

Chapter 3

Policy and public commitment: the foundation of disaster risk reduction

- 3.1 Institutional frameworks: Policy, legislation and organizational development for national and local decision-making
- 3.2 Regional cooperation, interaction and experience
- 3.3 Community action



Community scale model to identify hazards and vulnerabilities from Canton Daule, Ecuador, Red Cross, Guayas

3.1. Institutional frameworks: Policy, legislation and organizational development for national and local decision-making

Disaster risk management needs to be motivated and based within governmental responsibilities, but its success cannot be accomplished without the benefits of widespread decision-making and the participation of many others. Leading policy direction is crucial and legal foundations assure a continuing legitimacy, but it is the professional and human resources delivered on the ground that are a measure of success. For this to happen, 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 state and national disaster plans and risk reduction strategies.

The various roles which policy determination, legal processes and the resulting evolution of 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 of the selected examples of these institutional frameworks are presented in broadly described regions, while others will reflect more topical emphasis. In all the cases though, the institutional processes involved and organizational lessons cited may hold a much wider appeal and relevance to emerging initiatives elsewhere. The discussion proceeds through the following headings:

- Introduction to emerging institutional frameworks for disaster reduction
- Policy frameworks in practice
- National planning processes, with multi-sectoral responsibilities and local participation
- Risk reduction plans, linked to specific responsibilities, policies, and practices

Introduction to emerging institutional frameworks for disaster reduction

The IDNDR programme not only provided an institutional framework for countries, but also introduced basic concepts of disaster reduction to administrators and professionals. It started the task of shifting policy emphasis from post-disaster relief and rebuilding 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 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 deal-

ing 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. As people tended not to think so much about disaster reduction strategies beforehand or how to reduce risk to disasters, politicians and official authorities have tended to rely heavily upon emergency assistance whenever the need arose. These outlooks also have been perpetuated by the extent of international funds and local emergency allocations that easily become available *after* a disaster rather than before.

Historically there have been many fewer resources devoted to routine hazard identification and assessment activities or to support sustained risk management strategies in areas of known and recurrent natural disaster risks. This may result from an institutional lack of appreciation for public safety and the economic values of prevention 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. Along with the decentralization of power and devolution of governing authority, disaster risk reduction at the local community level needs to be encouraged, and supported. The decentralization of responsibility for disaster risk reduction has to be coordinated by municipalities, townships, wards or local communities. Mutual understanding and rules and regulations should be explicit, transparent and uniform. This requires a new structural arrangement in which national authorities of countries, UN agencies, bilateral development agencies and financial institutions implement projects in risk reduction not only with national governments but also with local authorities, the pri-

vate sector, academic institutions, community-based organizations and NGOs.

However, there are currently few local institutions ready to fill the vacuum to assist communities in owning and internalising the process of risk reduction, in terms of concept, knowledge, and implementation. Almost all countries or local communities have a designated authority responsible for responding to crisis situations when they happen; many fewer have a recognized office or agency charged with monitoring potential risks to the society and motivating concerted public and private action to minimize their potential consequences.

Such a change in the emphasis of governmental functions requires that a consensus be developed on the respective roles of government agencies, commercial interests, communities and individuals themselves. Governments have vital roles to play in disaster risk management that must vary according to each of their respective needs and conditions, but there is now widespread recognition that they must focus their limited resources and serve as co-ordinating bodies if they are to become more effective.

The following functions are important means by which governments can integrate disaster risk awareness into official responsibilities. They also can be used to involve more people and additional interests in managing those risks:

- Generate and disseminate basic public information widely about the most likely hazards to affect a country or specific community, along with measures on how to reduce the risk
- Develop integrated professional and institutional abilities for the anticipation, assessment, management, and response aspects of disaster risks within the ongoing social, economic and environmental dimensions of the society.
- Support opportunities that enable scientific, technical and academic institutions to contribute to national disaster risk management policies and practice, and convey the utilisation and application of research findings.
- Encourage the combined participation of government agencies, technical specialists and local residents in the conduct of risk assessments.
- Develop and ensure the public understanding, acceptance and use 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. There is a wide variation among the primary ministries or national agencies designated to assume disaster management responsibilities in different countries. This reflects either the predominant types of hazards which threaten individual countries, or else stems from an historical outlook of what has commonly constituted disaster management responsibilities. Until a recent change taking place in 2002, for almost 50 years the central national authority for disaster management in India had been located within the Ministry of Agriculture, reflecting that country's historical concerns with flood, drought or famine. As elsewhere, until recently, most 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.

Concepts of risk management have begun to take hold in some Asian countries at national levels. Thailand is poised to revamp its disaster management system and plans to set up a new department of disaster management in the Ministry of Interior from October 2002. Both Laos and Cambodia have established or reconfigured their respective national disaster management offices with encouragement and support from UNDP and other international organizations. The Philippines is considering new legislation to widen the scope of its existing Office of Civil Defence and the *National Disaster Coordinating Council*.

Viet Nam has undertaken a major sustained effort to formulate a 20 year strategic plan for disaster risk management. This effort has been steered largely by in-country expertise and was reviewed in an international consultation held in March 2002. Following the establishment of its *Disaster Management Bureau* in the renamed *Ministry of Disaster Management and Relief* in 1992, the government of Bangladesh is proceeding to develop and progressively implement a comprehensive disaster management program during 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 over ten Asian countries.

Two additional examples can be cited from countries in Asia, which together account for almost a third of the world's population: India and China. These countries share many of the same types of hazards spread over vast land areas and have adopted approaches for centuries that have taken risk into account in a variety of technical endeavours. While both countries are populated by people with many different cultural outlooks, each of them has different structures of government. Tellingly, they have each demonstrated renewed commitments in recent years to reorient their national strategies of disaster management to take greater account of the benefits to be derived from disaster risk reduction.



Case: India

As the Indian sub-continent is highly vulnerable to natural and related disasters, with losses mounting every year, government authorities in India have recognized the pressing importance of developing more effective disaster management policies. At the operational level, there have been equal concerns to strengthen related organizational arrangements that can lessen the widespread impacts of disasters such as by updating state codes, manuals and disaster plans on the basis of experience gained and taking account of technological developments. Initiatives have been taken to conduct comprehensive revisions of disaster policies giving greater attention to reducing risk factors in the state of Maharashtra following the devastation

