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International Strategy for Disaster Reduction

HFA

Words Into Action:

A Guide for Implementing the Hyogo Framework

Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters

United Nations

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Acknowledgements

The ISDR secretariat gratefully acknowledges the extensive contributions to this Guide by many partner institutions and individuals within the International Strategy for Disaster Reduction (ISDR) and from numerous countries around the world.

The first outline for the Guide was presented at a side meeting at the eleventh[1] session of the Inter-Agency Task Force on Disaster Reduction (IATF/DR), held in Geneva, 24-26 May 2005. Using these ideas, consultant Fouad Bendimerad developed the Guide's initial concept and structure. This draft was discussed at the IATF/DR-12, Geneva, 22-24 November 2005[1]. Following further inputs, the ISDR secretariat developed a revised draft and convened an international expert workshop in Geneva in July 2006 to provide further review and revision. In November 2006 a fully formatted consultation draft was printed and disseminated for wider input and refinement, and to seek further illustrative good practices to include in the Guide. Chapter 5 of the document, concerning disaster preparedness, draws on a separate consultative process under the auspices of the Office for the Coordination of Humanitarian Affairs.

This publication would not have been possible without the inputs of individuals, country and institutional representatives. While every effort was made to name all contributors, the ISDR secretariat regrets if any organization or individual contributor has been overlooked in the lists below.

The Guide has benefited greatly from the guidance and concrete inputs of the members of the IATF/DR, namely: *UN/international:* Food and Agriculture Organization, International Labour Organization, International Telecommunication Union, Office for the Coordination of Humanitarian Affairs, United Nations Centre for Regional Development, United Nations Convention to Combat Desertification, United Nations Development Programme, United Nations Educational, Scientific and Cultural Organization, United Nations Environment Programme, United Nations Institute for Training and Research, United Nations Human Settlements Programme, United Nations University, United Nations Volunteers, World Bank, World Food Programme, World Health Organization, World Meteorological Organization; *regional:* African Union Commission, Asian Disaster Preparedness Center, Asian Disaster Reduction Center, Commonwealth of Independent States Interstate Council, Council of Europe, European Commission-Joint Research Centre, Ibero-American Association of Civil Defence and Civil Protection, New Partnership for Africa's Development Secretariat, Organization of American States-Inter-American Committee on Natural Disaster Reduction, South Pacific Applied Geoscience Commission; *civil society:* ActionAid International, Centre for Research on the Epidemiology of Disasters, Earthquakes and Megacities Initiative, Global Fire Monitoring Center, Inter-Governmental Authority on Development's Climate Prediction and Applications Centre, International Council of Scientific Unions, International Federation of Red Cross and Red Crescent Societies and Munich Re-insurance.

Invaluable contributions were also received from the following organizations: All India Disaster Mitigation Institute, Association of Caribbean States, Huairou Commission, Indian National Institute of Disaster Management, International Recovery Platform, Plan International, Platform for the Promotion of Early Warning/International Early Warning Programme, ProVention Consortium, Proyecto Apoyo a la Prevención de Desastres en la Comunidad Andina-PREDECAN, United Kingdom Department for International Development, United Nations Institute for Training and Research Operational Satellite Applications Programme and United Nations Children's Fund.

Particular thanks are due to the following individuals for their very valuable inputs of expertise and experience: Cheryl Anderson, Amal Bendimerad, Mihir Bhatt, Ana Campos García, Luis Carpio, Dhar Chakrabarti, Olivia Coghlan, Tanya Miquilena de Corrales, Maxx Dilley, Elaine Enarson, Maureen Fordham, Johann Goldammer, Suranjana Gupta, Ilan Kelman, Shirley Mattingly, Ricardo Mena, Masahiko Murata, Masaaki Nakagawa, Junaid Nasir, Norah Niland, Ron Ockwell, Notate Pelesikoti, Everett Ressler, Loy Rego, Seyed Mohammad Sadatinejad, Carmen Schlosser, Anil K. Sinha, Etsuko Tsunozaki, Oliver van Damme, Zenaida Delica Willison, Ben Wisner and Ricardo Zapata.

The editorial and production team from the ISDR secretariat included Mario Barrantes, Pedro Basabe, Reid Basher, Terry Jeggle, Silvia Llosa and Carolin Schaerpf, aided by editorial consultant Bonnie Galvin. Other ISDR secretariat staff who contributed include: Paola Albrito, Salvano Briceño, Feng Min Kan, John Harding, Andrei Iatsenia, Helena Molin-Valdes and Praveen Pardeshi, and the staff of the ISDR regional outreach units in Africa, Asia and Latin America and the Caribbean

The production of this Guide was made possible through contributions to the ISDR Trust Fund for Disaster Reduction by the following Governments: Australia, Canada, Denmark, Finland, Germany, Italy, Japan, Luxembourg, Norway, Philippines, South Africa, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, and by the European Commission and the World Bank's Global Facility for Disaster Reduction and Recovery.

1 For further information, visit: www.unisdr.org/iatf

Foreword

The Hyogo Framework for Action (HFA) was formulated as a comprehensive, action-oriented response to international concern about the growing impacts of disasters on individuals, communities and national development. Based on careful study of trends in disaster risks and practical experience in disaster risk reduction, and subjected to intensive negotiations during 2004 and early 2005, the HFA was finally brought to fruition and adopted by 168 Governments at the World Conference on Disaster Reduction, held in Kobe, Hyogo Prefecture, Japan, 18-22 January 2005[2]. The outcome it seeks is "The substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries." This is further elaborated into three Strategic Goals and five Priorities for Action.

An important feature of the HFA is its legally non-binding character, which allows it to set out a well-grounded set of technical and organizational requirements for reducing disaster risks, while leaving the details of its implementation to the decision of governments and relevant organizations, according to their needs and capacities. The responsibilities for implementation and follow-up are defined for the different actors – particularly, States, regional organizations, international organizations, and the International Strategy for Disaster Reduction (ISDR). Primary responsibility lies with States, but an enabling international environment of support is also vital.

Among other things, the HFA calls on the ISDR to "facilitate consultative processes to develop guidelines and policy tools for each priority area, with relevant national, regional and international expertise." The present document "Words into Action: A Guide for Implementing the Hyogo Framework" is the first product generated to meet this call. It has been prepared through a long process of drafting and consultation that has involved the participation of numerous organizations and individuals in dozens of countries. Drawing on their expertise and experience, the Guide describes 22 tasks that are organized to help address and guide the implementation of the HFA's five Priorities for Action. Depending on the national situation, the tasks may provide good starting points for organizing action, or useful references against which to check existing policies and procedures. Different users can draw on the parts that are useful to them, adapting the tasks according to their particular needs.

An important role of the ISDR system is to develop tools to help Government authorities and other organizations to implement the HFA. With this first overall guidance document completed, we will now facilitate efforts to develop guides for specific sectors and situations. To assist in this effort, and to improve future versions of the present Guide, we would welcome feedback from its readers and users.

Sálvano Briceño
Director, ISDR secretariat
30 April 2007

2 For further information visit: www.unisdr.org/wcdr

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Introduction

The Hyogo Framework for Action

Recent years have seen no shortage of reminders that improved management of natural hazards and the reduction of disaster risks must be given the highest priority. The need for a global disaster reduction strategy has been underscored by a string of disasters, most notably the 2004 Indian Ocean tsunami which claimed over 250,000 lives, but also the earthquakes in Pakistan and Indonesia; persistent droughts in Africa; heat waves and fires in Europe; hurricanes in Central America and the United States; and landslides triggered by typhoons in South East Asia.

In January 2005, over 4000 representatives of governments, non-governmental organizations (NGOs), academic institutes and the private sector gathered in Kobe, Japan, at the second World Conference on Disaster Reduction (WCDR) and concluded negotiations on the *Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (HFA)*[3]. This Framework for Action, adopted by 168 states, sets a clear expected outcome - the substantial reduction of disaster losses, in lives as well as the social, economic and environmental assets of communities and countries - and lays out a detailed set of priorities to achieve this by 2015.

The HFA emphasizes that disaster risk reduction is a central issue for development policies, in addition to being of interest to various science, humanitarian and environmental fields. Disasters undermine development achievements, impoverishing people and nations. Without serious efforts to address disaster losses, disasters will become an increasingly serious obstacle to the achievement of the Millennium Development Goals.

To help attain the expected outcome, the HFA identifies five specific Priorities for Action:

1. Making disaster risk reduction a priority.
2. Improving risk information and early warning.
3. Building a culture of safety and resilience.
4. Reducing the risks in key sectors.
5. Strengthening preparedness for response.

Roles and responsibilities for the Hyogo Framework for Action

The HFA describes the responsibilities of different agents for its implementation. Primary responsibility for implementation rests with states, but the collaboration and cooperation among all stakeholders, including NGOs will be crucial in order to improve the resilience of communities. The contributions of regional and international organizations are also vital. Here, the multi-stakeholder United Nations International Strategy for Disaster Reduction plays an important role and is assigned specific responsibilities by the HFA. The ISDR system[4] supports national policies and coordination mechanisms, facilitates regional and international coordination, stimulates the exchange of good practices, reviews and documents progress towards implementation of the HFA, and produces practical tools to help policymakers and decision makers promote and implement disaster risk reduction measures in their respective countries and regions. One such tool for decision makers is this Guide.

The roles and responsibilities of the main categories of stakeholders identified in the HFA are summarized in the following notes.

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3 The Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters can be downloaded from the ISDR website at: www.unisdr.org/hfa

4 The term ISDR system means the various international, regional and national bodies, platforms, programmes and mechanisms expressly established to support the implementation of the ISDR and the HFA. See www.unisdr.org for more information.

Roles and responsibilities for states

Recognising their primary responsibility for ensuring the safety of their citizens, states committed to:

- Develop national coordination mechanisms.
- Conduct baseline assessments on the status of disaster risk reduction.
- Publish and update summaries of national programmes.
- Review national progress towards achieving the objectives and priorities of the HFA.
- Implement relevant international legal instruments.
- Integrate disaster risk reduction with climate change strategies.

The HFA does not specify which particular ministries should take responsibility for overseeing its implementation, as this choice is a national prerogative. Moreover, disaster risk reduction spans all sectors and requires attention by most ministries. However, it is worth noting that most countries have a ministry or official organization responsible for disaster management, emergency management or civil protection, and that these organizations usually have a good awareness and understanding of natural hazards and risks and the motivation to reduce disaster risks. In these cases, it is reasonable for the national disaster management organization to be accorded overall responsibility to facilitate and promote the implementation of the HFA, including to bring the issue to the attention of the highest levels of government, to stimulate the development of national mechanisms for implementation, to nurture a national platform for disaster risk reduction, and encouraging other state and civil society organizations in all sectors to adopt and implement risk reduction measures in their areas of responsibility. In other cases these roles and responsibilities may lie with another ministry such as the interior ministry or environment ministry.

Roles and responsibilities for regional organizations

In addition to their efforts at home, states also agreed to intensify international disaster risk reduction cooperation through regional and international organizations. The tasks identified for the regional level included:

- Promoting regional programmes to support disaster risk reduction, such as in technical cooperation.
- Conducting regional baseline assessments and reviewing progress.
- Supporting the development of regional collaborative centres and regional early warning capacities.

Roles and responsibilities for international organizations and ISDR

International organizations - and the ISDR in particular - are called upon to encourage and support these national and regional efforts through a range of activities, including by:

- Integrating disaster risk reduction into their programmes to assist disaster-prone countries.
- Supporting globally consistent data collection and forecasting and promoting information exchange.
- Developing information resources including best practices and guidance material.
- Ensuring coordination of efforts by the United Nations and other organizations.
- Providing advice and assistance to governments, to support their efforts in implementing the HFA.
- Organizing periodic reviews of progress toward the implementation of the HFA.

Concept and organization of the Guide

Purpose and design of the Guide

The Guide has been created to provide advice on useful strategies for implementing the HFA. It represents a distillation of the wealth of experience that exists throughout the world on how to manage and reduce disaster risks. The Guide can help states to assess where they stand in the implementation process and, by building on existing experience and structure, to identify possible gaps and useful next steps to take. It does not attempt to cover all risks, nor all elements of disaster risk reduction. Some sections outline basic points and processes for disaster risk reduction, while others describe more complex tasks.

Because states have the primary responsibility for disaster risk reduction, the Guide's target audience is national governments and their subsidiary local governments, including decision makers, leaders and practitioners, and other civil servants. In addition it is expected that the Guide will be of interest to a diverse audience and may be used at different levels for a variety of purposes, such as by leaders and representatives of specific sectors, civil society organizations, community organizations, the private sector, academia, international and regional organizations, and others working to reduce disaster risk reduction.

The ISDR secretariat has compiled this Guide in response to paragraph 33 (b) of the HFA, which requests that the ISDR system "support the implementation of this Framework, identify gaps in implementation, and facilitate consultation processes to develop guidelines and policy tools for each priority area." The Guide has been developed through extensive consultation with key actors in disaster risk reduction, including partner agencies and experts, national platforms and regional agencies.

Structure and use of the Guide

The Guide comprises this introduction, five chapters of specific recommended tasks, and a set of supporting annexes. The introduction outlines the origins and aims of the Guide along with additional orienting information. The main chapters of the Guide, one for each of the HFA's five Priorities for Action, contain a set of 22 suggested tasks, each task addressing a primary area of effort for implementing disaster risk reduction. Practical step-by-step advice on how to accomplish the task is provided. Illustrative examples from around the world are listed, along with links to supplemental sources of information and definitions of key terms.

Because different countries reflect different stages of disaster risk reduction and implementation of the HFA, the Guide's tasks are presented in a semi-independent form, so that users can choose and pursue the particular tasks that are most appropriate for their own circumstances and priorities. While each task is largely self-contained, there are linkages with other tasks, and notes are provided on these linkages, and on how work done for one task may aid completion of another. Although most of the tasks do not need to be conducted in a sequential order, it is important to first organize the implementation of the tasks of Priority 1, since this provides the foundations for other tasks, by securing political and institutional backing from government and leaders.

As much work needs to be done to fully implement the HFA, there will be many paths that lead toward this goal. The proposed 22 tasks in this Guide do not cover every requirement, but instead have been selected as primary areas where achievements in disaster risk reduction can be particularly beneficial. In all cases, users are encouraged to take from the Guide what is useful in their national contexts, and to apply the general concepts and measures presented as may fit their existing policies and systems.

Several annexes at the end of the Guide provide additional supporting information. This includes a consolidated set of indicators to measure progress on the five Priorities for Action, useful references, a summary chart of the HFA, a diagram outlining a conceptual framework for understanding the work of disaster risk reduction and a comprehensive list of terminology.

Indicators for monitoring progress

The HFA stresses the need to develop indicators that can be used to monitor progress on risk reduction. An indicator is a specific expression to measure progress, such as "A legal framework for disaster risk reduction exists", or "Risk reduction is included in the junior school curriculum". They are intended to be simple, shorthand means to test or evaluate the status of an important element of disaster risk or disaster risk reduction action. They can help to guide the design of policies and projects and to evaluate the effectiveness of specific disaster risk reduction activities. Measurable impact indicators such as "Number of deaths arising from natural hazard events" are important for monitoring overall progress on implementing the HFA.

Each chapter of the Guide includes a set of suggested indicators relevant to the priority for action addressed by the chapter. The indicators are also consolidated together in Annex III. They are drawn from a separate document that is being developed by the ISDR secretariat in response to the request in the HFA to facilitate the development of guidance on generic indicators of progress - this document is titled Indicators for Assessing Progress on Disaster Risk Reduction.

A set of guiding principles for implementing disaster risk reduction

Past experience in disaster risk reduction has led to the development of some basic principles that underpin or facilitate the achievement of effective disaster risk reduction. The following principles are offered as guidance for the users of the Guide. Many of them are explicitly recognized and emphasized in the HFA.

- States have the primary responsibility for implementing measures to reduce disaster risk. Disaster risk reduction needs to be an essential part of a state's investment in sustainable development. States have the power as well as the responsibility to protect their citizens and their national assets by reducing the risk of losses from disasters. States, however, cannot do the job alone. Effective disaster risk reduction relies on the efforts of many different stakeholders, including regional and international organizations, civil society including volunteers, the private sector, the media and the scientific community.
- Disaster risk reduction must be integrated into development activities. Disasters undermine hard-won development gains, destroying lives and livelihoods and trapping many people in poverty. States can minimize such losses by integrating disaster risk reduction measures into development strategies, assessing potential risks as part of development planning, and allocating resources for risk reduction, including in sector plans. Because of the enormous development losses suffered around the world from disasters, development banks and international assistance institutions now increasingly place importance on integrating risk reduction into development policies and practices. At the same time, disaster risk reduction is also being recognized by humanitarian actors as a fundamental component of their policies and programmes, in order to avoid the loss of lives and livelihoods and to reduce the need or extent of humanitarian response and relief.
- A multi-hazard approach can improve effectiveness. A particular community is usually exposed to risks from a variety of hazards, which can be either natural or human-induced in origin, and can stem from hydro-meteorological, geological, biological, technological or environmental forces. The resulting cumulative risk cannot be tackled effectively if actors plan merely for selected hazardous events. A multi-hazard approach involves translating and linking knowledge of the full range of hazards into disaster and risk management, political strategies, professional assessments and technical analysis, and operational capabilities and public understanding, leading to greater effectiveness and cost-efficiency.
- Capacity-development is a central strategy for reducing disaster risk. Capacity development is needed to build and maintain the ability of people, organizations and societies to manage their risks successfully themselves. This requires not only training and specialized technical assistance, but also the strengthening of the capacities of communities and individuals to recognize and reduce risks in their localities. It includes sustainable technology transfer, information exchange, network development, management skills, professional linkages and other resources. Capacity development needs to be sustained through institutions that support capacity-building and capacity maintenance as permanent ongoing objectives.
- Decentralize responsibility for disaster risk reduction. Many disaster risk reduction activities need to be implemented at provincial, municipal and local levels, as the hazards faced and the populations exposed are specific

to particular geographic areas. Similarly, the administrative responsibilities to manage key risk factors, such as land-use zoning or building approvals, are often devolved to such scales. In order to recognize and respond to these locally specific characteristics, it is necessary to decentralize responsibilities and resources for disaster risk reduction to relevant subnational or local authorities, as appropriate. Decentralization can also motivate increased local participation along with improved efficiency and equitable benefits from local services.

- Effective disaster risk reduction requires community participation. The involvement of communities in the design and implementation of activities helps to ensure that they are well tailored to the actual vulnerabilities and to the needs of the affected people. This informed engagement helps to avoid problems and secondary effects when hazard events occur. Participatory approaches can more effectively capitalize on existing indigenous coping mechanisms and are effective at strengthening community knowledge and capacities. They are usually more sensitive to gender, cultural and other context-specific issues that can undermine or empower particular groups and individuals to take locally based action. The incorporation of local perspectives into decisions and activities also helps to ensure that changes in vulnerability and perceptions of risk are recognized and factored into institutional processes, risk assessments, and other programmes and policies.
- Gender is a core factor in disaster risk and in the implementation of disaster risk reduction. Gender is a central organizing principle in all societies, and therefore women and men are differently at risk from disasters. In all settings - at home, at work or in the neighbourhood - gender shapes the capacities and resources of individuals to minimize harm, adapt to hazards and respond to disasters. It is evident from past disasters that low-income women and those who are marginalized due to marital status, physical ability, age, social stigma or caste are especially disadvantaged. At the grass roots level, on the other hand, women are often well positioned to manage risk due to their roles as both users and managers of environmental resources, as economic providers, and as caregivers and community workers. For these reasons it is necessary to identify and use gender-differentiated information, to ensure that risk reduction strategies are correctly targeted at the most vulnerable groups and are effectively implemented through the roles of both women and men.
- Public-private partnerships are an important tool for disaster risk reduction. Public-private partnerships are voluntary joint associations formed to address shared objectives through collaborative actions. They may involve public organizations such as government agencies, professional and/or academic institutions and NGOs, together with business organizations such as companies, industry associations and private foundations. Because the threats from natural hazards affect both public and private interests alike, private-public partnerships can offer opportunities to combine resources and expertise to act jointly to reduce risks and potential losses. They can thereby improve the resilience of communities.
- Disaster risk reduction needs to be customized to particular settings. States vary greatly in their political, socio-economic, cultural, environment and hazard circumstances. Measures that succeed in reducing risk in one setting may not work in others. Customizing involves making use of others' experience, for instance by reviewing the context of particular measures and the nature of good practices and lessons learned, and then tailoring these to implement policies and activities that are appropriate for the local contexts. An important aspect of customizing is an awareness of cultural diversity, recognizing the differences among groups of people in language, socio-economic and political systems, religion and ethnicity, and in their historical relationship with nature. Local socio-political structures and cultural conditions, such as kinship arrangements, customary rights, community and family networks and systems of leadership, nearly always persist during times of stress. It is important to take these factors as a starting point and to build on them when designing and implementing new policies and practices.

Basic steps in managing a task

Each of the tasks described in the body of the Guide can be approached as a single independent activity, typically involving a series of steps such as planning, consultation and reporting. Although the tasks address different goals, the steps required are often similar. To assist users of the Guide in planning tasks, and to encourage the efficient use of resources and successful completion, we outline below a brief review of the common main steps in managing activities.

1. *Develop an internal workplan.* A workplan helps activity managers determine the human and financial resources required to undertake the task, as well as the time needed to carry out all of the task's activities.

2. *Get necessary agreements or endorsements.* Enlisting engagement from higher levels of authority helps to secure the required resources and to raise the necessary political profile.

3. *Identify stakeholders.* Stakeholders are those parties who are interested in or affected by the activities and who can either contribute to or impede its achievement. The set of stakeholders varies for different tasks. Task 1.1 provides further detail on this step.

4. *Assemble information.* The need for data and information will vary greatly depending on the task, and its collection may occur at several steps along the way. An initial basic set of information will be needed on the prevailing conditions of disaster risk and risk reduction policies, in order to identify the nature of the problem that the task must address, and to provide a documented reference point or "benchmark" against which the task's success can be measured later.

5. *Convene a planning and organizational meeting with all stakeholders.* This step involves jointly developing and agreeing upon:

   - The scope of the task, its objectives and goal.
   - A workplan (adapted from the internal workplan, in order to include other stakeholders).
   - Individual and agency roles and responsibilities.
   - Methods for undertaking the task.
   - Methods for reporting intermediate results.
   - Communication and dissemination strategies for the task during and after completion.
   - A strategy for managing work processes, monitoring progress, generating recommendations and promoting their implementation.

6. *Carry out the task.* The task manager will need to ensure that team members and subgroups understand what is expected of them and have the necessary resources to carry out their duties. The task manager also needs to oversee the work, monitoring progress and solving any problems as they occur.

7. *Consultation and outreach.* Task success often hinges on whether stakeholders agree that the activities meet their needs and expectations. Therefore, to keep the task on track and to foster buy-in, managers will need to regularly inform, consult and, wherever appropriate, integrate stakeholders' views. Involving a broad set of stakeholders will also allow them to learn from the task, and to identify and seize opportunities for implementing disaster risk reduction.

8. *Disseminate results.* Here, managers communicate the results of the completed task to various government sectors involved, other relevant stakeholders and to the general public through the media. Chapter 3 provides specifics on useful communication strategies.

9. *Follow-up.* Specifics of this step, which vary greatly by task, are likely to include internal and external advocacy to ensure the recognition and adoption of any recommendations and plans.

10. *Monitor and evaluate.* Monitoring and evaluation helps managers measure progress and assess the effectiveness of projects. Consideration of monitoring and evaluation needs to be built into the planning stage, to ensure that the right data is collected as part of all activities and that the process is tailored to answer the relevant management questions, particularly concerning the expected achievements with the target groups and overall cost-effectiveness.

Chapter 1

Making disaster risk reduction a priority

Hyogo Framework for Action Priority 1
Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation.

Implementing Priority 1 requires fostering political commitment and community participation in disaster risk reduction, and developing or strengthening the institutional, legislative and operational mechanisms for disaster reduction. It involves integrating disaster risk reduction into development planning and decentralizing responsibilities where necessary. It also calls for assessing human and financial needs, and allocating the necessary resources.

States can undertake a number of tasks to implement Priority 1. This chapter recommends the following tasks:

1.1. Engage in multi-stakeholder dialogue to establish the foundations for disaster risk reduction.

1.2. Create or strengthen mechanisms for systematic coordination for disaster risk reduction.

1.3. Assess and develop the institutional basis for disaster risk reduction.

1.4. Prioritize disaster risk reduction and allocate appropriate resources.

The following indicators are suggested as possible means for assessing progress in implementing this priority:

- A legal framework for disaster risk reduction exists with explicit responsibilities defined for all levels of government.
- A national multi-sectoral platform for disaster risk reduction is operational.
- A national policy framework for disaster risk reduction exists that requires plans and activities at all administrative levels, from national to local levels.
- Dedicated and adequate resources are available to implement disaster risk reduction plans at all administrative levels.

1.1 Engage in multi-stakeholder dialogue to establish the foundations for disaster risk reduction

A. Understanding the task

What's the purpose of this task?

This task brings together the country's relevant disaster risk reduction stakeholders in structured discussions to develop or strengthen the country's disaster risk reduction efforts. The dialogue may in time evolve into a national multi-stakeholder disaster risk reduction platform (see Task 1.2 for more information on national platforms).

Why it's important

Structured dialogue among stakeholders is the best way to address the complexity of both disaster risk reduction itself and of stakeholders' concerns, bringing disparate parties together to share a common vision. Discussion among stakeholders helps to build a national consensus for reducing disaster risks. It enhances societal awareness of hazards, risk and risk reduction. It can empower vulnerable stakeholders and, through information sharing and coalition-building, can promote action by local governments, private entities, women and community groups and other NGOs. Dialogue helps to clarify roles and can lead to collaboration on risk reduction at the regional level, both between institutions and across sectors.

How it relates to other priority tasks

This task is the basis for success in disaster risk reduction. In particular, it is a desirable first step for Task 1.2, which creates and/or strengthens coordination mechanisms.

Terminology

Disaster: A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources. A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk. *(Source: UN/ISDR Terminology)*

Disaster risk reduction: The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development. *(Source: UN/ISDR Terminology)*

Disaster risk reduction champion is an influential person interested in disaster risk reduction, who is willing to take action to make disaster risk reduction a public priority. A champion may be any determined, government official, a professional in one of many fields or a community activist. Institutions or even countries can play championing roles.

Multi-stakeholder is a term to describe a grouping of individuals and organizations who have a interest or "stake" in a problem and who cooperate to take action on the problem - in this case to reduce disaster risk.

1.1 Engage in multi-stakeholder dialogue to establish the foundations for disaster risk reduction

B. How to do it

Recommended steps

1. Identify key stakeholders and ensure active collaboration among them. Key stakeholders are those who should play a role in the planning, promotion or implementation of risk reduction strategies and programmes.
2. Identify relevant existing governmental or civil society organizations. Assess whether the dialogue could be anchored within or benefit from these existing networks.
3. Identify one or more disaster risk reduction champions.
4. Convene interested and affected parties.
5. Agree on shared goals, scope, agenda, working arrangements and ground rules.
6. If appropriate, establish multidisciplinary working groups or committees to work on specific issues.
7. Establish a mechanism for overall coordination of the work effort. Coordination includes setting and monitoring progress, and integrating outputs.
8. Develop an arrangement for keeping the dialogue going.
9. Set up a system for disseminating discussion results, and for receiving and acting on external input. Results commonly should go to key officials, participating organizations and the public.

C. Responsibilities and resources

Who should be involved?

The following types of organizations, all of which play a role in implementing disaster risk reduction, should have an interest in the dialogue. In some cases their participation will be essential. One organization, probably the national disaster management or civil protection organization, or the ministry that supports the national platform or the official national focal point for the HFA, will need to initiate the process.

- Central planning, finance, environment and policymaking bodies.
- Ministries of education, health, agriculture and other relevant sectors.
- National disaster management and civil protection organizations, and their associated operational partners such as police services, emergency services and Red Cross and Red Crescent Society.
- Owners and operators of economic and social infrastructure: enterprises critical for people's survival and the continuous functioning of communities.
- Public agencies: those responsible for overseeing implementation of building codes and for regulating, sanctioning or providing incentives. Also include environmental managers, national focal points of the Rio conventions, women's commissions and key humanitarian and social service organizations.
- Relevant professional organizations, including these of land-use planners, architects, engineers, developers, builders, geographers, hazard specialists, advocates, educators, trainers and researchers.
- Technical and scientific institutions or services: those dealing with risk identification, hazards monitoring, early warning and preparedness.
- Private sector: financial institutions, including those that provide mortgage loans or insurance, as well as communication technology companies.

- Media organizations (that can communicate warnings and educate the public).
- Non-governmental, women's and youth groups and other community groups that are advocates for residents in high-risk environments.

What conditions facilitate the task?

- Support of chief executives of the key government and stakeholder organizations, as well as community leaders.
- A champion or champions who can motivate, galvanize or bridge the support and interest of government and society.
- Careful planning that enables wide participation (through selection of time, location and conditions of meetings).
- An experienced communication facilitator to run the meetings.
- Background information to inform the discussion (such as assessments of hazards, vulnerabilities and risks, studies of disaster events and socio-cultural and gender perspectives, compilations of laws, regulations, policies, strategies, plans and resources, summaries of institutional arrangements for disaster risk management, land-use and urban planning, economic development and environmental protection, and lists of active organizations including community groups that are active in high-risk areas.)

D. Illustrations

Multi-stakeholder dialogue, Morocco

Morocco started a national dialogue on disaster risk reduction when it held its First National Workshop on Catastrophe Risks in 2004. The workshop brought together representatives from relevant ministerial departments, local and provincial governmental institutions, the private sector, NGOs, professional associations and civil society organizations, as well as representatives from academia, media and international organizations. The workshop took stock of Morocco's existing disaster risk reduction measures, identifying several weaknesses across sectors and in the legal, institutional and organizational systems, as well as in the areas of knowledge development, education and awareness-raising.

Following this first workshop, Morocco activated several dialogue platforms and established a national coordination committee. The Division of the Environment at the Ministry of Land Use Planning, Water and Environment assumed the secretarial duties. Morocco held additional thematic workshops over the following year, as well as several round tables and discussions with selected stakeholders. Additionally, leaders asked relevant ministries and agencies to report on their programmes and plans for disaster risk management, and to develop specific priorities and budget requirements for their proposed action plans.

Overall, this dialogue generated a broad discussion and improved the exchange of ideas among a wide spectrum of stakeholders. Proceedings from each workshop and seminar were published and distributed among participants for comment. Several reports and documents on specific issues and topics were generated. The dialogue culminated with the development of a comprehensive report on disaster risk management, a proposal for a national strategy for disaster risk reduction and a national plan for emergency response.

For further information contact the Direction de la Surveillance et Prevention des Risques, Departement de l'Environnement, Ministère de L'Amènagement du Territoire, de l'Eau et de l'Environnment, Morocco.

For further information visit the following website:www.minenv.gov.ma

1.1 Engage in multi-stakeholder dialogue to establish the foundations for disaster risk reduction HFA

Creating the Andean Committee for Disaster Reduction and Response to Disasters (CAPRADE), Bolivia, Colombia, Ecuador, Peru and Venezuela.

Taking into consideration the impacts generated by the 1997-1998 El Niño phenomenon, members states (Bolivia, Colombia, Ecuador, Peru and Venezuela) of the Andean Community of Nations (CAN), prompted by the Andean Presidential Council, initiated in 1998 a broad participative process to improve disaster risk management in the region.

The process had several steps. First, the countries undertook a comprehensive study of El Niño phenomenon, concluding that a major cause of El Niño's impacts was the lack of prevention practices in the region. Based on this conclusion, CAN's agencies initiated the Regional Andean Programme for Risk Reduction and Disaster Prevention (PREANDINO) with the support of the Andean Development Bank (CAF) in 2000. PREANDINO (2002-2004) focused its strategy in promoting and strengthening disaster reduction mechanisms and plans with a multi-stakeholder participation including development agencies and processes. This effort helped to start a formal disaster risk reduction organization, among other results, within the Andean Community of Nations, operating with intersectoral and multidisciplinary approaches.

To integrate the results of PREANDINO with the work of disaster response organizations, CAN created in 2002 the Andean Committee for Disaster Reduction and Response (CAPRADE). CAPRADE is a new holistic regional organization for disaster risk reduction and response with the main goal of reducing the impact of disasters in the Andean region. It integrates the Ministries of Foreign Affairs, the Ministries or national planning institutions and the civil defence or disaster reduction and Response systems of the CAN member countries. It uses systematic collaboration to promote strategies, policies, plans and activities for disaster reduction, preparedness, response and recovery. In 2004 CAPRADE led creation of the Andean Strategy for Disaster Reduction and Response, which includes national and thematic programmes and subprogrammes by sectors to be implemented in the five Andean countries.

For further information visit the following website: www.caprade.org

Uniting government, civil society and the United Nations focus on risk reduction: the Islamabad Declaration, Pakistan

In November 2006, Pakistan's Ministry of Social Welfare and Special Education and the United Nations Development Fund for Women jointly organized in Islamabad a regional consultation on 'engendering' disaster management. The resulting Islamabad Declaration, which was approved by all government and civil society organization representatives present, includes a statement of resolve and several specific commitments, emphasising the need to recognize women's resilience and to institutionalize risk reduction among women. The consultation identified lead organizations in Pakistan, India, and Sri Lanka, respectively, to take advance the declaration in the countries, both with their governments and with other organizations. The All India Disaster Mitigation Institute (AIDMI) is providing technical support for these risk reduction efforts.

For further information see AIDMI. 2007. Disaster Risk Reduction and Risk Transfer in Recovery: A Regional Training of Trainers: southasiadisasters.net.

E. Further reading

Alesch, D.J. and Petak, W.J. 2001. Overcoming Obstacles to Implementing Earthquake Hazard Mitigation Policies: Stage 1 Report. MCEER Technical Reports. http://mceer.buffalo.edu/publications/bulletin/01/15-04/techreports1.asp

The Multidisciplinary Center for Earthquake Engineering Research (MCEER) report presents the results of an extensive literature review about implementation and decision-making from across the spectrum of social and behavioural sciences, drawing primarily on empirical scholarly research findings.

Antrobus, P., et al. 1990. Guidelines on the Role of Women in Disaster Management: Caribbean Region. Pan American Health Organization (PAHO). www.crid.or.cr/digitalizacion/pdf/eng/doc1447/doc1447-contenido.pdf

A Report from the Costa Rican conference on the Role of Women in Disaster Management, which placed special emphasis on integrating women across sectors and levels, and on women and health.

UNDP. 2005. A Global Review: UNDP Support to Institutional and Legislative Systems for Disaster Risk Management. Final Draft. www.undp.org/bcpr/documents/dru/proj_fact/ILS_DRM_Global_Review_Final_AP.doc

The United Nations Development Programme (UNDP) review provides a better understanding of certain trends in the development and strengthening of institutional and legislative systems, and reveal areas of opportunity for more effective assistance to the countries reviewed. It creates an important baseline on the characteristics of institutional and legislative systems, which will serve further monitoring purposes.

UNDP/BCPR, et al. 2005. Governance: Institutional and policy frameworks for risk reduction. Thematic Discussion Paper for Cluster 1 on Governance, Institutional and Policy Frameworks for Risk Reduction Twigg, J. ed. World Conference on Disaster Reduction, Kobe, Japan, 18-22 January 2005. www.unisdr.org/wcdr/thematic-sessions/WCDR-discussion-paper-cluster1.pdf

1.2 Create or strengthen mechanisms for systematic coordination for disaster risk reduction

A. Understanding the task

What's the purpose of this task?

This task brings together stakeholders to develop or strengthen a mechanism, here referred to as a "national platform", for coordinated, effective action on disaster risk reduction.

The overarching goal of a national platform is to help build a country's resilience against disasters, so as to safeguard the country's assets and ensure its citizens' well-being, by pursuing the following activities:

- Serve as leader of a national plan to implement the HFA.
- Enhance collaboration and coordination amongst disaster risk reduction stakeholders.
- Help develop a culture of safety and resilience, where disaster risk reduction is understood as every citizen's responsibility.
- Advocate for disaster risk reduction, particularly for its integration into development policies, strategies and activities, as well as into multilateral environmental agreements.

While this task focuses on national mechanisms, regional organizations also play an important role, and can benefit from similar attention.

Why it's important

Disaster risk reduction is a cross-cutting and complex issue, which requires political commitment, public understanding, scientific knowledge, responsible development planning and practice, a people-centred early warning system and disaster response mechanisms. A multi-stakeholder national platform gathers together in one forum the combined knowledge, skills and resources that are required for disaster risk reduction and are needed to incorporate it into development work. An effective national platform will:

- Guide and improve the implementation of national disaster risk reduction activities.
- Provide opportunities for civil society, especially NGOs, to dialogue and contribute to disaster risk reduction at national and community levels.
- Facilitate dialogue and partnership among members of the international community including the United Nations System and national authorities.
- Increase information and knowledge sharing and technology transfer among the members of national platforms and between national platforms.
- Foster links of disaster risk reduction actors to other relevant bodies nationally, regionally and globally.

How it relates to other priority tasks

National platforms can help countries perform most of the tasks in this Guide. Starting a multi-stakeholder dialogue, as suggested in Task 1.1, is a helpful first step for this task.

Terminology

National platform for disaster risk reduction is a nationally owned and led forum or committee of multiple stakeholders. It serves as an advocate of disaster risk reduction at different levels and provides coordination, analysis and advice on areas of priority requiring concerted action through a coordinated and participatory process. A National Platform for disaster risk reduction should be the coordination mechanism for mainstreaming disaster risk reduction into development policies, planning and programmes in line with the implementation of the HFA. It should aim to contribute to the establishment and the development of a comprehensive national disaster risk reduction system, as appropriate to each country. *(Source: UN/ISDR, Guidelines National Platforms for Disaster Risk Reduction)*

B. How to do it

Forming a national platform

In developing a national platform first make use of the steps suggested in Task 1.1, concerning multi-stakeholder dialogue. National platforms should build on any existing disaster management or development planning and finance system and facilitate the interaction of key development players from line ministries, in particular education, health and agriculture, as well as those from scientific and academic institutions, NGOs, the national society of the Red Cross and Red Crescent, the private sector, opinion shapers and other sectors closely related to the disaster risk reduction agenda. Whenever possible, national platforms may wish to invite participation of donor agencies and country-based United Nations organizations.

Ideally, the institution coordinating the national platform should be a permanent structure, in a sufficiently high position to coordinate the participation of all relevant partners, with a national coordination mandate in disaster management or disaster reduction. It should have strong leadership, as well as capacity to leverage political commitment and mobilize resources around disaster risk reduction.

Useful approaches to creating or strengthening a national platform include:

- Build on existing disaster management or development planning and coordination systems.
- Facilitate the interaction of key development players. Important participants include line ministries, disaster management authorities, scientific and academic institutions, NGOs, national society of Red Cross and Red Crescent, the private sector and the media, opinion shapers and other sectors closely related to the disaster risk reduction agenda.
- Invite, whenever possible, participation from donor agencies and country-based United Nations organizations.

Activities undertaken by national platforms

A national platform can:

1. Establish baseline information for disaster risk reduction, including disaster profiles, national policies, strategies, capacities, resources and programmes.
2. Identify trends, gaps, concerns and challenges, and determine priority areas in disaster risk reduction, including identifying most-vulnerable populations.
3. Benchmark progress made in pursuing disaster risk reduction and its integration into development planning and practices.
4. Develop result-oriented workplans on coordinating the implementation of the HFA.
5. Coordinate joint efforts among national platform members to reduce vulnerability of people at relatively high risk.
6. Document lessons learned and good practices, and share findings. Facilitate information and knowledge sharing and technology transfer among the members of national platforms and between national platforms.
7. Monitor, record and report on implementation of the HFA at national and community levels.
8. Advocate the development and adoption of policies and legislation, in order to engage higher-level policymakers and other interest groups.
9. Work towards a better integration of disaster risk reduction into humanitarian assistance, development programmes and concepts, and multilateral environmental agreements, including climate change, biodiversity and desertification. Leaders may be able to build on previous experiences of incorporating environmental issues into development.

