that directly or indirectly relate to disaster reduction. These have been supplemented by the adoption of additional measures, including 23 legal acts and 1,024 normative regulations and directives.

Most of the regions throughout Russia have adopted territorial legislation that consists typically of general legal frameworks on preparedness, disaster mitigation and prevention. Additional acts have also been promulgated in specific sectors of disaster management and to promote various elements of human safety.

Special federal and regional programmes for public protection and disaster reduction are among the main instruments of governmental policies. The federal programme for natural and technological risks reduction and alleviating their impacts is in place until 2005. It is conducted jointly by EMERCOM; the ministries of industry, science and technologies, natural resources and nuclear energy; the Russian Academy of Sciences; and other bodies. In 2002, about 22 coordinating organizations and 73 participating institutions took part in its implementation.

Table 3.4
Legal acts and directives on disaster reduction adopted by regions of the Russian Federation in 2001

Main subjects of legal acts and directives	Number of laws, directives
General issue of preparedness and mitigation of natural and technological hazards	334
Target science and technology programmes and strategies on disaster reduction	38
Maintenance of administrative structures, emergency response and rescue task forces, and public preparedness	297
Development of evacuation schemes and rescue operations, and liquidation of hazards impacts	41
Maintenance of information, communication and early warning systems	63
Formation of financial and material resources and supplies, of special reserves (material, food, medical)	180
Government control, verification, and impact assessment	60
Social support for affected population, humanitarian actions in the areas of emergencies	11
Total	1024

Source: State report on protection of population and territories of the Russian Federation from natural and technological disasters in 2001, EMERCOM.

The main goals of this programme include:

- elaborating measures to counteract natural and technological emergencies;
- creating methodological basis for disaster risk management;
- developing norms and directives for enhancing governmental control and institutional responsibilities in disaster reduction;
- improving systems for emergency risk identification, prediction and monitoring;
- developing information management, communication and early warning systems;
- designing measures to enhance human security and risk alleviation; and
- improving public education and specialist training for hazard and risk mitigation.

The programme has elaborated government concepts that are conducive to implement strategies for disaster risk reduction. This has involved efforts to compile regional inventories and databases on technical and financial resources necessary for mitigation, the introduction of new information and communication techniques, and developing improved methods for the forecasting and monitoring of hazards. Additional technical activities have addressed technology for atmospheric monitoring, means for breaking ice obstructions, and advanced technologies that can measure the seismic stability and resistance of buildings and infrastructure.

A recent assessment conducted by the government noted activities devoted to emergency services and

the practical measures employed to identify emergency risks to the national system were quite effective. However, it also underlined that there were still some shortcomings in terms of developing broader institutional frameworks in natural disaster risk management (M. Kasianov, speech at the meeting of the high-level officials of EMERCOM, 20 November 2002).

One particular area noted for further attention was the persistent underestimation of the need for preventive measures, and a corresponding level of more limited attention to preparedness, monitoring and emergency warning among local populations. Further clarification and division of responsibilities between federal and local authorities was recommended. The situation was aggravated due to the violation of standards, and construction permits being issued by local administrations and municipalities with insufficient regard given to disaster-prone zones, regardless of existing legislation.

As a result of such ongoing assessment of national policies, renewed emphasis is now being placed on improving monitoring capabilities, and seeking to increase the effectiveness of natural hazard forecasts. The overriding goal is to strengthen the communication of information, forecasts and preparedness components within the context of all disaster risk management activities. This should spur greater attention to structured programmes of public awareness and more local participation. There is also a demonstrated need to develop more opportunities for insurance and similar risk-sharing strategies to be employed.



Further information on the nature of problems encountered, as well as measures being taken in the Russian Federation to update national capabilities in disaster risk management can be reviewed on the EMERCOM web site.
<<http://www.emercom.gov.ru>>

Case: Greece

Like several other European countries, Greece has managed emergency and preparedness plans under the framework of civil protection responsibilities. A new law on civil protection was adopted in 2002, however, to take account of the experiences following recent disasters in the country. This law increases the responsibilities of local authorities and municipalities in disaster management, promotes the wider integration and use of scientific and technical knowledge, and places greater emphasis on the role of public participation in civil protection activities.

Specific national prevention measures have also been adopted, directed primarily towards reducing earthquake risks. Seismic codes that have been in place and periodically updated have become the main tools of earthquake prevention and are mandatory for all new construction. However, despite national efforts for land-use and urban planning that have been expressed for disaster protection and specifically earthquake safety since 1983, the pressure of rapid urbanization has contributed to a lower degree of implementation than expected in some areas.