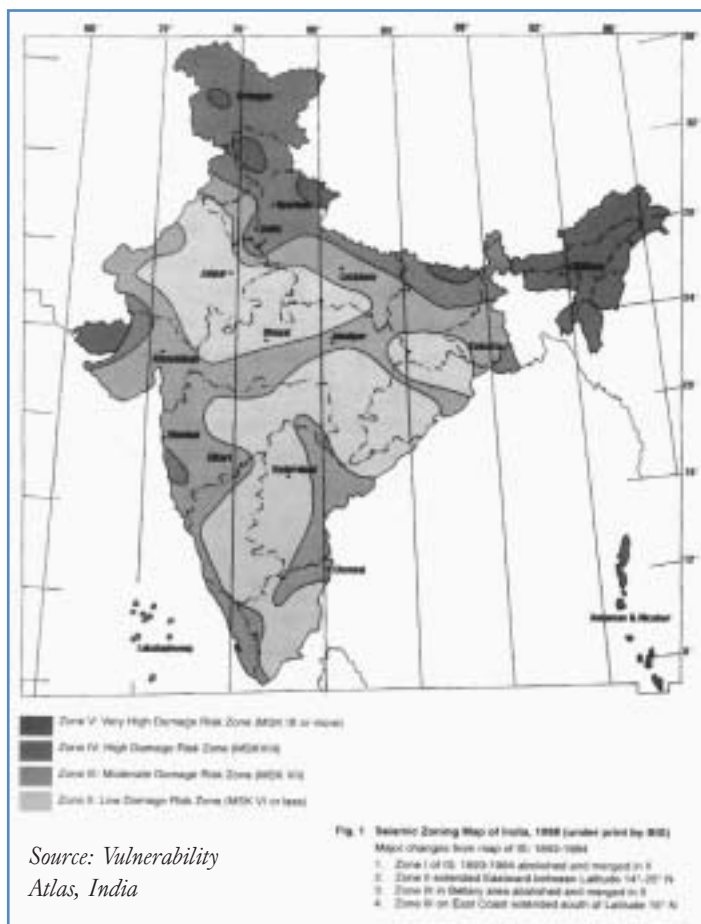
of the Latur earthquake in 1997 and in the state of Uttar Pradesh in 1999. The creation of the new state of Uttaranchal has provided the opportunity to reconsider the most appropriate forms of disaster management structures for its mountainous topography. The rapid and severe repercussions of the more recent destruction resulting from the 1999 cyclone in the state of Orissa, and then the Bhuj earthquake in 2001 in the state of Gujarat have spurred a similarly intensified commitment to alter the long-stand-

In proceeding beyond its original mandate confined only to the preparation of plans for natural disasters, the HPC-DMP recommended that the human dimension of disasters also needed to be included in adopting a more holistic approach to disaster management planning. As a result, additional considerations will be extended to include forecasting and warning systems, public awareness, proactive measures to reduce risk in development programmes, development of human resources, information technology, networking and coordinating organizational relationships, and updating building codes and practices.

A *National Centre for Disaster Management* has been engaged to undertake human resource development studies, to develop a database and to provide documentation in the area of natural disaster mitigation and preparedness. These institutional developments and expanded outlooks go well beyond the more immediately obvious concerns first associated with the need for updated emergency control rooms and improved response mechanisms that will also be considered in the comprehensive review.

The HPC-DMP has demonstrated a high-level government commitment in forming a *National Committee on Disaster Management* constituted under the chairmanship of the prime minister and comprising the heads of all the national and provincial political parties. The committee, which also includes technical specialists, respected academicians and key civil servants, has been tasked to suggest short, medium and long-term steps for strengthening relief and rehabilitation capabilities and to identify measures that can reduce natural calamities in the future.

The work program is striving to involve an expanded range of professional interests ranging from the responsibilities of local government, revenue allocation and insurance, through the practice of engineering, public works, education and public administration. More than 30 different hazards have been identified by the HPC-DMP, and nodal ministries have been engaged to work on national plans for the potential disaster risks related to water and climate, geology, industrial and nuclear activities, transportation accidents and biological threats. Even though the HPC-DMP's mandate is to produce plans, it has embarked on an inclusive planning



ing relief commissioner system and to revise national policies of risk reduction. A *High Powered Committee on Disaster Management Plans (HPC-DMP)* has been constituted with the approval of the Prime Minister to:

- Review existing arrangements for preparedness and mitigation of natural and human induced disasters including industrial, nuclear, biological and chemical disasters.
- Recommend measures for strengthening organizational structures.
- Recommend a comprehensive model for disaster management at national, state and district levels.

process that emphasizes the participation of all relevant organizations and sectors. This systematic approach devolves disaster management planning activities from strictly a national concern to one involving state, district and local officials.

A decision was taken by the Indian government in early 2002 to alter almost 50 years of practice by relocating all matters regarding disaster and risk management to the Ministry of Home Affairs. This reflects a departure from the previous association of natural disasters with the predominant concerns of food supplies and agriculture and signals a promising opportunity to engage many additional functional responsibilities and authoritative aspects of government. As the influential Ministry of Home Affairs is directly responsible for the coordination and management of the operational aspects of government, and its influence proceeds from national direction of the civil service all the way down to local levels of implementation of government policies, this is an important step to integrate disaster risk management issues more fully into many more national planning processes.

Case: China

China presents another approach yet also displays similar emphasis. 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 by actively responding to the direction of UN/ISDR.

The Chinese government established the *Chinese National Committee for International Disaster Reduction (CNCIDR)* in October 2000 consisting of 30 official agencies, including the State Council, ministries, national committees and bureaus, the military services and additional social groups. CNCIDR is an inter-ministerial coordinating institution led by a State Councilor responsible for designing a national disaster reduction framework, developing guiding policies, coordinating relevant departments in the conduct of specific programs, and supervising disaster reduction works undertaken by local

governments. An additional advisory group of 28 senior experts in relevant fields has been formed to provide guidance to the national committee especially on applying science and technology in realizing disaster reduction initiatives. The office of CNCIDR and its secretariat are located in the Ministry of Civil Affairs.

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)* running from 1998 to 2010. The NDRP was launched by the Chinese government in April 1998, and significantly, it was formulated on the basis of the overall national development policies reflected in the "Ninth Five Year Plan for National Economic and Social Development", and the "2010 Prospective Target Outline" for national accomplishments. The formulation of the plan received important support and technical assistance from UNDP, further demonstrating the essential links between disaster risk reduction and national development interests.

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

The NDRP was based on several fundamental policies that demonstrate both the breadth and the depth of interests that have been marshalled to develop and implement a national strategy for disaster reduction. The primary orientation of the strategy of disaster reduction is to serve the advancement of national economic and social development. In this respect, a principle has been formulated to assign the top priority to disaster reduction activities, while also recognizing that there will still be the requirement to combine these with disaster response and emergency relief efforts at the time of crisis. A focus is to be placed on key elements of disaster reduction work, while keeping a view throughout on the long-term strategic objectives of disaster reduction.



The roles of science, technology and education are considered to be of particular importance in building disaster reduction into a national concept. To succeed, it will be essential to encourage the involvement of all elements from the national and local governments and the fullest possible participation from all the professions and trades, working together. It will also remain important for China to be closely involved with international developments in disaster reduction and therefore must strive to strengthen its own efforts of international exchanges and multinational cooperation in the field.

Objectives outlined by the NDRP include efforts to:

- Develop a set of projects which are of importance to advancing the social and economic development in China.
- Increase the application of scientific and technical experience and the benefits of new achievements in disaster reduction work.
- Enhance public awareness and knowledge about disaster reduction.
- Establish comprehensive organizational abilities and operational structures for realizing specific activities in disaster risk reduction.
- Reduce the impact of natural disasters on national economy and social development, as measured by an obvious reduction in the direct economic losses caused by natural disasters.