1.2 Create or strengthen mechanisms for systematic coordination for disaster risk reduction

10. Coordinate with other national platforms and seek opportunities to combine resources and to participate in regional disaster risk reduction organizations.
11. Collaborate with other coordinating mechanisms addressing disaster risk reduction-related issues, such as national sustainable development and climate change focal points and committees.
12. Facilitate development of a national multidisciplinary research agenda. Encourage and guide research that helps to develop conceptual frameworks and methodological structures or approaches.
13. Stimulate the participation of development actors and planners for the integration of disaster risk reduction into the sustainable development agenda, including the Millennium Development Goals (MDGs), Poverty Reduction Strategy Papers (PRSPs) and Common Country Assessment/UN Development Assistance Frameworks (CCA/UNDAF), building on previous experience of integrating environmental issues into development.
14. Support a multi-stakeholder approach and dialogue and provide opportunities for civil society, especially NGOs, to dialogue and contribute to disaster risk reduction at national and community levels as well as to facilitate the dialogue and partnership between the international community, including the United Nations System and national authorities.

Including climate change focal points and organizations in national platforms

Many of the impacts associated with climate change exacerbate or alter existing hazards (such as droughts, floods, storms and heatwaves). According to the Intergovernmental Panel on Climate Change (IPCC), climate change will stress critical ecosystems and lead to water and food shortages this century. People will need to adapt to face impacts from warming that is already unavoidable, due to past greenhouse gas emissions. The IPCC confirmed that adaptation to current weather extremes can increase resilience to climate change (IPCC 2007b). The required climate change adaptation measures, such as early warning systems, risk assessment and sustainable natural resource use, are in practice disaster risk reduction activities.

To adapt to climate change and build resilience to its impacts, Priority 4 of the HFA calls for the integration of risk reduction into climate change adaptation strategies. A first step toward such integration is to involve national climate change focal points and/or organizations in national platforms. Bringing together such representatives will allow the national platform to (i) explore common trade-offs between present and future action; (ii) identify synergies to make best use of available funds for short- to longer-term adaptation to climate risks as well as to tap into additional funding sources, (iii) share human, information, technical and practical resources; (iv) make best use of past and present experience to address emerging risks; (v) avoid duplication of project activities; and (vi) collaborate on reporting requirements. For the same reasons, it would be desirable that national platforms also include biodiversity and desertification focal points.

C. Responsibilities and resources

Who should be involved?

National platforms for disaster risk reduction are coordination mechanisms that, in order to be effective and sustainable, need to be built through a nationally owned and led participatory process with a multi-stakeholder composition that includes different sectors' perspectives and actions. Relevant stakeholders are the same as those named in Task 1.1. They may include:

- Government representatives: representatives from national, state/provincial and local levels, including from ministries such as finance and planning, environment, home/interior, civil defence, education, health, social welfare, public works and housing and agriculture. Include those implementing relevant multilateral agreements, such as the Rio conventions.
- Representatives from civil society and organizations with a role in disaster risk reduction. Relevant groups include NGOs in development and environmental protection; human habitats; private business federations, utilities, banking and insurance; women's organizations, religious associations and youth movements; and training institutions for civil servants and community and women's groups.
- Media entities.
- Scientific and academic institutions.
- Technical and scientific institutions or services dealing with risk identification, hazards studied and monitored, early warning and preparedness.

What conditions facilitate the task?

- Strong political commitment from top leadership.
- An explicit work programme, administered or overseen from an administrative capacity.
- Technical activities, such as developing knowledge bases on disaster risk reduction, and developing a methodological framework for the national platform that includes a set of disaster reduction indicators.
- A participatory process with the full involvement of relevant groups, including government, private sector, NGOs and academic organizations.
- Resources available for both the development of a national platform and its planned activities.

Giving official recognition to national platforms for disaster risk reduction

If a country has a body that serves the functions of a national platform for disaster risk reduction, it can formally notify the ISDR secretariat and the United Nations resident coordinator in the country of this status and the appropriate contact point. The ISDR secretariat can then assist in the exchange of information on the interests and experiences of national platforms in different settings. Officially designated national platforms provide a valuable means for promoting disaster risk reduction more widely at the international level.

D. Illustrations

The National Platform for Natural Hazards (PLANAT), Switzerland

In 1997, the Swiss Federal Council founded the national platform PLANAT to improve the country's disaster prevention framework. PLANAT has three main missions. Its first mission is to undertake strategic work to protect the Swiss population, its natural environment and its material assets against natural hazards. Protective measures are periodically re-evaluated and documented. PLANAT's second mission is awareness-raising. It works to bring about a long-term shift in the management of natural hazards towards incorporation of a culture of risk reduction. It makes sure that measures taken are ecologically compatible, socially just and economically efficient. This cultural shift should increase the ability to coherently discuss prevention questions concerning natural hazards. PLANAT's third mission is coordination. The platform aims to avoid duplication and to improve use of synergies by exchanging knowledge and experience on a national and an international level.

1.2 Create or strengthen mechanisms for systematic coordination for disaster risk reduction HFA

PLANAT has completed development of a comprehensive and interlinked strategy for improved protection against natural hazards. It has also analysed the current situation and proposed an action plan with measures. Its next step will be to implement these measures.

For further information visit the PLANAT website at: www.cenat.ch

Example of inter-ministerial collaboration, Uganda

With ISDR secretariat support, Uganda has established a national platform for disaster risk reduction, with participation from relevant Ministries, such as Environment, Education, Health and Agriculture. The national platform will plan and implement disaster risk reduction and response initiatives. The platform, known as the Inter-Ministerial Technical Committee, brings together sectoral 'focal point' officers, assigned to integrate disaster reduction issues into sectoral workplans and budgets. These officers chair sectoral working group forums, each of which has in place sectoral plans.

Although the Inter-Ministerial Technical Committee does not include civil society, it is being replicated at the district level. It has been successful at engaging international support (from UNDP and German Technical Cooperation) to help it integrate crisis management and disaster risk reduction into sustainable development. Uganda has also incorporated disaster risk reduction into its Poverty Eradication Action Plan.

For further information see: Department of Disaster Management and Refugees, Office of the Prime Minister, Republic of Uganda. 2004. Uganda National Report and Information on Disaster Risk Reduction Efforts for the World Conference for Disaster Reduction. Uganda's National Disaster Preparedness Policy and Institutional Framework is available at: www.opm.go.ug

Pacific Regional Framework, Secretariat of the South Pacific Applied Geoscience Commission

To implement the HFA, the Pacific Region in 2005 developed the "Pacific Regional Framework for Action 2005-2015: An Investment for Sustainable Development in the Pacific Island Countries". Designed to build the resilience of nations and communities against disasters, this Framework was endorsed and adopted by Pacific Forum leaders. It builds on already close and sustained disaster risk reduction collaboration among the countries over the past ten years.

The Framework describes the growing vulnerability of Pacific Island nations and communities to the impacts of hazards. This vulnerability has increased national and regional commitments to disaster risk reduction and disaster management on an 'all hazards' basis in order to sustain the region's development. The Framework's vision is for 'Safer, more resilient Pacific Islands nations and communities to disasters so the Pacific peoples may achieve sustainable livelihoods and lead free and worthwhile lives.

The Framework has six priority areas: (i) governance - organizational, institutional, policy and decision-making frameworks; (ii) knowledge, information, public awareness and education; (iii) analysis and evaluation of hazards, vulnerabilities and elements at risk; (iv) planning for effective preparedness, response and recovery; (v) effective, integrated and people-focused early warning systems; and (vi) reduction of underlying risk factors.

Regional development partners are helping to implement the Framework. Through the coordination and the facilitation of the Secretariat of the South Pacific Applied Geoscience Commission (SOPAC), these partners established the Pacific Disaster Risk Management Partnership Network (PDRMPN), which includes over thirty members who support Pacific Island countries in their efforts to strengthen policies and plans.

Vanuatu is the first country in the region to use the Framework as a guide in developing its national action plan for disaster risk management. A regional high-level advocacy team comprising key members of PDRMPN visited Vanuatu in June 2006. The team secured political support from the Vanuatu Government to approach disaster as a development issue and to focus on both disaster risk reduction and disaster management.

Vanuatu promptly established a multidisciplinary national task force to develop the Vanuatu Disaster Risk Management National Action Plan (NAP) through a series of workshops and consultations at the national, provincial and community levels. The Prime Minister of Vanuatu formally launched the NAP on 28 November 2006. Members of PDRMPN that assisted Vanuatu in its NAP process included SOPAC, the Pacific Island Forum Secretariat, UNDP, the World Bank, the South Pacific Regional Environmental Programme and the ISDR secretariat.

Vanuatu is now developing a provisional implementation programme prior to starting further consultations with donors and PDRMPN to secure resources necessary to implement the NAP. Based on the experience in Vanuatu, SOPAC and the Pacific Island Forum Secretariat are creating a draft guide to assist countries and PDRMPN with the process of developing national action plans.

For further information visit: www.sopac.org

A regional platform on disaster risk reduction, South Asia

South Asian countries represent one of the world's region with the highest concentration of hotspots for risk to natural hazards. High seismicity, extreme climate conditions and environmental degradation, coupled with increasing population density, have made almost all these countries extremely vulnerable to various kinds of hazards. Although some country initiatives have reduced the number of disaster casualties, much effort still is required to decrease their overall disaster risk.

Since both the causes and consequences of South Asia's major disasters often transcend country political boundaries, regional cooperation is crucial for proper prevention and mitigation planning. Unfortunately, although countries cooperate with each other bilaterally, regional cooperation among the Governments and non-governmental actors has not been effective enough to date.

In August 2006, Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka took a significant step towards a regional approach. India's National Institute of Disaster Management joined with Duryog Nivaran (a South Asian NGO working on disaster risk reduction) to organize the first ever South Asian Policy Dialogue. Held in New Delhi, the initiative was supported by UNDP and the NGO Practical Action. More than 150 delegates participated, including senior Government functionaries, scientists, media and corporate sector representatives, and community leaders from all the seven South Asian countries. Conference participants discussed aspects of regional cooperation for disaster risk reduction and, based on their conclusions, adopted the Delhi Declaration.

The Delhi Declaration sets up a platform involving all regional-level stakeholders in disaster risk reduction, within or outside the Governments. The regional platform will meet periodically to review progress on implementing the various resolutions made in the Declaration. It should help to promote better interaction among regional stakeholders and to enhance regional cooperation among the Governments.

For further information visit: www.janathakshan.org/sapd, www.janathakshan.org/sapd/pdf/DelhiDeclaration.pdf

E. Further reading

UN/ISDR. (2007): Guidelines: National Platforms for Disaster Risk Reduction. United Nations. www.unisdr.org/guidelines-np-eng

This document provides guidance on establishing or strengthening national platforms for disaster risk reduction.

Some examples of national platform websites:

Costa Rica:	Official website of the Comisión Nacional de Prevención de Riesgos y Atención de Emergencias (CNE) (Spanish): www.cne.go.cr/
Nicaragua:	Official website of Sistema Nacional para la Prevención, Mitigación y Atención de Desastres (SINAPRED) (Spanish): www.sinapred.gob.ni/
Colombia:	Official website of the Sistema Nacional de Prevencion y Atencion de Desastres www.dgpad.gov.co/
Germany:	Official website of the German Committee for Disaster Reduction (German): www.dkkv.org
Czech Republic:	Official website of the Czech National Committee for Disaster Reduction (Czech and English): www.chmi.cz
Hungary:	Official website of the Hungarian National Directorate General for Disaster Management (Hungarian): www.katasztrofavedelem.hu/
Madagascar:	Official website of the Conseil National de Secours (French): www.madagascar-contacts.com/cns/
Senegal:	Official website of the Direction de la Protection Civile (French): www.interieur.gouv.sn/directions.php?dir=dpc&num=6
Djibouti	Official website of Ministère de l'Intérieur et de la Décentralisation (French): www.elec.dj/Presentation%20LaProtectionCivile.htm
China:	Official website of China National Committee for International Disaster Reduction (Chinese): www.mca.gov.cn
Philippines	Official website of National Disaster Coordinating Council. (English): www.ndcc.gov.ph/
Japan	Official website of the Cabinet Office Disaster Management (Japanese): www.bousai.go.jp English summary of the Central Disaster Management Council: www.cao.go.jp/about_e/pmf2006/p24_25.pdf

For further country information see the ISDR website which provides data, national platform contacts, disaster statistics, hazard profiles and national reports classified by country at: www.unisdr.org/national-platform

1.3 Assess and develop the institutional basis for disaster risk reduction

A. Understanding the task

What's the purpose of this task?

This task seeks to assess and develop a country's policy, legal and institutional frameworks for disaster risk reduction. Ultimately, its goal is to create a formal basis for achieving a safer and more sustainable society in the face of risk. More specifically, this task will help to identify capacities and gaps in the policy, legal and institutional frameworks; to design effective plans and programmes to improve the identified gaps; and to develop a baseline from which to measure and monitor progress.

Why it's important

A country's legislative and governmental systems provide the basis for plans and organization in all areas of disaster risk reduction. An adequate institutional basis as well as good governance, therefore, is an important prerequisite for disaster risk management. An assessment of the existing legislative and administrative situation will help reveal the current capacities, strengths and shortcomings and provide the basis for making improvements to policy, legal and institutional frameworks. To identify areas of improvement and to foster buy-in for proposed changes, participatory self-assessment is generally more effective than evaluation by outsiders. It does require effective leadership. Enhanced policies on disaster risk reduction can also contribute to improved governance, for example by stimulating local government policymaking and action and strengthening land-use planning and building safety enforcement. Institutional assessments need to be updated periodically to reflect ongoing changes in the country's risks and administration arrangements.

Effectiveness of disaster risk reduction

Disaster risk reduction policies and plans can be said to be effective if the policies and practices of all sectors incorporate risk-reducing elements, if political support is developed for disaster risk reduction expenditures and regulations, and if the agencies and people responsible for implementation know what is expected of them and are willing to act.

How it relates to other priority tasks

Good national frameworks enable the implementation of effective disaster risk management. In particular, this task is a first step for Task 1.4, which puts improved national frameworks into operation.

Terminology

Disaster risk management: The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards. *(Source: UN/ISDR Terminology). See also Annex 4: Framework for Disaster Risk Management*

National policy framework: A set of policies adopted by a national authority to define and coherently address a particular issue and to guide decision-making, where these policies comprise relevant assessments, strategies, goals, approaches, rules, plans, activities, priorities, agents and responsibilities. A national disaster risk reduction policy framework can guide all stakeholders - sector agencies, local governments and others - in the development of complementary risk reduction policies in their areas of authority.

1.3 Assess and develop the institutional basis for disaster risk reduction

HFA

B. How to do it

Recommended steps

1. Convene stakeholders for a planning and organizational meeting, ideally the national platform for disaster risk reduction.
2. Gather documentation. Review studies of past disaster experiences and lessons learned, and interview government officials and other relevant stakeholders from academia and non-governmental sectors.
3. Identify strong and weak aspects of the existing systems, and opportunities for improvements. In particular, analyse institutional arrangements and resources for disaster risk reduction, identifying how disaster risk reduction is or may be included in national development planning processes.
4. Prepare recommendations for national, provincial and local government with all relevant stakeholders for national, provincial and local governments on how to improve national frameworks, including how disaster risk reduction can be integrated in development sectors' planning. Work with all relevant stakeholders to do so.
5. Convene meetings to discuss the results of the evaluation, and the recommendations.
6. Systematically review disaster risk reduction policy options, and determine priorities for action. Develop specific objectives for the programmes that will implement the policies and strategies and a monitoring plan, with baselines from which to measure progress.
7. Construct a plan for implementing the recommended changes to policies and practices. Include descriptions of the proposed disaster risk reduction programmes.
8. With stakeholders, jointly draft and circulate a statement of the vision, policy, strategies and implementation plan for the national frameworks.

A note on process and obstacles

Decision-making processes should keep close to the communities at risk, have clear lines of accountability based on established responsibilities, and enable multiple stakeholders to contribute to disaster risk reduction. Institutional and legislative systems for disaster risk management are important components of good governance, together with enhancement of democratic and participatory approaches, full respect of human rights and other good governance requirements, and should be guided by the same basic principles: accountability, participation, rule of law, effectiveness and sustainability.

Yet even a very good process may not succeed in converting recommendations into changes in the legal framework because of a lack of political commitment, lack of resources, and/or competing priorities and stakeholder interests. These obstacles can be overcome by gaining support from political leaders, launching a media campaign or engaging in public interest litigations (in situations involving public safety).

Questions to ask

In setting the scope of the evaluation for a national framework for disaster risk reduction, consider:

- What are the evaluation's areas of focus (for example, planning processes, land-use planning, environmental management, construction regulation or economic development)?
- What issues will be evaluated (such as the degree to which power is devolved to provincial and local governments and other entities, or the role of gender in disaster risk reduction)?
- Are there risk reduction initiatives already underway that would be suitable for inclusion in the evaluation?

In deciding on the evaluation's methodology, consider:

- How can information be gathered systematically? What criteria and indicators would be useful?
- How will interviews be conducted, and by whom?

To assess the effectiveness of existing legal arrangements, consider:

- Are mandates and roles, including lines of authority and coordination, clear?
- Are legal arrangements sensitive to indigenous customary law?
- Are there rules and regulations for implementation?
- Are there appropriate sanctions and enforcement mechanisms?
- Do explicit provisions for financial support exist?
- Are subnational legal instruments sensitive to local content?
- Are the laws integrated into the national development framework and plans?
- Do communities participate in planning, implementing, monitoring and evaluating?

To assess the effectiveness of administrative structures, consider:

- Are the lines of authority and basis for authority clear?
- Are lines of reporting clear and direct?
- Does everyone concerned understand his/her role and responsibilities?
- Is the authority to act devolved, to the extent possible, to the level where action must be taken?
- What weaknesses exist in both vertical and horizontal linkages between governmental levels, entities and jurisdictions?
- Do existing institutions charged with disaster response and emergency relief understand their broader disaster risk reduction responsibilities?
- Do institutions charged with public safety and the viability of economic and social infrastructure understand and accept their specific disaster risk reduction responsibilities for hazard assessment, vulnerability analysis and risk reduction?

To assess the effectiveness of the policy framework, consider:

- What can be learned from past experiences?
- What gaps or issues were reported in recent disasters?
- Are activities closely linked to policy directions?
- Is there a follow-up process in place?

In developing a common vision for a national framework for disaster risk reduction, consider:

- How are issues of underemployment, social equity, poverty alleviation, environmental management and emerging risks related to disaster risk reduction policy?
- Which disaster risk reduction policies and plans can address these concerns to maximize benefits?

1.3 Assess and develop the institutional basis for disaster risk reduction

In gathering risk information, consider:

- Which hazards affect the population and its livelihoods?
- Which conditions exacerbate the vulnerability of the population, of critical facilities and other infrastructure, of the environment and of economic development?
- What legal, institutional, political, social, cultural, economic and environmental factors support or impede disaster risk reduction? What are areas of institutional strength? What weaknesses and gaps exist?

In evaluating disaster risk reduction policy options, consider:

- What is the current capacity for implementing disaster risk reduction measures?
- How will these policies contribute to the disaster risk reduction objectives? Are they socially and politically acceptable? Are they financially and technically feasible? What kind of regulatory or administrative framework would they require?

In developing priorities, consider:

- What current resources can be mobilized?
- Which actions can be budgeted from within existing programmes?
- How can funds be mobilized in the future to fund expansion and/or additional programmes?
- Which actions could be supported by existing development mechanisms?
- Do the policies proposed respond to the last disaster, or address current and future risk?
- Does the portfolio of proposed policies balance long-term and short-term measures, risk reduction and disaster response measures, and structural and non-structural measures?
- How will the system enable both monitoring and progress evaluation? How can the public access information on progress?
- What provisions must be included into other sectors to foster periodic review and update of the policy framework?

To determine priorities for action, consider constructing a table, or 'matrix', that lists possible changes to policies and practices, and proposed initiatives to reduce risk. The matrix should identify what is to be done, who is responsible, what resources are to be committed and the timeframe.

Taking a comprehensive approach

A comprehensive package of policies and programmes should include both structural and non-structural measures. A structural measure, such as a programme to develop a communications system that provides real-time seismic or hydrological information, may be accompanied by non-structural measures, such as training for government officials on how to use the information in their decisions and in media skills on the dissemination of useful and timely information to the public. Or a key building (city office, clinic or school building) could be reinforced to better withstand seismic activity as part of a nationwide advocacy programme on risk reduction: such structural measures are very visible and can be very effective at generating awareness and enthusiasm at the local level. *Source: Asian Development Bank (1991)*

C. Responsibilities and resources

Who should be involved?

It is not always possible or even useful to involve everyone. To carry the evaluation and policy development forward, consider including representatives from:

- National, state/provincial and local levels of government. Include ministries such as finance and planning, environment, home/interior, civil defence, education, health, social welfare, public works and housing, development and agriculture. Also include those responsible for implementing relevant multilateral agreements.
- Organizations with a role in disaster risk reduction. Examples include development and environmental protection entities, private business federations, utilities, banking and insurance, and training institutions for civil servants and community and women's groups.
- Academia. Experts in social and natural sciences, universities that have disaster risk management faculties, or those related to geography, public administration, architecture and civil engineering, as well as economic development training centres.
- Legal and public policy experts (who can evaluate and develop the framework).

What conditions facilitate the task?

- Political and public support.
- Executive and organizational support for the evaluation, and commitment to an interdisciplinary and inter-institutional team.
- Funding and human resources for evaluation and framework development.
- Access to documentary sources such as laws, executive orders, regulations, policies and plans; and studies of past disaster experiences and lessons learned.

D. Illustrations

Disaster risk reduction legal and institutional framework development, Sri Lanka

In 2005, Sri Lanka enacted Disaster Management Act No. 13, providing the legal basis for a new disaster risk management system. The act established a new high-level National Council for Disaster Management, chaired by Sri Lanka's President. It also set up a new Ministry of Disaster Management, and accorded it the lead role in directing strategic planning for disaster risk management. Within the Ministry, the Disaster Management Centre is the lead strategic planning agency.

The new Ministry developed a holistic strategy to serve as a framework for identifying and coordinating multi-stakeholder efforts over the next ten years. Entitled Towards a Safer Sri Lanka: A Road Map for Disaster Risk Management, this strategy was published in December 2005.

For further information contact the Disaster Management Centre, Ministry of Disaster Management & Human Rights, Government of Sri Lanka at: dmcsl@sltnet.lk, dgdmcsl@gmail.com

1.3 Assess and develop the institutional basis for disaster risk reduction

Disaster Management Act, South Africa

The South African Disaster Management Act 57 is in operation as of 1 June 2004. Act 57 was written to provide the country with a national integrated disaster management plan, a need highlighted in the country's Integral Development Plan. Act 57 has three primary aims. First, it seeks to coordinate disaster management policy so as to focus on preventing or reducing the risk of disasters, mitigating the severity of disasters, emergency preparedness, rapid and effective response to disasters, and post-disaster recovery. Second, it establishes a set of national, provincial and municipal disaster management centres. Third, it organizes a programme of disaster management volunteers.

The Act includes other helpful provisions. It encourages municipalities not only to respond to disasters but to prevent them, as well as to establish and implement municipal disaster management frameworks. In order to maximize limited resources and to facilitate the management of any incidents, fire and disaster management have been put under one functional grouping.

For further information visit: web.capetown.gov.za/eDocuments/Disaster%20Management%20Act%20Act%2057%20of%202002_1812200615952_470.pdf

Disaster risk reduction institutional framework and evaluation, Colombia

In the Colombian capital of Bogotá, the disaster reduction and emergency response system comprises 41 governmental, community and private organizations with specialized risk and emergency personnel in specific areas (such as health, social services, city development, city planning and rescue groups). The system is managed and coordinated by the Dirección de Prevención y Atención de Emergencias (DPAE). Economic resources are provided through a city fund for emergency prevention, supported by 0.5 per cent of the taxes that the district collects, along with other dedicated funding. DPAE continuously evaluates its performance, with the goal of enhancing its institutional capacity for disaster reduction. To communicate evaluation results to other stakeholders, and particularly to the lay community so as to promote a participatory process, DPAE has developed a simple matrix. The matrix assigns a smiling face, a neutral face or a frowning face to performance in disaster risk reduction for various hazards. In evaluating performance, DPAE uses the criteria of knowledge, prevention and mitigation, preparedness and emergency, rehabilitation and reconstruction, and risk transfer.

For further information visit the DPAE website at: www.fopae.gov.co

Disaster Management Act, India

After the 2004 Indian Ocean tsunami, the Government of India prepared a comprehensive piece of legislation on disaster management that became the Disaster Management Act 2005. The Act set up disaster management authorities at the national, state and district levels, involving multiple disciplines and sectors at each level. It empowered these authorities with clear functions and responsibilities. The Act also created the National Institute of Disaster Management, which has responsibility for training and capacity-building on disaster management, and the National Disaster Response Force for efficiently responding to disaster situations. Additionally, the Act set up disaster response funds and disaster mitigation funds at the three levels of government.

The National Disaster Management Authority, under the chairmanship of the Prime Minister of India, has started functioning from September 2005 and is developing various policies, guidelines, modules and standards for holistic management of various kinds of natural and human-induced disasters.

For further information visit: www.nidm.net/DM_act2005.pdf

E. Further reading

Cardona, O.D. 2005. Indicators for Disaster Risk and Risk Management. Program for Latin America and the Caribbean: Summary Report. Manizales,Colombia: Instituto de Estudios Ambientales, Universidad Nacional de Colombia. http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=465922

The Inter-American Development Bank engaged a group of experts, coordinated through the Universidad Nacional de Colombia, Manizales, to develop and apply a system of indicators of risk and risk management to evaluate legal and institutional mechanisms and policies, as well as factors affecting risk. The tool enables an analytical and systematic approach to risk management decision-making. The system has been applied at the national level in a range of countries, at the provincial and local level in Bogotá and in Barcelona.

UNDP. 2005. UNDP Support to Institutional and Legislative Systems for Disaster Risk Management - Executive Summary. Geneva: UNDP. www.undp.org/bcpr/disred/documents/wedo/ils/ils_esummary.pdf

The UNDP developed this review of institutional and legislative systems for disaster risk management. It was conducted over a period of three months in 19 countries covering four regions - Africa, Asia and the Pacific, Europe/CIS, Latin America and the Caribbean. It focuses on legal and regulatory frameworks, policy and planning, organizational aspects, resources and capacities, and partnerships.

UNDP/BCPR, et al. 2005. Governance: Institutional and policy frameworks for risk reduction. Thematic Discussion Paper for Cluster 1 on Governance, Institutional and Policy Frameworks for Risk Reduction. Edited by J. Twigg. World Conference on Disaster Reduction, Kobe, Japan, 18-22 January 2005. www.unisdr.org/wcdr/thematic-sessions/WCDR-discussion-paper-cluster1.pdf

UN/ISDR and UNDP. 2006. Integrating Disaster Risk Reduction into CCA and UNDAF. Draft Guidance Note. United Nations publication. www.unisdr.org/cca-undaf

This note, approved by the United Nations Development Group, provides guidance to United Nations country teams and the United Nations resident co-ordinator systems on integrating disaster risk reduction into the CCA/UNDAF process.

USAID Center for Development Information and Evaluation. 1996. Performance Monitoring and Evaluation TIPS. Washington DC: USAID. www.usaid.gov/pubs/usaid_eval/pdf_docs/pnabs539.pdf

The United States Agency for International Development (USAID) developed a four-page, to-the-point booklet with useful tips on conducting a participatory evaluation.

1.4 Prioritize disaster risk reduction and allocate appropriate resources

A. Understanding the task

What's the purpose of the task?

This task aims to establish, or to put into better effect, improved policy, legal and institutional frameworks by assigning roles and ensuring that responsibilities will be fulfilled; integrating disaster risk reduction into laws, plans and programmes of governmental and NGOs in all sectors; and allocating funding.

Why it's important

Implementing strengthened or newly established national frameworks will embed disaster risk reduction into the daily business, policies and actions of organizations concerned with economic development, poverty reduction, infrastructure operation, environmental management, education and other relevant fields. Disaster risk reduction depends on the understanding and the capability of such organizations to plan and implement the activities most relevant to their specific sectors.

How this task relates to other priority tasks

This task builds on the analysis and planning done in Task 1.3. It involves training, which is discussed in more detail in Task 3.3. It also requires attention to integration of disaster risk reduction into specific sectors, such as environmental and socio-economic management, as recommended in Chapter 4.

Financing disaster risk reduction

Dedicated budget lines and funding mechanisms are essential means to integrate disaster risk reduction into development policies, plans and programmes. Among other things, countries could consider setting aside a percentage of development budgets for mitigation funds to support priority hazard-resistant or vulnerability-reducing projects within ongoing development projects. Disaster risk reduction projects should be seen as an investment, to be justified by their substantial reduction of future losses of lives, assets and livelihoods.

B. How to do it

Recommended steps

Actions for implementing national frameworks for disaster risk reduction include:

1. Institutionalize a system of disaster risk impact assessment in national and local economic planning processes for high-risk zones to ensure risk mitigation is factored into resource allocation planning.
2. Formally assign responsibilities for disaster risk reduction activities to organizations. Mechanisms for making assignments include laws, implementing regulations, executive orders and/or a disaster risk reduction plan.
3. Establish or strengthen a focal-point organization through assignment of authority, responsibility, human resources, training and support.

4. Develop or strengthen an inter-organizational committee to coordinate disaster risk reduction activities among different institutions, for instance by formalizing a national dialogue (see Task 1.2) into a national platform.
5. Provide training opportunities and tools to increase organizations' skills and capacities to carry out assigned functions (see Task 3.3).
6. Earmark funding for disaster risk reduction within operating and capital budgets, provide fiscal incentives for disaster risk reduction initiatives, and tap pooled resources.
7. Ensure that local governance systems for disaster risk reduction are clearly defined, are resourced and well linked to other governance levels.
8. Recognize and reward champions.
9. Ensure that laws and policies specify mechanisms for compliance, control and documentation of disaster risk reduction implementation.
10. Promote the development and use of insurance schemes that provide coverage to highly vulnerable populations, encourage mitigation through premium incentives and reduce government liability in case of disaster (Task 4.6 explores this in more detail).
11. Ensure that budgeting enables equal access by men and women to resources available for disaster risk reduction.

Questions to ask

When institutionalizing of disaster risk reduction ask:

- Do existing institutions charged with disaster response (Chapter 5) and recovery (Task 4.7) understand and engage in their broader disaster risk reduction responsibilities?
- Do institutions charged with civil protection and the safety of citizens, and those responsible for economic and social infrastructure understand and accept their specific disaster risk reduction responsibilities for hazard assessment, vulnerability analysis, mitigation and disaster risk reduction?

C. Responsibilities and resources

Who should be involved?

- Public entities and officials that legislate or adopt disaster risk reduction policies or programmes at national and local levels.
- Organizations charged with implementation of government policies and programmes.
- Organizations that direct or provide incentives for others to take action.
- Private organizations like corporations, financial institutions and insurers.
- Public-interest advocates and community-based organizations that can assist in implementation and provide political momentum.

1.4 Prioritize disaster risk reduction and allocate appropriate resources HFA

D. Illustrations

Institutionalizing the response to flooding, Viet Nam

In response to centuries of floods, Viet Nam has developed a comprehensive countrywide system of organizations stretching from central to local government that address disaster risk reduction. Comprising elected provincial, district and village People's Committees, as well as a network of women's unions, these organizations contribute to the prompt and effective flow of disaster information.

At the central government level, the Central Committee for Flood and Storm Control, established in 1990, carries out several important responsibilities. It coordinates with other organizations to develop programmes and plans for disaster reduction. It implements disaster mitigation. It also coordinates with international organizations to increase cooperation in disaster reduction activities.

In central Viet Nam, devastating flooding in 1999 led to the establishment of the Natural Disaster Mitigation Partnership. The Partnership is an institutional arrangement to formally facilitate regional cooperation and coordination. A memorandum of agreement signed by a number of government departments, international agencies, donors and NGOs provides support for a range of priority projects that are included in the signatories' development strategy (see www.undp.org.vn/ndmpartnership/NDM-Partners.htm).

In 2002, the Government introduced the "Living with Flood" concept that became the strategy for disaster risk reduction in the Mekong River Delta. The strategy includes short-, medium- and long-term measures to reduce flood risks while contributing to socio-economic stability and sustainable development.

For further information see: The Asian Disaster Preparedness Center's Primer on Disaster Risk Management in Asia, 2005, pp. 58-9, 165.

Policy change and capacity-building, Madagascar

The HFA has been a turning point for disaster reduction in Madagascar, a cyclone-prone island off the south-east coast of Africa. The simple wording of the HFA provided a clear new direction to disaster risk reduction activities undertaken by Madagascar's National Relief Council (the country's national agency for disaster reduction) and the Malagasy National Platform for disaster risk reduction.

Madagascar already had a National Strategy for Risk and Disaster Management. The wording of the HFA helped Malagasy government officials to draft the government decree enforcing the strategy. The decree was adopted in mid-2005, providing a separate national budget allocation of USD 230,000 to the National Relief Council and establishing a National Council for Disaster Risk Reduction.

Madagascar has taken several other steps to implement improved frameworks for disaster risk reduction. The Malagasy National Platform was involved from the outset in the country's Poverty PRSP revision process. In July 2006, disaster risk reduction was integrated into the Madagascar Action Plan, which replaced the PRSP, through a five-year action plan based on Priority 5 of the HFA. In capacity-building, from July 2005 to October 2006 the country trained 900 key supporters, promoters and implementers, including government and non-governmental officials, religious leaders and journalists, in the country's 22 regions. Madagascar is incorporating disaster risk reduction into school curricula through development of student textbooks and a teacher's guide. The national platform is developing its own website to facilitate information sharing.

Cyclone Boloetse, which hit southern Madagascar in early 2006, resulted in no fatalities, demonstrating the island's enhanced disaster preparedness. Madagascar credits its regional simulation exercises, carried out for multiple types of hazards, and its development of field-tested regional contingency plans. National platform members also received training on disaster risk reduction.

For further information visit the website of the Conseil National de Secours at: www.madagascar-contacts.com/cns/

Disaster mitigation fund, India

The Disaster Management Act of India has created separate funds at the national, state and local levels that are available exclusively for the purpose of disaster mitigation. The creation of these funds by an Act of Parliament has ensured that each level of government dedicates adequate resources. Political commitment for such resource allocation has emerged out of the lesson learnt from repeated disasters - it is much more economical and sustainable in the long run to spend on pre-disaster prevention and mitigation, than to divert resources for post-disaster relief and rehabilitation.

India is developing various disaster risk mitigation projects for specific disasters like cyclone, earthquake and landslide. It is expected that all these initiatives shall have the desired effect in the long run of reducing the risks of disasters in the country inhabited by one-sixth of the world's population.

For further information visit: www.nidm.net/DM_act2005.pdf

E. Further reading

ADB. 2005. Climate Proofing: A Risk-Based Approach to Adaptation: Summary for Policy and Decision Makers. The Philippines: Asian Development Bank (ADB). www.asiandevbank.org/Documents/Reports/Climate-Proofing/climate-proofing-summary.pdf

Froot, K. ed. 1999. The Financing of Catastrophe Risk. University of Chicago Press. Chicago.

Ganderton P.T., et al. 2006. "Mitigation Generates Savings of Four to One and Enhances Community Resilience: Multi-hazard Mitigation Council (MMC) Releases Independent Study on Savings from Natural Hazard Mitigation." Natural Hazards Observer Vol. 30, No. 4. pp. 1-3. www.colorado.edu/hazards/o/archives/2006/mar06/mar06.pdf

Multi-hazard Mitigation Council. 2005. Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities. Washington, DC: National Institute of Building Sciences. www.floods.org/PDF/MMC_Volume1_FindingsConclusionsRecommendations.pdf

UN/ISDR and UNDP. 2006. Integrating Disaster Risk Reduction into CCA and UNDAF. Draft Guidance Note. www.unisdr.org/cca-undaf

This note, approved by the United Nations Development Group, provides guidance to United Nations country teams and the United Nations resident co-ordinator systems on integrating disaster risk reduction into the CCA/UNDAF process.

1.4 Prioritize disaster risk reduction and allocate appropriate resources

World Bank/Independent Evaluation Group. 2006. Hazards of Nature, Risks to Development. An Independent Evaluation Group Evaluation of World Bank Assistance for Natural Disasters. Washington DC: The World Bank. www.worldbank.org/ieg/naturaldisasters/docs/natural_disasters_evaluation.pdf

The report calls for new thinking that integrates predictable disaster risks into development programmes and concludes that it is possible to anticipate where many disasters will strike, yet expresses concerns that the World Bank's disaster assistance efforts are underutilizing these vital lifesaving forecasts.

Websites

Information on funding for adaptation to climate change activities under the United Nations Framework Convention on Climate Change:

- The Least Developed Countries Fund has already supported the development of National Adaptation Programmes of Action (NAPA), http://unfccc.int/adaptation/napas/items/2679.php) by the Least Developed Countries (LDCs) using guidelines drawn up by the LDC Expert Group. The NAPAs are supposed to identify urgent and immediate adaptation actions needed in each country and provide a prioritized list of adaptation projects.
  http://unfccc.int/cooperation_and_support/financial_mechanism/least_developed_country_fund/items/3660.php
- The Special Climate Change Fund is for all developing countries and covers adaptation and other activities such as technology transfer, mitigation and economic diversification.
  http://unfccc.int/cooperation_and_support/financial_mechanism/special_climate_change_fund/items/3657.php
- The Adaptation Fund is meant to support 'concrete adaptation' activities.
  http://unfccc.int/cooperation_and_support/financial_mechanism/items/3659.php
- The Strategic Priority on Adaptation was recently established by the Global Environment Facility (GEF). It contains USD 50 million from the GEF's own trust funds to support pilot adaptation activities over three years.
  www.undp.org/gef/adaptation/funds/04c_i.htm

Chapter 2

Improving risk information and early warning

Hyogo Framework for Action Priority 2:
Identify, assess and monitor disaster risks and enhance early warning.

Implementing Priority 2 requires the collection and use of data on disaster risks, and hence the development and maintenance of capacities and infrastructure to observe, analyse and forecast hazards, vulnerabilities and disaster impacts. It involves the use of risk maps, statistical loss information and systems of indicators of risk and vulnerability[6]. It requires developing early warning systems that are people-centred and well integrated into decision-making processes. It calls for the assessment, monitoring and open exchange of information on regional and emerging risks, and the rapid dissemination of early warnings. Regional and international cooperation also may be needed to assess and monitor regional and transboundary hazards. Finally it requires the engagement of local communities, which are the end users of any system and must be fully involved at all stages. Many elements of Chapter 2 are closely linked with Chapter 5: Strengthening disaster preparedness for effective response and with Chapter 4.

States can undertake a number of tasks to implement Priority 2. This chapter recommends the following tasks:

2.1. Establish an initiative for countrywide risk assessments.

2.2. Review the availability of risk-related information and the capacities for data collection and use.

2.3. Assess capacities and strengthen early warning systems.

2.4. Develop communication and dissemination mechanisms for disaster risk information and early warning.

The following indicators are suggested as possible means for assessing progress in implementing this priority:

- National risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.
- Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities.
- Early warning systems are in place for all major hazards.
- Early warnings reach and serve people at the community level.

6 The information required for disaster risk reduction includes quantitative data on the physical, social, economic and environmental factors that are relevant to hazards and their impacts on communities. Geophysical data may need to be gathered continuously, whereas socio-economic data, such as population, class, ethnicity, gender, age, physical ability and religion, should be gathered periodically through sampling surveys, as part of national statistical surveys of special research. Quality assurance systems and accessible databases are essential elements of good data programmes.

2.1 Establish an initiative for countrywide risk assessments

A. Understanding the task

What's the purpose of this task?

This task aims to initiate countrywide risk assessments. These assessments will fill gaps in users' knowledge of risks and, by providing a more complete and regularly updated picture of the country's risk, allow decision-makers to better set priorities for action.