Against such a background, the lessons learned from the 1999 earthquake which struck Athens and the nearby Attica region of Greece have received considerable public and therefore political attention. They have been drafted within the framework of the Natural and Environmental Disaster Information Exchange Systems (NEDIES) project of the European Union Joint Research Centre, and can be reviewed in full on the Internet. <<http://nedies.jrc.it>>

Political leaders took notice of this particular event because it was the most expensive earthquake in modern Greece, with losses estimated at 3 per cent of the country's GDP. While many buildings performed relatively well in the earthquake, other important lessons were drawn for the future.

Seismic risk assessment would have to become more widely used in order to obtain a better understanding of the possible effects of future earthquakes and to support a viable decision-making system for earthquake protection.

While this applied particularly to the economically important area of Attica, more effort needs to be expanded for land-use and urban planning with respect to seismic safety. This necessarily would have to include geological and geotechnical analysis as well as micro-zoning studies, which are well-established in the technical disciplines concerned.

A project on establishing criteria and procedures for vulnerability assessment of public buildings and bridges was in progress when the earthquake occurred. It continues, focusing on existing buildings of critical or public use. A database will be created regarding the characteristics of more than 200,000 buildings as the earthquake confirmed that future consideration must be given to retrofitting existing buildings.

The earthquake also confirmed that seismic safety has much to do with the overall design of buildings. Thus, requirements in respect to seismic safety should be included in the general building code and related codes for the design of non-structural elements.

The earthquake opened a window of opportunity for upgrading the built environment and to promote other measures for seismic safety, but there was also strong pressure for quick reconstruction and a rapid return to pre-earthquake conditions. Municipalities with pre-existing plans and projects are better equipped to take advantage of such opportunities. Special measures for land-use planning and the protection of industries and businesses have been implemented after the earthquakes, including geotechnical studies of the Attica Basin, urban planning, and a proposed relocation scheme.

Earthquake education also pays dividends. Many training and public awareness initiatives were set up after the earthquake. Training seminars were conducted for teachers and public volunteers. Training materials such as CD-ROMs and books about earthquake protection were distributed, and web sites created, in local communities and among the youth of the area.

In many cases children reacted better than their parents during the aftershocks, thanks to the training they had received at school. Therefore, more public education is required involving all members of the community.

Informing the media is especially important, with further encouragement needed for closer work between the media and the scientific community on an ongoing basis, before any disaster occurs.

Risk reduction plans linked to specific responsibilities, policies and practices

Case: Iran

Iran is highly exposed to seismic hazards throughout the country. It became evident that a long-term vision was required to reduce the level of risk for the population. The development of a national policy of disaster risk reduction was promoted largely by scientific groups and technical interests.

Their example demonstrates that the evolution of risk reduction frameworks need not originate only from civil administration or political initiatives. Scientific interest groups exerted a major role in driving policy relevance and were able to implement actions in different segments of the society.

There were a number of problems to be tackled before a comprehensive and sustainable national framework to reduce seismic risk could be created. Following the 1990 Manjil earthquake, the International Institute of Earthquake Engineering and Seismology (IIEES), located in Teheran, began work with other technical institutions to develop a multidisciplinary strategic national research and mitigation plan for seismic risk reduction.

The resulting Iran Earthquake Risk Mitigation Program (IERMP) has been implemented by IIEES, the Building and Housing Research Centre, the Geophysics Institute of Teheran University and the Geological Survey of Iran.

With the added support of the Earthquake Committee of the Iran Research Council and

Iran's national IDNDR committee, the programme members adopted the following objectives:

- increase the scientific knowledge required for earthquake risk mitigation;
- reduce the risk of all structures by promoting the need to build safer structures;
- increase public awareness and promote a collective prevention culture; and
- develop plans for post-earthquake activities.

Politically, the first need was to promote a better understanding of seismic risk among senior policy makers and to translate that awareness into political commitment at all levels of government. This was pursued by emphasizing that elements of a risk reduction strategy were integral to national development objectives. Resources had to be reoriented from a predominant use in responding to immediate needs towards their investment in long-term objectives. Importantly, policy makers had to be encouraged to accept a policy of deferred benefits.