The NDRP has also outlined specific tasks, measures and key activities that should be pursued nationwide. In this respect, one of the most important works for CNCIDR is to implement the plan first at provincial levels, and then also at local levels of responsibility. Several provinces have issued mid-term plans on disaster reduction in their specific areas, as can be seen in the Provinces of Guangdong, Jiangxi, Yunnan, and Shanxi. In others, such as in Heilongjiang, the national government is working closely with the provincial authorities to initiate a local program strategy.

In order to further the implementation of the NDRP, the CNCIDR is organizing a number of meetings at senior levels to share experiences among the provinces and to discuss the guidelines on forming local disaster reduction plans with officials drawn from different sectors.

China's response to the ISDR secretariat questionnaire in 2001 also cited that one of the most important issues to be addressed was to improve capacity building, especially in terms of early warning systems, the development of resilient infrastructure and the application of technologies to form a safer society.

In many Asian countries, however, a lack of uniformity in policy approaches remains regarding the various aspects of disaster management allocated among different ministries. This also poses additional hindrances for improving regional or sub-regional cooperation. It is unlikely that the Home Ministry of Nepal, the national focal point, could have developed the degree of interaction and understanding desired with its comparable national disaster focal point in India, previously located in the Ministry of Agriculture.

The prominent involvement of the water authorities, and the additional policy concerns of the Ministry of Disaster Management and Relief in Bangladesh further complicate the potential for effective relationships in such matters. This would be useful since the cause and progress of floods can easily affect all three countries. Furthermore, all three countries have additional ministries and related technical agencies concerned with water resources as well as environmental affairs. This represents a serious and growing impediment as one accepts that many natural hazards and disaster conditions affect more than one country, or involve the skills and technical abilities of many professions.

These conditions underlines the challenges posed when decisions taken in one location can easily impact the scale of consequences in neighbouring countries, or even among different socio-economic segments of the population in the countries. More informed and considered efforts are required to bring these various professional specialists and civil authorities together, other than just through occasional international meetings, if a coherent disaster risk management strategy with local public relevance is to be realized in practice.

In recent years, many countries in Asia have updated existing acts and regulations related to disaster management. The following table demonstrates the current state of administrative and legal arrangements for disaster risk management throughout the region.

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 Home Affairs	<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. 	
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		<ul style="list-style-type: none"> • 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	<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.



Country	Focal point for disaster management	National action plans	State and provincial disaster reduction plans
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 	
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 Planning 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 hydro-meteorological 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

Country	Focal point for disaster management	National action plans	State and provincial disaster reduction plans
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 • 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 	
Turkmenistan			
Uzbekistan		<ul style="list-style-type: none"> • Disaster Management Plan 	
Vietnam	Department of Dyke Management and Flood Control (DDMFC) 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.	<ul style="list-style-type: none"> • Strategy and Action Plan for Mitigating Water Disasters in Vietnam 	

● The Americas

A major shift is now taking place in many countries in the Americas, from the north to the south. As mentioned in Chapter 1, the combination of extremely severe social, economic and environmental consequences associated with several disasters in the final years of the 1990s provided stark and unavoidable lessons to leaders in the region.

Both official and public outlooks about disasters in Latin America and the Caribbean countries prior to 1990 concentrated almost exclusively on developing humanitarian response and improving preparedness capacities, linked to civil defense or military institutions.

The 1990s would see some important institutional changes in emphasis and priorities, starting already in 1985 in Mexico and Colombia after a major earthquake and volcanic eruption respectively. Disaster reduction issues, expressed through terms of prevention and mitigation and given a higher status in political and technical discourse, although this was not transferred into significant changes or real action during much of the decade. Most official disaster organizations created prevention offices in name, but their roles were limited essentially to strengthening efforts in disaster preparedness, conducting basic hazard mapping or promoting early warning systems at national scales. Few human or financial resources were committed and existing legal and institutional arrangements impeded any major changes. This is now slowly changing supported by a regional process, as discussed in section 3.2.

Case: Central American countries

Linking risk reduction with development policies and environmental concerns is common in several Central American countries, especially where the severe effects of hurricane Mitch decimated earlier investments made in national development.

In 1996, Guatemala reformed its disaster legislation and created the *National Coordinator for Disaster Reduction (CONRED)* comprising a supervisory council of representatives from different development departments, disaster

response agencies, and civil society. While serving neither as a single organization nor a system, CONRED was given an expanded range of responsibilities in the field of risk reduction, and has provided a focal point for expanded attention to risk issues. By working together with the Ministry of Planning, a *National Risk Reduction System* is being established and efforts are underway to incorporate multi-sector risk reduction strategies into the country's *National Poverty Reduction Plan*. These activities complement the longstanding *Disaster Response Division and an Emergency Operations Centre*.

In recent years, aided by UNDP, Nicaragua has developed an expanded approach for a *National Program for Risk Reduction* and has designed a new disaster risk management strategy. First, studies were commissioned to analyse the Nicaraguan legal framework for disaster management and the implications regarding 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 central operational instrument. As seen elsewhere, the institutional concept was built upon a broad and comprehensive approach to risk reduction issues, but one that 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. Both Swiss bilateral development assistance and World Bank support have been enlisted to strengthen the provision of technical abilities and to augment human resources. While the implementation of the process can benefit by drawing on the combined experiences of the *Civil Defence Organization* and the *Nicaraguan Institute for Territorial Studies*, the key to future success will be the extent to which productive relationships can be forged with other key government departments and development agencies.

Case: Canada

In part spurred on by the social and economic consequences of a particularly severe ice storm in 2000, the Canadian Prime Minister

announced the creation of the *Office of Critical Infrastructure Protection and Emergency Preparedness (OCIPEP)* in February 2001. The office was established to enhance the protection of Canada's critical infrastructure from disruption or destruction, and to act as the government of Canada's primary agency for ensuring national civil emergency preparedness. Critical infrastructure (which includes energy and utilities, communications, services, transportation, safety and government) constitutes the backbone of the nation's economy, and is essential to the health, security, safety and economic well-being of all Canadians and to the effective functioning of government.

The Minister of National Defence is responsible for this organisation, which encompasses all the responsibilities of the previously named *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. The office provides national leadership to help ensure the protection of infrastructure, in both its physical and cyber dimensions, regardless of the source of the threat. This includes developing and promoting activities which reduce vulnerabilities against various threats and thus mitigate the impacts of disasters.

OCIPEP seeks to enhance the capacity of individuals, communities, businesses and governments in Canada to effectively manage risks to their physical and cyber environments. Although OCIPEP is a new organization, its responsibilities relating to civil emergency preparedness and planning have a long history. Through the former EPC, a great deal of experience in preparedness, response and recovery activities have been gained, resulting in Canada's increasingly comprehensive ability to cope with emergency situations. Mitigation, while an important part of disaster management, has largely been an implicit requirement. 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. These mitigating actions have a common thread: they reduce the probability of a calamity or limit the effect of a disaster should it happen.