Why it's important

Risk assessments identify both the hazards to which the country is exposed and the country's vulnerabilities, enabling understanding of the geographic and sectoral distribution of risk. Risk analysis encompasses the systematic and periodic update of data, tools and information to identify, map and monitor hazards and vulnerabilities. Risk assessment and analysis are required steps for the development and implementation of successful disaster reduction policies and measures. Among other things, they are a basis for the identification of effective structural and non-structural mitigation measures. Risk assessment and analysis must be both systematic and updated as often as possible to match the changing nature of risk.

Risks arise from the combination of hazards and vulnerabilities at a particular location and time. Assessments of risk require systematic collection and analysis of data and should consider the dynamic nature of hazards and vulnerabilities that arise from processes such as urbanization, rural land-use change, urban development, environmental degradation and climate change. Risk assessments and maps, especially these undertaken in a participatory manner, help to motivate people, prioritize early warning system needs and guide preparations for disaster prevention and responses.

How it relates to other priority tasks

This task is related to Task 2.2, which evaluates the available risk-related information and the country capacities for data collection and use. It provides information that can help states assess capacities and strengthen early warning systems, as suggested in Task 2.3. This task is also closely linked with adequate preparedness activities, discussed in Chapter 5.

Terminology

Elements at risk: The elements at risk include anything that can be damaged - people, infrastructure, crops, boats, vehicles, etc. *(Source: UN/ISDR Terminology)*

Exposure: Exposure is the degree to which the elements at risk are likely to experience hazard events of different magnitudes. *(Source: UN/ISDR Terminology)*

Vulnerability: The conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards. *(Source: UN/ISDR Terminology)*

Risk: The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerable conditions. *(Source: UN/ISDR Terminology)*

Hazard analysis: Identification, studies and monitoring of any hazard to determine its potential, origin, characteristics and behaviour. *(Source: UN/ISDR Terminology)*

Risk assessment/analysis: A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend. *(Source: UN/ISDR Terminology)*

2.1 Establish an initiative for countrywide risk assessments

HFA

B. How to do it

Recommended steps

1. Identify key national government agencies, research centres, experts and practitioners involved in hazard and vulnerability assessments and map their roles and responsibilities.
2. With expert team, review existing risk assessment studies - both hazard identification and vulnerability analyses - and identify critical gaps in knowledge of risks.
   - Focus on areas most exposed to risk, and areas where consequences of a hazard event could be catastrophic (e.g. the largest urban agglomerations or key economic areas of the country).
   - Consider spatial, demographic or other changes in the built or spatial environment since previous analyses.
3. Develop national standards and procedures for the systematic collection, sharing and assessment of hazard and vulnerability data. Synchronize the standards with neighbouring countries or regions.
4. Develop a strategy to engage all sectors in local hazard and vulnerability analyses.
5. Establish a process to review and update risk data regularly, incorporating information on any new or emerging vulnerabilities and hazards. Ensure that updated information is widely available.
6. Develop integrated hazard maps to identify the geographical areas and communities at risk.
7. Conduct local community vulnerability and capacity assessments. Consider social, economic, physical and environmental vulnerability factors such as gender, disability, access to infrastructure, economic diversity and environmental sensitivities. Document and map capacities and vulnerabilities.
8. Characterize and prioritize natural hazards that can impact the country at local, regional and national levels (e.g. intensity, frequency and probability). Include historical data in your evaluation.
9. Develop risk analyses, including hazards identification and vulnerability analysis. Integrate the results of the risk assessments into local risk management plans. Use geographic information systems and land-use planning software/applications as appropriate.
10. Assess the interaction of hazards and vulnerabilities to determine the risks faced by various locations or segments of the population. Identify activities as well as social and political processes that increase or decrease these risks.

A word on managing the process

Risk assessments proceed in steps, looking sequentially at hazards, exposure, vulnerability, risk and capacity. The hazards need to be identified, and then the characteristics that can lead to losses of lives and property need to be diagnosed. Once the risks of losses are identified, actors can perform a 'capacity assessment' (part of Task 2.3); that is, they can assess what specific capacities are in place and are needed to manage the risks of the potential losses. The results provide a basis for capacity development and other types of programs. These risk assessment studies can be costly and take time (complex studies can take several years), so it is important to be realistic when setting priorities and planning the work.

The results of risk assessment studies can be highly technical and difficult to interpret by non-experts. Thus, it is helpful to have the support of an expert board to interpret the results for various disaster management applications, including awareness-raising, mitigation, preparedness, response or recovery planning.

To process the large amount of data that can be generated, computer programmes provide high-resolution risk information. Often, however, risk assessment does not need to rely on such sophisticated tools. Good approximation of risk can be produced with simple methods, such as frequency versus severity scales combining various hazards. In almost all cases, nevertheless, expertise is needed for analysis, interpretation and

11. Consult with all sectors to ensure risk information is comprehensive and includes historical and indigenous knowledge.
12. Develop a set of gender-aware indicators to measure progress in risk assessment and risk identification that can be used by various agencies and communities in communicating and understanding their risk profiles.
13. Develop papers and policy documents with recommendations and a strategic plan that can serve as a basis for resource allocation and for improvement of risk evaluation programmes. Distribute the results to all levels of government and to the public, in order to raise risk awareness.

C. Responsibilities and resources

Who should be involved?

- The experts to be involved vary significantly with the type of risk assessment.
- To identify hazards, experts with capacity in scientific data collection and knowledge development are required. Relevant groups include the meteorological service, geological and earth science institutes, academia, professional organizations and insurance.
- To assess community vulnerability and capacity, community groups and organizations should be involved, along with social science institutions and experts, as well as experts in evaluating changes and exposure in the built environment and infrastructure.
- Environmental managers should be involved to assess impact to the environment from existing practices.

What conditions facilitate the task?

- Current and compatible data, with shared or open access.
- Executive and organizational support for the initiative.
- Funding and human resources, including at local levels.
- Access to expertise for the assessment and the interpretation of technical information.
- A multidisciplinary, multiple-organization team approach that constructively engages the various agencies in the process.
- Understanding of the current national process for risk assessment both within the country and outside the country (e.g. regional research centres, international agencies).

D. Illustrations

Vulnerability Atlas, India

Almost the entire land mass of India is prone to one or more of the hazards of earthquake, landslide, flood and cyclone. In order to support development of effective plans for disaster prevention and mitigation at national, state and local levels, India has mapped most of its hazard zones. It has created maps in appropriate scale,

and included socio-economic and housing condition data derived from the census. This work has created the unique Vulnerability Atlas of India.

The Vulnerability Atlas provides detailed hazard maps of states and districts across the entire country, along with housing risk tables for settlements. It serves as a guide for development of micro-level action plans, which reduce the impact of natural hazards. Awareness of the Atlas has greatly helped households, disaster managers, and state, district and local administrations to better understand their respective roles and responsibilities in pre-disaster actions.

State Governments and local authorities are using the Atlas to strengthen regulatory frameworks, by suitably amending building by-laws, as well as master planning and land-use planning regulations. They are also using it to promote disaster-resistant design and construction practices. Both the methodologies developed for vulnerability and risk assessment and the technical guidelines for safe constructions show high potential for transfer, adaptation and replication in varying conditions.

For further information see: Vulnerability Atlas of India: State-wise Hazard Maps and District-wise Risk Tables, 2007, 2nd Edition. www.bmtpc.org/disaster.htm

Systematic risk information collection, Turkey

Turkey captures, catalogues and disseminates detailed information on building construction throughout the country. Information collected includes building location, number of floors, total area, built area, construction material (concrete, wood, masonry, etc.) and age. The existence of such detailed data enables engineers to undertake accurate loss evaluations from hazards by simplifying (and in some cases eliminating) the data collection process needed for estimations of potential building damage. Engineers also can track increases in vulnerability through the years.

In addition, the Istanbul Metropolitan Municipality provides its own detailed building statistics by neighbourhood. The high level of resolution allows for the evaluation of various risks and for disaster reduction planning. It enables risk studies by neighbourhood, with estimates both for levels of damage to buildings and casualties. It has also enabled studies of potential landslides and liquefaction at high resolution, and other studies related to flash floods.

For further information visit: Building Construction Statistics, State Institute of Statistics, Republic of Turkey Prime Ministry, Ankara, Turkey. www.die.gov.tr/yayin

Applications and advantages of hazard maps, Japan

From the 1960s to the 1980s, Japan's urban development led to the existence of numerous densely populated areas at risk of disaster, particularly on hills in the vicinity of major cities. The Japanese government has recognized the necessity of identifying such sites and analyzing the risks. After decades of strenuous effort, 44 per cent of all municipalities with sediment related disaster-prone sites have developed hazard maps and made them public. Municipalities work to keep people informed about hazard maps by every possible means, because many people do not pay attention to the maps during non-disaster times. Some put hazard maps on websites. Others send direct mail to each family living within hazard-prone areas.

Additionally, in 2001, Japan enacted the Sediment-Related Disaster Prevention Act. This Act restricts new development for housing and other purposes, promotes relocation of existing houses, and develops early warning systems for residents within hazard areas.

For further information visit: Asian Disaster Reduction Center (ADRC), Total Disaster Risk Management, Good Practices www.adrc.or.jp/publications/TDRM2005/TDRM_Good_Practices/Index.html

Risk assessment with rural populations, Ethiopia and Kenya

A team of United States researchers developed a simple but systematic approach to classifying and ordering the sources of risk faced by pastoralist populations in arid and semi-arid districts of southern Ethiopia and northern Kenya. The researchers created a robust participatory method that was less costly and time-consuming than full surveys. The method involves two stages: first identifying risks, and then ranking them. The first stage was achieved using an open-ended questionnaire. The researchers emphasized to the pastoralist informants that they could each list as many problems as they wished, and should identify these through discussions amongst themselves. The second stage used a simple numerical ranking method to group the risks in order of severity. Risks thought to be equally severe could be ranked equally. After they had done the ranking, informants were asked to discuss each risk in turn, explaining how they dealt with the problem, or why they no longer could, and how they would like to overcome it.

The risk assessment method evaluated the incidence of a risk according to the proportion of participants who identified it. It assessed severity of risk through a mathematical calculation that translated the informants' perceptions into a simple risk scale. Findings could be plotted on maps to identify areas and groups at risk. Disaggregation by age, gender, wealth and other socio-economic characteristics was also possible.

The method was tested in the field over six months in 1998, involving 120 groups (59 groups of women, 61 of men). The responses identified 15 major sources of risk, ranging from availability of food and water to banditry. The most frequently mentioned problems were insecure access to food and water, livestock disease and access to health clinics. Food and water shortage were the only risks mentioned by a majority of informants, indicating that the extent of the other risks varied considerably across the region and its population, even though some (for instance malaria and conflict) were certainly severe in places.

For further information see: K. Smith et al., Participatory Risk Mapping for Targeting Research and Assistance: With an Example from East African Pastoralists, glcrsp.ucdavis.edu/projects/project_subpages/PRMP_folder/PRMPrpt3.html.

E. Further reading

Coburn, A.W., Spence, R.J.S. and Pomonis, A. 1994. Vulnerability and Risk Assessment. UNDP and Disaster Management Training Programme (DMTP). 2nd edition. Cambridge, United Kingdom: Cambridge Architectural Research Limited. www.undmtp.org/english/vulnerability_riskassessment/vulnerability.pdf

Dilley, M., et al. 2005. Natural Disaster Hotspots: A Global Risk Analysis. Washington, DC: International Bank for Reconstruction and Development/The World Bank and Columbia University. http://publications.worldbank.org/ecommerce/catalog/product?item_id=4302005 "Synthesis report: Introduction and Data sections", pp. 2-7. www.ldeo.columbia.edu/chrr/research/hotspots/

Enarson E., et al. 2003. Working with Women at Risk: Practical Guidelines for Assessing Local Disaster Risk. Miami, Florida: International Hurricane Center, Florida International University. http://gdnonline.org/resources/Working w Women English .pdf

This international action research project document includes a methodology for assessing community vulnerabilities and capacities from the perspectives of different groups of women trained as community researchers. Included in the step-by-step project guidelines are "guiding research questions" for exploring vulnerabilities and capacities with grass roots women in risky environments, and producing and using community profiles based on this local research. The project was developed and field tested in the Dominican Republic, St. Lucia, Dominca, and El Salvador. Available in Spanish and English through the Gender and Disaster Network.

2.1 Establish an initiative for countrywide risk assessments

HFA

UNDP/BCPR. 2004. Reducing Disaster Risk: A Challenge for Development. New York: UNDP, Bureau for Crisis Prevention and Recovery (BCPR). www.undp.org/bcpr/disred/documents/publications/rdr/english/rdr_english.pdf

Websites

Earth Simulator - www.es.jamstec.go.jp/esc/eng/

The Earth Simulator is a large supercomputer processing vast volumes of data sent from satellites, buoys and other worldwide observation points to analyse and predict environmental changes on the earth through the simulation of various global-scale environmental phenomena, such as global warming, El Niño, atmospheric and marine pollution, torrential rainfall and other complex phenomena, as well as terrestrial phenomena such as plate tectonics, earthquakes and precursors.

GEO Data Portal - http://geodata.grid.unep.ch/

The GEO Data Portal is the source for data sets used by the United Nations Environmental Programme (UNEP) and its partners for integrated environment assessments. Its online database holds national, subregional, regional and global statistics or as geospatial data sets (maps), covering themes like freshwater, population, forests, emissions, climate, disasters, health and gross domestic product . Information can be displayed as maps, graphs and data tables or downloaded in different formats.

Global Risk Identification Program - www.gri-p.net

The Global Risk Identification Program (GRIP) seeks to improve the evidence base for disaster risk management decision-making in high-risk areas. Project activities include: (i) demonstrating that information on disaster risks and losses can be applied to improve risk management decisions and development outcomes, (ii) capacity development, (iii) enhancing global disaster loss data, (iv) providing risk analyses for risk management decision-support in high-risk countries and (v) global risk updates.

HAZUS-MH - www.fema.gov/plan/prevent/hazus/

HAZUS-MH is the United States Federal Emergency Management Agency's powerful risk assessment software programme for estimating potential losses from floods, hurricane winds and earthquakes.

ProVention: Improving risk identification and analysis - www.proventionconsortium.org/?pageid=17

This website documents the key resources available in the field of risk analysis and application that have been developed by the ProVention Consortium and partners.

RADIUS - Risk Assessment Tools for Diagnosis of Urban Areas against Seismic Disasters. www.geohaz.org/contents/projects/radius.html

The RADIUS project was launched by the International Decade for Natural Disaster Reduction in 1996 to promote worldwide activities for reduction of seismic disasters in urban areas, particularly in developing countries. The project developed a software program that offers practical tools for earthquake damage estimation.

RISK-UE - www.risk-ue.net

RISK-UE develops a general and modular methodology for creating earthquake-risk scenarios that concentrates on the distinctive features of European towns, including both current and historical buildings.

United Nations Institute for Training and Research's Operational Satellite Applications Programme (UNOSAT) - http://unosat.web.cern.ch/unosat/

This website supports the use of satellite imagery and geographic information systems for risk assessment and vulnerability reduction.

2.2 Review the availability of risk-related information and the capacities for data collection and use

A. Understanding the task

What's the purpose of this task?

The task aims to identify capacities and gaps in existing processes for gathering, analysing and disseminating data on hazards and vulnerability, which will build understanding of existing and potential risks to different social groups, and enable the development of a baseline to monitor progress on risk assessment and early warning. The use of loss data will help to build the case among decision-makers for investing in prevention measures, and will strengthen risk assessment and early warning systems.

Why it's important

Building a base of evidence on the risk of disaster and the associated losses allows decision makers and the public to understand the country's exposure to various hazards and its social, economic, environmental and physical vulnerabilities. Such data, gathered and disseminated in a timely manner, allows people to take action to reduce risk. The evaluation both of existing hazard and vulnerability information and of the process for collecting and disseminating such information will allow description of the current state of knowledge, as well as strengths and gaps, and thus foster development of a strategy to improve relevant processes.

How it relates to other priority tasks

Task 2.2 is closely linked to the establishment of an initiative for countrywide risk assessment (Task 2.1), establishing effective early warning systems (Task 2.3) and developing communication and dissemination mechanisms for disaster risk information and early warning (Task 2.4). It also contributes important input to the production of information and awareness materials (Task 3.4).

B. How to do it

Recommended steps

1. Identify agencies and organizations currently responsible for collecting and assessing data that relate to hazards and vulnerability. This includes:
   - Organizations involved in observing, monitoring, analysing or disseminating information on hydro-meteorological, geological, biological, technological hazards and environmental degradation.
   - Bodies that hold population census data, infrastructure inventory, business inventory, cadastral data, property-tax data, economic data and hazardous material location data.
   - Organizations involved in collecting social and cultural data (such as indigenous knowledge), through means such as vulnerability and capacity assessments at the community level, and with vulnerable groups.
2. Establish methods to review the data and the way it is catalogued, synthesized and disseminated.
3. Document and summarize the available data resources.

2.2 Review the availability of risk-related information and the capacities for data collection and use

4. Identify strong and weak aspects of existing data and information systems and opportunities for improvements.
5. Review available risk assessment studies. Evaluate critical gaps in knowledge of risks, focusing on areas most exposed to risk and areas where consequences of a hazard event could be catastrophic (e.g. large urban centres, or economic important areas).
6. Analyse and synthesize the evaluation's findings, working with key stakeholders.
7. Form an interdepartmental task group to identify data requirements on vulnerability, and to oversee the collection and analysis of relevant data.
8. Prepare policies and programmes to improve data collection by and dissemination to national, provincial and local government agencies, in order to fill risk information gaps (Task 2.1) and improve collection and distribution processes.
9. Disseminate the results of the evaluation to the institutions and organizations involved.

Some tips for completing the task

All agencies collect data for other purposes than disaster risk evaluation and management, which may complicate the task of identifying risk information. In some cases it may be difficult to obtain valuable information because it is restricted, such as that for hazardous materials' storage, or there may have been little involvement of some social groups (such as women's groups), so the data may not be representative. The evaluation, however, can be an opportunity to raise agencies' awareness of hazards and vulnerabilities, and to support them in improving their practices and broadening the utility of the information they manage.

Another tip is that the identification of gaps and needs may result in an overwhelming list because specialized agencies are often understaffed and underfunded. Hence, the evaluation should aid prioritization by identifying disaster risks with the most negative consequences for the country's people and its economy.

The task can be made more manageable by delegating work to provincial/state and local agencies. These agencies may have some of the information, and can add other relevant fields to their data collection.

Questions to ask

In reviewing the types of data and how it is collected, catalogued, synthesized and disseminated, consider constructing a table, or 'matrix', to map the findings. The matrix should:

- Link data to the various hazards. For example, rainfall statistics are used to evaluate runoff and potential flooding.
- Identify the agencies and organizations collecting hazard data, describing the scope of their work and whether their functions overlap with other agencies or leave gaps.
- Relate data to existing vulnerabilities. For instance, census data can reveal vulnerabilities in the age, health and livelihoods of the population. Attention must be paid to gender-specific risk.
- Identify the agencies and organizations collecting vulnerability data, describing the scope of their work and whether their functions overlap with other agencies, or if gaps exist.

In identifying the critical gaps in available hazards and vulnerability data, ask:

- Is there reliable data for all - or the most important - hazards and vulnerabilities? Is the social data gender-specific? Is local and indigenous knowledge appropriately included? Is there adequate information about the entire territory? Is there a dependable historical record? Is there an appropriate process for updating information?

HFA Review the availability of risk-related information and the capacities for data collection and use 2.2

- Do agencies understand and are they able to fulfil responsibilities for all information processes (i.e. observation, monitoring, archiving, quality control, analysis, synthesis and dissemination)? Do they coordinate adequately or are there weak links in information management? Do the relevant agencies have adequate equipment and capacity?
- Is there a clearly established responsibility for synthesizing data across hazards and sectors, or involving multiple professional interests?
- Does information reach all who need it? Is it understandable to the target audience? Does it enable decision-making to reduce risk?

C. Responsibilities and resources

Who should be involved?

- Designated authorities responsible for disaster risk reduction (e.g. the disaster risk reduction national platform).
- Additional disaster management organizations that use risk data, and the institution in charge of disaster management.
- Representatives of agencies in charge of scientific data collection (e.g. meteorological service, geological and earth science institutes) as well as agencies collecting population, economic, tax and development statistics (e.g. census bureau, tax administration and cadastre).
- Researchers and academics in social and technical science.
- Regulators, insurance administrators and representative community workers.

What conditions facilitate the task?

- Executive and organizational support for the review.
- Funding and human resources (including a database specialist) for the evaluation.
- Multidisciplinary, multiple-organization gender-balanced team to ensure proper assessment of all relevant hazards and vulnerabilities.

D. Illustrations

An agency to collect disaster risk reduction data, Mexico

The Centro Nacional de Prevención de Desastres (CENAPRED) is a Mexican Government organization set up to collect, catalogue and synthesize data in support of public awareness and government disaster risk management policies and programmes. It focuses on the most threatening hazards to Mexico, such as earthquakes and volcanoes, and aims to complement the role of other agencies. One of the key contributions of CENAPRED is to keep data and information on hazards and vulnerability current. It also disseminates such information to agencies and to the general public.

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For further information visit the Centro Nacional de Prevención de Desastres website at: www.cenapred.unam.mx

Andean System of Information for Disaster Prevention and Relief, South America

CAPRADE, the Andean Committee for Disaster Prevention and Relief, is the lead organization for the Andean Strategy for Disaster Prevention and Relief. The Strategy calls for creation of an Andean System of Information for Disaster Prevention and Relief (SIAPAD) as part of its thematic axis 2: "Information, research and development". SIAPAD is supported by PREDECAN, a European Union - Andean Community financed project dedicated to disaster prevention in the Andean Community.

SIAPAD is conceived as a web portal specializing in technical and general information about disaster risk management. The web portal will allow users to access information in an integrated manner both from different institutions in the Andean countries and from international organizations. SIAPAD has three objectives. First, it will offer a means to both search for and spread information. Second, it will offer tools for general and specific visualization of geographic information. Third, it will function as a navigation guide to knowledge and information resources available on the web.

For further information visit the following websites: www.comunidadandina.org/predecan, www.siapad.net

E. Further reading

Guha-Sapir, D., Hargitt, D. and Hoyois, P. 2004. Thirty Years of Natural Disasters 1974-2003: The Numbers. Louvain-la-Neuve, Belgium: Presses universitaires de Louvain. www.em-dat.net/documents/Publication/publication_2004_emdat.pdf

UNDP/CRED. 2006. An Analytical Review of Selected Data Sets on Natural Disasters and Impacts. Prepared for the ProVention Consortium's Global Risk Identification Program Workshop on Improving Compilation of Reliable Data on Disaster Occurrence and Impact, Bangkok, Thailand. April 2-4, 2006. Brussels: Centre for Research on the Epidemiology of Disasters (CRED). www.em-dat.net/documents/Publication/TschoeglDataSetsReview.pdf

Several national agencies and global initiatives offer risk information on their websites. See for example:

Division of Early Warning and Assessment/Global Resource Information Database Europe (DEWA/GRID-Europe) - www.grid.unep.ch/index.php

DEWA/GRID-Europe is one of UNEP's major centres for data and information management.

Emergency Events Database - www.em-dat.net/

This international disaster database is maintained by CRED.

Integrated Global Observing Strategy (IGOS) - www.fao.org/gtos/igos/index.asp

IGOS seeks to provide a comprehensive framework to harmonize the common interests of the major space-based and in situ systems for global observation of the Earth.

HFA Review the availability of risk-related information and the capacities for data collection and use 2.2

LA RED: DesInventar - www.desinventar.org

LA RED, a network for social studies on disaster prevention in Latin America, began developing the DesInventar disaster inventory programme in 1994. DesInventar maintains approximately 16 national level natural and technological disaster databases in Latin America.

Munich Reinsurance Company - http://mrnathan.munichre.com

This website collects information on disasters (excluding technological disasters), using it to provide hazard maps, country profiles and other information. The database has information sorted by date, hazard, region, country, etc., and users can generate individualized maps based on any combination of these factors.

United Nations Statistics Division - http://unstats.un.org/unsd/default.htm

A searchable database of economic, demographic, social, environment and energy statistics.

United States Geological Survey (USGS) - www.usgs.gov/

The USGS website provides among others scientific information on loss of life and property through natural hazards.

World Data Center System - www.ngdc.noaa.gov/wdc/

The World Data Center System provides a searchable database on solar, geophysical and other related environmental data.

World Meteorological Organization (WMO) and the United Nations Programme on Space Applications - www.wmo.int/web/sat/vl.htm

WMO and UN Programme on Space Applications developed a virtual laboratory for satellite training and data utilization to maximize the exploitation of satellite data.

2.3 Assess capacities and strengthen early warning systems

A. Understanding the task

What's the purpose of this task?

This task seeks to assess existing capacities for early warning and, based on that assessment, to develop a strategy to strengthen the country's early warning systems.

Why it's important

Early warning systems empower individuals and communities threatened by hazards to act in sufficient time and in an appropriate manner so as to reduce the possibility of personal injury, loss of life, damage to property and the environment, and loss of livelihoods. The expression "people-centred early warning systems" is used to emphasize that warning systems must recognize human needs and human behaviour, and must be developed with local participation from both women and men. Assessing capacity to provide the four elements of early warning is the first step to identifying areas of weakness and necessary measures to fill gaps. Strategies to develop or strengthen early warning systems should ensure that all of the elements are effective: weakness in one early warning element can result in failure of the entire system.

How it relates to other priority tasks

Early warning systems depend on timely and accurate risk knowledge (Task 2.1); the communication of such information, as discussed in Task 2.4 and Chapter 3; and preparedness to react appropriately, addressed in Chapter 5.

Early warning requires a broad base of capacities, as illustrated in the box The Four Elements of People-Centred Early Warning.

Terminology

Early warning system: The provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response. Early warning systems include a chain of concerns, namely: understanding and mapping the hazard, monitoring and forecasting impending events, processing and disseminating understandable warnings to political authorities and the population, and undertaking appropriate and timely actions in response to the warnings. *(Source: UN/ISDR Terminology)*

The Four Elements of People-Centred Early Warning

Source: UN/ISDR, Platform for the Promotion of Early Warning (PPEW).

B. How to do it

Recommended steps

To evaluate the effectiveness and strengthen the country's existing early warning systems:

1. Organize an interdisciplinary team to assess whether the country's early warning systems:
   - Are adequately supported by legislation and policies.
   - Include defined roles and responsibilities for all relevant organizations. Relevant stakeholders also should be aware of these roles and responsibilities.
   - Have one political leader or government official who is legally authorized to act as the national decision maker for warnings.
   - Include implemented policies to decentralize and empower local decision-making and community participation.
   - Encompass sufficient regional and cross-border arrangements for system integration.
   - Are buttressed by a government funding mechanism for early warning and disaster preparedness.
2. Standardize the process by which all agencies (meteorological service, fire brigade, public-service NGOs, etc.) generate and issue warnings, for easy data collection and analysis.
3. Develop an effective monitoring system that:
   - Measures all important parameters for each relevant hazard.
   - Has technical equipment suited to local conditions and circumstances, run by personnel who are trained in its use and maintenance.
   - Ensures warning centres are staffed at all times (24 hours per day, 7 days per week).
   - Processes measured data in meaningful formats in real time, or near-real time (near real time delay introduced by automated data processing or network transmission, between the occurrence of an event and the use of the processed data).
4. Establish a sound forecasting and warning system that:
   - Ensures data analysis, prediction and warning generation are based on accepted scientific and technical methodologies.
   - Issues data and warning products within international standards.
   - Has fail-safe systems in place, such as power backup, equipment redundancy and on-call personnel systems.
   - Generates and disseminates warnings in a timely manner and in a format suited to user needs.
   - Routinely monitors and evaluates operational processes, including data quality and warning performance.
5. Analyse studies of past disaster experiences, previous alerts and lessons learned. Identify capacities and gaps, and with the team, discuss findings and prepare recommendations for all levels of government.
6. Produce a plan to develop or strengthen multi-hazard early warning systems, clearly identifying priority actions, and basing recommendations on cost-benefit analysis.
7. Identify opportunities to integrate early warning into national economic planning and development policies.
8. Develop capacity-building plans and training programmes, with adequate resources and participation of non-governmental sector.

2.3 Assess capacities and strengthen early warning systems HFA

9. Secure financial resources, explore international and regional funding sources, and develop partnerships with private sector and the media.
10. Disseminate the results of the evaluation and the proposed plan, highlighting the economic and social benefits of early warning and supporting the findings with case studies.

For a comprehensive list of indicators for each of the four elements of effective early warning systems, see Developing Early Warning Systems: A Checklist (full reference in "Further reading" section).

C. Responsibilities and resources

Who should be involved?

Key technical experts from:

- Agencies in charge of scientific data collection and knowledge.
- Monitoring and warning services (meteorological service, geological institutes, etc.).
- Communication and dissemination (community-based organizations, communication technology companies and the media).
- Response capability (disaster relief agencies, civil defence and NGOs).

What conditions facilitate the task?

- Executive and organizational support.
- Funding and human resources.
- Early warning "champions" that raise awareness.
- Access to expertise, including those with technical background for monitoring and warning, as well as for response.
- Understanding of and access to regional and worldwide resources.
- Cooperation with national, regional and international organizations involved in the four elements of early warning (e.g. the World Meteorological Organization (WMO); the United Nations Educational, Scientific and Cultural Organization (UNESCO); the World Health Organization (WHO); Red Cross and Red Crescent Societies).

D. Illustrations

Cyclone early warning programme, Bangladesh

Bangladesh is one of the most disaster-prone countries in the world. Aware of the predictable disasters likely to strike the country, the Bangladesh Red Crescent Society and the Government of Bangladesh launched the Cyclone Preparedness Program. The goal of the programme is to minimize the loss of lives and properties in cyclonic disaster by strengthening the disaster management capacity of coastal people. The programme developed a district emergency plan at each branch that targets communities affected by flooding, tornadoes, river erosion, drought and cyclones. Programme community activities include the dissemination of cyclone-

warning signals issued by the Bangladesh Meteorological Department to the community, as well as assistance to people taking shelter, rescue of distressed people and provision of first aid.

The Cyclone Preparedness Program disseminates cyclone early warning messages through its extensive radio network (143 stations) to districts along the coastal belt. The programme's Dhaka headquarters and the 143 wireless stations comprise the largest wireless network in Asia. Also, 33,000 volunteers deliver the messages using megaphones and sirens to most at-risk villages, and help the weakest members of communities to seek refuge in cyclone shelters. In total there are 1,600 shelters across the coastal region, 149 of them built by the Bangladesh Red Crescent Society. These shelters can hold up to 1,500 people, and can serve as schools and community centres during "normal" times. Cyclone preparedness volunteers also get involved in rescue, first aid activities and the distribution of relief items.

Outside the 4-month cyclone season, the volunteers run public awareness activities, staging educational dramas and simulation exercises. Increasingly volunteers also contribute to longer-term mitigation activities, such as planting palm trees as wind breaks along the coast. The programme covers eleven districts in the coastal area and can send warning signals to approximately eight million people.

For further information see: Bangladesh Red Crescent Society, Cyclone Preparedness Program at a Glance, February 2002; International Federation of Red Cross and Red Crescent Societies: World Disaster Report: Focus on Reducing Risk, March 2002; or Asian Disaster Reduction Center, Total Disaster Risk Management-Good Practices, January 2005.

Global tropical cyclone warning system

Tropical cyclones, also popularly known as hurricanes or typhoons, are globally monitored and forecasted on a daily basis through the WMO Global Tropical Cyclone Warning System. This system is a global network for observations, data exchange and regional forecasting and analysis capabilities, operated by national meteorological and hydrological services. It includes six regional specialized meteorological centres that provide around-the-clock forecasts, alerts and bulletins on the severity, project path and estimated landfall of tropical cyclones. This information goes to the national meteorological services of countries at risk. The services then issue warnings for their countries with lead times of at least 24 hours and up to several days. These lead times are sufficient to achieve effective mass evacuations and thereby avoid widespread loss of life. Five tropical cyclone regional committees (comprised of experts in tropical cyclone modelling and forecasting) provide regional coordination, including training support.

For further information visit WMO website at: www.wmo.ch/web/www/TCP/TCP-home.html

Early warning systems for wildland fires

Wildland fires burn several hundred million hectares of vegetation every year, and increased fire activity has been reported in many regions of the world. Fires have had serious negative impacts on human safety, health, regional economies, global climate change and ecosystems in non-fire prone biomes. Worldwide fire suppression expenditures are rapidly increasing in an attempt to limit the impact of wildland fires.

To mitigate fire-related problems and costs, forest and land management agencies, as well as land owners and communities, have supported establishment of a range of early warning systems. These systems identify critical periods of extreme fire danger in advance of their potential occurrence. Early warning of these conditions allows fire managers to implement fire prevention, detection and pre-suppression plans before fire problems begin. Fire danger ratings are commonly used to provide early warning of the potential for serious wildfires based on daily weather data. Fire danger information is often enhanced with satellite data and spectral data on land cover and fuel conditions. Normally, these systems provide a 4- to 6-hour early warning of the highest fire danger for any particular day that the weather data is supplied.

2.3 Assess capacities and strengthen early warning systems

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A number of fire danger rating systems are available for countries and for several regions worldwide. Global, regional and national fire weather and climate forecasts, as well as background materials, can be found on the Web Portal for Early Warning of Wildland Fire provided by the Global Fire Monitoring Center (GFMC).

For further information visit the GFMC Web Portal for Early Warning of Wildland Fire at: www.fire.uni-freiburg.de/fwf/fwf/htm

E. Further reading

Basher, R. 2006. "Global early warning systems for natural hazards: systematic and people-centred". Philosophical Transactions of the Royal Society. A 364, 2167-2182. www.unisdr.org/ppew/inforesources/docs/RSTA20061819p.pdf

Fordham, M. 2001. Challenging Boundaries: A gender perspective on early warning in disaster and environmental management. Prepared for an expert group meeting on environmental management and the mitigation of natural disasters, the United Nations Division for the Advancement of Women and ISDR; 6-9 November 2001, Ankara, Turkey. www.un.org/womenwatch/daw/csw/env_manage/documents/EP5-2001Oct26.pdf

Inter-Ministerial Committee on International Cooperation for Disaster Reduction, Government of Japan. 2006. Assess capacities and strengthen early warning systems: Japan's Natural Disaster Early Warning Systems and International Cooperative Efforts. www.bousai.go.jp/kyoryoku/soukikeikai.pdf

UN/ISDR. 2006. Developing Early Warning Systems: A Checklist. Developed as an outcome of the Third International Conference on Early Warning (EWC III), 27-29 March 2006, Bonn, Germany. www.unisdr.org/ppew/info-resources/ewc3/checklist/English.pdf

The checklist is an outcome document of the EWC III. It was created in order to help governments and communities implement people-centred early warning systems. The checklist was translated into 19 Indian Ocean country languages.

UN/ISDR. 2006. Global Survey of Early Warning Systems: An assessment of capacities, gaps and opportunities toward building a comprehensive global early warning system for all natural hazards. United Nations publication. www.unisdr.org/ppew/info-resources/ewc3/Global-Survey-of-Early-Warning-Systems.pdf

The Global Survey was requested in Secretary-General Kofi Annan's report to the General Assembly "In larger freedom: towards development, security and human rights for all" in 2005 (www.un.org/largerfreedom/). The Survey examines technical and institutional capacities at all relevant levels in the four components of effective early warning systems.

UN/ISDR, DKKV. 2006. Early Warning - From concept to action, The Conclusions of the Third International Conference on Early Warning Conference held 27-29 March 2006, Bonn, Germany. www.ewc3.org/upload/downloads/Early_warning_complete2.pdf

Villagran de León, J. C., et al. 2006. "Early Warning Systems in the context of Disaster Risk Management". Entwicklung & Ländlicher Raum, 2/2006, pp. 23-25.

Zschau, J. and Küppers, A.N. 2003. Early Warning Systems for Natural Disaster Reduction. New York: Springer Verlag Berlin Heidelberg.

Websites

The International Center on Research El Niño (CIFEN) - www.ciifen-int.org/

CIFEN promotes, complements and starts scientific and application research projects necessary to improve the comprehension and early warning of El Niño events.

IGAD Climate Prediction and Applications Centre (ICPAC) - www.icpac.net/

The Nairobi-based organization for the Horn of Africa countries of Intergovernmental Authority on Development.

Global Fire Monitoring Center (GFMC) Web Portal for Early Warning of Wildland Fire - www.fire.uni-freiburg.de/fwf/fwf.htm

Global, regional and national fire weather and climate forecasts, as well as background materials.

Global Information and Early Warning Service (GIEWS) of the Food and Agriculture Organization (FAO) - www.fao.org/giews/english/index.htm

GIEWS continuously reviews the world food supply/demand situation and issues reports on the world food situation.

Global Earth Observing System of Systems (GEOSS) - www.earthobservations.org/index.html

GEOSS refers to the collection, processing, modelling and dissemination of data about the Earth system.

HEWSweb - www.hewsweb.org/home_page/default.asp

HEWSweb service has dedicated pages for each type of hazard including drought, floods, storms, locusts, volcanoes, earthquakes, weather, El Niño and other hazards and socio-political developments.

International Research Institute for Climate and Society (IRI) - www.iri.columbia.edu/

IRI aims to enhance society's capability to understand, anticipate and manage the impacts of seasonal climate fluctuations to improve human welfare and the environment, especially in developing countries, through strategic and applied research, education and capacity-building, and provision of forecast and

2.4 Develop communication and dissemination mechanisms for disaster risk information and early warning

A. Understanding the task

What's the purpose of this task?

This task aims to strengthen mechanisms for effectively communicating and disseminating disaster risk information and early warnings to all sectors of the population.

Why it's important

Effective communication of disaster risk information, including early warning, enables people to act to reduce their risk and safeguard their lives and livelihoods. Effective risk reduction communication and dissemination strategies ensure that information is understandable and reaches all those people who need it in time to make appropriate decisions. The process of communicating risk and preparing communities to respond to warnings - for instance through emergency drills - is an opportunity to raise awareness and build ownership of risk reduction, thus empowering communities and men and women of all ages. Usually in early warning systems it is communication, dissemination and preparedness to respond to warnings that are the weakest links.

Effective early warning communication

For effective communication of warnings, alerts should be short, simple and precise; provide timely information about the hazardous situation; state what action should be taken to reduce loss of life, injury and property damage; explain the consequences of not heeding the warning; cite a credible authority; provide feedback to operational decision makers on the extent of public compliance; have a personal context; contain active verbs; and repeat important information regularly. See the definition of an early warning system in Task 2.3. *(Source: Adapted from NDO 1992, Section 8.08)*

How it relates to other priority tasks

The task of communicating risk information relies upon effective countrywide risk assessment and analysis (Tasks 2.1 and 2.2). It is closely linked with activities such as assessing capacities and strengthening early warning systems (Task 2.3), developing a programme to raise awareness (Task 3.1), and enhancing the dissemination of information (Task 3.4). More generally, it is linked to effective disaster preparedness for response (Chapter 5).

B. How to do it

Recommended steps

1. To develop effective communication and warning dissemination processes, begin by evaluating existing capacities:
   - Identify the various organizations and agencies and other stakeholders involved in communication and warning dissemination, and invite them to participate in the process.
   - Create a table, or 'matrix', mapping stakeholders, their roles and responsibilities and their areas of interaction.

Develop communication and dissemination mechanisms for disaster risk information and early warning 2.4

- Identify gaps in communication services and in the coordination of communication and dissemination services.
- Develop plans for improving communication among stakeholders, and decisions related to alerts and early warning systems, between the various governmental and non-governmental agencies.
- Develop with agencies and organizations a strategy and related action plan for risk communication and dissemination that is well coordinated with response plans, that reflects community values and interests and that is fully inclusive of women.
- Discuss plan with relevant agencies. Obtain independent review and pursue government funding and deployment.