In an operational and technical context, emphasis was given to strengthening, and where necessary, retrofitting structures with particular attention given to lifeline facilities and the physical infrastructure. This became particularly crucial in highlighting a challenging incompatibility that existed between a developmental perspective that encouraged investment in seismic design, in contrast to the more prevalent thinking in the private and public sectors of incurring less expenditure on construction.

With the involvement of the engineering profession, backed up by its code of professional training, opportunities were identified to use technical knowledge in everyday life. This included a wider use of seismic design and construction techniques and a more serious approach to the implementation and enforcement of building codes. Perhaps most importantly, the engineering profession became an institutional champion to promote risk reduction.

IERMP developed a plan for government officials, scientists, engineers, builders and the public to define acceptable and achievable levels of risk by working together. This led to two parallel requirements, making seismic safety a priority



Table 3.5
Iran Earthquake Risk Mitigation Program

Type of resource	Before (1980-1989)	After (1990-2000)
Seismic researchers	Less than 40	More than 265
Seismic graduate students	Less than 20355	Seismic stations 1545
Strong motion stations	270	Approx. 1000
Research laboratories	2	7
Books and technical reports	Less than 100	More than 460
Budget	Over 10 years, less than 700 million Rials (US\$ 402,000)	Over 10 years, more than 128,000 million Rials (US\$ 73.5 million)
	In 1989 alone, about 104 million Rials (US\$ 59,727)	In 2000 alone, more than 37,000 million Rials (US\$ 23.3 million)
Investment for laboratories	US\$ 3.1 million	US\$ 11.5 million

The following table summarizes the increase in resources allocated to seismic risk reduction during the course of the Iran Earthquake Risk Mitigation Program.

policy through revised legislation, and creating internal mechanisms to change existing engineering practices.

A High Council on Risk Reduction was created in the Ministry of Planning and Management to supervise the implementation of the new programme. It concentrated on preparing the proper frameworks, budgeting, coordinating, and taking necessary decisions to ensure that the objectives were achieved.

The following are some of the actions pursued through the IERMP in policy areas:

- Shifting attention from responding to earthquake damage to introducing means that reduce the risk of damage to vulnerable structures and lifelines before earthquakes occur.
- Establishing a special government fund to strengthen important public buildings, including schools and hospitals, public infrastructure and lifeline facilities.
- Providing financial incentives for private and commercial sectors interested in upgrading their existing structures.
- Encouraging more industrialization in the construction field so as to ensure better quality control.

The following are some of the actions pursued through the IERMP in technical matters:

- Translating scientific knowledge into a usable format, using practical knowledge to promote risk reduction.
- Developing guidelines for conducting vulnerability assessments.
- Establishing detailed technical databases to document the necessary requirements to strengthen public buildings, setting priorities to do so, based on available resources.
- Determining the most appropriate and cost-effective means of strengthening different types of masonry, concrete and steel buildings.
- Promoting the use and enforcement of codes, quality control and inspection for all types of construction.

The following are some of the actions pursued through the IERMP to increase public understanding:

- Increasing public awareness and motivation using an earthquake information system.
- Motivating the participation of the public in prevention and mitigation activities.
- Promoting the use of do-it-yourself construction techniques suited for simple dwellings in rural areas.

Case: Kazakhstan

Kazakhstan often experiences earthquakes, floods, landslides and coastal floods. Only recently has the importance of natural disaster reduction been recognized officially. In May 2000, Kazakhstan's Emergency Situation Agency published the Plan of Preparedness of Kazakhstan for Natural Disasters with the cooperation of the Kazakhstan Red Cross and UNDP.

The plan cites the considerable financial losses incurred by the country because of disasters and urges all organizations to take proper action to reduce their negative impact on the country's development. The report provides guidance on preparedness activities for disaster reduction, response scenarios for disasters, legislation, and implementation of measures to reduce risk.

The last earthquake to devastate Kazakhstan took place in 1911, less than 30 kilometres south of Almaty. The memory of this event has faded from the country's collective consciousness. Recognizing that the Armenian earthquake of 1988 occurred along seismic faults that had shown little movement for over 3,000 years, the Emergency Situation Agency has worked to increase public awareness about earthquake risks.

This activity is deemed to be crucial as most apartment blocks in Kazakhstan are similar to those that collapsed in the Armenian earthquake and in the Sakhalin earthquake of 1995. Even though the government's Institute of Seismology has been working since 1976 to monitor seismic movement, the institute also undertakes risk assessments, evacuation scenarios, and the analysis of ground conditions as part of its research activities.