However, it had been recognised by various groups and individuals, that there existed a need to address hazard mitigation in Canada in a more explicit and 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 early in 2000 to begin a major new examination of the national understanding about the causes and consequences of natural hazards and disasters.

In light of a number of multidisciplinary discussions regarding emergency management and disaster reduction, the Government of Canada announced in June 2001 that OCIPEP will lead consultations on the development of a *National Disaster Mitigation Strategy (NDMS)*. These consultations will include 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. This important step is being taken in the recognition that new measures should be developed "to save lives, reduce the impact of disasters and the resulting damages and costs to the Canadian public".

As a part of this process OCIPEP intends to issue a discussion paper to help stimulate discussions regarding the NDMS, in the hopes of obtaining views from various stakeholders on the possible 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*, promulgated in Colombia in 1998, gave little attention to anticipatory measures or specific 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 the individual sectoral plans of the National Development Plan. Accordingly, in 2001, the National Council for Social and Economic Policy developed a strategy to initiate the short-term and medium-term execution of the *National Disaster Prevention and Management Plan*.

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 creation of a National System for Prevention and Response to Natural Disasters in 1989 demonstrated a shift in institutional responsibility for natural disasters, from a strong focus on response to one of more preventive action.

The 1999 earthquake in Armenia, in the coffee belt of Colombia, and the creation of FOREC for the reconstruction effort (Sasakawa Award 2000, see chapter 4.2), provided the opportunity to further enhance institutional and technical capabilities. The experience of FOREC has become a very relevant model and success story useful as a reference for similar situations in other places.

The strategy is an example of a comprehensive initiative to improve the National Plan for the Prevention of Disasters. It “outlines the work to be advanced for the following three years and establishes the first steps for the consolidation of the National Plan in the medium-term. It identifies the objectives of action and the responsible individuals, expediting the National Plan’s work in mitigating natural disasters and their levels of risk in Colombia. Additionally, this national effort seeks to meet the goals of the UN-ISDR and to comply with the initiatives of the Meeting of the Americas in the framework of the Andean Community.”

The National Council for Social and Economic Policy has cited four accomplishments

that have to be met if its 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.
- Communicate the national plan to the public and to the authorities.

This updated and revitalized strategy was approved by the President of Colombia as well as by the country’s National Planning Department and all the relevant ministries of interior, economic development, finance and public credit, agriculture and rural development, education, health, environment, energy, communications, transportation, labour and social security, culture and national defence. Most importantly, this strategy is linked to budgetary allocations within the respective institutions.

One example of the strategy’s implementation in practice can be seen in the city of Manizales where a local environmental action plan has been established through widespread consultation with the community. The plan is integrated into the municipality’s development plan and budget, and includes specific measures to reduce the risk of landslides and seeks to relocate the population living on steep slopes. These programmes are also linked to the development of ecological parks some of which are located on slopes too dangerous for settlements, and others have been integrated into the city’s watershed thereby protecting their important economic functions.

Case: Bolivia

In Bolivia too, a comprehensive national policy for prevention and risk management has been established recently. Consistent with the intentions of the *Andean Regional Programme for Risk Prevention and Reduction (PREANDINO)*, the Minister of Sustainable Development and Planning has announced the government’s commitment to formulate policies and strategies for the incorporation of disaster prevention in the planning system through the *National Plan for Prevention and Risk Mitigation*. It is anticipated that mechanisms will be

established with necessary legislation in order to introduce elements of prevention with the various sectoral initiatives. In this regard, the work of prevention may be considered as complementary to the objectives of sustainable development.

The government has recently been pressing ahead with several national programmes aimed at incorporating prevention into the management of development activities, such as *the 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 housing, the *National Housing Subsidy Programme*, financed by employer contributions, includes a *Prevention and Risk Mitigation Sub-Programme*. The Ministry of Agriculture, live-

stock and rural development is implementing a *National Food Security Monitoring and Early Warning System*, which will be responsible for monitoring the impact of natural disasters on agricultural production. UNESCO, working jointly with this ministry, is also progressing in its support for a programme linking developmental issues and the risk issues associated with the El Niño phenomenon.

Risk management has also been introduced in a guide to adapting municipal development plans, which is to be implemented in 30 pilot municipalities. These will ensure that municipal plans for risk prevention and mitigation will be in line with national and sectoral policies. Manuals are being prepared on how to draw up municipal plans for risk prevention and mitigation in relation to town and country planning, human settlements and environmental management.

Institutional Framework	High-level programmes for promoting prevention	Prevention plans	Prevention in development plans and control mechanisms
<p>Bolivia</p> <p>A national policy for prevention and risk management was established in 1999. 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 PREANDINO, the Minister of Sustainable Development and planning (MDSP) has announced the government's commitment to formulate policies and strategies that incorporate prevention into the planning system through the national plan for prevention and risk mitigation.</p> <p>Formal decisions: The MDSP has been made legally responsible for the development of prevention policies. Some ministries such as housing have incorporated this policy in some of their normal activities.</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. UNESCO, jointly with the MDSP, is supporting a programme in connection with the El Niño phenomenon.</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. There has not yet been any progress with land use plans.</p>	<p>Proposals for prevention have not yet been incorporated in the development plans because they have been formulated only recently. Some sectoral measures, as in agriculture, include proposals for reducing vulnerability. They have not, however, been integrated into plans for development. Guidelines are being prepared to incorporate prevention into local plans.</p>

Institutional Framework	High-level programmes for promoting prevention	Prevention plans	Prevention in development plans and control mechanisms
<p>Colombia</p> <p>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 present government's national development plan includes a chapter on prevention and risk mitigation. The prevention decision is a state decision. The policy is maintained even though national governments change.</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>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.</p>	<p>Prevention has not been incorporated in the sectoral plans or in the National Development Plan. Within individual sectors, energy and health have 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 within the PREANDINO, all the institutions are working on preparations for a National Economic and Social Policy Council, with specific prevention proposals being considered in each development area.</p>
<p>Ecuador</p> <p>In recent years, official statements have been made showing the government's commitment to furthering prevention and risk management policies, mainly at vice-presidential and some decentralized levels, in connection with the problems of disasters. Within that framework, the national government has decided to strengthen the process of incorporating prevention in development through the participation of both national and sectoral working groups, no formal decision yet.</p>	<p>There has been no official promotion of prevention programmes. However, there is support for high-level initiatives promoted by international organizations.</p>	<p>Formally, there are no prevention plans. National and sectoral risk prevention plans are underway.</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.</p>
<p>Peru</p> <p>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, nor has it been mentioned in connection with the environment.</p> <p>Formal decisions: There are no formal decisions on prevention. However, the launching of the PREANDINO pro-</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. PREANDINO promotes the incorporation of prevention in national and sectoral development planning.</p>	<p>There are no prevention plans. PREANDINO committees are preparing diagnostics for sectoral plans. There has been little progress with the National Prevention Plan, due to political changes.</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</p>