2. To support communication and warning dissemination processes:
   - Enforce warning dissemination chain through government policy or legislation, empowering recognized authorities to disseminate warning messages.
   - Define roles and responsibilities of regional or cross-border early warning centres, including the dissemination of warnings to neighbouring countries.
   - Identify and designate volunteer groups to receive and disseminate hazard warnings widely among exposed communities, especially in rural areas, while ensuring the inclusion of women.
   - Promote stakeholder "working groups" that can act as coalitions for risk communication and can participate in both the risk awareness and the broader disaster risk reduction programme.
   - Develop evaluation systems to improve coordination of disaster risk management actions and to promote ownership.
3. To install effective early warning communication systems:
   - Tailor the systems to the needs of individual communities (e.g. in addition to radio or television, use sirens, warning flags or gender-balanced messenger runners for remote communities).
   - Ensure that the communication technologies reach the entire population, including seasonal populations and remote locations.
   - Use multiple communication mediums to disseminate warning (e.g. both mass media and informal communication).
4. To ensure early warning messages are understood:
   - Tailor warning alerts and messages to the specific needs of those people at risk (e.g. recognizing diverse cultural, social, gender, linguistic and educational backgrounds).
   - Disseminate geographically specific warning alerts and messages, to ensure that warnings focus on those at risk.
   - Disseminate recognizable and consistent warning alerts over time and include follow-up actions when required.
   - Inform the community when the threat has ended.
   - Conduct a study on how people access and interpret early warning messages. Incorporate findings into message formats and dissemination processes.

For a comprehensive list of indicators for each of the four elements of effective early warning systems, see Developing Early Warning Systems: A Checklist (full reference in the "Further reading" section).

2.4 Develop communication and dissemination mechanisms for disaster risk information and early warning

C. Responsibilities and resources

Who should be involved?

- Agencies and organizations involved in disaster risk reduction communication and dissemination, such as warning agencies, community-based organizations, communication technology companies and the media.
- Agencies and organizations in response capability, including disaster relief, civil defence and NGOs.
- Key technical experts in agencies such as weather services and geological and earth science institutes should also be involved, to ensure that technical material is correct, and that it contains information relevant to target audiences.
- Community-based organizations often are well situated in the community to be helpful in communicating disaster reduction messages and disseminating warnings. If they are involved from the start in the design of risk communication strategies, the resulting information is likely to be more effective: the messages can be better tailored to target audiences and their specific interests.
- Local governments, as they will be in charge of both communicating warnings to the population and implementing disaster response activities (such as evacuations).

What conditions facilitate the task?

- Executive and organizational support.
- Funding and human resources for assessing needs and implementing actions to strengthen processes.
- Understanding communication protocols and coordination of governmental and non-governmental agencies involved in scientific data management, risk studies, alerts and early warning.
- Good coordination between the scientific functions and the emergency management functions of governments at national, provincial and local levels.
- Capability to engage the community and civil society at large, and to build on localized capacities.

D. Illustrations

Disaster risk reduction communication campaign, Papua New Guinea

Papua New Guinea is highly susceptible to tsunamis, not only because of its topographical conditions, but also because of the frequency of earthquakes and volcanic activity in the surrounding seas. In 1998, an earthquake measuring 7.0 on the Richter scale occurred, with the epicentre only 30 kilometres from the coast of north-west Papua New Guinea. The resulting tsunami struck coastal villages of the Aitape region, claiming more than 2,200 lives. The high death toll showed that, while tsunamis are not new to Papua New Guinea , lessons learned from previous experiences have not been passed on to new generations. People in 1998 knew little about the imminent threat of tsunami hazards, and when residents felt the earthquake they did not seek refuge on higher ground from the tsunami immediately, which contributed to the high number of casualties.

At the request of Papua New Guinea authorities, ADRC in Kobe, Japan agreed to transfer Japanese tsunami experience to Papua New Guinea communities. The ADRC project showed impressive results. ADRC produced posters and pamphlets in English and local languages which relied heavily on pictures and illustrations, and distributed them to residents and school children living in coastal areas. The information was also used and distributed by the Papua New Guinea Red Cross. As a result, many Papua New Guinea residents have

learned to beware of tsunamis following an earthquake and to seek refuge on higher ground. In 2000, an earthquake measuring eight on the Richter scale occurred off the Papua New Guinea coast. While it created a tsunami that destroyed thousands of houses, there were no deaths. ADRC continues to work in this area, following its commitment to provide guidance to neighbouring countries with similar problems.

For further information see: UN/ISDR, Living with Risk; ADRC 2001.

Disaster communication system, India

The adverse effects of disasters can be reduced if there is a fail-safe disaster communication system. The absence of efficient communication and early warning systems is reflected in the high casualties from many disasters, deaths that could have been prevented. One such disaster, the 2004 Indian Ocean tsunami, prompted India to create a fail-proof disaster communication system with triple redundancy, which links emergency operation centres at the national, state and district levels. Mobile emergency operation centres have also been developed, which can be air-dropped to a disaster-affected site at a remote location and linked with the national network by satellite. The communication system includes an instant disaster alert system, which transmits information to disaster managers located all over the country. The first phase of the project, which links national and state capitals, has already been developed. The second phase which will link the district headquarters is underway.

For further information visit: www.ndmindia.nic.in/Workshop_ppt/Communication_Plan_files/frame.htm

Using radio in drought mitigation, West Africa

Radio can be a cheap and effective tool in the fight against desertification and drought. In the mid-1990s a team from the Cranfield Disaster Preparedness Centre in the United Kingdom of Great Britain and Northern Ireland worked with three radio stations and local broadcasters in Mali, Burkina Faso and Eritrea on a pilot project to find out how the medium could be used most effectively. Over a period of 18 months, the project partners researched, recorded and broadcast three radio campaigns on aspects of reforestation. The programmes combined education with entertainment, promoting simple and affordable advice in appropriate formats and local languages. A needs assessment was carried out to identify the themes of most relevance to listeners, as well as their perceptions of the issues. Scheduling of the broadcasts was designed to achieve maximum impact. Local broadcasters were trained during the programme-making process. The campaigns' impact was then evaluated through a series of small-scale surveys at village level.

The results varied in each country, but the surveys showed that carefully targeted, well-made radio programmes could produce changes in attitude and behaviour. For example, in Mali, after programmes had recommended marking and conserving naturally occurring trees, the number of farmers in the sample group marking their trees increased from 6 per cent to 43 per cent. Knowledge of the correct distance to plant trees apart from each other rose from 25 per cent before the broadcasts to 80 per cent afterwards. These findings were confirmed by the observations of local foresters and extension workers, who noticed an increase in the number of farmers practising conservation measures. Comparisons between villages inside and outside the radio signal area confirmed that the changes were mainly due to the broadcasts.

For further information see: M. Myers, G. M. Adam and L. Lalanne, The Effective Use of Radio for Mitigation of Drought in the Sahel: Final Project Report and Recommendations Plus Guidelines for Broadcasters (Shrivenham: Cranfield University Disaster Preparedness Centre, 1995).

2.4 Develop communication and dissemination mechanisms for disaster risk information and early warning

E. Further reading

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UN/ISDR. 2007. Lessons for a Safer Future: Drawing on the experience of the Indian Ocean tsunami disaster. Geneva: United Nations. www.unisdr.org/lesson-for-a-safer-future

UN/ISDR. 2006. Developing Early Warning Systems: A Checklist. Developed as an outcome of the Third International Conference on Early Warning, 27-29 March 2006, Bonn, Germany. www.unisdr.org/ppew/info-resources/ewc3/checklist/English.pdf

The checklist was created to help governments and communities implement people-centred early warning systems. It was translated into 19 Indian Ocean languages. See in particular the checklist for dissemination and communication.

Chapter 3

Building a culture of safety and resilience

Hyogo Framework for Action Priority 3
Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

Implementing Priority 3 requires the development of information-sharing systems and services that enable access to, and application of, information. It involves strengthening networks and promoting dialogue and cooperation among scientific communities and practitioners, and using standard disaster risk reduction terminology. It also calls for promoting the inclusion of disaster risk reduction in school curricula, and developing training and learning programmes on disaster risk reduction at a community level, for local authorities and targeted sectors. Finally, it requires strengthening research capacity and engaging the media to raise awareness.

States can undertake a number of tasks to implement Priority 3. This chapter recommends the following tasks:

3.1. Develop a programme to raise awareness of disaster risk reduction.

3.2. Include disaster risk reduction in the education system and the research community.

3.3. Develop disaster risk reduction training for key sectors.

3.4. Enhance the compilation, dissemination and use of disaster risk reduction information.

The following indicators are suggested as possible means for assessing progress in implementing this priority:

- A national public awareness strategy for disaster risk reduction exists that reaches all communities and people of all education levels.
- School curricula at all levels include disaster risk reduction elements and instructors are trained in disaster risk reduction at national through to local levels.

3.1 Develop a programme to raise awareness of disaster risk reduction

A. Understanding the task

What's the purpose of this task?

This task seeks to plan and implement a campaign to build awareness of disaster risks and of measures to reduce these risks. The ultimate goal is to make disaster risk reduction an accepted value among opinion makers and the general public, and to empower all levels of society to reduce their risks.

Why it's important

Awareness allows people to protect themselves in their everyday lives and through their professional responsibilities. Understanding of disaster risks also increases the effectiveness of early warning and policy implementation.

How it relates to other priority tasks

This task is closely linked to that of communicating risk knowledge (Task 2.4) and the broader task of enhancing the dissemination of risk information (Task 3.4). It also enables people to be prepared to respond to disasters (Chapter 5).

Awareness campaigns as means to influence and change behaviour

Awareness-raising is an interactive process in which different parties are engaged, each with its own roles, responsibilities and ways to make its voice heard and to create social influence. In awareness campaigns, policymakers and other interested groups aim to change behaviour by altering social norms and attitudes. Typically, campaigns focus on providing information and knowledge to influence individual attitudes. Knowing the results of their behaviour and realizing the importance of change can influence people to alter their conduct. Other awareness initiatives may seek to influence social norms.

Designing a campaign in a participatory manner can help organizers stay closer to the ideas, constraints and opportunities of the target audience. Knowledge exchange with women's and community groups is more useful than top-down communication of 'expert' knowledge. Campaigns should focus on increasing understanding of locally perceived problems and their solutions. The behaviour changes sought should not only reflect a wide understanding of issues that are important to people's own lives, but also need to be feasible and easy to carry out. *(Source: Schaap and van Steenbergen 2004)*

Terminology

Public awareness: The processes of informing the general population, increasing levels of consciousness about risks and how people can act to reduce their exposure to hazards. This is particularly important for public officials in fulfilling their responsibilities to save lives and property in the event of a disaster.
Public awareness activities foster changes in behaviour leading towards a culture of risk reduction. This involves public information, dissemination, education, radio or television broadcasts and use of printed media, as well as the establishment of information centres and networks and community and participation actions. *(Source: UN/ISDR Terminology)*

Resilience: The capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures. *(Source: UN/ISDR Terminology)*

3.1 Develop a programme to raise awareness of disaster risk reduction

HFA

B. How to do it

Recommended steps

Awareness campaigns need to include a wide variety of activities focused on various audiences and implemented by different actors.

1. To develop an appropriate awareness campaign strategy, a country needs to:
   - Secure continued resources for implementing awareness campaigns.
   - Determine which communication channels will appeal to the widest range of stakeholders, to ensure the campaigns reach women and other high-risk groups.
   - Seek to engage and inform different age groups so as to build sustained understanding across generations.
   - Establish relationships for the involvement of media professionals and other commercial and marketing interests.
   - Engage respected local officials, religious and community leaders, and women's and other special interest groups, in order to disseminate information and encourage participation.
2. Measures that can support effective implementation of an awareness campaign include:
   - Select and undertake activities that will appeal to target groups - such as educational campaigns in schools and community centres, community fairs, annual commemorative events or festivals, and neighbourhood safety drills and simulations.
   - Promote activities that enable school-aged children to influence parents.
   - Encourage private and commercial enterprises to raise awareness among their employees, and create incentives for employees' wider involvement in awareness campaigns, through such activities as sponsorships and advertising opportunities.
   - Organize workshops, forums and educational activities for communities at local, social and cultural facilities.
3. Basic principles of awareness programmes
   - Design and implement programmes with a clear understanding of local perspectives and requirements. Descriptive materials should reflect local conditions.
   - Target all sections of society, including decision makers, educators, professionals, members of the public and individuals living in threatened communities.
   - Different types of messages, locations and delivery systems are necessary to reach the various target audiences.
   - Sustained efforts are crucial to success, although single activities such as commemorative disaster reduction events and special issue campaigns can be useful if they are part of a larger, consistent programme.

C. Responsibilities and resources

Who should be involved?

- Government officials at national and local levels.
- Media and public communicators.
- Educators and other institutional actors.
- Community leaders, women's groups and local groups involved in public action.
- NGOs - local, national, regional and international.

What conditions facilitate the task?

- Accurate and current knowledge about both disaster risk and relevant communities.
- Participation of government officials and community leaders.
- Understanding, acceptance and support from local community members.
- Material and financial resources for sustaining the programme.

D. Illustrations

Awareness campaign, Islamic Republic of Iran

In December 2003 an earthquake struck south-eastern Iran, killing more than 43,000 people, leaving 60,000 homeless and destroying much of the city of Bam. Shortly after, the Government revised its national strategy for earthquake risk reduction, focusing on promoting a culture of prevention through an awareness campaign. The campaign promoted preparedness and safety in easily understood popular formats using all media, including posters, billboards and materials dedicated to children's education. This educational material included colourful and age-appropriate information on earthquakes and earthquake safety in booklets, posters, writing and painting exhibitions. The campaign also established an annual drill for schools and organized a public rally. Special efforts were made to include women in the process.

Campaign organizers identified indicators to measure their progress in increasing public understanding. Panels of community members of different ages and gender responded to questions that could display their knowledge and plans for action on earthquake safety. Progress was measured by tracking their replies. The results showed improved awareness, concern and preparedness among the local people.

For further information visit the Natural Disaster Task Force of Iran: http://havades.moi.ir and for information on the earthquake drills, see the International Institute of Earthquake Engineering and Seismology website: www.iiees.ac.ir/English/index_e.asp

Local risk management in earthquake zones, Kazakhstan

Due to its landscape, climate conditions and industrial infrastructure, Kazakhstan is at risk for frequent natural and human-induced disasters. Approximately 30 per cent (650,000 km2) of Kazakh territory is home to more than six million inhabitants, and a high concentration of industrial facilities (40 per cent) are located in highly seismic zones. An estimated 200,000 residents in Almaty, Kazakhstan's largest city, live in buildings that are

vulnerable to seismic hazards. It is projected that up to one-third of all Almaty's residential buildings would be destroyed in the event of a catastrophic earthquake. This does not include public infrastructure such as schools, hospitals, power plants and other critical facilities, which are also at great risk.

Given the low likelihood that existing structures will be retrofitted to protect against seismic vulnerability, a comprehensive seismic safety programme must include building both awareness and the capacity of local organizations to respond to emergencies. In response to an umbrella initiative of UNDP's BCPR, Disaster Reduction Unit, the Government of Kazakhstan and UNDP designed a joint project in the country to support local risk management in earthquake zones through awareness-raising. The project uses training, brochures, films and educational modules to raise the awareness of the local affected populations, decision makers and the wider public on disasters as well as on disaster response strategies. The first experiences at pilot schools showed strong results, with students and teachers interested in working with the programme on safety issues.

For further information visit the ISDR website at: www.unisdr.org/wdrc-2006-2007

Schools cooking up a storm in Jamaica

Jamaica runs a multifaceted hazard awareness programme in schools. Elements include fire and earthquake drills, poster competitions and cultural competitions - contests involving song, dance, and skits by schools, as well as exhibitions and talks. In collaboration with the Ministry of Education, Jamaica's Office of Disaster Preparedness and Emergency Management promotes Disaster Awareness Day and Disaster Preparedness Day in schools. These events occur in January and June, respectively, the latter month also signalling the start of hurricane season. The Office also maintains an informational website for children and produces children's books, videos and posters.

In addition, disaster preparedness is incorporated in curriculum for various subjects at the primary, secondary and tertiary levels, including areas such as mass communication and resource management. The Office is encouraging the Ministry of Education to consider hazards and vulnerability reduction with respect to the location and design of schools.

For further information see: "Let Our Children Teach Us! A Review of the Role of Education and Knowledge in Disaster Risk Reduction". www.unisdr.org/let-our-children-teach-us

E. Further reading

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web.adrc.or.jp/publications/inamura/list.html

This is a series of public information stories prepared in eight languages of South-East Asia. It was developed in collaboration with ADRC and the members of the Asian Disaster Reduction and Response Network (ADRRN).

Kreimer, A. and Arnold, M. 2000. Managing Risk in Emerging Economies. Washington DC: World Bank.

UN/ISDR. 2006. Let Our Children Teach Us! A Review of the Role of Education and Knowledge in Disaster Risk Reduction. UN/ISDR system Thematic Cluster/Platform on Knowledge and Education study prepared by Ben Wisner. Bangalore, India: Books for Change.
www.unisdr.org/let-our-children-teach-us

Wisner, B. et al. 2005. At Risk: Natural Hazards, People's Vulnerability and Disasters. 2nd edition. London: Routledge.

Websites

Awareness and Preparedness for Emergencies at the Local Level (APELL) - www.uneptie.org/pc/apell/disasters/lists/nat_disaster.htm

APELL is a process designed to create awareness of hazards and to ensure that communities and emergency services are adequately trained and prepared to respond.

Global Fire Monitoring Center (GFMC): Community Based Fire Management (CBFiM) - www.fire.uni-freiburg.de/Manag/CBFiM.htm

CBFiM is a type of land and forest management in which a locally resident community (with or without the collaboration of other stakeholders) is seriously involved in deciding the objectives and practices for preventing, controlling or utilizing fires. The GFMC CBFiM web portal provides access to CBFiM principles, case studies and lessons learned throughout the world.

UN/ISDR Campaign (2006-2007): Disaster risk reduction begins at school -- www.unisdr.org/wdrc-2006-2007

This is the website of the 2006-2007 World Disaster Reduction Campaign.

3.2 Include disaster risk reduction in the education system and the research community

A. Understanding the task

What's the purpose of this task?

This task aims to include elements of disaster risk reduction into the entire education system - from elementary school to university level - and equally to promote applied and gender-sensitive research in disaster risk reduction practices.

Why it's important

Incorporating hazard and disaster risk-related issues into existing education curricula contributes to continuous learning and reinforces disaster risk reduction knowledge. Educating younger generations instils disaster risk reduction as a value in society - a value that will be transmitted to future generations. Children are thus effective agents for improving safety and resilience. Higher education and applied research also merit special attention, as they are the sources of practical means to build disaster reduction capacities.

How it relates to other priority tasks

This task builds on risk knowledge (Chapter 2) and enables appropriate response to early warning and to disaster events through preparedness (Chapter 5).

B. How to do it

Recommended steps

To include elements of disaster risk reduction in the education system:

1. Establish a task force and various committees to focus on the different levels of education, including universities.
2. Assess the current knowledge of disasters and disaster reduction at all age levels through surveys. Analyse existing curricula to determine whether disaster risk issues are appropriately addressed.
3. Promote the inclusion of disaster risk reduction topics in existing subjects beyond science and geography alone, such as reading, art, history, sociology, engineering, environmental management, hydrology, planning and public health.
4. Collect education material and analyse it, in order to develop guidelines for educators on how best to incorporate disaster-related information into relevant areas of their curricula.
5. Provide training for teachers and school officials regarding disaster risk education.
6. Encourage universities to develop degree programmes specific to disaster management and risk reduction issues.
7. Encourage the use of electronic and distance learning to further expand access to disaster risk reduction education.

8. Encourage the development of applied scientific, socio-economic and technical research to advance understanding and application of disaster risk reduction in development practices.
9. Create opportunities for dialogue among researchers, policymakers and practitioners.

Promoting applied research through a national research agenda

Governments can promote applied research by developing a national research agenda, creating opportunities for dialogue among academics, professionals and the private sector. National platforms in particular have the important responsibility to facilitate applied research through development of a national multidisciplinary research agenda, and to encourage and guide research that helps to develop conceptual frameworks and methodological structures or approaches (see Task 1.2 on national platforms).

Questions to ask

In developing the education curricula ask:

- Does the curriculum reflect hazards and vulnerabilities in both national and local scales? Does it make the information locally relevant by focusing on the social, economic and environmental dimensions of hazards and on wider public exposure to risk where students and their families live?
- Does the primary school curriculum communicate information in an appealing manner (e.g. through games, field trips, dramatic arts and other forms of student engagement)?
- Do schools and other learning centres engage external speakers and experts, and seize opportunities to bring together younger and older generations to discuss disaster risk reduction?
- Do tertiary-level academic institutions have research programmes focused on disaster risk reduction?
- Are the necessary resources and funds available for educators and the academic community?
- Can existing networks be reinforced to build partnerships among educators and the academic community, and across faculties and disciplines?
- Are there incentives for national and local policymakers to establish an education curriculum that includes disaster risk reduction subject matter?

C. Responsibilities and resources

Who should be involved?

- Educators and professionals from the educational sector.
- Ministry of education representatives and higher education policymakers.
- Disaster and risk management experts.
- Academics and research community representatives.
- Parent and teacher associations.
- Children and youth.
- Private sector, public sector and communities.
- Non-governmental and community-based organizations.

3.2 Include disaster risk reduction in the education system and the research community

What conditions facilitate the task?

- Political commitment and community support.
- Allocation of human and financial resources.
- The commitment and engagement of the relevant educational authorities.

D. Illustrations

National Institute of Disaster Management, India

Following adoption of the 1994 Yokohama Strategy and Plan of Action for a Safer World, India set up a national centre for disaster management at the Indian Institute of Public Administration, New Delhi. The centre was upgraded to an autonomous national institute in October 2003, and in 2005 acquired the status of a statutory body. The Home Minister of India is the Institute's president, while the Vice-Chairperson of the National Disaster Management Authority serves as president of its governing body. Day-to-day affairs are managed by a government-appointed executive director, who is a civil servant with the necessary background in disaster management.

The Institute has a mandate to act as a think tank for the government, to conduct research and documentation on various aspects of disaster risk reduction and management, and to develop innovative training modules for capacity-building on disaster management at all levels.

Within a brief period the Institute has created a niche for itself. It has developed a powerful network with a large number of research, academic and training institutes at the national and international levels. It also hosts a disaster management centre for the South Asian Association for Regional Cooperation (SAARC) - a regional organization for the seven South Asian countries of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

For further information visit: www.nidm.net

Developing an agenda for applied research, United States of America

The United States' Second Assessment of Research and Applications for Natural Hazards was a multi-year project sponsored by the National Science Foundation, with supporting contributions from the Federal Emergency Management Agency, the United States Environmental Protection Agency, the United States Forest Service and the United States Geological Survey. It began in 1994 with the formal mission of first summarizing what is known in various fields of science and engineering that is applicable to natural and related technological hazards in the United States of America; later, research and policy recommendations for the future were developed. The project involved the volunteer assistance of scores of scholars and practitioners from across the country. An advisory panel, comprised primarily of representatives of federal agencies with a stake in hazard mitigation programmes, guided the work.

The results of the project are compiled in the book Disasters by Design: a Reassessment of Natural Hazards in the United States. These results include a comprehensive recommended agenda for sustainable hazard mitigation research in the United States of America. The book also summarizes the hazards research findings from the last two decades, and outlines a proposed shift in direction for research and policy on natural and related technological hazards.

For further information visit the website of the Natural Hazards Research and Applications Information Center, University of Colorado at: www.colorado.edu/hazards/publications/disastersbydesign.html

Let's be prepared - an educational project about disasters, Cuba

Cuba is heavily exposed to natural hazards such as tropical cyclones, floods, intense rains and strong winds. During an average season up to ten hurricanes form near the island. Awareness of these natural hazard risks has increased in recent years, as the Cuban Government has implemented strategies to significantly reduce the population's vulnerability to disasters. These strategies have decreased losses to human life, agriculture and livestock.

Cuba has incorporated disaster risk awareness into various school programmes through cultural training, extracurricular and non-teacher-centred activities. Despite these efforts, the links between disaster education and communities still require strengthening, with students as the leading actors in this process.

In response to this need, a project entitled "A Prepararnos" was implemented in the province of Holguin to develop environmental and disaster education through formal and informal means. It involved the participation of children and the community at large. The project focused on the relationship between schools and communities. It adapted a number of methods based upon the local environment, existing problems, natural and human disasters and their prevention. It also established follow-up mechanisms to pursue desired results. The project was implemented in pilot schools and communities throughout the 14 municipalities of Holguin.

For further information visit the ISDR website at: www.unisdr.org/wdrc-2006-2007

Students lead a school relocation, Philippines

In the Philippines, the Mines and Geosciences Bureau conducted a risk assessment of landslides for the Southern Leyte region in 2006, determining that, within the Municipality of San Francisco, eight districts (or "barangay") were at high risk. These included Santa Paz Sur and Santa Paz Norte, which housed a high school and an elementary school, respectively. Actions by the students brought about a prompt relocation of the high school, highlighting the power of children as drivers for change.

Following debates about whether and how to relocate the high school, the headmaster opened the decision to a community-wide referendum which included a vote each for the school's students. Broadly the students were in favour of the relocation and their parents against it, because the parents were concerned about both their children having to travel further to school and the loss of livelihoods associated with a school relocation (e.g. loss of lunch business for local shops). In addition, different political affiliations of the leadership in the two barangay led to confusion over the exact risk to the schools. Student organizations in the high school embarked on an education campaign about the physical processes of landslides, and a great many students wrote to the Division Superintendent expressing their desire to relocate. The students' actions led them to win the vote, 101 to 49.

The students and their parents helped construct a temporary tent school over one weekend. The tents, water supply and toilets were provided by the international development agency Plan Philippines, along with a scholarship programme helping poorer students with uniforms and schools supplies. The children reported feelings of excitement about the whole process and did not express any regret about the decision to move, though they did report some difficult conditions in the temporary school. A permanent new school is now being constructed nearby, with co-financing from Plan Philippines. The permanent school will include earthquake mitigation measures such as steel ties on the roof. Toilets are also being built in each classroom in preparation for its use as an evacuation shelter.

For further information visit Plan International website at: www.plan-international.org/

3.2 Include disaster risk reduction in the education system and the research community HFA

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Websites

"Expect the Unexpected™"- www.redcross.ca/article.asp?id=002627&tid=015

This Red Cross programme provides a variety of teaching and communication aids for teachers or educators, students and their parents, including facilitator's guides, transparencies, activity booklets, briefing notes for parents, videos, posters and participation certificates for students. It features lesson plans and activities focused on prevention that are consistent with the objectives of educational programmes of provincial and territorial departments of education. The programme consists of three modules. The module "It can happen, be ready" is intended for 7-8 year old students. The module "Facing the unexpected, be prepared" is intended for 10-11 year-old students. The module "Be ready, be safe" is intended for 12-13 year-old students. Each teaches young people how to act safely in case of hazard events and helps them deal with emergencies.

"Let's learn to prevent disasters!" - www.unisdr.org/wdrc-2004

The ISDR secretariat and the United Nations Children's Fund (UNICEF) have together produced this educational kit for children. It includes the board game "Riskland", whereby players learn about what they can do to reduce disaster impacts by answering questions and advancing along the board's winding path. The kit and game may be adapted according to the different hazards communities face and can be translated into local languages. To date, the kit is available in English, Haitian Creole, Maya Kackchiquel, Nepali, Portuguese and Spanish, with translations into over 15 other languages currently underway.

"Stop Disaster" - www.stopdisastersgame.org

Stop Disaster is an electronic game available online to teach children how to save lives and livelihoods. The ISDR secretariat developed this game to help teach children how to build safer villages and cities in the face of disaster risk.

Selected networks

Consortium of Universities for Research in Earthquake Engineering (CUREE) www.unisdr.org/wdrc-2006-2007 Madras University

CUREE is a non-profit organization devoted to the advancement of earthquake engineering research, education and implementation.

Global Fire Monitoring Center (GFMC): Community Based Fire Management (CBFiM) - www.fire.uni-freiburg.de/Manag/CBFiM.htm

CBiFM is land and forest management in which a locally resident community is substantially involved in deciding the objectives and practices associated with the prevention, control and use of fire. The GFMC CBFiM web portal provides access to CBFiM principles, case studies and lessons learned throughout the world.

International Council for Science (ICSU) - www.icsu.org/index.php

ISCU is a NGO representing a global membership that includes 111 national scientific bodies and 29 international scientific unions. It provides a forum for discussion both of issues relevant to policy for international science and of the importance of international science for policy issues.

Kyoto University - www.kyoto-u.ac.jp/english/euni_int/e01_camp/foreign.htm

Kyoto University engages in joint research with many universities overseas and is also building its own overseas research facilities.

START - System for Analysis, Research and Training on global change - www.start.org/index.html

START fosters regional networks of collaborating scientists and institutions in developing countries to conduct research on regional aspects of environmental change, assess impacts and vulnerabilities to such changes, and provide information to policymakers. It also provides a wide variety of training and career development opportunities for young scientists.

United Nations University (UNU) Networks - http://unu.edu/networking/index.htm

UNU Networks offers an overview of several UNU-connected academic networks.

3.3 Develop disaster risk reduction training for key sectors

A. Understanding the task

What's the purpose of this task?

This task focuses on developing training initiatives for specific sectors that will equip policymakers, development practitioners and disaster managers with knowledge and skills to integrate disaster risk reduction into development and other relevant sectors.

Why it's important

Disaster risk reduction training builds risk reduction into individuals' professional and work lives, helping them become better able to secure their safety, as well as the safety of their families and communities. Formal training programmes systematically integrate disaster risk reduction into key development sectors. Training activities also provide opportunities to consider indigenous knowledge, traditional practices, gender-related concerns and other cultural perspectives in risk reduction.

How it relates to other priority tasks

The task of developing training initiatives to integrate disaster risk reduction into a country's development builds on efforts to raise disaster risk reduction awareness (Task 3.1). It complements a focus on education for schools and universities (Task 3.2).

Terminology

Capacity-building: Efforts aimed to develop human skills or societal infrastructure within a community or organization needed to reduce the level of risk. Capacity-building also includes development of institutional, financial, political and other resources, such as technology at different levels and sectors of the society. *(Source: UN/ISDR Terminology)*

B. How to do it

Recommended steps

1. Identify key sectors to be involved in training, based on disaster reduction needs at national and local levels.
2. Identify women's and community groups, and professional associations or trade organizations that could contribute to or benefit from training.
3. Identify, strengthen or develop standards or other systems for professional certification and/or licensing that can promote sustained disaster risk reduction knowledge and skills.
4. Develop, strengthen and invest in continuing national training programmes and centres, as well as professional courses, seminars and workshops.
5. Produce training materials locally, by consulting with women and community groups to identify gaps and local resources for gender-sensitive disaster risk reduction training. Develop gender and context-specific training modules and make these widely available.
6. Identify or establish an information facility to compile, exchange and expand information about available professional training for disaster risk reduction.

Questions to ask

In developing the training initiatives, ask:

- What incentives could be provided through educational and training opportunities to ensure continued and sustained involvement from individuals? Are there certification schemes, conferences, seminars and networking opportunities?
- Are there local educational centres or professional facilities that can host and promote disaster risk reduction training to encourage expanded ownership?
- Are there provisions for adequate follow-up to seminars and training workshops to ensure that knowledge and skills acquired are used, and not forgotten?
- Is training provided at accessible locations and convenient locales and times?
- Are both women and men involved as trainers in disaster risk reduction?

C. Responsibilities and resources

Who should be involved?

- Practitioners from the training's target group.
- Instructor and trainers.
- Disaster management officials.
- Gender, development and disaster experts.

What conditions facilitate the task?

- Executive and organizational support.
- Human, financial and material resources to create new training initiatives and to sustain existing ones with support and appropriate equipment.
- In-country capacity to design and conduct training.

D. Illustrations

National capacity-building training for engineers and architects in earthquake risk management, India

Civil engineering and architectural courses in Indian universities have added more and more formal instruction in earthquake-resistant construction technology to their curricula. However, this technology is now required under municipalities' building by-laws across the country for all new construction and for work to strengthen existing structures. As a result, India faced the challenging problem of how to upgrade the skills of practising engineers and architects within and outside the Government.

To overcome this problem, India has involved all state Governments and its prominent engineering and architectural colleges in an expanded capacity-building exercise. It has launched two national programmes, one for engineers and the other for architects. The National Programme for Capacity-Building for Engineers is

designed to equip 10 National Resource Institutes to train 420 trainer-engineers. The training takes place over 6 weeks/180 hours at state resource institutes. These trainer-engineers would in turn train 10,000 engineers throughout the country. Similarly, under the National Programme for Capacity-Building for Architects in Earthquake Risk Management, 250 trainer-architects will be trained to provide further training for 10,000 architects.

For further information visit: www.ndmindia.nic.in/EQProjects/NPCBAERM.pdf, and www.ndmindia.nic.in/EQProjects/NPCBEERM.pdf

Ümraniye women's outreach community disaster preparedness project, Turkey

This outreach project involved teaching women in the district of Ümraniye, Turkey, to deliver disaster preparedness training to the larger community. It was conducted by the Kandilli Observatory and the Earthquake Research Institute, Bosphorus University, Istanbul, with financial support from the Caritas and Cordaid NGOs. Project coordinators selected and trained 10 local women to deliver basic disaster preparedness skills to other community members. The trainers individually trained 1015 households. Furthermore, they conducted 84 group meetings in public health centres, schools, associations of people with disabilities, conference halls, arts and crafts seminars, and in the evenings in locations where neighbours meet informally.

The project had an impressive impact. Four to eight weeks after its completion, project coordinators conducted a telephone follow-up assessment. It showed substantial increases in risk awareness among households that received the training, and favourable adoption rates of actual adjustments to behaviour (such as storing survival provisions or taking steps for physical protection). Additionally, the women who acted as trainers were empowered by their systematic learning, and enjoyed being able to make a difference in their neighbourhoods.

For further information visit: www.proventionconsortium.org/themes/default/pdfs/CRA/Turkey.pdf

Other examples of training programmes, Nepal and India

1. Nepal: The Kathmandu Valley Earthquake Risk Management Project, implemented by the National Society for Earthquake Technology in Nepal, provided summer training on safe construction to more than 100 engineering students, supplementing their regular curriculum. The students conducted building inventories and vulnerability analyses.

   For further information see: Bothara, Jitendra Kumar, and R. Guragain, A. Dixit, National Society for Earthquake Technology-Nepal, Protection of Educational Buildings Against Earthquake Brochure, 2002.

2. India: The Mason Association is a federation of masons and artisans who work in the informal construction sector. With support from the Sustainable Environment and Ecological Development Society (SEEDS), it offers training that teaches good construction practices, including disaster risk reduction techniques. The programme also trains its members for a certification examination conducted by the Government of Gujarat. The programme allows masons to stay up to date on new materials and professional tools, as well as on job opportunities in the area.

   For further information see: SEEDS India, SEEDS Mason Association, Mason Training Programme Brochure, 2004.

3. India: Since 2001, the All India Disaster Mitigation Institute has trained over 400 teachers and administrators on different aspects of school preparedness and student safety. The training is conducted with the Gujarat State Council on Science and Technology. Trainings focus on informing teachers and

administrators about risks to schools in disaster-prone areas of India. It also helps them to develop emergency preparedness plans and to secure insurance against disaster-induced losses.

For further information see: AIDMI. 2007. Right to Safer Schools Campaign, Brochure.

Nationwide training in civil defence for teenagers, Ecuador

In Ecuador, school instruction on disasters began in the 1980s and accelerated in the 1990s. Teaching focuses on "civil defence", or preparation for and response to disasters, for students aged 14-18. Students in their final year of high school take a 200-hour course on the subject.

To support this disaster instruction, the training department of the national office for civil defence and the Ministry of Education cooperate closely. Civil defence has prepared a training programme on how teachers and students should act in case of emergency for both earthquakes and volcanic eruption. These programmes were helpful during recent active periods of Pichincha and Reventador volcanoes. Provincial-level civil defence offices and local fire departments provide additional assistance.

For further information see: Let Our Children Teach Us! A Review of the Role of Education and Knowledge in Disaster Risk Reduction www.unisdr.org/let-our-children-teach-us

E. Further reading

Briceno, S. 2003. "The International Strategy for Disaster Reduction and Sustainable Development: Public awareness, Education and Capacity-Building for the Future". In Regional Development Dialogue, Vol. 24, No. 1, pp. 79-85. www.unisdr.org/the-ISDR-and-sustainable-development

Dixit, A., Bothara, J.K. and Guragain, R. 2002. Protection of Educational Buildings Against Earthquake: A Manual for Designers and Builders. Prepared by the National Society for Earthquake Technology-Nepal. Kathmandu, Nepal: Office of U.S. Foreign Disaster Assistance, USAID and UNESCO. www.unesco.org/kathmandu/documentation/kathmanduPublication.php

Gulkan, P. 2000. "What Emerged from the Rubble". Washington DC: ProVention Consortium, World Bank.

Essay on seismic hazard parameters for Northwestern Turkey.

IFRC. 2001. Improving Basic Training Skills. www.ifrc.org/what/disasters/dp/manual.asp

The International Federation of Red Cross and Red Crescent Societies (IFRC) developed disaster preparedness training manual which includes nine modules.

Marks, C. 2006. Reducing Risk: Learning from the Community. Experience Learning Series no. 34. www.southasiadisasters.net/publi%20els%20list.htm

UNCRD. 2004. Sustainable Community Based Disaster Management Practices in Asia: A Users Guide. Edited by R. Shaw and K. Okazaki. Kobe, Japan: United Nations Centre for Regional Development (UNCRD). www.adpc.net/pdrsea/pubs/uncrd-cbdrm-guide.pdf

Von Kotze, A. and Holloway, A. 1996. Reducing risk: participatory learning activities for disaster mitigation in Southern Africa. Natal: International Federation of Red Cross and Red Crescent Societies Department of Adult and Community Education, University of Natal. www.ifrc.org/publicat/catalog/autogen/3386.asp

3.3 Develop disaster risk reduction training for key sectors

HFA

Websites

Capacity Development for Disaster Reduction Initiative (CADRI) - www.unisdr.org

In 2007 the United Nations Disaster Management Training Programme will be transformed into a new initiative to focus on developing support for capacity-building - support such as capacity assessments, curriculum development and support for training institutions. This new initiative is co-sponsored by ISDR, the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) and UNDP, and is called CADRI.

United Nations Disaster Management Training Programme (DMTP) - www.undmtp.org/modules_e.htm

DMTP has developed a wide range of training modules on general disaster management, disaster preparedness, disaster response, disaster risk reduction and conflict mitigation.

United Nations Institute for Training and Research Operational Satellite Applications Programme (UNOSAT) - http://unosat.web.cern.ch/unosat/

This programme develops capacity-building projects and on-the-job training curricula on the use of satellite imagery and geographic information system for disaster reduction at both local and national level.

United States Federal Emergency Management Agency (FEMA) - www.training.fema.gov/EMIWeb/

FEMA has developed a variety of training modules.

The World Bank Institute - web.worldbank.org/WBSITE/EXTERNAL/WBI/0,,contentMDK:20100808~menuPK:204777~pagePK:209023~piPK:207535~theSitePK:213799,00.html

The World Bank Institute has a disaster risk management on-line educational programme consisting of five courses offered in English, French and Spanish. These include Comprehensive Disaster Risk Management Framework, Safe Cities, Damage and Reconstruction Needs Assessment and, in cooperation with the Environmental Planning Collaborative, Community-Based Disaster Risk Management and Financial Strategies for Managing the Economic Impacts of Natural Disasters.

3.4 Enhance the compilation, dissemination and use of disaster risk reduction information

A. Understanding the task

What is the purpose of this task?

This task aims to improve the identification, compilation and dissemination of information and knowledge about natural hazards, disaster management and risk reduction issues for use by governments, communities, organizations and practitioners.

Why it is important

Information is essential for effective decision-making and action. Given the modern-day abundance of existing information, there is a pressing need to identify and synthesize that information to enable easy access and its use by people concerned with disaster risks. Existing information is frequently scattered geographically, fragmented professionally and underused. This limits the development and effectiveness of cross-sectoral involvement in disaster reduction and further excludes isolated communities from necessary knowledge.

How it relates to other priority tasks

This task builds on targeted activities to strengthen communication of disaster risk information and early warnings to the public (Task 2.4).