The country also faces other risks. Due to the rising water levels of the Caspian Sea over the past 20 years, the Kazakh shoreline has grown by 20-40 kilometres and water has encroached about 70 kilometres inland. The national Water Resource Committee has reported that total costs for preventing losses from these increasing water levels will exceed US\$ 3-5 billion.

The northern slope of the Tengshan range near Almaty is exposed to floods, mud and debris

flows, avalanches and landslides. In particular, landslides threaten areas where more than 150,000 people live. In May 2002, southern parts of Kazakhstan were affected by storms and heavy rainfall that caused serious flooding in cities.

Although disaster awareness issues are being raised in scientific and official circles, there is still a lack of general public awareness. The Emergency Situation Agency has prepared many brochures, pamphlets and videos to expand awareness of these hazards, and the public seems to be responsive.

A newspaper advertisement for a new apartment building referred to the structure as being seismic-resistant, a comment that evoked noticeable interest. On the other hand, people have not yet understood that investment in disaster reduction is a sound long-term investment.

Case: Romania

With its geographical diversity, Romania has many natural hazards, such as earthquakes, landslides, floods and weather extremes, especially in the Carpathian Mountains. The floods of 2002 seriously affected more than half of the country's territory. Technological hazards also are frequent, as demonstrated by the cyanide pollution of the rivers Somes, Tisa and Danube in January 2000, or the pollution two months later in the Vaser and Tisa rivers.

Each of these incidents has underlined the fact that an entire range of social and human factors influence the occurrence, nature and severity of natural hazards. Because of this, more attention is being given to assessing unacceptable stress exerted on the environment through deforestation, improper land use and the unsuitable location of industrial activities.

The focal point for disaster management in Romania is the Civil Protection Command within the Ministry of Interior. Several plans relevant to disaster reduction exist within civil protection arrangements. These include the operational plans and regulations for defence in the event of floods, severe weather and accidents of a hydrotechnical nature in the context of hydrographical basins, hydrotechnical works or within local communities.



While two dated laws and several governmental decisions define the Romania national policy for risk reduction and seismic resistance, current actions are framed by a government ordinance that provides measures for the mitigation of the seismic risk on existing buildings. There is also a planning framework to reduce, or where possible to prevent seismic effects and landslides.

A government committee for disaster defence is led by the prime minister, and an operational centre for the notification, warning and intervention is part of the Civil Protection Command structure. Notification and warning procedures are established by the disaster defence regulations and are implemented by the central and local public administration. In addition, nine central committees strive to apply the various policies for different types of hazards, and related technical secretariats also form part of the system.

In recognizing the threat posed by technological hazards on the environment, the Romanian National Committee for Global Environmental Change and the Ministry of Waters and Environmental Protection conducted a workshop on the subject in 2002. Particular attention was given to the long-term impacts of mining in the Somes and Tisa river basins, with the intention to develop environmental protection and management strategies. The meeting discussed risk factors associated with floods and drought but also considered the rehabilitation of waterways with a view to striking a balance between sustainable economic development and environment protection.

Case: Algeria

In November 2001, unusually heavy rain fell in the Algerian capital, Algiers. Flash floods and mudslides swept through many parts of the city, killing more than 800 people. At the time it was suggested that disaster management structures and the population were woefully unprepared for such an event.

It turned out that some common public practices and unsuited official policies with regard to human settlements may have contributed to the severity of the disaster. Due to the scope of the disaster and its location in the centre of the capital,

all levels of government were seriously shaken. Senior officials experienced, first hand, the lack of coordination of the various parties concerned with emergency response, as well as having to accept their own failure of foresight.

Since this disaster, there has been a new way of thinking about disaster management in Algeria, particularly in urban areas. This has been demonstrated through several initiatives that started only months after the disaster. For the first time ever, the head of state ordered all the ministries to consider risk factors in their work and to include disaster risk reduction measures in their programmes.

The prime minister also discussed the matter during the council of the government, and called for a permanent coordinating structure of all the actors involved in disaster management. The Ministry of Interior is developing a permanent structure which will coordinate all phases of disaster management including risk reduction measures, response and rehabilitation.

The General Directorate of Civil Protection is shifting its attention towards prevention activities. Senior party officials are soliciting expert advice from scientific and technical advisors in preparing their programmes.

Since the floods, international organizations have joined forces to help in risk reduction projects. The mayor of Paris paid a visit to the affected areas and signed a memorandum of cooperation between the Wilaya (province) of Algiers and the Atelier Parisien d'Urbanisme for a programme to promote better urban planning in Algiers. Early in 2002, another French organization, Architecture-Urgence, signed a convention for cooperation with the Wilaya of Algiers to work together on urban planning to reduce disasters.