Institutional Framework	High-level programmes for promoting prevention	Prevention plans	Prevention in development plans and control mechanisms
<p>gramme has been approved and organizations in four sectors have been invited to participate. This decision is not backed by legislation. 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.</p>			<p>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. Lima and eight other district municipalities have mitigation plans, emergency contingency plans and risk studies with microzoning maps.</p>
<p>Venezuela</p> <p>Following the devastating mudslides in Vargas State in 1999, reference to prevention concepts being incorporated as part of development policy 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. In general, official statements are made when events occur, and in connection with emergency operations if there are landslides.</p> <p>Formal decisions: Important steps are being taken to incorporate prevention in development processes. This is most evident in the health 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. Some municipal bodies, such as those of Chacao, Sucre, Baruta, Maracaibo, Valencia and Alcaldia Mayor have formally decided to proceed with the incorporation of prevention in development management, even if in an isolated fashion.</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 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. There are some territorial initiatives but no prevention plans exist for municipalities.</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 that are under preparation. 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.</p>



Source: *Disaster Mitigation for Sustainable Livelihoods Programme, University of Cape Town*

● Africa

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 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. A 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 its own right, by mid-1997 the government approved the formation of an alternate Inter-Ministerial Committee for Disaster Management (IMC).

At this stage, a decision was taken to produce a *Green Paper on Disaster Management* for all levels of government (national, provincial and local) as the first tangible step to establish a formal disaster management policy for the country. It was tabled in February 1998 with the aim to ensure that a comprehensive disaster management system could be realized and implemented by means of a national strategy that would be more fully elaborated in a subsequent policy *White Paper on Disaster Management*. The *Green Paper* provided an important conceptual framework for disaster management and risk reduction. A year later in January 1999, the *White Paper* was able to build on these views by emphasizing the risk and disaster reduction issues highlighted by the international and regional trends at the time. The *White Paper* was developed within the framework of the IDNDR, and importance also was given to developing joint standards and common practices among the other 13 countries of the *Southern African Development Community (SADC)*.

Key policy proposals contained in the *White Paper* included:

- Integration of risk reduction strategies into development initiatives.
- Development of a strategy to reduce the most vulnerable communities.
- Legal establishment of a National Disaster Management Centre (authority).
- 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 be capable of supporting and cooperating with government in disaster reduction activities.
- Establishment of a framework to coordinate training and community awareness initiatives.

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 contained in a Disaster Management Bill could become functional under a new Disaster Management Act.

Following the issuance of the *White Paper*, the first Disaster Management Bill was published for public comment in 2000. 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 for a disaster management conference in May 2000 to consider disaster management and reduction on a regional basis. After this conference, encouraged by funding from a bilateral disaster assistance agency, the South

African legislative process regained momentum and the bill was finally tabled for debate, with approval anticipated during the latter part of 2002.

During its lengthy review, the *Disaster Management Bill* has moved away somewhat from the earlier policy emphasis envisioned in the *Green* and *White Papers* and instead has focussed more attention on inter-governmental structures and related operational frameworks. The bill provides 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 rationale behind the robustness of the bill is to ensure that clear and unambiguous guidelines can be given through regulations once the legislation is promulgated. The bill also provides 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 is the *National Disaster Management Framework*, which will outline coherent, transparent and inclusive policies on all aspects of disaster management including training and capacity building.

Expected to become law during 2002, the Bill calls for the establishment of disaster management centres at all levels of government, and also establishes procedures for the collection and dissemination of risk assessment data and information. One of the explicit functions of the centres will be the assessment of disaster risks, with the requirement that each one also serve as a repository and conduit for information relating to all aspects of disasters, impending disasters and disaster management. The overall thrust is one that can develop a national disaster management framework that would reflect a balanced consideration of the different kinds of disasters, and the varying severity or magnitudes that occur in southern Africa. Emphasis has also been given to measures that could reduce the vulnerability of disaster-prone areas, communities and households. The anticipated *Disaster Management Act* is expected to open up new avenues for greater commitment to be made by provincial and local government authorities to undertake risk assessment activities.



The NDMC has been conceived to be responsible not only for pre-disaster activities, risk and vulnerability reduction but also for post-disaster rehabilitation and recovery actions. A predominant part of the methodology underlying the NDMC is the management of actual disaster situations through all aspects of the disaster management cycle. Emphasis is also placed on the important role of the NDMC in the areas of training and community awareness. Consistent with regional trends, the NDMC and the IDMC are to be actively involved in the SADC initiative to establish a regional disaster management coordinating framework.

Case: Mozambique

One of the principal challenges for evolving government institutions in Mozambique has been the recurrent need to respond to emergency conditions. Since its independence in 1975, considerable resources have been channelled into disaster management, and institutions have continually evolved to deal with new and challenging conditions. This hard-won experience has produced a seasoned cadre of disaster managers throughout the government and a well developed inter-ministerial structure for the coordination of disaster 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 and rehabilitation needs to the long-term values of mitigation and risk reduction. In the last few years, there has been a dedicated effort supported by the highest levels of government to bring together this experience and establish formal structures and procedures that can build capacities for improved disaster risk management in the future.

From as early as 1981, the Government of Mozambique was attentive to the need to address the consequences of risk on the society. A Department for the Prevention and Control of Natural Disasters (DPCCN) was established with the objective of promoting early warning and mitigation activities. During a period of complex national emergency from about 1982 to 1994 DPCCN became a principal conduit for international aid to people dis-

placed by conflict and the victims of repeated floods and droughts, with logistics becoming its predominant activity. With improved conditions and changing needs in the country, a process was begun in 1996 supported by the WFP as DPCCN's principal international partner, 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 well as to stimulate an evolution in attitudes, both within government and in the population as a whole. As expressed in current national policies, the primary objective has been to break the vicious cycle of continually expending scarce resources in emergency response and reconstruction, only then to become vulnerable and unprepared for the next catastrophic event.

In 1999, with the approval of the Council of Ministers, the Mozambican government created new institutions to give greater coherence and a clear mandate for government structures dealing with disasters. The *Coordinating Counsel for Disaster Management (CCGC)* was composed at the ministerial level as the principal government body for coordinating disaster management in all its phases. A *National Institute for Disaster Management (INGC)* was created to serve as its permanent technical support unit, with the director of INGC chairing an additional multi-sectoral *Technical Committee for Disaster Management (CTGC)* to assure strong coordination and collaboration in planning, mitigation, and response activities.

A proposed *National Law on Disaster Management* will serve as a legal mandate for the implementation of policy, with the principal objective stated in the first article, "to avoid the occurrence or minimize the effects of disasters". In particular, it gives the *National Disaster Management Plan*, as approved by the Council of Ministers, the force of law. While yet to be finalized, the national policy will entail a framework for the coordination of government entities, the participation of civil society and collaboration with the private sector in all aspects of disaster management. In addition, the law will establish sanctions for individuals or organizations violating the provisions of a declared state of emergency.