B. How to do it

Recommended steps

1. Develop a comprehensive information management programme, including the identification of unmet needs for information among various audiences for disaster risk reduction.
2. Identify and ensure the engagement of key actors from government, private sector, civil society and academic disciplines in the collection, synthesis, dissemination and use of available information.
3. Create a detailed inventory of existing information that can and should be made public.
4. Ensure that the preparation, collection, utilization and analysis of information are as gender-sensitive as possible, and support the generation, collection and utilization of gender-sensitive information.
5. Evaluate appropriate means to provide information required by defined audiences.
6. Foster exchange of information by building upon existing multidisciplinary partnerships.
7. Identify or strengthen existing national and local information centres for disaster risk reduction, drawing on the benefits of neighbouring or regional information management facilities.

3.4 Enhance the compilation, dissemination and use of disaster risk reduction information

Questions to ask

- What are the primary information resources available at national and local levels and in what format are they available?
- Is instructional material easily and freely accessible to people in the communities that are most at risk?
- Can existing information products (databases, websites, etc.) be expanded or improved to disseminate information more widely and effectively?
- Is information available in relevant languages, and is it sensitive to relevant cultural and educational backgrounds, as well as age groups, gender and abilities?
- Is there a policy ensuring the consistent use of a standard terminology for disaster and risk reduction information, to ensure that such information can be understood by all stakeholders?
- Are personal means of communication - such as text messages, telephones or faxes - and daily contacts or local community facilities being used to disseminate disaster risk reduction information?

C. Responsibilities and resources

Who should be involved?

- Government at all levels.
- Community groups, including women's networks.
- Private sector, with particular attention directed towards involving the media.
- Academic institutions and university research centres.
- Research-based and policymaking organizations.

What are the conditions that facilitate the task?

- A clear understanding of relevant information and intended purpose.
- Willingness on the part of stakeholders to share information.
- Sufficient and proper technology to collect and disseminate data and information.
- Necessary technical abilities and capacities to use information.

D. Illustrations

Regional programme for disseminating disaster risk reduction information, Africa

The University Network for Disaster Risk Reduction in Africa (UNeDRA) promotes information sharing, capacity-building and collaborative research amongst African universities that teach about disaster risk reduction. UNeDRA was initiated during a workshop in Kampala, Uganda, in September 2005. It is coordinated by four organizations: the Disaster Management Training Centre, University College of Lands and Architectural Studies, Tanzania; the Regional Centre for Mapping of Resources for Development, Nairobi, Kenya; the Makerere

University, Kampala, Uganda; and the International Institute for Geo-Information Science and Earth Observation, Enschede, The Netherlands.

UNeDRA provides several services. It is working to create an inter-university geo-information network data centre, as well as a database on disasters for sub-Saharan Africa. It offers practical, short courses for lecturers, technicians and students on tools such as hazards mapping. In addition, it seeks to coordinate regular knowledge and data exchange through annual meetings. Finally, it is establishing a web community where ideas can be posted for research, future network activities, training opportunities and workshops.

For further information visit the University Network for Disaster Risk Reduction in Africa website at: www.itc.nl/unu/dgim/unedra/default.asp

Disseminating information to stimulate community-based disaster management, Afghanistan

Afghanistan frequently experiences disasters stemming from earthquakes, floods, sandstorms and extreme winter weather. The response and recovery processes are made more difficult by the country's low overall capacity, diminished by more than two decades of war and internal conflict. School children suffer from both disasters and post-conflict hardships. School buildings are weak, old and poorly maintained. Infrastructure is very poor and there are few resources in the local administrations to improve conditions. Most crucially, knowledge resources about mitigation and preparedness are extremely scarce.

In 2003, national and international organizations joined forces to address these conditions. A NGO called the Sustainable Environment and Ecological Development Society (SEEDS) collaborated with the national Department of Disaster Preparedness and the United Nations Assistance Mission in Afghanistan to produce a national disaster management plan for Afghanistan. The following year SEEDS worked with these same organizations to disseminate a national plan specifically for community-based disaster management.

Dissemination activities to increase community-based disaster management included awareness and capacity-building within line ministries, state and district governments. The plan also contained a component focusing on schools, which are viewed as the critical link between government plans and the implementation of community initiatives. As part of this component, SEEDS prepared a range of educational material on school safety.

For further information visit ISDR website at: www.unisdr.org/wdrc-2006-2007

An institutional model for sustaining learning, India

The Learning Resources initiative of the All India Disaster Mitigation Institute is an institutional example of how a Southern NGO can foster and expand learning about risk reduction. Learning Resources also promotes original research through publications, evaluations, reviews and networking of stakeholders. Publications are developed monthly in three languages - Gujarati, Hindi and English. Learning Resources conducts evaluations of relief activities conducted by foreign organizations in order to support better accountability to communities. It has hosted over 59 students and professionals from 19 different countries, to encourage young people to take an interest in reducing disaster risk in developing countries.

For further information visit: AIDMI (2007): Disaster Risk Reduction. www.southasiadisasters.net.

3.4 Enhance the compilation, dissemination and use of disaster risk reduction information HFA

Distributing information by radio throughout Central America and the Caribbean

Several initiatives in Central America and the Caribbean have effectively distributed disaster risk reduction information through creative use of the medium of radio.

In 2001, three international organizations jointly produced a number of radio soap opera episodes for distribution among local communities at risk. The soap operas proved especially useful before and during heavy rain and hurricane seasons. The stories were produced with humour, involving everyday issues that would catch and hold audience attention. They were then able to promote hazard awareness, preparedness and mitigation, and make the perspectives and voices of women an important dimension. The soap operas were developed by ISDR, the Pan American Health Organization and the International Organization for Migration for use in Central America, and expanded with assistance from the Association of Caribbean States. The programs are available in Spanish only.

For further information visit: www.crid.or.cr/crid/CD_EIRD_Informa/ing/No3_2001/Pagina18.htm

Based on the success of this initial project, organizations developed a similar radio soap opera to reach vulnerable communities in the English-speaking Caribbean. The Rough Season is comprised of 10 15-minute episodes that depict commonly encountered situations in the region. The Rough Season was produced by the International Federation of Red Cross and Red Crescent Societies, the Association of Caribbean States, ISDR and the Pan American Health Organization.

For further information visit: www.acs-aec.org/Disasters/RoughSeason/TheRoughSeasonCD_En.htm. To preview: www.eird.org/eng/educacion/radionovela-caribe/radionovela-caribe-ing.htm.

In a different manner, the Feminist International Radio Endeavour, the first women's Internet radio programme, also has distributed information about disaster relief and recovery. The Feminist radio programme both joined and documented the October 2005 "Women-to-Women with Affected Communities" campaign, which channelled aid to women and their communities in parts of Guatemala affected by Hurricane Stan and other disasters.

For further information visit the website to learn more about the campaign, view photos, and listen to analysis and personal narrative in Spanish with English transcripts provided.

www.radiofeminista.net/oct05/camp_guate/camp_guate-ing.htm; Spanish: www.radiofeminista.net/oct05/camp_guate/campana_comunicadoras.htm

E. Further reading

Websites

Natural Hazards Center Colorado - www.colorado.edu/hazards/

The Natural Hazards Center advances and communicates knowledge on hazards mitigation and disaster preparedness, response and recovery through fostering information sharing and integration of activities among researchers, practitioners and policymakers from around the world. It also supports and conducts research, and provides educational opportunities for the next generation of hazards scholars and professionals.

PreventionWeb - www.preventionweb.net/

The ISDR secretariat is developing PreventionWeb, a global information platform for disaster risk reduction, to: facilitate the work of disaster risk reduction professionals through the dissemination of relevant information; provide a common platform for institutions to get connected; exchange experiences and share information on disaster risk reduction; and establish an environment which will encourage the creation and sharing of disaster risk reduction knowledge. It will also facilitate the understanding of disaster risk reduction by non-professionals.

ProVention Consortium - www.proventionconsortium.org

The ProVention Consortium website contains valuable tools and documentation on disaster risk reduction, including documents and articles relating to assessment techniques, international standards for assistance, vulnerability and risk reduction strategies. The site also highlights good practices and risk management methods. Both academic and more general publications are maintained and can be downloaded.

Regional Disaster Information Center (CRID) -
www.crid.or.cr/crid/ing/busqueda_documentos_electronicos_ing.html

The virtual library of CRID provides free access to over 10,900 electronic documents. CRID is an initiative sponsored by six organizations that decided to join efforts to ensure the compilation and dissemination of disaster-related information in Latin America and the Caribbean. These organizations are: the Pan American Health Organization - Regional Office of the World Health Organization, ISDR, the Costa Rica National Risk Prevention and Emergency Commission, the International Federation of Red Cross and Red Crescent Societies, the Coordination Center for Natural Disaster Prevention in Central America, and the regional office of Doctors Without Borders.

Relief Web - www.reliefweb.int.

Launched in 1996 by the United States State Department, the United States Agency for International Development and the United Nations, ReliefWeb was developed to speed the sharing of disaster information. An online repository of news sources, as well as a disaster management-related search engine, it acted as a stimulus for crisis management organizations and NGOs to post disaster information on a common platform.

Chapter 4

Reducing the risks in key sectors

Hyogo Framework for Action Priority 4
Reduce the underlying risk factors.

Implementing Priority 4 requires encouraging the sustainable use and management of ecosystems, land use and natural resources, and integrating disaster risk reduction strategies and climate change. It calls for promoting food security for resilience, integrating disaster risk reduction planning into the health sector and promoting safe hospitals. Protecting critical public facilities and implementing recovery schemes and social safety nets is also necessary. In addition, Priority 4 involves promoting income diversification options, promoting financial risk-sharing mechanisms and establishing public-private partnerships. Finally, it requires integrating disaster risk considerations in land-use planning and building codes, and incorporating disaster risk assessment in rural development plans.

States can undertake a number of tasks to implement Priority 4. This chapter recommends the following tasks:

4.1. Environment: Incorporate disaster risk reduction in environmental and natural resources management.

4.2. Social needs: Establish mechanisms for increasing the resilience of the poor and most vulnerable.

4.3. Physical planning: Establish measures to incorporate disaster risk reduction in urban and land-use planning.

4.4. Structures: Strengthen mechanisms for improved building safety and protection of critical facilities.

4.5. Stimulate disaster risk reduction activities in production and service sectors.

4.6. Financial/economic instruments: Create opportunities for private-sector involvement in disaster risk reduction.

4.7. Disaster recovery: Develop a recovery planning process that incorporates disaster risk reduction.

The following indicators are suggested as possible means for assessing progress in implementing this priority:

- Environmental protection, natural resource management and climate change policies include disaster risk reduction elements.
- Specific policies and plans are being implemented to reduce the vulnerability of impoverished groups.
- Land-use development zoning and plans and building codes exist and include disaster risk related elements which are rigorously enforced.
- A long-term national programme is in place to protect schools, health facilities and critical infrastructure from common natural hazard events.
- A procedure is in place to assess the disaster risk implications of major infrastructure project proposals.

4.1 Environment: Incorporate disaster risk reduction in environmental and natural resources management

A. Understanding the task

What's the purpose of this task?

This task seeks to develop a strategy, as well as specific programmes, to reduce risk from unsustainable natural resource use while protecting the environment.

Why it's important

A healthy environment enhances society's disaster resilience in two ways: it reduces the impact of natural and human-induced disasters and it naturally mitigates against hazard events. Conversely, environmental degradation increases disaster risk from landslides, tsunamis, floods, droughts, climate change impacts and other hazards. Reducing disaster risk and protecting the environment are complementary, and often identical, practices.

Integrating disaster risk reduction and environmental management creates many synergies. It reduces the cost of implementing parallel programmes and activities by eliminating duplicative efforts. It attracts funding by producing more benefits, in total, from each planned activity. It increases visibility for both causes, linking each to a larger number of politically important issues (such as climate change or a major disaster). It advances understanding by sharing information from each field, allowing practitioners, for instance, to learn from each other's strategies to promote financial and political commitment. International finance institutions (e.g. the World Bank) and United Nations agencies increasingly recognize the importance of linking disaster risk reduction with environmental and natural resources protection, as well as with adaptation measures to climate change, and are beginning to integrate these into their funding strategies.

How it relates to other priority tasks

Sound environmental management is linked to all areas of disaster risk reduction: disaster reduction dialogues or national platforms should include environmental managers (Tasks 1.1 and 1.2). Disaster reduction legislation, plans and programmes should integrate environmental management (Tasks 1.3 and 1.4). Hazard identification and vulnerability assessment

Terminology

Ecosystem: A complex set of relationships of living organisms functioning as a unit and interacting with their physical environment. The boundaries of what could be called an ecosystem are somewhat arbitrary, depending on the focus of interest or study. Thus the extent of an ecosystem may range from very small spatial scales to, ultimately, the entire Earth. *(Source: UN/ISDR Terminology)*

Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other non-material benefits. *(Source: Hassan, Scholes and Ash 2005)*

Environmental degradation: The reduction of the capacity of the environment to meet social and ecological objectives and needs. Potential effects are varied and may contribute to an increase in vulnerability and the frequency and intensity of natural hazards. Some examples: land degradation, deforestation, desertification, wildland fires, loss of biodiversity, land, water and air pollution, climate change, sea-level rise and ozone depletion. *(Source: UN/ISDR Terminology)*

Environmental impact assessment: Studies undertaken in order to assess the effect on a specified environment of the introduction of any new factor, which may upset the current ecological balance. Environmental impact assessment (EIA) is a policymaking tool that serves to provide evidence and analysis of environmental impacts of activities from conception to decision-making. It is utilized extensively in national programming and for international development assistance projects. An EIA must include a detailed risk assessment and provide alternative solutions or options. *(Source: UN/ISDR Terminology)*

4.1 Environment: Incorporate disaster risk reduction in environmental and natural resources management

(Tasks 2.1 and 2.2) should be integrated with environmental impact assessment. Education curricula and campaigns to raise disaster risk reduction awareness should promote sustainable environmental practices (Chapter 3). Similarly, training developed for this task should be coordinated with larger disaster risk reduction training initiatives (Task 3.3). Urban and land-use planning should protect critical ecosystems (Task 4.3). Recovery efforts should ensure environmental protection (Task 4.7).

B. How to do it

Recommended steps

To integrate disaster risk reduction into environmental management:

1. Form a task force. The task force should include representatives of:
   - The ministry of environment/natural resources (or other similar bodies).
   - The main environmental groups active nationally.
   - Experts on reducing risk, particularly from hydro-meteorological hazards.
   - Grassroots organizations for communities, women and indigenous populations.
   - The national disaster risk reduction platform, including its climate change, biodiversity, and desertification focal points.
2. Establish or strengthen mechanisms to systematically bring together practitioners in disaster risk reduction (e.g. national platform members) and representatives from environmental networks.
3. Create a plan to collaborate on existing environmental and disaster risk reduction activities and programmes. Start by identifying areas of overlap and synergy. Such areas could include, for instance, programmes to prevent drought, desertification, flood and for the protection of freshwater resources, coastal reefs, wetlands, dryland and forest ecosystems.
4. Develop a data exchange strategy to meet reporting requirements under national, bilateral, regional and international law and agreements. Relevant agreements could include the conventions on biodiversity, climate change and desertification as well as the HFA).
5. Institutionalize a mechanism for carrying out joint assessments that integrate disaster risk reduction and environmental protection parameters. An example would be integrated risk-and-environmental-impact assessments.
6. Implement joint training to promote risk reduction and sustainable environmental practice. Such training could teach, for example, identification of "green-engineering" alternatives to reduce risk. Green engineering involves combining environmentally sensitive technology and environmentally conscious principles with science, technology and engineering practice. Training also could address disaster risk reduction practices that can help communities adapt to climate change.
7. Jointly seek funding and develop activities, projects and programmes that simultaneously reduce risk and maintain ecosystem services. Examples include projects to reduce vulnerability to drought and climate change through resistant-seed dissemination.
8. Draft a strategy document outlining the agreed areas of joint work, highlighting how the strategy furthers both environmental and risk reduction agendas. Distribute and promote the plan, and institutionalize processes to support it.

Environment: Incorporate disaster risk reduction in environmental and natural resources management 4.1

9. Involve disaster risk reduction practitioners in processes for organizing National Adaptation Programmes of Action (NAPAs) and for reporting on implementation of the 1992 Rio conventions. NAPAs provide a process for least-developed countries to identify priority activities that respond to their most pressing needs to adapt to climate change[7]. The 1992 Rio conventions are three international treaties on climate change, biodiversity and desertification[8].

Questions to ask

To identify areas of synergy for disaster risk reduction and environmental management, ask:

- Which ecosystem services are threatened in the country? Which populations depend on these services for their livelihoods? Ecosystem services can be, for instance, those benefits provided by vegetation, which include soil formation, regulation of water flows and water quality, and air purification.
- Do plans, projects and programmes to protect ecosystem services consider risk reduction measures and favour green engineering? Do they recognize and promote indigenous practices that protect the environment?
- Do land-use and other development projects require an environmental impact assessment? Does the assessment include disaster risk reduction parameters?
- Does planning for disaster risk reduction and environmental management consider the future impacts of climate change?

Some examples of resource management measures to reduce risks

Protecting soils from erosion and eventual desertification through sustainable farming and ranching also helps to reduce people's vulnerability to drought and flood. Maintaining and replanting mangroves can protect coastal populations and their livelihoods from storms and tsunamis. Maintaining watersheds by avoiding deforestation and diversion of waterways protects water quality and quantity, as well as preserving livelihoods dependent on fisheries. Risk reduction measures, such as appropriate construction to withstand storm and flood, can also help communities in adapting to climate change.

C. Responsibilities and resources

Who should be involved?

The task force should include representatives of:

- Environmental regulatory and planning agencies, including those in charge of implementing multilateral environmental agreements on climate change and other global environmental issues.
- Environmental and disaster risk management practitioners.
- Local governments and institutions.
- Community and women's groups working on environmental protection and natural resources management.
- Indigenous populations.

7 See http://unfccc.int/national_reports/napa/items/2719.php

8 These treaties were showcased at the United Nations Conference on Environment and Development in 1992 in Rio de Janeiro, Brazil - a conference popularly known at the "Rio Earth Summit". The Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), and the United Nations Convention to Combat Desertification (UNCCD) have been known ever since as the Rio Conventions. http://unfccc.int/national_reports/items/1408.php; for CBD, www.biodiv.org/reports/default.aspx; for UNCCD www.unccd.int/cop/reports/menu.php

4.1 Environment: Incorporate disaster risk reduction in environmental and natural resources management

- Existing disaster risk reduction and environmental networks, including working groups on relevant topics such as climate change, biodiversity and water resources management.

What conditions facilitate the task?

- A mandate for collaboration between disaster risk reduction and environmental agencies.
- Support from leaders, as well as funding and organizational support.
- Existence of consultative and coordinating bodies that meet regularly on environmental challenges, including risk reduction.
- A well-informed task force, knowledgeable about environmental and resources management programmes and government obligations in these areas, as well as about regulation and its implementation in various sectors.
- Consideration in all sectors of climate change issues.

D. Illustrations

Combining disaster risk reduction with environmental management, Viet Nam

In recent years, the Thai Binh branch of the Viet Nam Red Cross has undertaken a multi-purpose environmental restoration project to address issues affecting the coastal population of the Thai Thuy district, Thai Binh province. Eight to ten typhoon storms strike the coast of Vietnam annually. The resulting tidal floods often breach sea dikes in Thai Thuy, causing economic losses to the local population.

The restoration project created 2,000 hectares of mangrove plantations, which serve three important purposes. First, the recreation of native mangrove habitat helps to sustain Viet Nam's rich coastal biodiversity. Second, the trees act as a buffer zone in front of the sea dike system, reducing the water velocity, wave strength and wind energy. This helps protect coastal land, human life and assets invested in development. Third, the plantations contribute to the production of valuable exports such as shrimp and crabs, high-value species of marine fish, molluscs and seaweed for agar and alginate extraction. This contribution offers new employment opportunities to help what was a poor population to improve their livelihoods.

All members of the community benefit as their homes, livestock and agricultural land are better protected from the risk of flooding. Poor families, with little money to repair or replace material losses from storm damage, are the greatest potential beneficiaries. The project area was struck by the worst typhoon in a decade two months before the project evaluation. Lack of any significant damage to the sea dike and aquaculture pond systems in Thai Thuy provided the best possible indicator of the mangroves' effectiveness.

For further information see: www.unisdr.org/wcdr/thematic-sessions/presentations/session3-9/ifrcrcs-vietnam.pdf

Reducing disaster risk through adaptation to climate change

Studies predict that climate change will continue to increase the frequency and intensity of severe weather in many parts of the world, expanding many countries' and communities' exposure to hazards. This increased exposure poses its own environmental and natural resource challenges. Innovative communities are adapting successfully to these challenges in a variety of ways, as the two case studies below illustrate.

(a) Raising ducks during the monsoon, Bangladesh

Raising ducks has become an important livelihood option for the flood-affected people of Bangladesh. During the monsoon, when agricultural lands are damaged, people of the south-western coastal region can no longer maintain their traditional flocks of chickens. Rain floods the land, leaving no space for poultry, and also floods the fodder, so residents cannot feed them. In response, residents have resorted to raising ducks, either in cages or in common water bodies such as ponds. Small ducklings are bought and then raised in the water bodies. The ducklings are either fed with supplementary feed, or feed themselves off fish and insects in the ponds. The mature ducks or eggs are either consumed by the family or sold on the market.

For further information visit: ITDG-B. 2003. An Attempt on Application of Alternative Strategies for Community Based Flood Preparedness in South-Asia, Bangladesh. www.unisdr.org/wdrc-2003

(b) Domesticating indigenous varieties of cereals and fruit trees, Arunachal Pradesh, India

The Adi Tribe of Arunachal Pradesh, East India has developed an impressive ability to diversify crops in its risk-prone agroecosystems. The tribe is conserving more than 80 indigenous varieties of cereals (mainly paddy and millet crops), pulses, oil seeds, vegetables and spices through a shifting cultivation system. The crops are grown and held locally, and then used to fulfil the various needs of local farmers. Besides conserving agricultural biodiversity, this system serves as buffer during crop failures.

In addition, the Adi people have conserved many local fruits for use. This conservation has been driven by location-specific demand, culture, economy, ethnicity and overall needs. Indigenous fruit varieties include the wild fig, Jamun, litchi, Rambutan, and tamarind. These fruits are either collected by women from the forest areas, or harvested from the indigenous kitchen gardens. Domesticated, the fruit are sold by at the local market, providing for the women a major source of income. The women have also domesticated many local plant varieties to ensure food security.

For further information contact Dr. Ranjay K. Singh, ranjay_jbp@rediffmail.com

Coastal zone management plan, India

Storms, cyclones, tidal surges, and flooding are some of the natural hazards that bring about large-scale destruction of life, property and natural resources in the coastal regions of India every year. These catastrophic events cause the sea level to rise to abnormal heights, resulting in severe erosion.

In 1991 the government of India issued a regulation, entitled the Coastal Regulation Zone Notification, to manage human activities in areas 500 m from the high tide line along coastal stretches of the country. The regulation sought to protect this "coastal zone" from becoming degraded due to unplanned and/or excessive development. Such development results in pollution and the eventual destruction of this highly prized, fragile and irreplaceable natural resource. Thirteen state and "territorial authorities, as well as a National Coastal Zone Management Authority, were constituted to monitor and implement the regulation's provisions.

Based on the experience gained over 15 years, the original coastal zone regulation has now been replaced by the Coastal Zone Management Notification, 2007. The transition from old to new regulation represents a paradigm shift from centralized regulation to a decentralized management of coastal zones, performed with active involvement from local communities. This new regulation emphasizes "sustainable coastal zone management" - protection and sustainable development of the coastal stretches and marine environment. Such management is based on sound, scientific principles. It takes into account the vulnerability of the coast to natural hazards, as well as sustainable livelihood for local communities, and conservation of ecologically and culturally significant coastal resources. All these factors feed into the development of an integrated coastal zone

management plan. Plan development occurs through a participatory process involving the central and state governments, scientific research institutions, district administration and local communities.

For further information visit the website of the Department of Ecology & Environment, Government of Karnataka: parisara.kar.nic.in/czm.html#CZM

E. Further reading

CDB and CARICOM. 2004. Sourcebook on the Integration of Natural Hazards into the Environmental Impact Assessment (EIA) Process. Barbados: Caribbean Development Bank. www.caribank.org/Publications.nsf/EIASourceBook/$File/SourceBook5.pdf

An attempt to ensure that natural hazard risk is explicitly addressed during the project cycle, the Caribbean Development Bank (CDB) and Caribbean Community (CARICOM)'s Adapting to Climate Change in the Caribbean Project has developed guidelines for natural hazard impact assessments and their integration into environmental impact assessment procedures.

Fordham, M. 2001. Challenging Boundaries: A gender perspective on early warning in disaster and environmental management. Prepared for an expert group meeting on environmental management and the mitigation of natural disasters, the United Nations Division for the Advancement of Women and ISDR; 6-9 November 2001, Ankara, Turkey. www.un.org/womenwatch/daw/csw/env_manage/documents/EP5-2001Oct26.pdf

Hellmuth, M, et al. eds. 2007. Climate risk management in Africa: Learning from practice. Columbia University, New York: International Research Institute for Climate and Society. http://iriportal.ldeo.columbia.edu/portal/server.pt/gateway/PTARGS_0_2_1171_0_0_18/Climate%20and%20Society%20No1_en.pdf

IPCC. 2007. 4th report of the Intergovernmental Panel on Climate Change. Available soon at: www.ipcc.ch/

IPCC (2007a). Climate Change 2007: The Physical Science Basis: Summary for Policymakers. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Formally approved at the 10th Session of Working Group I of the IPCC, Paris, February 2007. www.ipcc.ch/SPM2feb07.pdf

This summary report focuses on the science of climate change and the changes we are likely to face in the future. The full report of Working Group 1 is available at the IPCC website: www.ipcc.ch

IPCC (2007b). Climate Change 2007: Impacts, Adaptation and Vulnerability, Working Group II Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Formally approved at the 8th Session of Working Group II of the IPCC, Brussels, April 2007. www.ipcc.ch/SPM13apr07.pdf

This summary report focuses on the impacts of climate change and how we can adapt to changes in the future. The full report of Working Group II is available at the IPCC website: www.ipcc.ch

Kelly, C. 2005. Guidelines for rapid environmental impact assessment in disasters. Benfield Hazard Research Centre, University College London and Cooperative for Assistance and Relief Everywhere, Inc. CARE International. www.gdrc.org/uem/disasters/disenvi/kelly.doc

Sudmeier-Rieux, K., et al., eds. 2006. Ecosystems, Livelihoods and Disasters. An integrated approach to disaster risk management. Cambridge, United Kingdom: International Union for the Conservation of Nature and Natural Resources (IUCN).
www.iucn.org/themes/disaster/documents/iucn_ecosystems_livelihoods_disasters_2006_withsurvey.pdf

UNEP. 2006. Africa Environment Outlook 2 - Our Environment, Our Wealth. Nairobi, Kenya: UNEP.
www.unep.org/DEWA/Africa/docs/en/AEO2_Our_Environ_Our_Wealth.pdf

This report profiles Africa's environmental resources as an asset for the region's development. It highlights the opportunities presented by the natural resource base to support development and the objectives of the African Union and the New Partnership for Africa's Development. The report underscores the need for sustainable livelihoods, and the importance of environmental initiatives in supporting them. Emphasis is put on what should and can be done with existing (remaining) environmental assets, in the context of identified constraints (issues), rather than focusing on what has been already lost.

UNEP. 2002. Global Environment Outlook 3 (GEO-3). Nairobi, Kenya: UNEP.
www.grida.no/geo/geo3/english/index.htm

Websites

Practical Action. "Adapting to Climate Change" - http://practicalaction.org/?id=disaster_climatechange

See many case studies from around the world focused on people adapting to the effects of climate change.

Red Cross and Red Crescent Centre on Climate Change and Disaster Preparedness - www.climatecentre.org.

This website supports National Red Cross and Red Crescent Societies to reduce over time the loss of life and damage done to the livelihoods of people affected by the impacts of climate change and extreme weather events.

UNFCCC. "National Adaptation Programmes of Action (NAPAs)" -
http://unfccc.int/national_reports/napa/items/2719.php.

NAPAs provide a process for least-developed countries to identify priority activities that respond to their urgent and immediate needs with regard to adaptation to climate change.

UNFCCC Database on Local Coping Strategies - http://maindb.unfccc.int/public/adaptation/

This database facilitates the transfer of long-standing coping strategies/mechanisms, knowledge and experience, from communities that have had to adapt to specific hazards or climatic conditions, to communities that may just be starting to experience such conditions as a result of climate change.

4.2 Social needs: Establish mechanisms for increasing resilience of the poor and most vulnerable

A. Understanding the task

What's the purpose of this task?

This task aims to increase the resilience of the poor to disasters through social capital, empowerment and livelihood protection, provided by strategic planning and resource application at a national level, particularly in the context of international cooperation.

Why it's important

Impoverished communities are the most vulnerable to disasters and have the least ability to recover. Disasters can wipe out the livelihoods of poor people by destroying agricultural capacities and other essential assets. The vulnerability of the poor to disasters is increased by marginalization due to physical ability, caste, age, race, ethnicity and gender. By focusing on protection of the poor, the impacts of disasters can be reduced. To this end, and to better meet the needs of the poor for protection against disasters, governments may consider programmes that promote asset enhancement, livelihoods diversification, a safe-built environment, social protection and empowerment through participation in governance. Such programmes can contribute to poverty alleviation programmes, which can be undermined by disasters, and can also aid those who may be impoverished directly as a result of a disaster event. Poor communities also have resources and coping strategies that governments can help develop, to strengthen the communities' resilience to disaster.

How it relates to other priority tasks

The task is often aided by institutionalizing disaster risk reduction and allocating appropriate resources for it (Task 1.4), as well as by developing financial/economic instruments that help reduce risk (Task 4.6). It is also assisted by the successful integration of disaster risk reduction into sectors through sustainable natural resource use, land-use practice and measures for the safety of the built environment (Chapter 4). At the same time, effective completion of the task requires participatory risk assessments (Task 2.1), and comprehensive recovery and preparedness planning (Task 4.7 and Chapter 5).

Terminology

Common Country Assessment/United Nations Development Assistance Framework (CCA/UNDAF) process is the common strategic framework for the operational activities of the United Nations System at the country level. It provides a collective, coherent and integrated United Nations System response to national priorities and needs within the framework of the Millennium Development Goals and the other commitments, goals and targets of the Millennium Declaration and the declarations and programmes of action adopted at international conferences and summits and through major United Nations conventions. The CCA is the main diagnostic tool available to United Nations country teams and their partners for assessing and developing a common understanding of the underlying challenges faced by a country in its development process. The UNDAF emerges from the analytical and collaborative effort of the CCA and is the foundation for United Nations System programmes of cooperation. *(Source: UN/ISDR and UNDP 2006)*

Poverty Reduction Strategy Papers (PRSP) are prepared by governments in low-income countries through a participatory process involving domestic stakeholders and external development partners, including the International Monetary Fund and the World Bank. PRSPs describe the macroeconomic, structural and social policies and programmes that a country will pursue over several years to promote broad-based growth and reduce poverty, as well as external financing needs and the associated sources of financing. *(Source: International Monetary Fund)*

HFA Social needs: Establish mechanisms for increasing resilience of the poor and most vulnerable 4.2

B. How to do it

Recommended steps

A number of steps can be taken to protect the poor and their livelihoods, including:

1. Improve data quality through disaggregated statistics correlated to high-risk environments (e.g. age, disabilities, social disparities and gender). More detailed data will help countries and organizations reach the poor before and after disasters.
2. Work with community leaders, women's groups and workers in undertaking participatory risk assessment and reduction actions. Examples include projects to:
   - Improve drainage for flooding and landslides.
   - Develop water collection and retention facilities against drought.
   - Clear debris and reduce fire hazards.
   - Undertake flood protection and other measures to protect water wells and ensure the recharging of the water table.
   - Implement other preparedness measures for individuals, households and schools, ensuring learning from previous experience.
3. Design gender-equitable compensation packages as a safety net to enable the very poor to recover minimum livelihood means after a disaster. Plan work-for-food or work-for-housing programmes as other protection means for the poor. For low-income farmers, design cash allocations and/or seed allocations to enable recovery.
4. Include provisions to address disaster risk reduction for the poor in the country's PRSPs, in partnership with bilateral or multilateral aid agencies, to contribute to the attainment of the Millennium Development Goals

Five steps to integrate disaster risk reduction in PRSPs:

I) Perform analytical and diagnostic work, including overlaying poverty and disaster risk maps.

II) Set poverty reduction objectives.

III) Prioritize public actions for poverty reduction.

IV) Establish monitoring and evaluation procedures.

V) Implement, evaluate and provide feedback.

5. Include provisions to address disaster risk reduction in the CCA/UNDAF, in partnership with bilateral or multilateral aid agencies, to contribute to attainment of the MDGs.

Three steps to integrate disaster risk reduction in UNDAFs:

I) Understand disaster risk in the context of common country analysis and problem diagnosis.

II) Address diagnosed disaster risks as part of development priorities identified in UNDAF.

III) Integrate disaster reduction initiatives as distinct or incremental components of plans to implement MDGs included in UNDAF.

For further information on PRSPs and CCA/UNDAF process, see Annex V or see ProVention Consortium (2007).

4.2 Social needs: Establish mechanisms for increasing resilience of the poor and most vulnerable

C. Responsibilities and resources

Who should be involved?

- Social welfare and community health specialists.
- Experts in gender-related development issues.
- Government finance and planning departments.
- Rural development and agriculture protection specialists.
- Drought and water conservation specialists.
- Community leaders, workers and volunteers.
- Poverty reduction advocates.
- Financial institutions and specialists with expertise in protection of low-income communities and the poor.
- NGOs, humanitarian and volunteer organizations, and donors.

What conditions facilitate the task?

- Well-defined poverty alleviation strategy and programmes for the country.
- Advice from experts in NGOs, community-based organizations and humanitarian agencies working on poverty reduction.
- Close interaction with social services, social welfare agencies and existing networks, working to understand the underlying vulnerability conditions of the poor, as well as to build or strengthen existing networks with women's and community groups.

D. Illustrations

Poverty and risk reduction project, Ecuador

Malnutrition affects one-fifth of the population of Ecuador. The hazards of drought and flood, combined with general climate variability, exacerbate the problem. Increased malnutrition in Ecuador is believed to be associated with crop failures linked to climate change. A proposed project to address these problems aims to improve the understanding of climate variability in the country and its effects on agriculture, with the final objective of creating a network of food security and environmental professionals.

The project will acquire weather and climate knowledge, and other information, to improve decision-making on crops and crop planning by agricultural scientists, policymakers, extension agents and the farmers themselves. This should increase food security and reduce malnutrition. An interdisciplinary team of geographers, agricultural scientists, nutritionists and climatologists will carry out the project. The project will combine satellite imagery and ground measurements, analysing weather and climate during the growing season, to understand key variables for crop growth.

The project will produce four direct outcomes: (i) research that compares ground-truth information and remotely sensed and secondary information; (ii) publicly accessible geographic and satellite information for agricultural and food security decision-making ; (iii) information compiled and shared by a community of food security experts in Ecuador; and (iv) training of Ecuadorian partners to use the system.

HFA Social needs: Establish mechanisms for increasing resilience of the poor and most vulnerable 4.2

For further information visit: www.ewc3.org/upload/downloads/P-09_Hyman_web.pdf or visit the International Center for Tropical Agriculture website at:www.ciat.cgiar.org/

A chamber of commerce for the poor, India

The Chamber of Commerce and Industry for Small Businesses is a forum for slum-dwellers who wish to work with others to improve their livelihood base. This specialized chamber of commerce was set up following the Gujarat earthquake in 2001 to bring together recipients of livelihood grants and other small businesses. It is made up of informal-sector businesspersons, and takes up issues with municipalities, banks and other officials. It has enabled 600 families to get "below-poverty line" ration cards, and has assisted many of its members to regularize their position through bank accounts and insurance.

For further information see: Vaux, T. (2005): Beyond Relief: Review of a "Human Securities" approach to the Gujarat Earthquake. Experience Learning Series no. 32. check: www.southasiadisasters.net/publi%20els%20list.htm

E. Further reading

Benson, C. and Twigg, J. 2007. Tools for Mainstreaming Disaster Risk Reduction: Guidance Notes for Development Organisations. Geneva: ProVention Consortium Secretariat. www.proventionconsortium.org/?pageid=37&publicationid=132#132

Pantoja, E. 2002. Microfinance and Disaster Risk Management: Experience and Lessons Learned. Washington DC: The World Bank. www.proventionconsortium.org/themes/default/pdfs/microfin_DRM.pdf

The report is part of an initiative on microfinance and disaster risk management carried out under the umbrella of the ProVention Consortium by the World Bank's Disaster Management Facility, UNDP, and the United Nations Capital Development Fund.

UN/ISDR and UNDP. 2006. Integrating Disaster Risk Reduction into CCA and UNDAF. Draft Guidance Note. www.unisdr.org/cca-undaf

This note, approved by the United Nations Development Group, provides guidance to United Nations country teams and the United Nations resident co-ordinator system on mainstreaming disaster risk reduction into the CCA/UNDAF process.

Websites

The Gender and Disaster Sourcebook - www.gdnonline.org/sourcebook/index.htm

A one-stop user-friendly electronic guide on the link between gender equality and disaster risk: lessons learned and practical applications.

4.3 Physical planning: Establish measures to incorporate disaster risk reduction in urban and land-use planning

A. Understanding the task

What's the purpose of this task?

This task seeks to include disaster risk reduction measures in development, land-use and urban planning. It suggests doing so by incorporating hazard and vulnerability parameters into these forms of planning, by improving standards and practice, and by implementing and enforcing building codes and land-use regulations. Other strategies include: enacting measures to reduce informal urban settlements, proper siting of critical facilities and infrastructures, putting a premium on unbuilt spaces and creating networks of open spaces, zoning hazardous areas and imposing stricter development controls in these areas, and improving the safety of slums and hazardous buildings.

Why it's important

Introducing natural hazard considerations into development, land-use and urban planning will, in the long term, reduce the accumulation of risk in both rural areas and areas of rapid urbanization. Urban disaster risk is largely a result of unsatisfactory urban land-use management and development, poor construction practices, the increasing complexity of modern societies and inappropriate land-use decisions in the past.

If risk parameters are considered in development plans, as well as in urban and regional land-use plans, then appropriate measures can be introduced to address the risks. This is especially important for mega-cities and other dense concentrations of population, and for the poor and marginalized groups. In addition to ensuring better use of land, the introduction of sound practices in land-use planning and construction practices will help improve standards of professional practice and ethics.

Terminology

Land-use planning: Branch of physical and socio-economic planning that determines the means and assesses the values or limitations of various options in which land is to be utilized, with the corresponding effects on different segments of the population or interests of a community taken into account in resulting decisions. Land-use planning involves studies and mapping, analysis of environmental and hazard data, formulation of alternative land-use decisions and design of a long-range plan for different geographical and administrative scales. *(Source: UN/ISDR Terminology)*

Land-use planning and disaster risk reduction

Land-use planning is a systematic process that enables the identification and evaluation of hazards and vulnerabilities of a human settlement. Through the planning process, a program of action can be prepared to initiate desired changes in the urban fabric and structure. In highly dynamic urban settings, where fast-paced urbanization occurs together with economic progress, land-use planning seeks to steer or at least bring order to rapid land-use changes and urban development by providing long-term goals and strategies, allowing inevitable changes to occur in a safer and sustainable manner. Such planning fortifies the goal of urban sustainability by respecting the interdependence of the urban and natural ecosystems.

Land-use planning supports disaster risk reduction because it focuses on modifying the vulnerabilities of cities instead of controlling the hazards, thereby supporting disaster mitigation and prevention. The logic of land-use planning is compatible with disaster risk reduction because both are systematic, future-oriented, decision-oriented and proactive.

Physical planning: Establish measures to incorporate disaster risk reduction in urban and land-use planning 4.3

How it relates to other priority tasks

Improved planning relies on strengthening of a country's policy, legal and institutional frameworks (Tasks 1.3 and 1.4), and requires effective risk analysis (Task 2.1). The training agenda developed for this task should be coordinated with larger disaster risk reduction training initiatives (Task 3.3). The task is closely linked to improved safety of buildings and critical facilities (Task 4.4). Furthermore, private sector, professional and trade organizations can play a significant role in improving knowledge within their memberships and improving ethics and standards of practice (Task 4.6).