The UN office in Algiers is also working on disaster reduction and engaged an Italian specialist to discuss the matter with Algerian authorities. UN-HABITAT proposed a cooperation project in disaster reduction with the Algerian government. A World Bank delegation has also visited Algeria to discuss a long-term project in disaster risk management.

An expert in urban planning from USAID visited Algiers less than a month after the disaster to discuss eventual cooperation in disaster reduction in urban areas with many Algerian institutions. USAID expressed an interest in preparing a project proposal for that purpose.

Within the first six months after the disaster, several seminars or conferences related to disaster reduction were either held or being planned. An Algerian-French colloquium on sustainable development and disaster reduction took place in Algiers only weeks after the disaster. Similar colloquiums were planned for other regions of the country. All of these actions demonstrate that Algerian authorities at all levels have become more aware about the risks they face.

Some important limitations in institutional and policy frameworks

Administrative arrangements and legislation only provide a basic framework for disaster risk reduction. Despite the implementation of policies, acts and regulations by official departments, they do not alone reduce the vulnerabilities of people exposed to the risk of natural hazards.

Challenges remain to provide a wider understanding of the risks, and the coordination of multidisciplinary efforts needed to manage them at national, provincial, district or even municipal and village levels. Crucially, members of the public also have to become involved themselves, in their own interest.

In terms of policies, many countries assuredly advise that they have prepared various emergency contingency plans, while some do not have any national disaster risk management strategy at all. In others, disaster management is still conducted on an ad hoc basis, sometimes even overriding existing contingency procedures at the time of crisis “because of the seriousness of the situation”, too often voiced from political corners.

In some countries, disaster and risk management information has been classified or restricted as a matter of public security. Even when information may be accessible generally, it still may not pass easily from one group of people to another. There are few standard criteria by which to document the

consequences of disasters, and even fewer means to record or monitor progress towards reducing risk factors.

Competitive interest or different priorities can easily characterize the work of various ministries. Specialized and sometimes isolated departments maintain a persistent emphasis on emergency response capabilities.

Senior positions of authority in matters of risk reduction, in contrast to emergency assistance, are frequently occupied by career administrators who may or may not have any professional expertise in risk management. Frequent inter-agency transfers of civil service officials further impede opportunities for national organizations to develop institutional memories, resulting in the loss of valuable experience.

In recent years, national building codes have been drafted in some countries for the first time. Yet, there and in other countries with long-standing codes, compliance and enforcement may remain problematic. Thousands of buildings are constructed annually in known seismic or flood-prone areas without incorporating any established appropriate resistance techniques. Population pressures or economic necessities, too easily transformed into contentious local political issues, can impede the consistent application of flood or landslide protection zoning.

Incidence of corruption or the lack of enforcement of existing policies and regulations are more evident than officially acknowledged, even though such administrative laxity has an important bearing on the effectiveness of any risk reduction programme. It is only when legislation can place legal responsibility on specific officials whose decisions or lack of effective action perpetuate continuing conditions of vulnerability that risk reduction will be measured meaningfully.

A lack of uniformity in policy approaches regarding the various aspects of disaster and risk management among adjacent countries also poses additional hindrance for improving regional or sub-regional cooperation. This represents a serious and growing impediment as many natural hazards affect more than one country, or involve the skills and technical abilities of many professions which not all countries may possess. This underlines the



challenges posed when decisions taken in one location can easily impact the scale of consequences in neighbouring countries.

In many countries, more informed and considered efforts are required to bring various professional specialists and civil authorities together, other than through occasional international meetings, if a coherent disaster risk management strategy with local public relevance is to be realized in practice.

Means for overcoming limitations

A useful summary of disaster risk management functions that can be structured within a national policy framework was presented in the Pacific regional report prepared for the ISDR Secretariat. It quotes the work of Te'o I.J. Fairbairn (UN DHA-SPO, 1997) as it illustrates the key issues involved when trying to assimilate disaster reduction into accepted government policy. The actions cited were originally drawn with specific reference to island state requirements, but as they are presented with a conceptual clarity they derived may prove useful for other states as well.

The following paragraphs are taken from Fairbairn's material cited in the Pacific regional report. Supplemental listed information that has been added by the editors of this publication appears in square brackets.