● **Pacific**

Case: The Pacific island countries

Examples of how certain Pacific small island developing states have sought to incorporate some of these measures into their national platforms, policies and development strategies are summarized in the following table. The exam-

ples drawn from Fiji, Cook Islands 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. They should not be taken as being comprehensive or exhaustive themselves or of the region as a whole.

Recommendations for sound disaster risk management

A good example of how disaster risk management functions can be structured within a national policy framework is cited below. It is from Te'o I.J. Fairbairn, (UNDHA-SPO, 1997) as presented in the Pacific Regional Report prepared for the ISDR secretariat. The reasoning illustrates well the key issues at stake when trying to assimilate disaster reduction into accepted government policy. While the examples were conceived with specific reference to island state requirements, they also offer conceptual clarity for other states. Information in square brackets has been added by the authors of the present Global Review.

“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 policy-makers 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 risk 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 multi-disciplinary 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 Pacific small island states’ commitment to disaster risk reduction capabilities include mechanisms to:

- 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 [environmental] and economic consequences over time.
- [Similarly 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, [environmental] and economic 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.”



Institutional frameworks	High-level programmes for promoting prevention	Prevention plans	Prevention in development plans and control mechanisms
<p>Cook Islands</p> <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 stipulates for 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 would learn of these principles in their school years.</p> <p>World Patent Coastal Protection Units protecting the airport from being inundated and minimizes tidal energy from surging into hotels on the beaches.</p> <p>Radios placed in emergency centres in the northern islands to 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 cyclone 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 commerciallz 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>
<p>Fiji</p> <p>The national coordination policy is documented in the National Disaster Management Plan 1995 and the Natural Disaster Management Act 1998.</p> <p>From 1970 to 1989, emergency measures were handled by the national government.</p> <p>In 1990, the government designated the Ministry of Regional Development and Multi-Ethnic Affairs responsi</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>National Government Disaster Management Act</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>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>



Institutional frameworks	High-level programmes for promoting prevention	Prevention plans	Prevention in development plans and control mechanisms
<p>ble 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>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 (DIS-MAC)</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>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>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>	<p>Support plans for Cyclone</p> <p>Operational Support Contingency Plan for Taveuni Volcano.</p>	
<p>Vanuatu</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>National Disaster Management Act No. 31 of 2000.</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>

Institutional frameworks	High-level programmes for promoting prevention	Prevention plans	Prevention in development plans and control mechanisms
	<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>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>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>

● Caribbean

Case: Dominican Republic

Following the destruction caused by hurricane Georges across the Caribbean in 1998, the IADB and the World Bank provided almost US\$ 100 million to the Dominican Republic for reconstruction work. Reflecting on the magnitude of such losses and further motivated by the subsequent social and economic consequences of hurricane Mitch felt throughout the entire region, the IADB provided nearly US\$ 12 million in 2000 to the *Office of the Presidency* in the Dominican Republic for the development of disaster reduction sub-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, including scientific institutions.

National planning processes, with multi-sectoral responsibilities and local participation

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 levels. Disaster planning will always be ineffective if confined to a process of central planning and command and control practices. 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 effective 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, laws and practices at the 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 likely hazards that can be conveyed to a wide variety of participants including local leaders, community groups, trades people, commercial and financial interests and local government employees.

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

- 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.
- Protecting cultural assets.

Portugal response to ISDR questionnaire, 2001.

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 secretariat 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.
- Stronger support for interdisciplinary scientific research centres for disaster prevention.

Germany response to ISDR secretariat questionnaire, 2001.

Case: New Zealand

In one exemplary case, taking a cue from the devastation caused by the 1994 earthquake in distant Northridge, California in the United States, the *Wellington City Council* in New Zealand, began a series of local and international consultations. By working closely with the fire service, city authorities sought to reduce their exposure to urban risks.

In reviewing their existing exposure to seismic risk, a consensus view emerged that the prevailing disaster management regime was focused almost exclusively on response and preparedness measures. Telling observations were made that indicated emergency managers were ill-placed bureaucratically and were therefore unable to contribute to important decisions regarding risk management programme. Their experience could seldom be taken into account when conducting vulnerability assessments, nor were they involved in the formulation of land-use policies.

Following recommendations, the city of Wellington and later the government of New Zealand embarked on the revision and implementation of a variety of legislative and policy reforms in disaster risk management. With the motivation to encompass an all-hazards approach to risk and to appeal to all segments of society, the following accomplishments have been achieved over the past several years:

- Broadened responsibilities for local authority emergency managers, with increased roles in the training and development of community capacities for risk identification, vulnerability reduction and disaster resilience.
- Decentralized Emergency Management Groups, with membership including neighbouring local authorities, emergency services and utility companies in order to ensure that while the national emergency management strategy is focused at the local level, there is improved cooperation and coordination of human and technical resources across the country.
- A comprehensive risk management strategy that integrates disaster management into environmental and community management practices at national and local levels.

Elsewhere in New Zealand, the *Auckland Local Authority Hazard Liaison Group*, was established four years ago by the Auckland Regional Council to enhance communications between local authorities on hazard management issues and to facilitate intra-council communication. It was composed mainly of planners and policy analysts drawn from the city, district and regional councils specifically “to recognize the link between hazard mitigation and land-use planning and the related need to develop tools to manage risk and improve communications among those people working in sustainable development and environmental management.”

Case: Switzerland

In Switzerland, long-standing federal forest law recognised the importance of forests with respect to reducing water runoff. Forests also were recognized as a means of protection

The Auckland Group developed a set of guidelines with the overarching goal to “minimize the risks to communities and the environment from the effects of a range of hazards, including (but not limited to) natural and technological hazards.” The guidelines are intended to address the following issues:

- Achieve consistency in the way that hazard information is collected, organized and used to influence decisions about managing risk among local government councils in the Auckland region.
- Ensure risk management issues are appropriately addressed in land-use and strategic planning.
- Maximize the effective use of hazard information to manage risk and to promote better public understanding of the local *hazardscape*.
- Encourage local authorities to reduce barriers to sound risk management and encourage effective risk communication practices.
- Minimize local authority liability through the effective capture and storage of hazard information.

The group has produced a technical publication to elaborate these issues, *Hazard Guideline 1: Hazard Identification and Information Management for Local Authorities*.

Source: The Australian Journal of Emergency Management, 2001-02.

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

Natural hazards continued to play an important role in modifying Swiss policies into the 20th century. The risk situation was aggravated by development in hazardous areas. The social and economic consequences of avalanches, floods and windstorms exerted an impact on policy considerations and Switzerland has moved to a more integrated approach to the management of risk.

In 1997, the *National Platform for Natural Hazards (PLANAT)* was created by the Swiss Federal Council. This extra-parliamentary commission aims to make better use of existing syn-



ergies and therefore to avoid duplication of efforts in natural disaster reduction. PLANAT 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.
- Create more awareness about natural hazards and to replace the conventional protection approach with a global view of risk management.

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

- Promotion of public relations.
- Initiating and supporting projects which

deal with integrated risk management.

- Supporting third-party projects with similar aims.
- Seeking better utilization of synergies among various sectors.