B. How to do it

Recommended steps

Many steps can be taken to reduce disaster risk through improved land-use planning and human settlements development, including:

1. Evaluate the capacity of agencies at all levels of government to understand, implement and enforce development planning and land-use programmes, plans and regulation. Also look at agencies' ability to assess their own institutional capacity and training needs in disaster risk management.
2. Working with national, regional, provincial and local planning agencies, assess the extent to which hazard and vulnerability parameters are incorporated in planning processes. Study the process of land-use allocation, land-use planning and development planning.
3. Develop a training agenda for local land-use planners, local government officials, technical staff and regulators to enhance technical capacity in risk-sensitive land-use planning and urban development.
   - Trainings should include risk assessment and techniques for incorporating hazard and vulnerability parameters in the planning process and in introducing minimum safety criteria.
   - Trainees should be land-use and urban planners, building officials, city engineers, zoning officers, environmental managers and other local government personnel in charge of local implementation and enforcement.
4. Ensure that line ministries and sectoral departments incorporate risk assessment and risk reduction measures in their programmes. Such provisions are sector-dependent and require specific expertise related to the sector.
5. Work with professional and trade organizations to improve ethics and standards of practice within relevant professions. Give them an active role in improving the standards of practice.
6. Enforce land-use regulations and procedures to ensure that zoning districts are established and are based on particular development regulations and performance standards appropriate to the land-use and purpose of each zone. Promote, where appropriate, restrictive rules and higher standards aimed at curbing development in hazardous areas that are prone to landslides, earthquakes, liquefaction, surface faulting, floods and cyclones. These rules and standards should involve elements such as land-use intensity, population density, occupancy load, bulk and height of buildings, building appendages, signs and billboards, traffic generation and other environmental impacts.
7. Develop a programme to discourage illicit/informal construction. Initiate programmes aimed at relocation of informal settlements from hazardous areas, abatement of unsafe buildings, renewal and redevelopment of blighted and derelict areas, and upgrading of slums within the city.

4.3 Physical planning: Establish measures to incorporate disaster risk reduction in urban and land-use planning

8. Establish an interconnected network of open spaces - such as public parks, greenbelts and green corridors - as an important urban element in the spatial structure of cities and urbanized areas, and as a strategy to prevent urban sprawl.
9. Promote the acquisition of hazardous lands by local governments. These lands can be allocated for low-intensity, low-density land uses.
10. Institute public participation strategies in the land-use planning process to integrate vulnerability and risk perception issues in plans. Build consensus among different stakeholders so as to enhance the social acceptability of risk-sensitive land-use plans, and to increase compliance with regulations and standards.
11. Design fiscal and other incentive packages to promote sound practices that improve standards for land-use and professional practice, such as public disclosure of hazardous property sites. Create licensing and reward mechanisms for professionals such as architects, planners, engineers, real estate developers, contractors and individual property and building owners.
12. Develop procedures for incorporating disaster risk reduction in the project cycle. Ensure that financial institutions and regulatory agencies adopt these procedures.
13. Develop a strategy to provide legal liability and options for legal recourse to punish negligent practices.
14. In tandem with the land-use, zoning and urban development measures mentioned above, promote public involvement strategies, including education and information dissemination, to increase the awareness of residents and to gather support for land-use decision-making based on disaster risk parameters.

Questions to ask

In identifying a range of programmes for a policy package, ask if the package includes elements that:

- Promote and incorporate disaster risk reduction among the various interests associated with land-use. (This should include incorporating risk reduction strategies developed for specific sectors, such as the environment and impoverished communities.)
- Develop mechanisms for implementation and enforcement of land-use plans, rules, regulations and standard: such as knowledge, voluntary compliance and punitive actions.
- Control informal construction and urban sprawl.
- Create partnerships and engage professional organizations, trade organizations and unions.
- Design and implement competent training programmes and professional skill enhancement programmes.
- Respond to the concerns and needs of the most vulnerable.
- Enable efficient enforcement procedures and liability actions.
- Create incentive mechanisms to encourage and promote sound land-use and construction practices.
- Incorporate sector-specific disaster risk reduction strategies.

Land-use planning processes

The process of land-use planning and allocation takes place in a political context and involves various competing interests and values. Thus land-use planning requires development of a common understanding of the laws and regulations, as well as of economic and social pressures, and a common appreciation of relative risk. To secure improvements in ethics, in standards of practice and in enforcement of regulation and construction codes, government institutions need to engage with private sector, professional and trade organizations, all of which can play a significant role in improving knowledge and practices within their memberships. Additionally, it is good practice to consult with members of affected communities and to involve them in the process of land-use planning and management - members such as poor populations, who often do not have options and must settle in hazardous areas.

C. Responsibilities and resources

Who should be involved?

- City and regional planning agencies, housing agencies, infrastructure and public works agencies.
- Local governments, particularly cities and municipalities.
- Representatives of professional, real estate and trade organizations.
- Community-based organizations and community leaders. Include members of affected communities, such as poor populations, who often do not have options and must settle in hazardous areas.
- Line ministers and sectoral departments with sector-specific expertise, including expertise on climate-related risks.

D. Illustrations

National land-use planning and management, Cuba

In Cuba, national land-use planning and management are integrated with disaster risk reduction. For over 40 years, the Institute for Physical and Spatial Planning has been the responsible body for implementation of physical planning in the country. Its planning system integrates all scales of political and administrative jurisdictions in addressing a wide range of land-use issues. These include the management of natural resources and decisions about human settlements, the environment, hazards and vulnerability. The Institute defines regulations and provides methodologies for risk management that include building codes and risk zoning, which reduce the physical vulnerability of households and critical infrastructure, especially in flood-prone areas. These and related tools for implementing land-use controls are supported by well-integrated methodological and legal frameworks tied into the sustainable development processes of the country. In addition to the Institute, the national civil defence authority and the hydro-meteorological service help realize these strategies.

Initiatives in land-use management and urban planning have involved communities in the identification of local problems, in the planning process and in implementing the decisions taken about land-use management. The multidisciplinary and inter-institutional nature of the work has helped to establish a conceptual and more methodical basis for effective disaster risk reduction.

Coastal areas constitute the most fragile and complex ecosystems in Cuba. Their increasing exposure to the impact of disasters has motivated the Government to support studies on coastal land-use management. At the national level, plans define guidelines for the use of coastal areas, identifying priority scenarios for which higher resolution studies need to be conducted. Hazard maps for storm surges and additional vulnerability maps have been produced. The use of these maps allows Cuba to identify relative levels of risk for settlements located in coastal areas. Several land-use regulations have resulted from this analysis, including specific recommendations for retrofitting, resettlement and urban growth regulations for 107 coastal settlements.

The city of Havana provides an example of urban planning in a coastal zone. The city has a conspicuous breaker wall, or malecón, stretching seven kilometres along the sea to reduce the impact of the storm surges that periodically strike the city's coast. Zoning, codes and standards for construction aim to improve the relevant organizational procedures, to encourage more effective means of construction and to promote sound rehabilitation in the area. Basements have been rebuilt, the heights of buildings regulated and new landscape designs for public areas adopted.

For further information see: UN/ISDR. 2004. Living with Risk, pp. 317-319. /www.unisdr.org/lwr-2004

4.3 Physical planning: Establish measures to incorporate disaster risk reduction in urban and land-use planning

Strengthening local capacities for land planning in Matagalpa, Nicaragua

The devastating damages from Hurricane Mitch in October 1998 revealed some significant vulnerabilities of the city of Matagalpa, Nicaragua. The Canton of Geneva and United Nations Operational Satellite Applications Programme (UNOSAT) lead a capacity-building project that, in order to reduce the city's vulnerability, enables local actors to integrate risk management into urban and rural planning. As a result of project activities, the municipality can now call on an urban development plan and a land-regulatory plan to guide its actions over the next ten years.

The capacity-building project has two pillars:

(i) Facilitated access to updated geographic information with the use of satellite imagery. The project has provided this access by establishing the Matagalpa Geographical Information Center (www.CIGMAT.org). CIGMAT has delivered maps of areas at risk of and affected by floods, as well as soil use maps, hydrographic maps, and digitalized views of the topography of local towns, rivers and roads. This resource centre is now fully operational and properly equipped, with staff trained on the uses of satellite imagery and geographic information systems.

(ii) A land planning office (OPT) within the municipality of Matagalpa. OPT was started to ensure that the local council could call on a qualified technical team to support its land management plans and programmes. It has made major contributions to the council. It has outlined risk situations to the residents, in order to raise both awareness and interest in possible relocation to more suitable areas. It has evaluated family homes affected by tropical storms. It has reviewed the terms of reference for the location of a new municipal dump. It has designed a housing project in coordination with the National Institute of Urban and Rural Housing. It also has developed the municipality's plan for natural disaster prevention and mitigation.

Cooperation between CIGMAT and OPT made possible the development of an urban master plan for Matagalpa. CIGMAT provided basic geographical information, together with a study of the geological and physical features of the region. OPT used this information to draw up a full diagnosis of the area. The diagnosis used a participative method, involving social leaders and the main social organizations in each of the urban neighbourhoods committed to the future growth of the city.

For further information visit UNOSAT website at:
unosat.web.cern.ch/unosat/achievements/matagalpa/project.htm

Model building by-laws and zoning regulations, India

India's built environment suffers from a very high level of vulnerability, which has led to recurrent earthquake damage to buildings. Recognizing this vulnerability, the Government of India constituted an expert committee to look into the existing planning act, zoning regulations, development control rules and building by-laws. The Committee drafted two model laws - the Model Town and Country Planning Act, and the Model Regional and Town Planning and Development Act. It also suggested amendments to the country's guidelines for formulating and implementing urban development plans.

These model laws and regulations have been circulated to states and municipalities throughout the country, either for outright adoption or as the basis for making suitable amendments to existing legal instruments. The states and municipalities are in the process of adopting these changes in the legal system. Meanwhile, India has started a massive programme for training and capacity-building, in order to upgrade the knowledge and skill of architects, engineers and masons. The programme should leave these professionals in a position to implement the modified provisions for new constructions, and to strengthen existing constructions.

For further information see: Model Amendment in Town and Country Planning Legislations, Regulation for Land Use Zoning and Building Byelaws for Structural Safety, Ministry of Home Affairs, Government of India, New Delhi 2004. www.ndmindia.nic.in/EQProjects/VOLUME%20II%20Reference%20Documents.pdf

Building the technical skills of planners, Metro Manila, Philippines

The concept of using land-use planning as an effective means to mitigate the potential effect of disasters has been recognized by local land-use planners in the Philippines. However, integration of risk parameters in the local planning process and practices is prevented by insufficient understanding of disaster risk assessment as a basis of a risk-sensitive land-use planning decisions.

As an attempt to fill this gap, the Earthquakes and Megacities Initiative (EMI), in cooperation with international organizations such as UNDP, the ProVention Consortium, the Pacific Disaster Center and Kobe University, as well as its local partner institutions, the Philippine Institute of Volcanology and Seismology and the Metro Manila Development authority, has recently developed an e-learning course on "Risk-Sensitive Land-use Planning". The course integrates land-use planning and disaster risk reduction, which it refers to as the "MEGA-Plan", and the companion knowledge base of sound practices, "MEGA-Know". Course content was developed by experts in the field and validated through direct involvement by Manila-based practitioners. The course's goal is to provide practitioners with technical skills so that they can apply the recommended techniques with confidence in their daily work. The project is also seeking to illustrate its theories through an actual project done in partnership with Makati City, a local government unit within Metro Manila. MEGA-Plan is one of the e-learning tools developed by the consortium as part of EMI's "3cd Program", which is aimed at mainstreaming disaster risk reduction in mega-cities and other major metropolises in developing countries. The 3cd Program promotes the use of a disaster risk reduction master plan as a model for a city-wide planning process on disaster risk reduction strategy and activities.

For more information see: www.emi-megacities.org

E. Further reading

Blaikie, P., et al. 1994. At Risk: Natural Hazards, People's Vulnerability and Disasters. London: Routledge.

Bolton, P.A., et al. 1986. Land Use Planning for Earthquake Hazard Mitigation: A Handbook for Planners. Colorado: Natural Hazards Research and Applications Information Center.

Burby, R.J. ed. 1998. Cooperating With Nature: Confronting Natural Hazards with Land-Use Planning for Sustainable Communities. Washington DC: Joseph Henry Press.

EMI. 2007. Urban and Megacities Disaster Risk Reduction: What is at Stake and What Can We Do? Manila, Philippines: EMI Secretariat. www.earthquakesandmegacities.org

FEMA. 1995. Seismic Considerations for Communities at Risk. Washington DC: United States Federal Emergency Management Agency (FEMA).

Frampton, S., et al. 1996. Natural Hazards: Causes, Consequences and Management. London: Hodder and Stoughton.

Institution of Civil Engineers. 1995. Megacities: Reducing Vulnerability to Natural Disasters. London: Thomas Telford.

Key, D. ed. 1995. Structures to Withstand Disasters. London: Thomas Telford.

Kreimer, A., Arnold, M. and Carlin, A. eds. 2003. Building Safer Cities: The Future of Disaster Risk. Washington DC: World Bank. www.proventionconsortium.org/themes/default/pdfs/Safer_Cities.pdf

Mitchell, J.K.1999. Crucibles of Hazards: Mega-cities and Disasters in Transition. New York: United Nations University Press.

4.3 Physical planning: Establish measures to incorporate disaster risk reduction in urban and land-use planning

Reyes, M. 2005. Risk-Sensitive Land-use Planning: Towards Reduced Seismic Disaster Vulnerability. Germany: Kassel University Press.

Varley, A. ed. 1994. Disasters, Development and Environment. Chichester, United Kingdom: John Wiley and Sons Ltd.

Websites

ICLEI: Local Government for Sustainability - www.ICLEI.org

ICLEI provides useful resources through its Resilient Communities & Cities initiative, including its report on its assessment of disaster risk management tools and instruments for local governments through a workshop with technical and local government experts.

MEGA-Know and MEGA-Plan - www.earthquakesandmegacities.org/megaknow

These are e-learning tools developed as a joint project of EMI, UNDP, the ProVention Consortium and the Pacific Disaster Center. They are designed specifically to enhance the skills of professionals and practitioners in disaster risk reduction. MEGA-Plan's subject is risk-sensitive land-use planning, whereas MEGA-Know is a disaster risk management knowledge base containing mega-city profiles and DRM sound practices, as well as downloadable resources and contact information pertaining to the implementation of EMI's 3cd Program.

MEGA-Learn - www.earthquakesandmegacities.org/megalearn

MEGA-Learn is the online platform of the EMI for training, capacity-building and knowledge sharing. It consists of tools, technologies, methodologies and online training courses for disaster risk management practitioners, city managers, researchers and other professionals.

RADIUS: Risk Assessment Tools for Diagnosis of Urban Areas against Seismic Disasters - www.geohaz.org/contents/projects/radius.html

The RADIUS project was launched by the International Decade for Natural Disaster Reduction in 1996 to promote worldwide activities for reduction of seismic disasters in urban areas, particularly in developing countries. The project developed a software program that offers practical tools for earthquake damage estimation. www.geohaz.org/contents/projects/radius.html

4.4 Structures: Strengthen mechanisms for improved building safety and protection of critical facilities

A. Understanding the task

What's the purpose?

This task aims to strengthen mechanisms for securing the safety of housing and other buildings, and for protecting critical facilities and infrastructure; thus reducing loss of life and livelihoods, as well as the costs of recovery.

Why it's important

Ensuring that new construction is safe, which can be done by adopting and enforcing building codes and competent construction standards, will reduce potential losses from future hazard events. Buildings and infrastructure can be designed to be resistant to hazardous events, such as earthquakes and extreme winds: knowledge on how to build safe and collapse-free buildings and infrastructure has existed for years.

Protecting critical facilities and infrastructure also reduces the impact of disasters significantly, making them more manageable and less costly to the state. In a disaster, countries cannot afford to lose hospitals, emergency centres, schools, communications systems and transportation routes, shelter facilities and government services buildings. The social impact of a disaster can be reduced by ensuring prompt resumption of essential services, such as power, sanitation, water and access to basic government functions.

How it relates to other priority tasks

This task draws on risk assessments performed for Task 2.1. Training developed for this task should be coordinated with larger disaster risk reduction training initiatives (Task 3.3). This task is closely related to that of incorporating disaster risk reduction into urban and land-use planning (Task 4.3), and that of developing financial and economic instruments (Task 4.6). It is also linked to natural resource use and environmental management (Task 4.2) and planning for recovery (Task 4.7).

Terminology

Building codes: Ordinances and regulations controlling the design, construction, materials, alteration and occupancy of any structure to ensure human safety and welfare. Building codes include both technical and functional standards. *(Source: UN/ISDR Terminology)*

Critical facilities/emergency services: Those facilities (such as hospitals, power stations, lifelines) and services (such as Police, Fire Service, Ambulance, Red Cross and Red Crescent, and voluntary agencies) that have specific responsibilities and objectives in serving and protecting people and property in disaster situations.

Retrofitting: Reinforcement of structures to become more resistant and resilient to the forces of natural hazards. Retrofitting involves consideration of changes in the mass, stiffness, damping, load path and ductility of materials, as well as radical changes such as the introduction of energy-absorbing dampers and base isolation systems. *(Source: UN/ISDR Terminology)*

4.4 Structures: Strengthen mechanisms for improved building safety and protection of critical facilities

B. How to do it

Recommended steps

Steps to follow on building safety:

1. Review building code regulations and procedures to evaluate the extent to which they appropriately address known risks and to which their implementation is practical.
2. Evaluate the capability of agencies at all levels of government to understand, implement and enforce building code regulations.
3. Develop a training agenda on procedures and techniques for incorporating hazard and vulnerability considerations into construction and related planning processes. Trainings should reach planners, regulators and professionals from agencies, as well as practitioners in charge of local implementation and enforcement.
4. Institute a consultation process with construction industries, including professional societies, to develop a shared agenda to improve construction codes, establish minimum professional standards of practice and meet industry training needs.
5. Foster training programmes for hazard-resistant construction among professional societies, trade associations, housing cooperatives and community development organizations.
6. Develop a programme to relocate construction in unsafe areas, renovate unsafe buildings, and discourage illicit/informal construction. Consider strategic use of urban renovation and economic redevelopment projects in the programme.
7. Design incentive packages for sound practices. These can include licensing and reward mechanisms for professionals such as architects, engineers and contractors to improve standards for construction.
8. Develop a strategy to provide legal liability for negligent practice, and options for legal recourse to recover damages.
9. Undertake an education campaign for potential home buyers and for the informal construction sector to increase awareness about minimum safety provisions.

Steps to follow to protect critical facilities:

1. Develop an inventory of critical facilities. Identify their importance to the survival and recovery of the nation in case of likely hazard events.
2. Analyse the risks to these critical facilities using the results of risk assessments (Task 2.1), and if necessary additional surveys and studies. Identify highly vulnerable locations for priority action.
3. Undertake a study to understand options for and the costs of reducing key facilities' vulnerability.
4. Develop priorities for immediate investment in improved resilience, including retrofit, replacement and redundancy/backup capabilities.
5. Develop sector-specific critical facility plans and programmes for ensuring life, safety and continuity of services in case of a hazard event. These plans and programmes should address hospitals and health care facilities, communications networks, water and sanitation systems, energy transportation, etc.
6. Partner with utility companies and industry owners to develop a programme to reduce vulnerability in those sectors.
7. Use the results from activities above to develop a long-term strategy and programme to accomplish critical facility strengthening.

C. Responsibilities and resources

Who should be involved?

In addition to representatives from industry and government as described above, consider involving engineering experts from academia, as well as community development and women's organizations.

D. Illustrations

Programme for critical facility protection, Turkey

On 18 October 2005, the World Bank and the Turkish Government signed a loan agreement for €310 million for the Istanbul Seismic Risk Mitigation and Emergency Preparedness Project. The Istanbul Special Provincial Administration will be the responsible agency in Turkey. The project's main objective is to transform Istanbul in the next 10-20 years into a more resilient city, which will save lives and reduce the social, economic and financial impacts of a major earthquake in the region.

The project will improve Istanbul's preparedness for a potential earthquake in several ways. It will enhance the institutional and technical capacity for disaster management and emergency response. It will strengthen critical public facilities for earthquake resistance, retrofitting hospitals, schools and other priority public facilities. It will support measures for better enforcement of building codes and compliance with land-use plans. Finally, it will build the institutional capacity to sustain implementation of risk reduction and preparedness beyond the life of the project.

For further information see: www.iiasa.ac.at/Research/RAV/conf/IDRiM06/pres/elgin.pdf www.worldbank.org.tr/external/projects/main?pagePK=64283627&piPK=73230&theSitePK=361712&menuPK=361744&Projectid=P078359

Mandatory implementation of a national building code, Nepal

In Nepal, the Bureau of Standards and Meteorology has initiated a process for defining the draft national building code as a standard for all Nepal. Already, in 2003, the Council of Ministers decreed that the code's stipulations should be obligatory for all government-building construction. It also urged the municipal authorities to strengthen the current building permit process so that code compliance will be mandatory for all new constructions in urban areas. Kathmandu Metropolitan City started implementing its building code on 21 August 2005 for new construction. As of September 2005, people who wish to construct buildings within the city have to comply with both building by-laws and building codes before they can get their blueprints endorsed.

For further information visit the Earthquakes and Mega-cities Initiative, Sound Practices, at: emi.pdc.org/soundpractices/Kathmandu/SP3-KMC-Building-Code-Implementation.pdf

Need for building standards, Algeria

Prior to 1990, the property development market in Algeria was in large part state-owned. As public buildings were subject to building control laws that set standards for safe construction, most of the construction was regulated for safety. However, after 1990, Algeria liberalized its real estate and development market. Land was given to local municipalities and then sold on the private market. The country experienced a high demand for housing and a boom in construction. While the laws did not change, most of the new, private construction was not subject to them, and was quickly developed without any controls or standards. When the Boumerdes earthquake hit in May 2003, it demonstrated the weakness of the post-1990 construction, as a large majority of

the losses, both material and human, took place in those buildings. The lesson learned is that building code enforcement has to address both publicly owned and privately owned property, ensuring a minimum safety standard in all buildings.

For further information see: UN/ISDR: Living with Risk, pp. 83-5 337

E. Further reading

Bachmann, H. 2002. Seismic Conceptual Design of Buildings - Basic principles for engineers, architects, building owners, and authorities. Edited by the Swiss Federal Office for Water and Geology and the Swiss Agency for Development and Cooperation. Bern, Switzerland: BBL, Vertrieb Publikationen.

Institution of Civil Engineers. 1995. Megacities: Reducing vulnerability to natural disasters. London: Thomas Telford.Key, D. ed. 1995. Structures to withstand disasters. Institution of Civil Engineers. Bristol University, London: Thomas Telford.

PAHO/WHO. 2005. Safe Hospitals: A Collective Responsibility, A Global Measure of Disaster Reduction. PAHO/WHO. www.paho.org/english/dd/ped/SafeHospitalsBooklet.pdf

The booklet illustrates issues related to safer health facilities and disaster.

4.5 Stimulate disaster risk reduction activities in production and service sectors

A. Understanding the task

What's the purpose of this task?

This task aims to stimulate disaster risk reduction activities in specific sectors, through the development of sectoral work groups that focus on reducing vulnerabilities and improving resilience.

Why it's important

The production of goods and services constitutes a core human activity for meeting human needs and improving well-being. Key production and service sectors include agriculture, fisheries, mining, forestry, tourism, transportation, water supply, energy, food processing, construction, manufacturing, commerce, finance, health and sanitation. Each production system entails the location of specific activities, the use of resources and technologies, and the modification of affected ecosystems. Each production system will be subject to specific natural hazards that may adversely affect its activities, and hence its value to society, while at the same time it also may have potential to increase, or decrease, the impacts of the hazards on adjacent ecosystems and settlements and hence the costs to society.

Sectors can increase their resilience to disaster risks by working with their stakeholders, particularly at the planning stage, to select locations with lower exposure to natural hazards, to choose appropriate technologies and facilities that can withstand the natural hazards, and to develop production systems that are environmentally sustainable and reduce rather than increase risks to others.

How it relates to other priority tasks

To best reduce disaster risk, sectoral representatives should participate in national dialogues (Task 1.1) and national platforms (Task 1.2). They should help to enhance policy, legal and institutional frameworks relevant to the sector, given their potential role in influencing current or future vulnerability (Tasks 1.3 and 1.4). They can also contribute to risk assessment, to the dissemination of critical disaster information

Terminology

Development planning processes: Proactive actions that allows to national, sectoral, regional or local government and its partners to support and engage the intellectual, physical, and economic resources to chart a course toward a desired future of development related on each level. *(Source: UN/ISDR Terminology)*

Disaster risk reduction plans: Documents that set out planning authorities' policies and proposals for disaster risk reduction, which should be considered in the respective development plan and development actions. Due to the different geographical scales applicable at different levels, disaster risk reduction plans are specific to each level of government.

Mitigation: Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards. (Examples of structural measures are engineering works and hazard-resistant construction, while non-structural measures include awareness-raising, knowledge development, policies on land use and resource management, and facilities' operating practices). *(Source: Adapted from UN/ISDR Terminology)*

Prevention: Activities to provide outright avoidance of the adverse impact of hazards and means to minimize related environmental, technological and biological disasters. Depending on social and technical feasibility and cost-benefit considerations, investing in preventive measures is justified in areas frequently affected by disasters. In the context of public awareness and education related to disaster risk reduction, changing attitudes and behaviour contribute to promoting a "culture of prevention". (Source: UN/ISDR Terminology)

Scenarios: An account or synopsis of a possible course of events that could occur, including the development of hypothetical impact. These scenarios form the basis for planning prevention, mitigation or preparedness.

4.5 Stimulate disaster risk reduction activities in production and service sectors

(Tasks 2.2 and 2.4), and to developing effective awareness, education and training programmes (Chapter 3). Depending on the particular sector, there may be important linkages to environment and natural resources management (Task 4.1), social policy (Task 4.2), land-use plans (Task 4.3), building safety and protection of critical facilities (Task 4.4) and financial and economic mechanisms (Task 4.6). Recovery plans (Task 4.7) and preparedness plans (Task 5.2) require the direct participation of sectors.

B. How to do it

Recommended steps

Forming a sectoral work group (for a particular sector):

A sectoral work group can be created on the basis of existing governmental or industry planning mechanisms for the sector. It should incorporate relevant stakeholders in addition to those already represented in the sector's planning and finance systems, and usually will be led or coordinated by the relevant lead ministry for the sector. Members may include relevant private and public organizations acting at different territorial levels, specialized academic and research groups, NGOs and representatives of affected communities.

Activities undertaken by sectoral work groups

1. Promote discussions in the sector on the available formal or informal sectoral planning and finance systems, and the channels for their implementation. Consider all levels - national, regional, local and enterprise-level.
2. Explore how existing mechanisms for development planning and investment programming can be used to incorporate disaster risk reduction. Consider such factors as criteria for resource allocation, sectoral development plans, budgets and technological practices.
3. Considering the specific hazards that affect the sector and prepare summaries and scenarios of current vulnerability and disaster risks. Make future projections of sectoral trends and future risks.
4. Coordinate the development of a sectoral plan for disaster risk reduction. Include disaster profiles, policies and strategies; needed capacities; and resources and programmes. Produce planning methods for dissemination at different levels.
5. Promote the creation of sectoral groups at each geographical level that can undertake disaster risk reduction activities.
6. Participate in the national platform for disaster reduction, acting as a link with the sector and communication relevant national information to the sector.
7. Promote disaster risk reduction education and planning in the sector, at national, regional and local levels, making use of the sector's existing planning and implementation mechanisms.
8. Promote disaster risk reduction awareness in sectoral organizations and stakeholders.
9. Coordinate activities to implement disaster risk reduction recommendations for the various organizations represented in the sectoral work group.
10. Document and share lessons learned and good practices related to disaster risk reduction in the sector.
11. Communicate sectoral progress at national and community levels toward the implementation of the HFA.
12. On behalf of the sector, provide advice to relevant recovery plans, humanitarian assistance and development programmes.

Questions to ask

To consolidate permanent sectoral involvement, ask:

- Does the sector have good information on each of the natural hazards that could affect sectoral activities?
- Does the sector know the vulnerabilities and risk of their activities and equipment?
- Does the sector have an understanding of its own role in creating or reducing disaster risks?
- Do sectoral stakeholders have a clear concept of disaster risk reduction and how it can be integrated into sectoral development actions and processes?
- Does the sector have a way to coordinate stakeholder concerns and interventions (e.g. by scientists, the private sector, communities and others) in relation to disaster risk reduction?
- Has the sector incorporated disaster risk reduction as a working policy and day-to-day practice?

C. Responsibilities and resources

Who should be involved?

The work group should include:

- Representatives of the ministry that acts as leader in the sector.
- Sectoral planning agencies.
- Relevant private sector agents (representing business interests, etc.).
- Disaster risk management practitioners.
- Relevant academic organizations and research groups.
- Representatives of clients, users and communities and associated NGOs.
- Other key sector actors.

What conditions facilitate the task?

- Political support from the sectoral ministry for the creation of work groups and for integrating additional organizations in the planning and finance system at all levels.
- Strong interaction with relevant organizations in the environmental and social sectors.
- Guidance and assistance from national platforms.
- International cooperation within the sector to support the exchange of information and best practices, capacity development and the strengthening of institutional frameworks.

4.5 Stimulate disaster risk reduction activities in production and service sectors

D. Illustrations

Energy sector, Ecuador

In 2001, the planning and development ministry of Ecuador (the National Secretary for Planning and Development, or SENPLADES) initiated a process for incorporating disaster risk reduction into sectoral actions. SENPLADES is the country representative for PREANDINO, the Andean Countries' regional disaster risk reduction organization. SENPLADES's strategy is to work progressively, involving institutions and agents incrementally over time.

The SENPLADES process has three phases. The first phase involved running a large number of workshops in seven sectors: transport, health, agriculture, fishery, energy, water supply and sanitation, education and urban housing. The workshops diagnosed risks and developed workplans.

The second phase elaborated the basis of disaster risk reduction plans for the sectors, with two results. First, it created a data base and geographical information system on hazards, vulnerabilities and risk in some sectors. Second, it prepared a preliminary proposal on strategies, policies and projects for disaster risk reduction.

The third, current phase involves developing disaster risk reduction plans for each sector. Sectors have created committees, composed of representatives from their main institutions and actors. The committees have begun the preparation of their respective plans, which will include guidance on how to incorporate proposed goals and activities into development planning and public investment programmes. They are also deepening information and analysis and adapting policies and regulations to their specific needs. Some sectors, such as the electric sector, are advancing case studies and elaborating useful guidelines for projects design. To disseminate useful information, SENPLADES in 2006 edited and published resulting sectoral documents from all phases of the process.

The energy sector provides an illustration of how the SENPLADES process works. The Ministry of Energy and Mines, head of the energy sector, has with SENPLADES jointly led coordination. Together, they structured a coordinating committee, with participation by the three primary subsectors: hydrocarbons, electricity and geology/mines. Each subsector established its own work group, integrating relevant agencies and actors. As a legal support, in 2005 the Ministry approved a Ministerial Agreement that incites public and private enterprises to carry out disaster risk reduction plans.

The energy sector has made great progress. Since the start up of sectoral participation, for example, both Petroecuador (an oil holding enterprise) and the National Electric Commission have identified institutional and legal weaknesses for disaster risk management; assessed natural hazards and main vulnerabilities in the subsectors; instituted disaster risk reduction information systems; and created other specific proposals.

For further information visit: www.senplades.gov.ec/

Water supply and sanitation, Colombia

Under the framework of PREANDINO, a regional programme to improve disaster risk management, Columbia's water supply and sanitation entities in 2001 created an inter-institutional work group to incorporate disaster risk reduction into the sector. The Department of Water and Basic Sanitation (DAPSB) leads the group. Membership has included the National Direction for Disaster Prevention and Attention, the National Department of Planning, the Institute for Environmental Studies, the National Institute of Geology and Mines, the Colombian Association of Environmental and Sanitary Engineers (ACODAL), the Public Utility Superintendence and the Water Regulation Commission.

DAPSB has worked to generate awareness of and political commitment to disaster risk reduction among public service utilities by means of forums, seminars, presentations and other technical and academic events. In 2002 and 2005 DAPSB held national meetings with more than 80 public utility companies, setting up dialogues and giving information. It explained sectoral disaster risk reduction and progress on recovery policy; outlined disaster

risk reduction concepts and terminology; described methodological approaches for vulnerability assessment; highlighted current experiences in local disaster risk reduction and recovery actions; and explored technical issues related to disaster prevention, contingency plans and mitigation measures in the sector.

Other members of the work group have helped to integrate disaster risk reduction into the sector. The National Department of Planning has strengthened consideration of disaster risk reduction in mechanisms for project investment, mainly in the case of new investment projects. Additionally, the National Direction for Disaster Prevention and Attention, in coordination with DAPSB, has elaborated a programme on disaster risk management for public entities.

All this work has allowed Columbia to identify the sector's needs and priorities for disaster risk reduction, as well as progress made in reducing risks. Progress includes modification of sectoral legal regulations, preparation of work programmes, and elaboration of methodological guides for drought and flood management for public utility companies. Additional methodological guides are envisioned for landslides and earthquakes. Institutional analysis has been carried out, namely assessments of the sector's current organization, the relation between geographical levels, and the interaction of government with private agents.

The sectoral work group has also endeavoured to link with other relevant organizations, such as ACODAL. The group studied the role that ACODAL could play in advancing risk prevention in the sector. One result was the promotion of a national training event on disaster risk reduction for public utility companies. Similar efforts have been made to work with other organizations, such as National Commission of Micro-basins, to visualize critical and strategic areas.

For further information visit: Reglamento Tecnico del Sector de Agua Potable y Saneamiento Basico Ras - 2000. República de Colombia Ministerio de Ambiente, Vivienda y Desarrollo Territorial, Dirección de Agua Potable, Saneamiento Básico y Ambiental. www.minambiente.gov.co/viceministerios/ambiente/dir_agua_potable_saneam_basico/direccion/T%EDtuloIAmbiental.pdf

E. Further reading

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PAHO/WHO. 2005. Safe Hospitals: A Collective Responsibility, A Global Measure of Disaster Reduction. PAHO/WHO. www.paho.org/english/dd/ped/SafeHospitalsBooklet.pdf

UN-Water. 2004. Water Hazard Risks. www.unwater.org/downloads/unwaterseries.pdf

4.6 Financial/economic instruments: Create opportunities for private-sector involvement in disaster risk reduction

A. Understanding the task

What's the purpose of this task?

The purpose of the task is to establish appropriate fiscal policy mechanisms and innovative instruments to increase the private sector's contribution to risk reduction.

Why it's important

The HFA specifically notes the important role that business enterprises and the private sector can play in working with national government authorities to reduce disaster risks. Well designed, correctly located and economically robust business enterprise is an important means to increase the resilience of businesses and societies to disasters. Partnerships with the private sector enable governments to leverage their investments in disaster risk reduction activities by tapping the knowledge, resources and expertise in the private sector. They can also assist in integrating risk reduction, risk transfer and mitigation activities with market forces, and thereby enhance the sustainability of risk reduction practices in business.

The main benefit that governments can provide to the private sector is predictability in the risk-related policies that have direct impact on business operations, including consistent and equitable enforcement of regulations. Predictability may also be achieved through, for example, providing long-term licences to operate, based on mutually agreed conditions. Conditions could include, for instance, business commitments to contribute to disaster risk reduction activities with direct benefits to the local communities. Government can also facilitate public-private partnerships by creating appropriate and innovative fiscal and other policy measures, for

Terminology

Microfinance and microcredit: Programmes extending small loans and other financial services such as savings, to very poor people for self-employment projects that generate income, allowing them to care for themselves and their families. *(Source: Microcredit Summit Campaign)*

Public-private partnership: A voluntary association of both state and non-state actors or organizational entities typically drawn from government, business, professional and/or academic institutions and other elements of civil society to address commonly held objectives through shared resources, skills and abilities. Partnerships typically involve some form of joint decision-making and sharing of responsibilities, opportunities and risks in recognition that the combined value of their respective attributes provides greater potential for accomplishment than would be possible through individual efforts. *(Source: Microcredit Summit Campaign)*

Risk avoidance practices use corporate expertise in areas such as enterprise risk management to identify opportunities to avoid risks. For instance, risk can be avoided by withholding construction permission or operating licences in high-risk areas, such as flood plains, costal zones and landslide prone areas.

Risk mitigation uses corporate expertise and investments to identify and retrofit lifeline facilities such as hospitals and oil depots which are situated in hazardous areas and which, if damaged, could interrupt normal operations of businesses and communities. The same approach is applied to lifeline facility networks (like power lines, communications networks and water supply and sanitation). Risk mitigation also involves encouraging corporate partners to pool resources: building, for example, a reliable corporate power generation facility for a community of businesses in the same municipality, rather than relying on individual standby generators for each enterprise. Governments could also co-invest in increasing the reliability of municipal utilities, so that they will stay operational during expected hazardous conditions.

Risk transfer involves insurance and reinsurance both for physical damage and business interruption, coverage that would provide cash compensation immediately after the disaster. To the extent possible, create large pool of insured to avoid paying high premiums, and introduce mandatory insurance for those businesses and public institutions that have to operate in the hazardous conditions.

instance promoting microcredit schemes, insurance, safer construction and information technologies useful for early warning. This will ensure participation of the private sector in risk reduction and also generate much needed investment for risk prevention and mitigation activities.

How it relates to other priority tasks

The task of creating opportunities for private sector involvement is linked to engaging in a multi-stakeholder dialogue (Task 1.1), as the private sector should be involved in such dialogues. More generally, it relates to all the sectors and issues discussed in Chapter 4 of this Guide, as in every sector there are opportunities for developing synergies with the private sector.

B. How to do it

Recommended steps

Ways to engage the private sector may be very different depending on country-specific conditions.

(I) It is usually helpful to start with a round-table meeting. Such a meeting can start dialogues between government officials and private sectors, helping to identify areas of mutual interest for joint disaster risk reduction activities.

To develop a round-table meeting:

1. Prepare by reviewing existing partnerships with the private sector.
2. Identify the major risks facing corporate interests in the country. Identify which risks might be better dealt with through risk avoidance practices, mitigation or risk transfer mechanisms.
3. Convene a meeting with private sector representatives.
4. Discuss areas of common interest, seeking to identify types of joint projects that could accommodate both constraints and opportunities for private and public partners, allowing them to combine resources for disaster reduction.
5. Engage the business leadership skills, the professional abilities and the resources in development practices that reduce risks for communities and companies.

(II) When countries are interested in developing more formal partnerships, governments can create a national partnership task force. The task force can pursue the following activities:

1. Identify business opportunities in disaster risk reduction for the private sector.
2. Create an incentive structure for investment in these business opportunities.
3. Facilitate private investment in disaster risk reduction activities, by introducing innovative fiscal measures. Examples of such measures include concessions on income tax, capital gains tax, and property tax (for investment on safe housing and other risk reduction activities).
4. Encourage information technology and telecommunication companies to design people-centred products and services for early warning dissemination.
5. Encourage construction companies to design disaster-resistant temporary and permanent shelter for disaster-affected populations.