There must be a commitment to implementation of particular measures of risk reduction measures incorporated within the ongoing practices of national economic planning and development.

Certainly a major requirement, if not even the primary one, is to promote a clearer understanding among policy makers – and the general public – of the often severe and potentially far-reaching economic consequences of natural disasters. It is crucial that policymakers in particular comprehend how such events seriously can undermine longer-term growth prospects and threaten the social dimensions of individuals' well-being. Failure to appreciate these consequences can exact eventual or irreparable political costs.

A second crucial prerequisite is to ensure that disaster management issues are integrated within the overall national development planning framework. Such an embodiment of risk awareness and evaluation can ensure that those issues are applied across sectoral, ministerial, and jurisdictional lines of interest or responsibility, are multidisciplinary in nature, and are properly included in the design of major development projects. Taken together, the interaction of multiple commitments can also contribute to risk reduction becoming a non-partisan issue, with its constituencies transcending any short-term political interests or the lifespan of individual governments.

Other major requirements for enhancing a country's commitment to disaster mitigation capabilities include the following mechanisms:

- Strengthen the institutional and organizational frameworks at both national and community levels for managing and coordinating disaster-related issues.
- [Strengthen national institutions by increasing their exposure to, and collaboration with, relevant regional and international entities].
- Adopt appropriate procedures for monitoring and evaluating disaster events, especially in relation to analysing their social and economic [and environmental] consequences over time.
- [Adopt appropriate procedures for monitoring and evaluating the consequences of developmental choices on disaster impacts].
- Increase available information and facilitate database access about the social and economic [and environmental] aspects of natural disasters, as a potentially valuable tool for planning and management purposes.
- Promote greater uniformity in the methodology and techniques used to assess both the direct and longer-termed economic [and environmental] costs of disasters to countries throughout the region.
- Develop comprehensive and integrated land use and water management strategies capable of alleviating flooding, promoting water conservation and environmentally sound land-use practices.

- Diversify agriculture through such practices as planting hardy crop varieties, early maturing crops, and encouraging the continued cultivation of various traditional root crops.
- Encourage the [identification and] use of traditional mitigation and coping practices as means for achieving greater community self-reliance in dealing with disasters.
- Facilitate the post-disaster recovery of the private commercial sector through measures that provide tax and related financial incentives.
- Establish effective mechanisms for enlisting the joint support of external donors to strengthen national disaster reduction capacities, in addition to assisting with post-disaster relief and rehabilitation needs.

Future challenges and priorities

National institutional frameworks: policy, legislation and organizational development

Comprehensive approaches to building coherent institutional frameworks at national and other levels of responsibility are essential if one is to speak of a sustained commitment to disaster risk reduction. This includes the need for collaboration among different sectors of society, and particularly the engagement of a wide circle of people with skills and attributes ranging from educational practices to many forms of technical expertise.

While governments need to direct and support these efforts, the vitality and effectiveness of the organizational frameworks and operational capabilities remain based on the understanding and motivation of public interests.

Acceptance of the necessity of risk management, coupled with coordination and backed by resources, are the hallmarks of institutionalized capabilities. Following are some primary criteria to accomplish these goals:

- Government authorities must understand the distinctiveness of disaster risk management and the value of investing in risk reduction to protect the well-being and the assets of society.
- It is essential that resources be allocated based on collective judgment. Understanding the relative costs and benefits of anticipatory protection must be emphasized in contrast to sustaining much greater avoidable losses.
- The primary challenge is to begin by assessing national capacities at all levels of interest. While this can be done by using self-determined criteria, abundant expert guidance and specialist knowledge is available throughout the world.
- Communities need to assess variations in the intensity and the extent of hazards, evaluate local priorities and determine the relative degrees of risk involved. This in turn will determine the requirements for sound institutional frameworks.
- Examples cited display the importance of transcending the theoretical expression of policy frameworks and legal instruments and realizing their effects, in practice.
- National authorities and local leaders need to embrace policies that
 - are realistic for the case at hand;
 - are linked to regulatory mechanisms that are enforced or effect change;
 - have an obvious benefit understood by local communities;
 - have obvious political advantages for the politically influential;
 - have economic advantages for the private and commercial sectors; and
 - can be implemented with available resources.

The extent to which disaster risk reduction is identified as integral to fundamental political responsibility can encourage greater sustained commitment in support of long-term national development objectives. It is essential that policy direction and operational capabilities be developed in multiple areas of governance and civil society if a culture of prevention is to be cultivated and extended to future generations.