Information, education and creation of general awareness about risk reduction are not only high on the priority list of PLANAT but are increasingly recognized as being 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 which cooperate in a *Centre of Competence on Natural Disaster Reduction*. Students and researchers already have access to courses in the field of natural hazards and risk management at www.cenat.ch. This information is soon to be extended to benefit after people doing practical work with natural hazards. Moves are also

Swiss strategy for integrated risk management

Switzerland policy recognizes that absolute safety cannot be achieved by any means. However, great strides have been made in the past few years in progressively proceeding from the earlier conventional hazard protection to a more integrated management of risk. This latter approach is based on a balanced equilibrium of preventive, response and reconstruction measures. A residual risk, which is based on social, economic and ecological criteria of well-being, must therefore be accepted. This ultimately leads to a sustainable management of risk

In order to establish coherent procedures that can also 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 hierarchic levels 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 extends to individual land- and property-owners as well as to various national, regional and local institutions, organisations and associations.

The Swiss approach to hazard and risk management is furthermore founded on the three cornerstones of disaster "preventive", "response" and "reconstruction" measures. While all three cornerstones are of comparable importance, they are 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, to a degree, which is necessary, feasible and compatible with far-reaching considerations about the environment. The ultimate aim of the Swiss strategy is to achieve sustainable development in all sectors of natural disaster reduction.

Beyond its own borders too, Switzerland maintains and promotes the exchange of know-how and experience with other countries in regard to disaster reduction, as also reflected elsewhere in this report. It equally supports supranational efforts aimed at close collaboration with others involved in both sustainable development and the provision of humanitarian assistance when required.

underway to upgrade the *Swiss National Alarm Centre*, recognizing that communications are essential means by which information can be passed in times of relative calm as well as during times of crisis.

Research is another priority for PLANAT, concerning all natural hazard sectors. One important issue is related to a better understanding of the forces of natural hazard as well as the coping mechanisms of structural mitigation measures. Research will also continue with regard to monitoring climate change and the evaluation of its connection with natural hazards.

As financial resources are always limited, they must be allocated in the most productive manner. Several relevant moves are underway in Switzerland to ensure their most effective use. These include:

- Giving precedence to non-structural preventive measures including water course maintenance over river-engineering measures.
- Shifting resources from reconstruction to preventive measures.
- Redistributing the allocation of finances among the primary parties concerned in order to increase inter-cantonal collaboration and thus reduce the ill-effects of exaggerated diversity of activities as well as to avoid duplication.
- Improving the coordination and consistency in the use of government subsidies and similar incentives for local authorities and communities, for instance through the activities of the Federal Office for Water and Geology and the Federal Forest Directorate.

In any event, it is recognized that more finances need to be allocated to build greater awareness for disaster risk reduction among the public and policy makers, alike. This is reinforced by the evident experience that without periodic publicity, the necessary funds for a continuous reappraisal of natural hazard requirements simply are not provided. It is a bitter fact that both 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 unusually severe series of winter storms experienced across the country at the end of 1999.

Risk reduction plans, linked to specific responsibilities, policies, and practices

Case: Costa Rica

During 2000, the Ministry of Agriculture in Costa Rica took the unprecedented step of creating a *Risk Management Program in the Agricultural Planning Secretariat*. Concern for agricultural losses increased with the impacts of El Niño between 1997 and 1998 and with the recurrence of flooding and drought. The decision to create the programme was motivated further by decisions taken at the Central American Presidential Summit held in 1999 when disaster and vulnerability reduction issues dominated the agenda.

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

Case: Iran

Iran has a high exposure to seismic hazards. Considering this risk throughout the country, as indicated in the figure below, it became evident that a long-term vision was required to reduce significantly the high level of risk for the population. The development of a national policy of disaster risk reduction in Iran was largely motivated by the participation of scientific and technical interests within the country. This demonstrates that the evolution of risk reduction frameworks need not originate strictly from civil administration or political initiatives. Scientific interest has exerted a major role in driving policy relevance, in Iran and by so doing, was then able to implement a series of actions in different segments of the society.

There were a number of problems that had to be tackled if a comprehensive and sustainable national framework to reduce seismic risk was to be created. Following the 1990 Manjil earthquake, the *International Institute of Earthquake Engineering and Seismology (IIEES)*, located in Teheran, started working 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 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 and promote the need to build safer structures.
 - Increase public awareness and promote a collective prevention culture.
 - Develop plans for post-earthquake activities.
- In the political context, the first needs were to

reduction strategy were integral to national development objectives. Resources had to be reoriented from responding to immediate needs towards investing them in longer-termed and sustainable objectives. Importantly, policy-makers had to be encouraged to adopt a patient acceptance of deferred benefits.

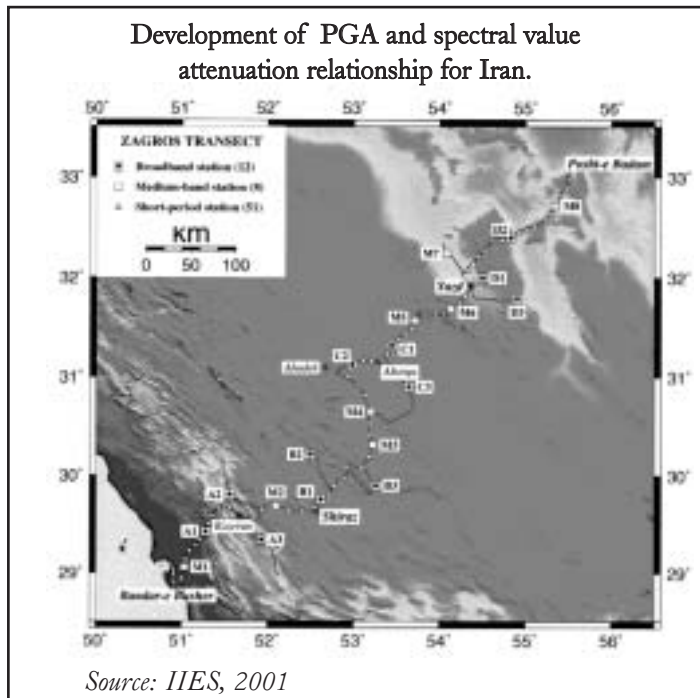
In an operational and technical context, emphasis was given to strengthening, and where necessary, retrofitting structures with particular attention given to lifeline facilities and the physical infrastructure. It was in this context that a challenging incompatibility existed between a developmental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

With the calculated involvement of the engineering profession, backed up by its code of professional training, opportunities were identified that could translate a fuller use of technical knowledge into 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 strategy provided an institutional “champion” for the concept of risk reduction, exercised through the practical conduct of the engineering profession.