4.6 Financial/economic instruments: Create opportunities for private-sector involvement in disaster risk reduction

6. Encourage businesses to earmark part of their "corporate social responsibility" resources for disaster reduction activities.
7. Diversify microcredit and insurance products, to increase the total asset base and incorporate risk mitigation components.
8. Through collaborative studies with private and academic institutions, establish a case for risk mitigation by private industry. Risk mitigation can ensure business continuity in the face of disaster impacts.
9. Promote the financing of specific post-disaster recovery needs for poor people, or those with physical or age disabilities, through microcredit and insurance products and services.
10. Integrate microcredit services with programmes of traditional and non-traditional skills development. Pursue additional ways to introduce the services to new markets.
11. Evaluate the potential for using microfinance and microcredit as means to support recovery for those who can afford to repay loans and/or support interest payments.
12. In collaboration with the private sector, develop trainings in welfare assistance programmes to improve skills and diversify income sources for the poor.
13. Assess current practice and efficiency of insurance and reinsurance mechanisms in covering catastrophic events for the public sector, private sector and personal residences.
14. Expand insurance programs. Explore new methods of using public subsidies to promote the growth of insurance business. The economic benefits of such subsidies may be more cost-effective than post-disaster relief and rehabilitation.
    - Establish crop insurance, where governments subsidize the premium payments of the poor, thus saving on relief funds.
    - Develop life insurance for household earners as part of poverty-reduction programmes.
    - In publicly funded housing, establish compulsory insurance for risk reduction, with reduced premiums.
15. Consider establishing compulsory home insurance to protect against disasters (see example below from Turkey).
16. Introduce innovative fiscal policy measures like concessions on property tax and income tax for homeowners and businesses that undertake appropriate risk reduction measures.
17. Assess necessary reforms in laws and regulations to enable new financial mechanisms to be implemented.
18. Evaluate the possibility of establishing a national catastrophe fund, which can be used both to pay for recovery and reconstruction, and also to fund projects for disaster risk reduction. As an alternative, consider issuing a catastrophe bond to cover losses to critical public infrastructure.
19. Activities should also include women's savings, credit and self-help groups.

C. Responsibilities and resources

Who should be involved?

Representatives from:

- The private sector, including federations and chambers of industries, commerce business associations and professional industry associations.

- Government.
- Professional and/or academic institutions.
- Other elements of civil society.

What conditions facilitate the task?

- Top-level support from the government.
- A clear mandate.
- Proactive leadership.
- A strong core group of committed corporate partners.
- Incentives for action.

D. Illustrations

Disaster risk reduction insurance programme, Turkey

Turkey experienced two major earthquakes in 1999, with respective magnitudes of 7.4 and 7.2. The last of these earthquakes, which occurred in the Marmara region, resulted in the loss of thousands of lives and placed an enormous financial burden on the economy and the Government. The impacts of this disaster and the low level of insurance coverage in place led the Government to establish a widespread and effective earthquake insurance system.

Before 2000, earthquake insurance in Turkey was provided mostly as an addition to fire and engineering insurance. The coverage rate was quite low, especially for residential buildings (5 per cent). Taking advantage of the public and political momentum created by the Marmara earthquake, the Government in 2000 introduced a compulsory earthquake insurance scheme for all residential buildings that fall within municipal boundaries. To offer this insurance at reasonable premiums, the Government created the Turkish Catastrophe Insurance Pool (TCIP) under the supervision of the Treasury Undersecretary.

The compulsory earthquake insurance scheme aims to limit the financial burden that earthquakes place on the Government budget, to ensure risk-sharing by residents, to encourage standard building practices and to establish long-term reserves to finance future earthquake losses. The scheme provides compensation to homeowners without reverting to the Government budget. Payment of its affordable premiums effectively maintains social solidarity and risk-sharing. Meanwhile, a significant portion of the risk is ceded to international reinsurance markets until sufficient financial resources are accumulated within TCIP.

To encourage compliance, homeowners must present their insurance policy documents at real estate registration offices for the sale and purchase of homes. A recent plan would extend insurance requirements to other public services and create new checkpoints. If these new checkpoints are instituted, homeowners will be obliged to present insurance policy documents when opening accounts for gas, water, electricity and telephone services.

For further information see: The Turkish Catastrophe Insurance Pool (TCIP) and the Compulsory Earthquake Insurance Scheme. Selamet Yazic. The World Bank. http://info.worldbank.org/etools/docs/library/114715/istanbul03/docs/istanbul03/11yazici3-n%5B1%5D.pdf

4.6 Financial/economic instruments: Create opportunities for private-sector involvement in disaster risk reduction

Risk-reduction programme through microcredit, Bangladesh

In Bangladesh, grass roots lending schemes and micro-investment programmes are running with considerable success. One of the originators of microcredit, Grameen Bank, works in this country to target and mobilize the poor, creating social and financial conditions so that they receive credit by helping them to identify a source of self-employment in familiar rural non-farm activities. Targeting the poor is effective, as it mobilizes only those who are willing to bear the costs of group formation, training and monitoring each other's activities, and those who are satisfied with the relatively small sums they can borrow and repay. To better meet its ultimate goal of social and economic development, Grameen Bank offers more loans to women than men. By doing so, it directly channels credit to the poorest and the least empowered, helping to improve the living standards of their families.

Along with providing credit, Grameen Bank offers guidelines to members for codes of conduct, and activities aimed at improving their social and financial conditions. It also provides training to women in maternal health, nutrition and childcare to stimulate greater demand for basic health care services.

The Bank has generated a number of benefits at both the household and the village level. Programme participation has enabled members to enhance their assets and net worth. For example, an average programme-participating household owns 56 per cent more resources and has 51 per cent more net worth than a non-participating household. Programme participation has also increased calorie intake, especially among female household members, and substantially reduced the incidence of poverty. Labour force participation, especially among women, is higher among participants than non-participants; women's labour force participation is 66 per cent among programme participants compared to 52 per cent for non participants. The school participation rate of girls is also higher for participants (57 per cent) than for non-participants (36 per cent). In addition, programme placement generates income gains for the poor as a whole through its impacts on the local resource allocation. For example, the daily male wage is 23 per cent higher in programme villages compared with non-programme villages. A more recent (2005) study was able to compare poverty rates in 1991/92 and 1998/99 and found that moderate poverty in all villages declined by 17 per cent: 18 per cent in program areas and 13 per cent in non-program areas. Among program participants who had been members since 1991/92 poverty rates declined by more than 20 per cent. It is estimated that more than half of this reduction is directly attributable to microfinance, with the impact greater for extreme poverty than moderate poverty.

Source: Grameen Bank promotional literature; S. R. Khandker, B. Khalily and Z. Khan, (1993): Grameen Bank: What Do We Know? World Bank, Education and Social Policy Department, Washington, D.C. and Measuring the Impact of Microfinance: Taking Stock of What We Know by Nathanael Goldberg. December 2005. Grameen Foundation USA Publication Series.

Transferring risk from the poor, India

In India, personal, household and small business assets often are unprotected against disasters: a situation that deepens risk for the poor. Traditional insurance can cover many losses, but it is frequently unavailable to impoverished individuals due to its high cost. Relief and rehabilitation commonly rely on aid to cover the costs of replacing damaged assets of the poor, but support from outside entities is unpredictable. It therefore can be difficult to replace these assets, which, in turn, makes recovery difficult. Groups that fail to recover become more vulnerable to subsequent disasters.

Microinsurance has emerged from this environment to assist in reducing disaster risk. The term "microinsurance" describes insurance products tailored specifically to the needs and budgets of the poorest communities. Recent insurance regulatory reforms within the Government of India, combined with the prioritization of risk reduction by ISDR, the ProVention Consortium, and the United Kingdom Department for International Development, have contributed to the viability and advancement of microinsurance.

Afat Vimo (Gujarati for 'disaster insurance') is one example of microinsurance. A product of the All India Disaster Mitigation Institute, Afat Vimo has been developed in partnership with both private and public sector insurance

companies. Demand for Afat Vimo has been growing; currently it covers more than 5,500 small businesses. The scheme has demonstrated that several insurance companies are willing to offer a disaster insurance package that is affordable and attractive to poor people.

For further information see: Bhatt, M. R., Pandya, M. and Reynolds, T. 2006. Taking risk off the backs of the poor: Afat Vimo disaster insurance. Real Risk. Tudor Rose.

E. Further reading

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Chakrabarti, D. and Bhat, M.R. 2006. Micro-Finance and Disaster Risk Reduction. Proceedings of International Workshop on Disaster Risk Mitigation: Potential of Micro-Finance for Tsunami Recovery, New Delhi, India, October 15-15, 2005. New Delhi: National Institute of Disaster Management (NIDM).

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Witte, J.M. and Reinicke, W. 2005. Business Unusual: Facilitating United Nations Reform Through Partnerships. Commissioned by the United Nations Global Compact Office. New York: United Nations Global Compact Office. www.gppi.net/businessunusual/home

Websites

UN/ISDR's "Invest to prevent disaster" - www.unisdr.org/international-day-2005

Prepared for the International Day for Disaster Reduction 2005.

4.7 Disaster recovery: Develop a recovery planning process that incorporates disaster risk reduction

A. Understanding the task

What's the purpose of this task?

This task seeks to develop a disaster recovery planning process in which the underlying causes of disasters in the recovery and reconstruction effort are addressed, in order to build resilience and avoid the reconstruction of risks after disaster events

Why it's important

Disaster recovery planning is an integral part of disaster management and risk reduction. Planning for recovery ahead of actual disasters enables policymakers and practitioners to look beyond replicating the pre-disaster situation of communities to address, in a participatory manner, socio-economic vulnerabilities of communities affected by disasters, thereby helping to reduce future disaster risk.

Terminology

Recovery: Decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk. Recovery (rehabilitation and reconstruction) affords an opportunity to develop and apply disaster risk reduction measures. *(Source: UN/ISDR Terminology)*

Recovery efforts are most effective when they are informed by the lessons learned from previous disasters as well as by knowledge of risk reduction measures. Recovery plans that incorporate these aspects reduce disaster losses, in lives as well as in the social, economic and environmental assets of communities. Without such a plan, the long timespans required for the negotiation and approval of development funding generate a gap between humanitarian assistance and the initiation of reconstruction programming: a gap in which affected people are usually left without support for recovery. Additionally, reconstruction that is not supported by an effective recovery plan frequently leads to rebuilding the conditions of risk which existed before the disaster.

The preparation of specific recovery plans can only occur after a disaster has struck, but general recovery planning can be undertaken in advance, by using existing information to establish policies and institutional roles, and to develop scenarios and contingency plans. The latter can be used as a starting point of a specific recovery plan, adjusted according to the nature of the particular event. Disaster preparedness planning is often undertaken to address likely disaster scenarios (through contingency plans; see Task 5.3). Less often do these plans include preparations for post-disaster recovery action.

How it relates to other priority tasks

The task of developing risk-reducing recovery plans hinges on access to and analysis of risk information (Chapter 2) and on linkages with the country's preparedness system (Chapter 5). Effective recovery plans also should incorporate knowledge of how to anticipate and reduce future risks in key sectors, which are considered in the other tasks of Chapter 4.

Recommended steps

To develop a recovery planning process that reduces future risk:

1. Collect and review available background documentation on such things as:
    - Physical and economic conditions and development plans.

B. How to do it

- Natural hazards.
- Activities, institutions and structures most at risk from those hazards.
- Vulnerabilities on a sector-by-sector basis.
- Capability assessments (see Task 5.2) showing what resources are available to respond and recover from disaster.
- The strengths and weaknesses of the organizations responsible for responding to emergency situations, managing recovery and reducing losses.

2. Determine the needs and appropriate responses to various kinds of disaster events, as well as the kinds of mitigation measures that should be built into recovery and reconstruction from various disaster scenarios. Address the strengths and vulnerabilities of specific sectors (see box below for details).
3. Identify lead agencies for undertaking recovery planning and implementation for various types of disasters. Obtain agreement on roles.
4. Draft a generic plan for recovery. Include relevant contingency plans and considerations, and standby arrangements for administrative action and financing in the event of a disaster. Consult with government departments, interested organizations, businesses and the public and establish a mechanism for receiving reviews, addressing concerns and revising the document.
5. Include in the generic recovery plan a description of the process to develop recovery plans when specific events occur. This process should include linkages and mechanisms for coordination between agencies, among levels of government, and with the private sector and the public, as well as systems for communicating situation information, needs and orders to and from those in charge.
6. Arrange for adoption and signing of the final generic plan by representatives of all affected organizations.
7. Publish and widely disseminate the generic recovery plan, and promote its major principles.
8. Establish processes for testing, exercising and revising the plan in accordance with changing circumstances and requirements.

Sectors addressed in recovery planning

Some sectors typically addressed in a recovery plan are:

- Rehabilitation/recovery of infrastructure and critical facilities: The rapid rehabilitation of core infrastructure such as primary roads, bridges, water supply and sanitation systems, primary power generation and distribution facilities, irrigation and agricultural facilities, health, education and other social facilities will lead to economic revitalization of the affected region. The key for an effective rehabilitation programme is an accurate and thorough damage assessment, which will provide the necessary information on why infrastructure was damaged or destroyed and will determine the method for including risk reduction in rehabilitation and reconstruction.
- Employment and livelihoods: Support agriculture and livestock production, through the provision of seeds, tools, microcredits and other means. Support small business by providing credits or through other means. Support reconstruction of the housing sector using local technologies, construction materials and local know-how in order to ensure that construction activities have a direct positive impact upon the local economy. Support generation of short-term, gender-sensitive alternative employment to compensate lost livelihoods in the immediate post-disaster period.
- Housing: Housing rehabilitation/reconstruction is a key element in closing the gap between emergency relief and sustainable recovery. It is a first step toward reactivating the productive economy. Building the capacity

of local authorities to promote, supervise and guide planning and construction processes helps ensure a successful and sustainable reconstruction process. Local authorities should be enabled to set up legislative and regulatory frameworks to promote local initiatives and local involvement in planning and construction issues.

- Resettlement of families: A note of caution on resettlement - often in the aftermath of a disaster, experts and government officials promote a safer location for settlement of people at risk. Experience shows, however, that resettlement of populations on new sites presents major challenges, and often leads to resettled people returning back to their original sites.

C. Responsibilities and resources

Who should be involved?

It is important that skilled people from the following sectors are part of the plan development team, so that recovery becomes an integrated component of the planning and preparedness process.

- Finance, planning, urban and infrastructure government ministries.
- NGOs.
- Private construction industry.
- Corporate sectors.

What conditions facilitate the task?

The following actions can facilitate the integration of recovery into disaster preparedness activities:

- Accurate risk assessments and development of likely disaster scenarios.
- Participation of authorities from provincial and local levels, with executive authority for planning and implementing post-disaster recovery and reconstruction plans.
- Focus on the participatory aspect of the planning process more than the resulting plans, which will foster the buy-in necessary for effective plan implementation.
- Ability to involve finance and budgeting authorities to earmark resources upfront for disaster recovery.

D. Illustrations

Lessons on effective disaster recovery management following two earthquakes, India

A comparison of recovery strategies after two earthquakes in India provides useful lessons for disaster recovery planning. The city of Latur, in the district of Maharashtra, India, experienced an earthquake in September 1993. Following the earthquake, the district government set up the Maharashtra Emergency Earthquake Rehabilitation Programme (MEERP). MEERP reported to the chief Minister and chief Secretary of the district. It was instrumental in the rapid completion of the earthquake rehabilitation project. However, after the project's completion, MEERP was disbanded. In its wake, the government created a new disaster management centre in an existing department of relief and rehabilitation. Although MEERP developed many disaster mitigation plans for districts, including for Mumbai city, and learned valuable lessons in disaster mitigation, these were not institutionalized. Hence, when Mumbai was flooded in 2004, the level of preparedness and response had not benefited.

In contrast, when an earthquake hit Gujarat State in 2001, the Gujarat State Disaster Management Authority (GSDMA) was highly effective in the recovery phase. Several reasons exist for GSDMA's success. First, it is managed by senior state government officials. Second, it is linked to line departments, and has an independent financial and executive authority to disburse funds and to review progress, as well as to take corrective policy measures based on field assessments. Third, it is able to use the existing field agencies of the state governments, such as the line departments of public works, education, health and water supply, to implement programmes. The GSDMA continued after the closure of the Gujarat Project, becoming the permanent disaster prevention and management organization of the state. This has ensured that lessons learned have been institutionalized into the state's disaster management plans.

For further information see: Praveen Pardeshi, quoted from: ADRC, UN/ISDR, UNDP. Learning from Disaster Recovery. Ed I. Davis. Expected publication of the International Recovery Platform, 2007.

Housing sector: building capacity and community through disaster recovery, Montserrat

In September 1989, Hurricane Hugo struck the small Caribbean island of Montserrat, killing 11 people and enacting extensive physical damage. Hugo damaged 98 per cent of the island's homes, and left 3,000 people (a quarter of the population) homeless. Eight months later, three organizations joined forces to help rebuild one Montserrat community, the poor village of Streatham. Streatham had seen almost all its houses severely damaged or destroyed by the hurricane. In response, an international development NGO (Canadian University Students Organization - CUSO), an intermediary NGO from the eastern Caribbean (Caribbean Conference of Churches - CCC) and the Streatham community action group began a community-based rebuilding programme, working with local people to form a housing assistance team.

The programme showed both short- and long-term results. In the short run, the team helped rehabilitate Streatham's structures: it held training workshops on rebuilding and structural strengthening techniques, built 22 homes, and repaired the severely damaged community centre. The programme also showed significant long-term developmental achievements. The housing team members took great pride in their work, and the action group's involvement in the programme enhanced its importance. Volunteer activities organized by the action group post-recovery received significantly greater participation by local people.

On this basis, the Canadian University Students Organization decided to put additional funding into local development projects, introducing new agricultural production practices and improving water distribution. These had been planned before the hurricane, but over a longer timescale; they were now brought forward. Two years after Hugo, the community group appeared to have established an economically viable agricultural production and marketing cooperative.

For further information see: Berke, P.R. and Beatley, T. 1997. After the Hurricane: Linking Recovery to Sustainable Development in the Caribbean. Baltimore, MD and London: Johns Hopkins University Press. pp. 82-116.

Rehabilitating critical health facilities, Guatemala

The heavy rainfall from 2005's Hurricane Stan in the mountainous regions of Guatemala caused devastating landslides and widespread flooding along the coast. Health centres and health posts sustained some of the most severe damage. With many health centres already in a precarious state due to lack of maintenance, the rains destroyed or damaged the roofs, and the resultant leaks as well as related flooding damaged electrical systems and equipment.

After the hurricane, the Guatemala Ministry of Health, with support from PAHO/WHO, undertook damage assessment and retrofitting for 40 health centres in the seven hardest-hit departments. The Ministry tailored repairs and chose locations specifically to decrease future vulnerability to hurricane or flood. New roofs were

properly secured, downspouts and drainage canals were added, electrical systems were repaired and tested, and in facilities that were not affected, water and sanitations systems were checked to make sure they would not be affected in the next disaster.

As part of PAHO/WHO's commitment to safe hospitals, that organization is working to reduce countries' need for such rehabilitations in the future. With regional health and structural engineering experts, PAHO/WHO is developing an easy-to-use computer model to rank a health facility's level of risk and vulnerability before a disaster hits. The programme automates and standardizes the evaluation of facilities' structural, non-structural and functional safety, increasing such evaluations' effectiveness. It is being developed in Spanish and English and will be field tested in Cuba, Mexico, St. Lucia and St. Vincent and the Grenadines.

For further information see: PAHO/WHO. Disasters: Preparedness and Mitigation in the Americas. Issue 105: October 2006. pp 2-4.

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Bhatt, M.R. 2005. "Learning from Recovery". In Know Risk. United Nations/Tudor Rose. pp 351- 353.

DMTP. 1996. Contingency planning: A Practical Guide for Field Staff. Training Module. www.undmtp.org/english/contingency/conting_planning.pdf

IFRC. 2001. World Disasters Report: Focusing on Recovery. www.ifrc.org/publicat/wdr2001/

PERI and Natural Hazards Center at the University of Colorado. 2006. Holistic Disaster Recovery: Ideas for Building Local Sustainability after a Natural Disaster. www.riskinstitute.org/PERI/PTR/Disaster+Management_PTR_1037.htm

The Natural Hazards Center at the University of Colorado, Boulder, United States of America and the Public Entity Risk Institute (PERI) have revised (in 2006) the 2001 version of this handbook. It discusses incorporation of the principles of sustainability - e.g. environmental quality, economic vitality, quality of life, social equity, citizen participation and disaster resiliency - into recovery processes.

Twigg, J. 2004. Good Practices Review, Disaster Risk Reduction, Mitigation and Preparedness in Developing and Emergency programming. Good Practice Review No. 9. London: Overseas Development Institute.

UNDP/BCPR. Disaster Reduction and Recovery for Sustainable Human Development. New York: UNDP. www.undp.org/bcpr/disred/english/publications/overview.htm

UNDP/BCPR. 2005. Post-Disaster Recovery - Guidelines (Version 1). www.undp.org/bcpr/disred/documents/publications/regions/america/recovery_guidelines_eng.pdf

The document provides a conceptual framework, guiding principles and steps to follow to facilitate recovery planning in the aftermath of a disaster.

Websites

International Recovery Platform (IRP): www.recoveryplatform.org/
Database on good practices on recovery

Asian Disaster Reduction Center (ADRC): www.adrc.or.jp/publications/recovery_reports/index.htm
Regional and national reports on recovery and reconstruction

Chapter 5

Strengthening preparedness for response

Hyogo Framework for Action Priority 5
Strengthen disaster preparedness for effective response at all levels.

The systematic incorporation of risk reduction approaches into the implementation of emergency preparedness, response and recovery programmes is one of the three Strategic Goals of the HFA. Even when effective disaster risk reduction measures are in place, there will remain some residual element of risk that cannot be avoided because it is either too costly or technically unfeasible to eliminate. Disaster preparedness also deals with measures and capacities to address this residual and unmanaged risk.

Priority 5 is distinctive because it represents the important link between the ongoing disaster risk reduction activities elaborated in Priority 1 through 4, and the operational abilities most often identified with emergency (or disaster) management. The responsibilities outlined in Priority 1 through 4 are complementary to and often important to emergency management. Priority 5 concerns the operational domain where these respective interests and abilities meet. Stakeholders bring together abilities for planning, preparedness of people and facilities, public understanding and communication, and contribute their experiences to the broader strategic policies related to disaster and risk management.

This involves strengthening of policy, technical and institutional capacities; support of dialogue; information exchange; coordination and stakeholder engagement; the review and updating of disaster preparedness and contingency plans and policies; and the development of emergency funding mechanisms.

Reaching an effective preparedness level, with the ability to define and carry out preparedness and contingency plans, requires certain foundations that are addressed in Chapters 1 through 4 of this Guide. Strengthened institutional structure, capacities and approved legislation frameworks including resources allocation (Chapter 1) are the basis of multi-stakeholder preparedness measures and responsibilities. Risk identification including hazard monitoring, vulnerability analysis and early warning systems (Chapter 2) provides the tools for preparedness and contingency planning. Public awareness, knowledge development and communication systems (Chapter 3) facilitate the understanding and ability to apply preparedness and contingency plans. The identification of additional and underlying risk factors (Chapter 4) contributes to refining preparedness and contingency measures and plans.

Implementing Priority 5 requires a common understanding of what constitutes an effective disaster preparedness system - including an understanding of disaster risk factors. A disaster preparedness plan and programme should cover the assessment and strengthening of existing policy, technical and institutional capacities; the strengthening of management and coordination structures (including agreements with other countries); mechanisms for the coordination and exchange of information and early warnings; contingency planning and response readiness, such as evacuation and standby arrangements for the provision of essential services and supplies; and the periodic review, rehearsal and modification of the plan with the active participation and ownership of relevant stakeholders, including communities in disaster risk reduction.

Finally, preparedness for effective response requires the allocation of necessary financial resources, including an emergency fund.

States can undertake a number of tasks to implement Priority 5. This chapter recommends the following tasks:

5.1. Develop a common understanding and activities in support of disaster preparedness.

5.2. Assess disaster preparedness capacities and mechanisms.

5.3. Strengthen planning and programming for disaster preparedness.

The following indicators are suggested as possible means for assessing progress in implementing this priority:

- An independent assessment of disaster preparedness capacities and mechanisms has been undertaken and the responsibility for implementation of its recommendations have been assigned and resourced.
- Disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training drills and rehearsals are held to test and develop disaster response programmes.
- All organizations, personnel and volunteers responsible for maintaining preparedness are equipped and trained for effective disaster preparedness and response.
- Financial reserves and contingency mechanisms are in place to support effective response and recovery when required.
- Procedures are in place to document experience during hazard events and disasters and to undertake post-event reviews.

(Note: A complementary package of guidelines and indicators for disaster preparedness is being developed under the auspices on the Inter-Agency Standing Committee (IASC) on humanitarian assistance and under the coordination of the OCHA.)

5.1 Develop a common understanding and activities in support of disaster preparedness

A. Understanding the task

What's the purpose of this task?

This task seeks to develop a common understanding and activities in support of preparedness by bringing together stakeholders involved in disaster risk reduction and emergency management. In drawing together these stakeholders, it hopes to widen their appreciation of all of the features of effective disaster preparedness.

Why it's important

A common understanding and coordinated activities in support of effective preparedness are important because experience has shown that effective disaster response depends on the extent to which diverse actors and entities prepare, and operate in a coordinated and timely manner, avoiding gaps, duplications of effort and parallel structures. Different political, cultural and socio-economic environments necessitate different institutional arrangements and coordination mechanisms, but whatever the setting, effective management and coordination require clarity on functions and authority, a clear division of labour, and leadership that inspires and is accountable. Effective management includes coordination between local and central authorities, between internal and external actors, and within and between sectors.

A significant feature of an effective preparedness system is a strong appreciation of who is vulnerable and why, and of measures that can be taken to strengthen the resilience of disaster-prone communities, including indigenous coping mechanisms. This people-centred approach needs to be sensitive to gender, culture and other context-specific issues that can empower or undermine particular groups and individuals.

The increased public awareness and political support during a disaster event provide an important opportunity to improve all elements of disaster risk reduction, not only in the immediate response and recovery programmes for the affected people, but also in the ongoing long-term and countrywide risk reduction programmes. Individual events can be capitalized on through special public awareness programmes and through debate on increased investment in mitigation and disaster preparedness initiatives.

Terminology

Emergency management: The organization and management of resources and responsibilities for dealing with all aspects of emergencies, in particularly preparedness, response and rehabilitation.
Emergency management involves plans, structures and arrangements established to engage the normal endeavours of government, voluntary and private agencies in a comprehensive and coordinated way to respond to the whole spectrum of emergency needs. This is also known as disaster management. *(Source: UN/ISDR Terminology)*

Preparedness: Pre-disaster activities that are undertaken within the context of disaster risk management and are based on sound risk analysis. This includes the development/enhancement of an overall preparedness strategy, policy, institutional structure, warning and forecasting capabilities, and plans that define measures geared to helping at-risk communities safeguard their lives and assets by being alert to hazards and taking appropriate action in the face of an imminent threat or an actual disaster. *(Source: OCHA)*

Relief/response: The provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term, or protracted duration. *(Source: UN/ISDR Terminology)*

5.1 Develop a common understanding and activities in support of disaster preparedness

HFA

How it relates to other priority tasks

The activities proposed in this task can be developed within a larger disaster risk reduction dialogue process such as a national platform (Tasks 1.1 and 1.2). Results of this task should be incorporated when developing the institutional framework for disaster risk reduction (Task 1.3), and when institutionalizing disaster risk reduction and allocating resources (Task 1.4). Task 2.1 on risk assessment and Task 2.3 on early warning systems are of particular importance to preparedness, and Task 3.3 on developing trainings for specific stakeholders is also relevant.

B. How to do it

Recommended steps

To build a common understanding and activities in support of preparedness, start by organizing a dialogue between disaster reduction and response managers. In setting up such a dialogue, consider the following steps:

1. Identify key stakeholders - those who have mandated authority or who otherwise should play a role in the planning, promotion or implementation of risk reduction and disaster response strategies and programmes.
2. Identify existing mechanisms and networks for both risk reduction and disaster response to assess where the dialogue is best anchored (e.g. a national platform for disaster reduction).
3. Identify one or more leading institutions or "champions". Champions are representatives of the community, influential entities or persons interested in integrating disaster risk reduction and response, who willing to lead in making such integration a public priority.
4. Convene interested and affected parties.
5. Agree on a shared goal and common objectives, scope, agenda, working arrangements and ground rules.
6. Identify priority areas for improved coordination and integration, such as institutional arrangements, linkages and information exchange.
7. Establish joint working groups or committees to work on the identified priorities.
8. Establish a mechanism for overall coordination of the work effort, including setting and monitoring of milestones, and integration of outputs.
9. Develop an arrangement for sustaining the dialogue on a continuing basis.
10. Set up a system for disseminating discussion results to key officials, participating organizations and the public, as well as for receiving and acting on input from those outside the process.

C. Responsibilities and resources

Who should be involved?

- Disaster reduction managers, such as those working on risk knowledge, awareness-raising, early warning and preparedness.
- Disaster and response managers, such as those involved in developing preparedness and contingency plans at various levels, and in mobilizing resources and responding to emergencies.

- Government representatives.
- NGOs.
- Civil society members.
- Private sector representatives.

What conditions facilitate the task?

- Political commitment and support of both disaster reduction and disaster response authorities.
- A list of stakeholders important to both disaster risk reduction and response, including their roles and responsibilities.
- A map or matrix of ongoing initiatives, programme and plans for disaster reduction, preparedness and disaster response.
- Capacities and resources to assess, develop or strengthen legislative institutional frameworks.
- Participation of key stakeholders, organized by means of a clear strategy and priorities of action.
- A communication facilitator.
- Background information to prepare the discussion, such as risk assessments, including gender-based assessments, and compilations of laws, regulations, policies, strategies, plans and resources.
- A summary of institutional arrangements for disaster risk reduction and response, land-use and urban planning, economic development and environmental protection.

D. Illustrations

Community-based preparedness, India

West Bengal's experience with community-based preparedness demonstrates the benefits of involving both risk reduction and emergency management groups in joint study and action. The Government of West Bengal, India, together with an inter-agency group, developed a community-based project to prepare regional communities, individually and collectively, for a flood disaster similar to the one that devastated the region in 2000. The project assumed that communities had to live with disasters, and that no external intervention should change their lifestyles. If communities were prepared, however, the responses and preparedness they initiated would be more effective in reducing losses and damages.

Using a participatory approach, each community prepared an action plan. The plan included a community vulnerability map, which identified safe places, low-risk areas, highly vulnerable areas and the estimated number of families residing in each zone, as well as the number and location of vulnerable populations, such as the aged, disabled, lactating mothers, pregnant women, seriously ill persons and small children. The plan mentioned priority social elements at risk, such as life, health, property, livestock and livelihood. It listed the resources at hand as well as those required to bring down the level of risk. The plan also outlined key activities that the community would do before, during and after a disaster.

The project proved very effective, based on a comparison of damages and losses for one village from two floods, one in 2000 and the other in 2004. In 2000 the village lost over 700 cattle, while in 2004 it lost none. In 2000 nearly 3,000 families lost or suffered damage to some of their valuable documents, while in 2004, none of

the families reported any loss or damage. In another significant achievement, the village relied primarily on itself: each family had stockpiled food for 7 to 10 days to meet its immediate needs. Furthermore, in 2004 the village experienced almost no outbreak of disease. Seeing how the project benefited the community, especially the poor and most vulnerable groups, local authorities requested expansion of this project to other vulnerable areas.

For further information visit UNICEF website at:
http://www.unicef.org/evaluation/files/fa5_india_communitybased_disaster_preparedness(1).doc

E. Further reading

IASC Reference Group on Contingency Planning and Preparedness. 2001. Inter-Agency Contingency Planning Guidelines for Humanitarian Assistance. Recommendations to the Inter-Agency Standing Committee on 15 November. www.humanitarianinfo.org/iasc/content/products/docs/IAContingencyPlanGuide.pdf

These guidelines are designed to provide a common inter-agency methodology for contingency planning and to ensure effective response to humanitarian needs at the onset of a crisis. They suggest a six-step planning process, a checklist and a brainstorming guide, among other tools.

Sphere Project. 2004. Humanitarian Charter and Minimum Standards in Disaster Response. 2nd Edition. Geneva: Sphere Project.
www.sphereproject.org/component/option,com_docman/task,cat_view/gid,70/Itemid,26/lang,English/

The new edition of the Sphere Handbook has been thoroughly revised and updated, taking into account recent developments in humanitarian practice. The Handbook can be downloaded in English, French, Spanish, Arabic, Russian and eight other languages.

Websites

The Sphere Project - www.sphereproject.org

This website offers, in addition to the Sphere Handbook, vast information on standards for disaster response, training material and information on upcoming events.

Red Cross and Red Crescent Centre on Climate Change and Disaster Preparedness - www.climatecentre.org

Supports National Red Cross and Red Crescent Societies to reduce, over time, the loss of life and the damage done to the livelihoods of people affected by the impacts of climate change and extreme weather events.

5.2 Assess disaster preparedness capacities and mechanisms

A. Understanding the task

What's the purpose of this task?

This task aims to assess current systems and existing resources, identifying outstanding needs for effective disaster response. The evaluation should consider available resources, existing capacities, operational plans and procedures, as well as communication and coordination systems at every level. It should also consider recovery and reconstruction strategies.

Why it's important

A capacity assessment provides the knowledge base and motivation for making improvements in disaster preparedness mechanisms. Capacity assessments can reveal hidden assets, resources and skills throughout government agencies and civil society, so that they may be used to meet preparedness, response and recovery needs. Major deficiencies can also be uncovered and made known, spurring corrective actions.

How it relates to other priority tasks

This task is closely related to work performed for most stages of disaster risk reduction. It is linked to developing disaster reduction training for specific groups of stakeholders (Task 3.3), and enhancing the dissemination and use of disaster risk reduction information (Task 3.4). It also provides a basis for Task 5.3, strengthening planning and programming for disaster preparedness.

As part of assessing preparedness capacities, this task suggests evaluations similar to those performed in Chapters 1-3, but targeting a narrower subject, that of preparedness to act in the event of a disaster. Work previously performed as part of those chapters' tasks may be helpful here.

Terminology

Capacity: A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster. Capacity may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management. Capacity may also be described as capability. *(Source: UN/ISDR Terminology)*

Coping capacity: The means by which people or organizations use available resources and abilities to face adverse consequences that could lead to a disaster. In general, this involves managing resources, both in normal times as well as during crises or adverse conditions. The strengthening of coping capacities usually builds resilience to withstand the effects of natural and human-induced hazards. *(Source: UN/ISDR Terminology)*

B. How to do it

Recommended steps

A prerequisite to creating any preparedness strategy is full knowledge of existing legal and institutional frameworks, organizations, capacities, plans and activities in risk management and disaster management. To assess preparedness capacities and mechanisms:

1. Determine the scope of the assessment (choose topics from the proposed question set below).

5.2 Assess disaster preparedness capacities and mechanisms

2. Gather information through research of documentary sources - laws, executive orders, regulations, policies, strategies, plans and a review of institutional arrangements for disaster response and recovery.
3. Interview government officials and other key stakeholders, including local disaster researchers, organizations and experts with gender expertise.
4. Review past disaster experiences and lessons learned, as revealed in research studies and reports.
5. Identify strong and weak aspects of existing capacity for critical functions such as management of information, communication, command and control, coordination, and delivery of medical and other life-protecting services.
6. Identify improvements to be made, opportunities for learning and strengthening existing systems, and collaboration with international, regional, national and local entities.
7. Prepare a report with specific recommendations to fill the gaps and improve capacities at all levels.
8. Disseminate the report widely.

Possible assessment topics and questions:

(I) Assess institutional capacities for preparedness:

- Is there a legal basis that gives authority to organizations to act?
- Is there an institutional mechanism or system in place within the government for preparedness?
- Does the system in place consider coordination between different administrative levels?
- Is the system sufficiently decentralized? Do local bodies have sufficient autonomy and resources to accomplish their activities?
- Does the framework ask for national budget allocation? If so, is it permanent or contingent upon disasters?

(II) Understand risk and hazard monitoring for preparedness (see Chapter 2 for more detail):

- Does a risk analysis profile exist? Does it include hazard maps, vulnerability analysis and impact assessment?
- Are there hazard maps delineated by type of natural threat and/or multi-hazard maps indicating scales, nature, location, intensity and probability of threats?
- Does the risk profile establish the existence and degree of vulnerabilities, including gender aspects, and level of exposure to specific hazards?
- Is there a scenario analysis for different hazard and vulnerability factors? If so, is it regularly updated?

(III) Assess information management and communication for preparedness (see Chapter 3 for more detail):

- Does an information management platform or similar structure exist? Does it include information and mapping on risk identification, monitoring networks, scenario analysis and related warning messages?
- Do regional and local actors have access to the information system? If so, what kind of access (read-only or comment)?
- Is a communication network incorporated into the national system and is it related to early warning systems? If so, is it operational and accessible to regional and local actors? What are their responsibilities?
- Does the system provide accurate information from the field to those that need it for both planning purposes and for use in the communication planning?
- Is there a built-in redundancy in case of energy failures and other problems?

- Is there a mechanism to keep political leaders informed and to facilitate official decisions and pronouncements?
- Is a public information and media communication strategy in place, including responsibilities and targeted audiences?
- Are mechanisms in place to provide information bulletins, operational reports and appeals to humanitarian assistance, institutional and private donors and other audiences?

(IV) Evaluate early warning systems (see Task 2.3 for more detail):

- Does the early warning system link with the response system?
- Do early warning systems exist at the national, regional and local level? How does it operate and does it reach all those potentially affected?
- Does it integrate all relevant actors? Does it consider local and indigenous knowledge? Does it reach out and respond to all groups including women?
- Does it encompass the international, regional, national and local levels?

(V) Assess awareness-raising for and knowledge of preparedness (see Chapter 3 for more detail):

- Is knowledge of hazards, risks, preparedness and appropriate responses shared with the population at large (through public information, the education system and special training courses)?
- What kinds of awareness-raising activities exist? Do they include preparedness aspects?
- Do they include a programme aimed at the education system? If so, do the curricula involve preparedness aspects?
- Do they target the population at large, but place specific emphasis on reaching populations living in the most vulnerable regions?

(VI) Assess preparedness planning:

- Does a preparedness plan exist? Is it realistic and affordable?
- Were all relevant stakeholders included in the planning process? Are they committed to implement it? Are their roles and responsibilities clearly defined?
- Is it based upon reliable and comprehensive information on hazards, risks, vulnerabilities and capacities?
- Does the plan include implementation mechanisms, clear actions and resources?
- Does it include provisions on how to deal with international assistance?
- To what extent does the plan reflect the fact that men and women are differently affected by disasters?
- Is it regularly reviewed and updated?

(VII) Assess standby arrangements:

- To what extent are the necessary goods available and accessible? Necessary goods include stockpiles of medicine, food, water emergency shelter, body bags and other materials.
- To what extent are the necessary human resources available and accessible in areas such as search and rescue, medical, communication, engineering and nutrition specialists?
- Are enough appropriately skilled personnel readily available?
- Do cadres of volunteers exist across the country? What is their level of skill and commitment? What is the extent of equipment and material resources at their disposal? Are they based on existing community institutions?

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- Is there an emergency contingency fund, and is there a rapid procurement process to enable the purchase of fuel and other urgently needed supplies and services? To what extent is disaster relief funding available and accessible?
- How do national standby arrangements relate to international ones?

(VIII) Assess response mechanisms:

- What mechanisms exist? How advanced are they?
- Are these mechanisms familiar to disaster response agencies?
- Are these mechanisms familiar to at-risk populations?
- Do the mechanisms involve institution readiness capacities and activities? If so, please describe.
- Is there a system in place to coordinate with local NGOs and civil society groups?
- Is there a system in place to coordinate with international response mechanisms (both governmental and non-governmental)?
- Does the response mechanism include:
  - Assessment teams with the skills to capture important issues of vulnerability, such as gender?
  - Evacuation procedures?
  - Search and rescue teams?
  - Establishment of an operations/command centre?
  - Procedures for activating emergency lifeline facilities (hospitals, distribution systems and communication facilities)?
  - Preparations for emergency reception centres and shelters?
  - Procedures for activating emergency programmes for airports, harbours and land transport?
  - Public information and media communication strategy?
- Do mid- and long-term recovery plans incorporate disaster risk reduction principles?

C. Responsibilities and resources

Who should be involved?

The assessment process should include representatives of all governmental and non-governmental agencies and organizations with a role in disaster preparedness, including:

- Disaster reduction managers, such as those working on risk knowledge, awareness-raising, early warning and preparedness.
- Disaster and response managers, such as those involved in developing preparedness and contingency plans at various levels, and in mobilizing resources and responding to emergencies.
- Government representatives.
- NGOs.
- Civil society members.
- Private sector representatives.