IERMP developed a plan based on the common efforts among government officials, scientists, engineers, builders and the public, initially to define acceptable and achievable levels of risk. This led to two parallel requirements: making seismic safety a priority policy through revised legislation, and creating internal mechanisms to change existing engineering practices. A High Council on Risk Reduction was created in the Planning and Management Ministry of Iran to supervise the implementation of the new program. 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 previous considerations of only responding to earthquake



motivate a better understanding of the nature of seismic risks among the most senior policy-makers, and then to translate that awareness into political commitment throughout all the levels of government authority. This was pursued by emphasizing that elements of a risk

damage to introducing means that can reduce the risk of damage to vulnerable structures and lifelines before it occurs.

- 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 sector interests that are interested in upgrading their existing vulnerable structures.
- Encouraging more industrialization in the construction field 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 and achievable 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, and 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 in public understanding:

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

The following table summarizes the increase in resources allocated to seismic risk reduction during the course of the IERMP:

Resource allocation to seismic risk reduction, Iran

Type of resource	Before (1980-89)	After (1990-2000)
Seismic researchers	Less than 40	More than 265
Seismic graduate students	Less than 20	355
Seismic stations	15	45
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, a total of more than 128,000 million Rials. (US\$73.5 millions)
	In 1989 alone, about 104 million Rials. (US\$59,727)	In 2000 alone, more than 37,000 million Rials (US\$23.3 millions)
Investment for laboratories	US\$ 3.1 millions	US\$ 11,5 millions

Source: International Institute of Earthquake Engineering and Seismology, IIEES, Teheran, Iran





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. However, it turned out that several cases of human activity and unsuited policies actually 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 the government were seriously shaken. Senior officials experienced, first-hand, the lack of coordination of the various parties concerned with the emergency response, as well as having to accept their own failure of foresight.

Since this disaster, there is 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 take serious account of the notion of disaster reduction and include it in their various 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. The current ruling political party in Algiers is preparing to include disaster management in its program for a forthcoming legislative election campaign. Senior party officials are soliciting expert advice from scientific and technical advisors in preparing their programme.

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. In early 2002, another French organization, *Architecture-Urgence*, signed a

convention for cooperation with the *Wilaya of Algiers* to work on urban planning to reduce disasters.

The UN office in Algiers also installed a commission to work on disaster reduction in Algeria 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 similarly 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 has 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 colloquia are planned for other regions of the country. All of these actions demonstrate that Algerian authorities at all levels are more aware today about the risks they face.

Case: Kazakhstan

The Republic of Kazakhstan often experiences earthquakes, floods, landslides, and coastal floods. Only recently has the importance of natural disaster reduction been recognized. In May 2000, Kazakhstan's *Emergency Situation Agency* published the Plan of Preparedness of Kazakhstan for Natural Disasters with the cooperation of the National Red Cross and Red Crescent Society and UNDP. The introduction of 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 for efficient mobilization of organizations concerned, and implementation of different measures that can be deployed against various risks.

The last earthquake to devastate Kazakhstan took place in 1911, less than 30km south of the former capital, 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 experiences other risks too. Due to the rising water levels of the Caspian Sea over the past 20 years, the Kazakh shoreline has grown by 20-40 km and water has encroached about 70 km inland. The national Water Resource Committee has reported that total costs for preventing losses from this increasing water level will exceed US\$ 3-5 billion, as researchers work intensively to reduce these future risks. The northern slope of the west Tengshan range, where Almaty is located, is exposed to floods, mud and debris flows, avalanches and landslides. In particular, landslides threaten areas where more than 150,000 people are living. 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, although that is slowly changing. The Emergency Situation Agency has prepared many brochures, pamphlets and videos to expand the general awareness of these hazards, and the public seems to be responsive. A recent 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.

Some common limitations in most regions

The designation of administrative arrangements or even the passage of legislation provides only a basic framework for a disaster risk reduction strategy. Policies alone do not reduce the vulnerabilities of people exposed to the risk of natural hazards. Despite the implementation of policies, acts and regulations by official departments, challenges often remain to develop more broadly based practices throughout countries that involve different ministries and departments at national, provincial, district or even municipal and village levels.

In some countries, disaster management information has been classified or restricted, as a matter of public security. When combined with a lack of coordination between various government agencies, competing departmental issues or a persistent emphasis given to emergency response, the ability to cite a particular decree or policy initiative is not necessarily a guarantee of real commitment or demonstrated practical abilities on the ground.

Even among national focal points, there are few standard criteria that would emphasize the recruitment of trained disaster risk managers. Authoritative positions are most frequently occupied by career administrators who may or may not have any formal professional expertise or even familiarity with matters of risk management. Frequent inter-agency transfers of civil service officials further impede opportunities for national organizations to develop institutional memories with the result of consequent and irrevocable loss of valuable experiences and lessons learned.

In terms of policies, many countries assuredly advise that they have prepared state, provincial or district level emergency contingency plans, while some do not have any national disaster risk management system at all. In recent years, national building codes have been drafted in countries that did not before have them, although compliance and enforcement both remain very problematic in many of them. Thousands of buildings are constructed annually in known seismic areas, without incorporating any established seismic resistance techniques.

Population pressures or economic necessities, easily transformed into local political issues can frustrate the consistent application of flood or landslide protection zoning. Incidence of corruption or the lack of enforcement of existing policies and regulations are unfortunately much more evident than is generally acknowledged either officially or in diplomatic discourse, even though such administrative laxity has an important bearing on the effectiveness of any disaster risk reduction programme. It is only when legislation is able to place legal responsibility on specific officials whose decisions or lack of effective action perpetuate continuing conditions of vulnerability will risk reduction be able to be truly measured.

Future challenges and priorities

Coherent and comprehensive approaches to building institutional frameworks, at both national and local levels, are essential if one is to speak seriously of a sustained commitment to disaster risk reduction. This includes the need of policies and collaborative efforts among sectors, departments and institutions which deal with the different layers of development.

While governments need to encourage, direct and support these efforts, the vitality and effectiveness of the resulting organizational frameworks and operational capabilities remain based on the understanding and motivation of public interests. This includes, particularly, the engagement of people with a wide circle of skills and attributes ranging from educational practices to various forms of technical expertise. Acceptance of the necessity of risk management, coupled with direction and coordination, all backed by resources, are the hallmarks of institutionalized capabilities. The primary challenges and priorities to accomplish these goals include:

- Government authorities understanding the distinctiveness of disaster risk management and the value of investing in risk reduction to protect the well-being and the assets of society.
- The recognition and acceptance of allocating resources, over time, based on collective judgement about the needs of sustained disaster risk management is essential. Calculating and understanding the relative costs and benefits of anticipatory protection needs to be emphasized in contrast to sustaining much greater avoidable losses.
- All communities and countries need to assess variations in the intensity and the extent of hazards, evaluate local priorities and determine the relative degree of risk involved. This in turn will determine the requirements for sound institutional frameworks.
- The primary challenge is to begin with a self-assessment of national capacities – from government to local level – in risk awareness and management. While this can be done by using self-determined criteria, abundant expert guidance and specialist knowledge is available throughout the world.
- Examples cited display the importance of transcending the theoretical expression of policy frameworks and legal instruments and realizing their actual 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 political power holders;
 - have economic advantages to the private sector;
 - 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.