What conditions facilitate the task?

- Executive and organizational support for the assessment.
- Human and financial resources for the assessment.
- A multi-organizational team.
- Commitment to a participatory self-assessment process.
- Access to emergency plans and procedures, resource and equipment inventories, and training records.
- Review of past disaster experiences and lessons learned in research studies and reports.

D. Illustrations

Assessing national disaster response capacity, Mongolia

The government of Mongolia requested assistance in conducting an assessment of its national capacity to respond to disasters. In July 2004, the OCHA mobilized a United Nations Disaster Assessment and Coordination (UNDAC) team for this purpose.

The UNDAC team met with all stakeholders engaged in disaster preparedness, including the National Disaster Management Agency, all Ministries involved in disaster response, Ulaanbataar and Aimag capital city authorities, disaster protection special units, fire fighting units, State Reserve branches, and the police, as well as the Urban Development and Public Utility Agency, the Nuclear and Energy Commission, local authorities, donors, international agencies, NGOs, IFRC and the Mongolian Red Cross. The findings of the assessment, which comprised a broad set of recommendations, were presented to the Disaster Management State Services and to the UN Resident Coordinator. OCHA mobilized a follow-up mission in October 2005 to take stock of progress on the recommendations, to identify impediments to implementation and to prioritize outstanding issues. This second mission also considered the United Nation's engagement in disaster management, including support to Mongolia in networking with international structures. It found that, since June 2004, all parties involved in implementing the UNDAC recommendations had made important progress.

The assessment allowed for the identification of issues requiring improvement, such as collaboration between the National Emergency Management Authority and international organizations, development of a forum for regular information sharing, and budgetary constraints, as well as training and equipment requirements. The assessment report itself became an important political instrument in the discussion on how to organize the National Emergency Management Authority, as well as being mentioned as a good example of good United Nations practices. IFRC has also used the report as a tool to systematically review its own action plan and priorities for Mongolia.

For further information see: OCHA-FCSS/UNDAC Team, Mission to Mongolia, Assessment of National Disaster Response Capacity, 27 June - 9 July 2004

Self-assessment prepares IFRC for disaster

In 2001, IFRC drew up a set of guidelines called Characteristics of a Well-Prepared National Society. This simple two-page document sets out 33 indicators for Red Cross and Red Crescent national societies around the world. A national society can use the indicators to assess its preparedness - its capacity to predict disasters, to reduce disasters' impact on vulnerable communities and to respond to disasters. The indicators cover every aspect of organizational capacity, from policy and planning to human, financial and material resources and

5.2 Assess disaster preparedness capacities and mechanisms HFA

advocacy. They also cover the role of a national society in government emergency planning, and the extent of its coordination with other organizations.

IFRC developed a questionnaire based on the indicators, to help national societies and staff obtain a picture of the status of IFRC's overall disaster preparedness. IFRC sent the questionnaire to 35 national societies to fill in as a self-assessment exercise. A revised version was then sent to another 60. The self-assessment method needed to strike a balance between being quick and easy to use on the one hand, and generating meaningful information on the other; it was not easy to manage this. Experience also showed that participatory assessment is desirable; otherwise questionnaires might be filled in by individuals or small groups who do not represent the views of their national society as a whole, or whose knowledge of the national society's disaster preparedness work is inadequate.

Notwithstanding these problems, many national societies that completed the questionnaire found it valuable for self-assessment and planning, in that it provided a benchmark for monitoring progress. Many had not viewed their disaster preparedness capacity in such a way before. Some people argued that there were already so many systems and procedures to ensure good management that there was little added value in assessing disaster preparedness, but for others its added value lay in giving a systematic overview. Some national societies used the assessment findings for action planning and preparing fund-raising appeals. Collated findings were used at regional and international level to identify strengths and weaknesses.

For further information see: IFRC Characteristics of a Well-Prepared National Society. Geneva: International Federation of Red Cross and Red Crescent Societies, 2001. www.ifrc.org/docs/pubs/disasters/Checklist_WPNS.pdf.

E. Further reading

Beck, T. 2005. South Asia Earthquake 2005: Learning from previous earthquake relief operations. Briefing paper. ALNAP/ProVention Consortium. www.alnap.org or www.proventionconsortium.org

Telford, J., Cosgrove, J. and Houghton, R. 2004. Joint evaluation of the international response to the 2004 Indian Ocean tsunami: synthesis report. London: Tsunami Evaluation Coalition. www.alnap.org and www.tsunami-evaluation.org

The report is a synthesis of five detailed reports by the multi-stakeholder Tsunami Evaluation Coalition covering humanitarian coordination, needs assessment, impacts on local and national capacities, funding processes and links from relief, rehabilitation and development.

Websites

ADPC - Asian Disaster Preparedness Center. www.adpc.net

ADPC in Bangkok offers numerous courses in disaster management planning and related activities, for example its Disaster Management Course.

APELL - Awareness and Preparedness for Emergencies at the Local Level - www.unep.fr/pc/apell/process/natural.html

APELL is a modular, flexible methodological tool that aims to assist decision makers and technical personnel to increase community awareness and to prepare coordinated response plans involving industry, government and the local community.

RADIUS - Risk Assessment Tools for Diagnosis of Urban Areas against Seismic Disasters. www.geohaz.org/contents/projects/radius.html

The RADIUS project was launched by the International Decade for Natural Disaster Reduction in 1996 to promote worldwide activities for reduction of seismic disasters in urban areas, particularly in developing countries. The project developed a software program that offers practical tools for earthquake damage estimation.

The World Bank Institute's Disaster Risk Management On-line Program - web.worldbank.org/WBSITE/EXTERNAL/WBI/0, contentMDK:20100808~menuPK:204777~pagePK:209023~piPK:207535~theSitePK:213799,00.html

This on-line program consists of five courses offered in English, French and Spanish. It includes Comprehensive Disaster Risk Management Framework, Safe Cities, Damage and Reconstruction Needs Assessment and, in cooperation with the Environmental Planning Collaborative, Community-Based Disaster Risk Management and Financial Strategies for Managing the Economic Impacts of Natural Disasters.

5.3 Strengthen planning and programming for disaster preparedness

A. Understanding the task

What's the purpose of this task?

This task aims to provide helpful tools and processes for developing disaster preparedness plans (and supporting programmes) to those responsible for disaster management planning as part of a holistic approach to disaster risk management. This includes means to improve, as necessary, existing plans for disaster response/contingency, recovery and reconstruction.

Why it's important

When a disaster occurs, it's too late to get organized. Systematic planning involving all relevant actors is the foundation to effective disaster preparedness. Disaster preparedness and contingency plans, based on sound preparedness planning, are critical to building a state of readiness and to effective response at times of crisis. Good planning has proven its value in safeguarding lives and livelihoods. Conversely, poorly developed preparedness plans and programmes can cause considerable problems in the event of a disaster.

The ultimate objective of the preparedness planning process is not simply to produce a plan. It also aims to stimulate ongoing interactions between parties that result in common understanding and agreement, and subsequently in plans that are well informed, widely endorsed and that will be used with confidence in real events. A good plan will make its purpose and scope clear, will define responsibilities and will establish standard operating procedures for particular circumstances.

The goal of contingency planning, on the other hand, is to ensure adequate preparation for specific foreseen events. Contingency plans are usually embedded in an overall preparedness plan.

How it relates to other priority tasks

The task of preparedness planning is underpinned by an effective institutional framework for disaster risk reduction (Chapter 1). It relies on risk information such as that developed in a countrywide risk assessment initiative (Task 2.2), and it is closely related to the task of developing a plan for recovery (Task 4.7). In addition, this task uses information gathered while assessing disaster preparedness capacities and mechanisms (Task 5.2).

B. How to do it

Recommended steps

The following steps help countries create effective preparedness plans for effective response:

1. Form a planning committee. Include policy and technical staff of agencies and organizations, and representatives of the business sector and the public. Establish the scope, responsibilities and a timetable for the planning process.
2. Select an agency to lead the plan development. This agency should also ensure its adoption and monitor its implementation.

3. Collect available documentation. Useful documentation includes material regarding hazards, vulnerability of critical facilities, lifelines and the building stock, resource inventories, hazard maps, disaster scenarios and existing policies, plans and standard operating procedures.
4. Assess the hazards. Identify activities, institutions and structures most at risk from those hazards, and their vulnerability. For recovery planning, also collect physical and economic development and redevelopment plans and documentation. Review assessments of resources and capabilities (see Task 5.2) available to respond and recover from disasters.
5. Analyse risk and capacity assessments. Determine needs and priorities for plans for various kinds of disaster events, including for mitigation measures that should be built into recovery and reconstruction.
6. Identify lead agencies for responding to various types of disasters and assign roles. Create systems for communicating situation information, needs and orders to and from those in charge.
7. Determine who would be in charge of recovery and reconstruction, and whether it would be managed through an existing or new organization.
8. Establish linkages and mechanisms for coordination between agencies, levels of government and with the private sector and the public.
9. Create and test systems for developing immediate and ongoing situation and damage assessments, and estimations of needs.
10. Establish standard operating procedures, field manuals, checklists, contact lists and resource inventories (including gender-based aspects of capacities and skills).
11. Draft a plan for response and recovery. Consult with government departments, interested organizations, businesses and the public. Establish a mechanism for receiving reviews and addressing concerns. (Task 4.7 gives assistance with recovery planning.)
12. Make necessary changes. Publish and arrange for adoption and signing of the plan by representatives of all affected organizations.
13. Widely disseminate and publicize the major tenets of the plan.
14. Establish processes for regular monitoring and follow-up, testing and revising the plan in accordance with changing circumstances and requirements.

Elements of effective disaster preparedness planning

As part of the preparedness planning process, the assignment of responsibilities should be formalized in legislation, edicts and/or national development plans. Once plans are developed, organizations need to support the plan through staff training on specific functions, and to test the plans and procedures through drills and exercises. Effective plans cover, among other things, management of information, resources and finances, public education, response readiness and alert/evacuation systems.

An effective disaster preparedness plan contains the following elements:

1. A clear description of the relevant legislative frameworks and institutional "architecture". It should describe mandates, responsibilities, protocols, linkages and coordination structure between different actors both horizontally (between different sectors) and vertically (between national, subnational and local entities and authorities).
2. Risk analysis profiles, including natural hazard identification, monitoring and vulnerability analysis and a sound understanding of risk (see Task 2.1 on establishing countrywide risk assessment initiatives).

5.3 Evaluate legal, institutional, and policy framework

3. Mechanisms for dissemination of early warnings (see Task 2.4 on communication and dissemination mechanisms for early warning).
4. Standby arrangements, including:
   - Essential goods and services, such as medicine, food, water, emergency shelter, body bags, fuel and other materials.
   - Human resources including search and rescue, medical, communication, engineering and nutrition specialists.
5. Disaster contingency/response plans (see box below), including:
   - Operations/command centre.
   - Search and rescue teams.
   - Procedures for activating emergency lifeline facilities (hospitals, distribution systems and communication facilities).
   - Evacuation procedures.
   - Preparations for emergency reception centres and shelters.
   - Procedures for activating emergency programmes for airports, harbours and land transport.
6. A public information and media communication strategy, including:
   - Clear responsibilities for the strategy's implementation.
   - A system to provide current information quickly to media services that includes trained professionals.
   - Accurate information from the field to those that need it for both planning purposes and for use in the communication plan.
   - Mechanisms to meet information needs of senior decision makers, institutional and private donors and other target audiences as required.
7. Preparedness capacity development (see Task 3.3 on developing disaster risk reduction trainings for specific groups of stakeholders), including:
   - Comprehensive training programmes based on ongoing assessments of current capacities.
   - Cadres of volunteers with equipment and material resources at their disposal.
8. Preparedness aspects that adequately address gender-specific concerns.

Elements of contingency planning

Contingency plans are plans to address and respond to specific events or scenarios for different hazards and different settings, for example for a large earthquake, a city-wide flood, a national epidemic or a coastal environmental disaster. It is necessary to develop contingency plans for each type of hazard likely to be experienced at not only local and national levels, but also at regional and global levels. A contingency plan should cover operational components such as policies, objectives, procedures, responsibilities and resources required to respond.

To prepare a contingency plan, countries can:

1. Ensure that data and information used in the formulation of contingency plans are accurate and dependable.
2. Undertake scenario planning based on likely hazard events and the damages and losses that could to be caused by these, given the vulnerability of local communities and infrastructure and services.

3. Analyse the scenario, in order to list the actions to be undertaken. Actions can include the pre-positioning of resources, both within sectors likely to be impacted and within local communities, and providing contingency budgets for associated government departments.
4. Arrange for finance and planning departments to provide general contingency resources to undertake recovery efforts for such scenarios.
5. Involve recovery managers from previous disasters in pre-planning exercises, to aid in applying lessons from the past.
6. Ensure that plans clearly identify roles and responsibilities, decision-making processes, available resources, and the specific steps that must be taken in the event of an emergency. This will enable all involved to respond according to established procedures.
7. Provide training as needed for implementation of contingency plans. Ensure that plans are written clearly, so that they can be understood by staff at all levels.
8. Arrange for periodic review, based on monitoring and evaluation, as well as rehearsal and testing.
9. Ensure that the plan is sensitive to local politics and cultural sensitivities, the needs of women and the most vulnerable populations, as well as the environmental impact of emergency measures.

C. Responsibilities and resources

Who should be involved?

- Principal government ministries responsible for planning and public safety (e.g. interior, civil defence, development, planning, economy, environment and sciences and technology).
- Principal government ministries involved with development sectors (such as health, education, natural resources and agriculture).
- National and local disaster management agencies or systems.
- National institutes and local related offices (hydro-meteorological, geological survey, monitoring centres, academia and research institutions).
- Local and municipal governments.
- Civil society and community representatives.
- Non-government organizations.
- International and United Nations agencies.

What conditions facilitate the task?

- The support of political leaders and policymakers, along with executive and organizational support, and associated human and financial resources.
- Clarity of functions, authority and division of responsibilities among the key organizations.
- Mechanisms for good coordination between local and central authorities, between internal and external actors, and within and between sectors.
- An understanding of the capabilities and resources of all public and private organizations that may contribute to the execution of a plan.

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- The participation of local and municipal governments and representatives of communities.
- A strong sense of ownership of the planning process by those responsible for executing the plans.

D. Illustrations

Sector preparedness, Colombia and Ecuador

Colombia and Ecuador together have the highest number of active volcanoes in Latin America. Historically, the two countries have suffered numerous eruptions which have caused dramatic human and economic losses. To help the two countries better prepare their most vulnerable populations, PAHO/WHO developed a preparedness project for the countries' health sectors. The European Commission humanitarian aid department and ISDR jointly identified the project as a good practice for resilient communities.

Both Colombia and Ecuador already had health emergency plans for disasters. However, post-disaster evaluations indicated that opportunities existed to improve technical capacity within the health sector. Health staff needed to work with updated technical instruments and tools, and the existing health system needed to incorporate lessons learned from prior disasters. Project organizers also hoped encourage exchanges of knowledge and experience between the two countries, and between communities that shared the same vulnerability to volcanic eruptions.

The PAHO/WHO preparedness project focused on increasing the sector's coping capacity at national, subnational and municipal levels in high-risk areas. It targeted not only health professionals and disaster response teams, but other relevant stakeholders, such as technical staff responsible for water supply and sanitation services, and universities, NGOs and other disaster-related organizations with relevant training programmes. The project developed and disseminated training materials on health preparedness, including a special module for decision-making that used a multi-media modelling tool with a volcanic eruption emergency scenario. The project established a train-the-trainers programme for health professionals, and trained members of existing disaster response teams.

For further information visit the WCDR website at: www.unisdr.org/wcdr/public-forum/good-practices.htm or UN/ISDR Informs, Disaster Reduction in Latin America and the Caribbean, Issue 12, 2006, p. 57.

Community-based preparedness, India

Samiyarpettai and Pudupettai are two villages on the south coast of Tamil Nadu in India. They are almost identical in size and development levels. However, during the 2004 Indian Ocean tsunami, Pudupettai lost four times more lives (death toll 95) than Samiyarpettai (death toll 24). One significant difference exists between these villages: a few months before the tsunami struck, Samiyarpettai had taken part in a preparedness training and awareness-raising programme.

The programme in question sought to build community capacity through the extensive involvement and participation of volunteers. Programme sponsors included the Government of India, UNDP and the United Nations Volunteer Programme (UNV). Samiyarpettai, in Cuddalore district, had been chosen as a model village for the programme because it was prone to floods, droughts and earthquakes. Programme training and initiatives included constituting a village disaster committee, elaborating a village disaster management plan, and training teams on search and rescue and first aid, as well as conducting mock drills and teaching villagers about higher safe spots, and training on how to prevent drowning using empty barrels and banana stems. For many villagers, the basic training provided turned out to be essential to surviving the 2004 tsunami.

For further information see: UNDP/BCPR, 2005, United Nations in India - 14.04.2005 Community-based Preparedness - Foundation for Disaster Management: www.undp.org/bcpr/disred/documents/tsunami/undp/pr140405.pdf

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CAMEO: Computer-Aided Management of Emergency Operations - www.epa.gov/ceppo/cameo/

CAMEO is a system of software applications used widely to plan for and respond to chemical emergencies, developed by the United States Environmental Protection Agency's Chemical Emergency Preparedness and Prevention Office and the United States National Oceanic and Atmospheric Administration.

FEMA: United States Federal Emergency Management Agency - www.fema.gov

FEMA provides various planning guides, such as Guide for All-Hazard Emergency Operations Planning, on its website as well as through its publications centre.

Annex I:

Acronyms

ADB	Asian Development Bank
ADPC	Asian Disaster Preparedness Center
ADRC	Asian Disaster Reduction Center
ADRRN	Asian Disaster Reduction and Response Network
AIDMI	All India Disaster Mitigation Institute
ALNAP	Active Learning Network for Accountability and Performance in Humanitarian Action
APELL	Awareness and Preparedness for Emergencies at the Local Level
BCPR	Bureau for Crisis Prevention and Recovery
CADRI	Capacity Development for Disaster Reduction Initiative
CAMEO	Computer-Aided Management of Emergency Operations.
CARICOM	Caribbean Community
CBD	Convention on Biological Diversity
CBFiM	Community Based Fire Management
CCA	Common Country Assessment
CDB	Caribbean Development Bank
CIIFEN	The International Center on Research El Niño
CRED	Centre for Research on the Epidemiology of Disasters
CRID	Regional Disaster Information Center
CUREE	Consortium of Universities for Research in Earthquake Engineering
DEWA	Division of Early Warning and Assessment
DMTP	United Nations Disaster Management Training Programme
EIA	Environmental impact assessment
EMI	Earthquakes and Megacities Initiative
EWC III	Third International Conference on Early Warning
FAO	Food and Agriculture Organization
FEMA	United States Federal Emergency Management Agency
GEOSS	Global Earth Observing System of Systems

GIEWS	Global Information and Early Warning Service
GEF	Global Environment Facility
GFMC	Global Fire Monitoring Center
GRID	Global Resource Information Database
GRIP	Global Risk Identification Program
HAZUS-MH	United States Federal Emergency Management Agency software programme for estimating potential losses from disasters
HFA	Hyogo Framework for Action
IASC	Inter-Agency Standing Committee
IATF/DR	Inter-Agency Task Force on Disaster Reduction
ICLEI	Local Government for Sustainability
ICPAC	IGAD Climate Prediction and Applications Centre
ICSU	International Council for Science
IEWP	International Early Warning Programme
IFRC	International Federation of Red Cross and Red Crescent Societies
IGAD	Intergovernmental Authority on Development
IGOS	Integrated Global Observing Strategy
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
IRI	International Research Institute for Climate and Society
ISDR	International Strategy for Disaster Reduction
IUCN	International Union for the Conservation of Nature and Natural Resources
LDC	Least Developed Countries
MCEER	Multidisciplinary Center for Earthquake Engineering Research
MDGs	Millennium Development Goals
NAPA	National Adaptation Programmes of Action
NDO	Natural Disasters Organisation of Australia
NGO	Non-governmental organization
OCHA	Office for the Coordination of Humanitarian Affairs
PAHO	Pan American Health Organization
PERI	Public Entity Risk Institute
PPEW	UN/ISDR Platform for the Promotion of Early Warning
PREANDINO	Regional Andean Programme for Risk Reduction and Disaster Prevention
PRSP	Poverty Reduction Strategy Paper
RADIUS	Risk Assessment Tools for Diagnosis of Urban Areas against Seismic Disasters
SOPAC	Secretariat of the South Pacific Applied Geoscience Commission
START	System for Analysis, Research and Training on global change
UNCCD	United Nations Convention to Combat Desertification

UNCRD	United Nations Centre for Regional Development
UNDAC	United Nations Disaster Assessment and Coordination
UNDAF	United Nations Development Assistance Framework
UNDG	United Nations Development Group
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UN/ISDR	Inter-Agency secretariat of the International Strategy for Disaster Reduction
UNITAR	United Nations Institute for Training and Research
UNOSAT	United Nations Operational Satellite Applications Programme
UNU	United Nations University
UNV	United Nations Volunteer Programme
UN-Water	United Nations mechanism for follow-up of water-related decisions reached at the 2002 World Summit on Sustainable Development and the Millennium Development Goals.
USAID	United States Agency for International Development
USGS	United States Geological Survey
WFP	World Food Programme
WHO	World Health Organization
WCDR	World Conference on Disaster Reduction, Kobe, Hyogo, Japan, from 18 to 22 January 2005.
WMO	World Meteorological Organization

Annex II:

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Annex III

Indicators for assessing progress in implementing Hyogo Framework for Action Priorities 1-5

The following is a collated list of the indicators that are suggested in the chapters' introductions. An ISDR guidance document on the formulation and use of progress indicators will be released in the second half of 2007.

Making disaster risk reduction a priority

- A legal framework for disaster risk reduction exists with explicit responsibilities defined for all levels of government.
- A national multi-sectoral platform for disaster risk reduction is operational.
- A national policy framework for disaster risk reduction exists that requires plans and activities at all administrative levels, from national to local levels.
- Dedicated and adequate resources are available to implement disaster risk reduction plans at all administrative levels.

Improving risk information and early warning

- National risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.
- Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities.
- Early warning systems are in place for all major hazards.
- Early warnings reach and serve people at the community level.

Building a culture of safety and resilience

- A national public awareness strategy for disaster risk reduction exists that reaches all communities and people of all education levels.
- School curricula at all levels include disaster risk reduction elements and instructors are trained in disaster risk reduction at national through to local levels.

Reducing the risks in key sectors

- Environmental protection, natural resource management and climate change policies include disaster risk reduction elements.
- Specific policies and plans are being implemented to reduce the vulnerability of impoverished groups.
- Land-use development zoning and plans and building codes exist and include disaster risk related elements which are rigorously enforced.
- A long-term national programme is in place to protect schools, health facilities and critical infrastructure from common natural hazard events.
- A procedure is in place to assess the disaster risk implications of major infrastructure project proposals.

Strengthening preparedness for response

- An independent assessment of disaster preparedness capacities and mechanisms has been undertaken and the responsibility for implementation of its recommendations have been assigned and resourced.
- Disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training drills and rehearsals are held to test and develop disaster response programmes
- All organizations, personnel and volunteers responsible for maintaining preparedness are equipped and trained for effective disaster preparedness and response.
- Financial reserves and contingency mechanisms are in place to support effective response and recovery when required.
- Procedures are in place to document experience during hazard events and disasters and to undertake post-event reviews.

Annex IV

Terminology[10]

Building codes: Ordinances and regulations controlling the design, construction, materials, alteration and occupancy of any structure to ensure human safety and welfare. Building codes include both technical and functional standards.

Capacity: A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster. Capacity may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management. Capacity may also be described as capability.

Capacity-building: Efforts aimed to develop human skills or societal infrastructure within a community or organization needed to reduce the level of risk. Capacity-building also includes development of institutional, financial, political and other resources, such as technology at different levels and sectors of the society.

Common Country Assessment/United Nations Development Assistance Framework: The CCA/UNDAF process is the common strategic framework for the operational activities of the United Nations System at the country level. It provides a collective, coherent and integrated United Nations System response to national priorities and needs within the framework of the Millennium Development Goals and the other commitments, goals and targets of the Millennium Declaration and the declarations and programmes of action adopted at international conferences and summits and through major United Nations conventions. The CCA is the main diagnostic tool available to United Nations country teams and their partners for assessing and developing a common understanding of the underlying challenges faced by a country in its development process. The UNDAF emerges from the analytical and collaborative effort of the CCA and is the foundation for United Nations System programmes of cooperation. (UN/ISDR and UNDP 2006)

Coping capacity: The means by which people or organizations use available resources and abilities to face adverse consequences that could lead to a disaster. In general, this involves managing resources, both in normal times as well as during crises or adverse conditions. The strengthening of coping capacities usually builds resilience to withstand the effects of natural and human-induced hazards.

Critical facilities/emergency services: Those facilities (such as hospitals, power stations, lifelines) and services (such as Police, Fire Service, Ambulance, Red Cross and Red Crescent, and voluntary agencies) that have specific responsibilities and objectives in serving and protecting people and property in disaster situations. (Draft definition, under discussion)

Development planning processes: Proactive actions that allow national, sectoral, regional or local government and its partners to support and engage the intellectual, physical, and economic resources to chart a course toward a desired future of development related on each level.

Disaster: A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its

10 Definitions from ISDR Terminology version 2004 (www.unisdr.org/terminology) unless otherwise stated.

own resources. A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.

Disaster risk management : The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.

Disaster risk reduction: The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

Disaster risk reduction champion: An influential person interested in disaster risk reduction, who is willing to take action to make disaster risk reduction a public priority. A champion may be any determined, government official, a professional in one of many fields or a community activist. Institutions or even countries can play championing roles. (Draft definition, under discussion)

Disaster risk reduction plans: Documents that set out planning authorities' policies and proposals for disaster risk reduction, which should be considered in the respective development plan and development actions. Due to the different geographical scales applicable at different levels, disaster risk reduction plans are specific to each level of government. (Draft definition, under discussion)

Early warning system: The provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response. Early warning systems include a chain of concerns, namely: understanding and mapping the hazard, monitoring and forecasting impending events, processing and disseminating understandable warnings to political authorities and the population, and undertaking appropriate and timely actions in response to the warnings.

Ecosystem: A complex set of relationships of living organisms functioning as a unit and interacting with their physical environment. The boundaries of what could be called an ecosystem are somewhat arbitrary, depending on the focus of interest or study. Thus the extent of an ecosystem may range from very small spatial scales to, ultimately, the entire Earth.

Ecosystem services: The benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other non-material benefits. (Hassan, Scholes and Ash 2005)

Elements at risk: The elements at risk include anything that can be damaged - people, infrastructure, crops, boats, vehicles, etc.

Emergency management: The organization and management of resources and responsibilities for dealing with all aspects of emergencies, including in particular preparedness, response and early recovery within a risk reduction context. It involves plans, institutional structures and arrangements established to engage the normal endeavours of government, voluntary and private agencies in a comprehensive and coordinated way to respond to address the full spectrum of emergency needs. This is also known as disaster management.

Environmental degradation: The reduction of the capacity of the environment to meet social and ecological objectives and needs. Potential effects are varied and may contribute to an increase in vulnerability and the frequency and intensity of natural hazards. Some examples: land degradation, deforestation, desertification, wildland fires, loss of biodiversity, land, water and air pollution, climate change, sea-level rise and ozone depletion.

Environmental impact assessment: Studies undertaken in order to assess the effect on a specified environment of the introduction of any new factor, which may upset the current ecological balance. Environmental impact assessment (EIA) is a policymaking tool that serves to provide evidence and analysis of environmental impacts of activities from conception to decision-making. It is utilized extensively in national programming and for international development assistance projects. An EIA must include a detailed risk assessment and provide alternative solutions or options.

Exposure: Exposure is the degree to which the elements at risk are likely to experience hazard events of different magnitudes.

Hazard: A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Hazard analysis: Identification, studies and monitoring of any hazard to determine its potential, origin, characteristics and behaviour.

Land-use planning: Branch of physical and socio-economic planning that determines the means and assesses the values or limitations of various options in which land is to be utilized, with the corresponding effects on different segments of the population or interests of a community taken into account in resulting decisions. Land-use planning involves studies and mapping, analysis of environmental and hazard data, formulation of alternative land-use decisions and design of a long-range plan for different geographical and administrative scales.

Microfinance and microcredit: Programmes extending small loans and other financial services such as savings, to very poor people for self-employment projects that generate income, allowing them to care for themselves and their families. (Microcredit Summit Campaign)

Mitigation: Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards. (Examples of structural measures are engineering works and hazard-resistant construction, while non-structural measures include awareness-raising, knowledge development, policies on land use and resource management, and facilities' operating practices.

Multi-stakeholder: A term to describe a grouping of individuals and organizations who have a interest or "stake" in a problem and who cooperate to take action on the problem - in this case to reduce disaster risk. (Draft definition, under discussion)

National platform for disaster risk reduction: A nationally owned and led forum or committee of multi-stakeholders. It serves as an advocate of disaster risk reduction at different levels and provides coordination, analysis and advice on areas of priority requiring concerted action through a coordinated and participatory process. A National Platform for disaster risk reduction should be the coordination mechanism for mainstreaming disaster risk reduction into development policies, planning and programmes in line with the implementation of the HFA. It should aim to contribute to the establishment and the development of a comprehensive national disaster risk reduction system, as appropriate to each country. (UN/ISDR Guidelines National Platforms for Disaster Risk Reduction)

National policy framework: A set of policies adopted by a national authority to define and coherently address a particular issue and to guide decision-making, where these policies comprise relevant assessments, strategies, goals, approaches, rules, plans, activities, priorities, agents and responsibilities. A national disaster risk reduction policy framework can guide all stakeholders - sector agencies, local governments and others - in the development of complementary risk reduction policies in their areas of authority. (Draft definition, under discussion)

Poverty Reduction Strategy Papers: Prepared by governments in low-income countries through a participatory process involving domestic stakeholders and external development partners, including the International Monetary Fund and the World Bank. PRSPs describe the macroeconomic, structural and social policies and programmes that a country will pursue over several years to promote broad-based growth and reduce poverty, as well as external financing needs and the associated sources of financing. (International Monetary Fund)

Preparedness: Pre-disaster activities that are undertaken within the context of disaster risk management and are based on sound risk analysis. This includes the development/enhancement of an overall preparedness strategy, policy, institutional structure, warning and forecasting capabilities, and plans that define measures geared to helping at-risk communities safeguard their lives and assets by being alert to hazards and taking appropriate action in the face of an imminent threat or an actual disaster. *(OCHA)*

Prevention: Activities to provide outright avoidance of the adverse impact of hazards and means to minimize related environmental, technological and biological disasters. Depending on social and technical feasibility and cost-benefit considerations, investing in preventive measures is justified in areas frequently affected by disasters. In the context of public awareness and education related to disaster risk reduction, changing attitudes and behaviour contribute to promoting a "culture of prevention".

Public awareness: The processes of informing the general population, increasing levels of consciousness about risks and how people can act to reduce their exposure to hazards. This is particularly important for public officials

in fulfilling their responsibilities to save lives and property in the event of a disaster. Public awareness activities foster changes in behaviour leading towards a culture of risk reduction. This involves public information, dissemination, education, radio or television broadcasts and use of printed media, as well as the establishment of information centres and networks and community and participation actions.

Public-private partnership: A voluntary association of both state and non-state actors or organizational entities typically drawn from government, business, professional and/or academic institutions and other elements of civil society to address commonly held objectives through shared resources, skills and abilities. Partnerships typically involve some form of joint decision-making and sharing of responsibilities, opportunities and risks in recognition that the combined value of their respective attributes provides greater potential for accomplishment than would be possible through individual efforts. (Microcredit Summit Campaign)

Recovery: Decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk. Recovery (rehabilitation and reconstruction) affords an opportunity to develop and apply disaster risk reduction measures.

Relief/response: The provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term, or protracted duration.

Resilience: The capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.

Retrofitting: Reinforcement of structures to become more resistant and resilient to the forces of natural hazards. Retrofitting involves consideration of changes in the mass, stiffness, damping, load path and ductility of materials, as well as radical changes such as the introduction of energy-absorbing dampers and base isolation systems.

Risk: The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerable conditions.

Risk assessment/analysis: A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend.

Risk avoidance: Practices that use corporate expertise in areas such as enterprise risk management to identify opportunities to avoid risks. For instance, risk can be avoided by withholding construction permission or operating licences in high-risk areas, such as flood plains, costal zones and landslide prone areas. (Draft definition, under discussion)

Risk mitigation: Use of corporate expertise and investments to identify and retrofit lifeline facilities such as hospitals and oil depots which are situated in hazardous areas and which, if damaged, could interrupt normal operations of businesses and communities. The same approach is applied to lifeline facility networks (like power lines, communications networks and water supply and sanitation). Risk mitigation also involves encouraging corporate partners to pool resources: building, for example, a reliable corporate power generation facility for a community of businesses in the same municipality, rather than relying on individual standby generators for each enterprise. Governments could also co-invest in increasing the reliability of municipal utilities, so that they will stay operational during expected hazardous conditions. (Draft definition, under discussion)

Risk transfer: Insurance and reinsurance both for physical damage and business interruption, coverage that would provide cash compensation immediately after the disaster. To the extent possible, create large pool of insured to avoid paying high premiums, and introduce mandatory insurance for those businesses and public institutions that have to operate in the hazardous conditions. (Draft definition, under discussion)

Scenarios: An account or synopsis of a possible course of events that could occur, including the development of hypothetical impact. These scenarios form the basis for planning prevention, mitigation or preparedness. (Draft definition, under discussion)

Vulnerability: The conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards.

Annex V

Poverty Reduction Strategy Papers, Preparing a United Nations Development Assistance Framework

Provisions to address disaster risk reduction for the poor need to be included in a country's Poverty Reduction Strategy Paper and in the Common Country Assessment and United Nations Development Assistance Framework as proposed in Task 4.2. This Annex provides further information on these two processes.

(I) Integrating disaster risk reduction into Poverty Reduction Strategy Papers

Poverty Reduction Strategy Papers (PRSPs) are prepared by governments in low-income countries through a participatory process involving domestic stakeholders and external development partners, including the International Monetary Fund and the World Bank. PRSPs describe the macroeconomic, structural and social policies and programmes that a country will pursue over several years to promote broad-based growth and reduce poverty, as well as external financing needs and the associated sources of financing.[11]

Five steps to integrate disaster risk reduction in PRSPs:[12]

Step 1: Analytical and diagnostic work

- Consider the role of vulnerability to natural hazards as part of the broader analysis to identify the poor, analyse the severity of poverty, identify correlated factors and underlying determinants and examine the constraints and priorities of the poor.
- Invite national platforms to participate in PRSP analytic and diagnostic tasks which include:
  - Superimpose spatial hazard maps on poverty maps.
  - Identify potential consequences of disasters for various levels of income and well-being of different groups.
  - Develop strategies to minimize risks and their implications for income.

Step 2: Set poverty reduction objectives

- Currently most PRSPs identify disaster risk reduction as an issue within other key priorities, such as a general reduction of socio-economic vulnerability. It would be important, especially for high-risk countries, to identify disaster risk reduction objectives within the core strategy for reducing poverty and for increasing economic growth.

11 From International Monetary Fund. 2006. Poverty Reduction Strategy Papers (PRSPs). www.imf.org/external/np/prsp/prsp.asp
12 ProVention Consortium. 2007.

Step 3: Prioritize public actions for poverty reduction

- Develop sectoral policies and programmes to address the Millennium Development Goals (MDGs) in various sectors including education, health and infrastructure.
- Adjust macroeconomic and structural adjustment policies, so that they address economic growth without increasing disaster risk. For example: user fees on irrigation do not reduce the coping capacity of the vulnerable.
- Decentralize, empower and allow fiscal autonomy to address risk at the local government level; for example, enact laws to ensure security of land right as incentives for risk-reducing investments.
- Include mitigation funds as part of regular budget plans to ensure disaster-resilient infrastructure and livelihood assets.

Step 4: Establish monitoring and evaluation procedures

- Formulate quantitative indicators on disaster risk reduction related to MDG indicators, which the national governments have committed to monitor, preferably at disaggregated geo-climatic or geophysical zones (see example for indicators for eradicating extreme poverty and hunger below).

Millennium Development Goals	
Goal 1. Eradicate extreme poverty and hunger	
Target 1: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day.	Disaster risk indicator: • Proportion of population below USD 1 per day does not fluctuate with variations in hydro-meteorological phenomenon (rainfall, cyclones, floods) and hazard events like earthquakes. • Share of poorest quintile in national consumption does not decline in years of extreme weather and hazard events like cyclones, earthquakes.

Step 5: Implementation, evaluation and feedback

- Assess disaster risk achievements and shortcomings as part of the evaluation and draw on lessons learned to enhance the effectiveness of successor PRSPs.
- Hold participatory consultations on the relevance of disasters to poverty and discuss related options for strengthening resilience during the preparation of PRSPs.

(II) Addressing disaster risk reduction in the Common Country Assessment and United Nations Development Assistance Framework.

The Common Country Assessment/United Nations Development Assistance Framework (CCA/UNDAF)

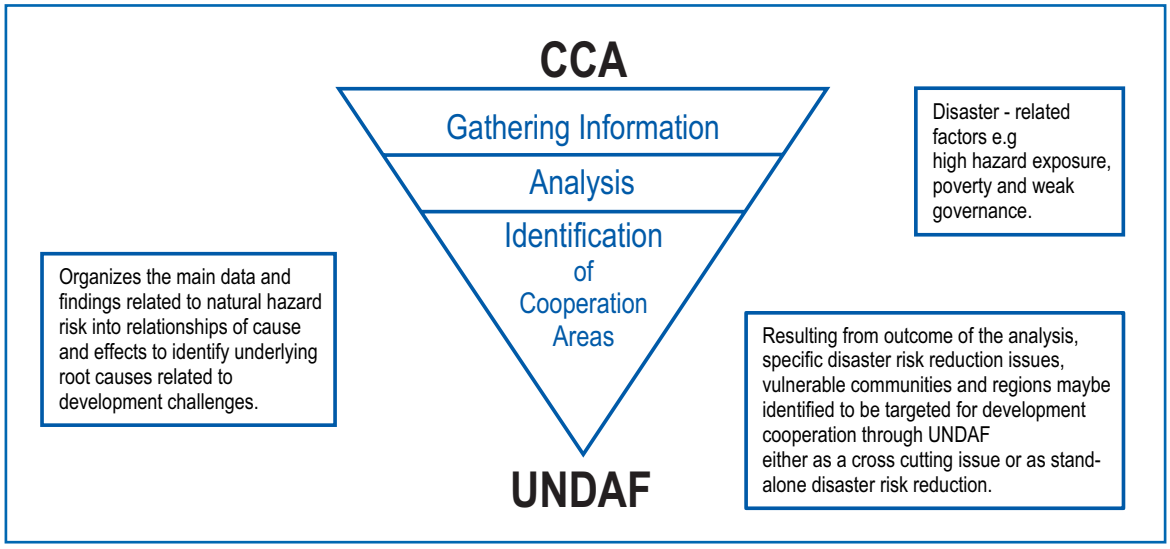
The CCA/UNDAF process is the common strategic framework for the operational activities of the United Nations System at the country level. It provides a collective, coherent and integrated United Nations System response to national priorities and needs within the framework of the MDGs and the other commitments, goals and targets of the Millennium Declaration and the declarations and programmes of action adopted at international conferences and summits and through major United Nations conventions. The CCA is the main diagnostic tool available to United Nations country teams and their partners for assessing and developing a common understanding of the underlying challenges faced by a country in its development process. The UNDAF emerges from the analytical and collaborative effort of the CCA and is the foundation for United Nations System programmes of cooperation.

CCA analysis includes three major steps:

Step 1. Incorporating disaster risk reduction into the CCA/UNDAF process

A thorough preparation of the CCA and UNDAF involves a wide consultative process of the United Nations System with national authorities, civil society, local and private sectors. Significantly, the exercise itself provides a good opportunity to develop a consensus on key disaster risk reduction challenges facing society and on the best policy options for addressing the root causes.

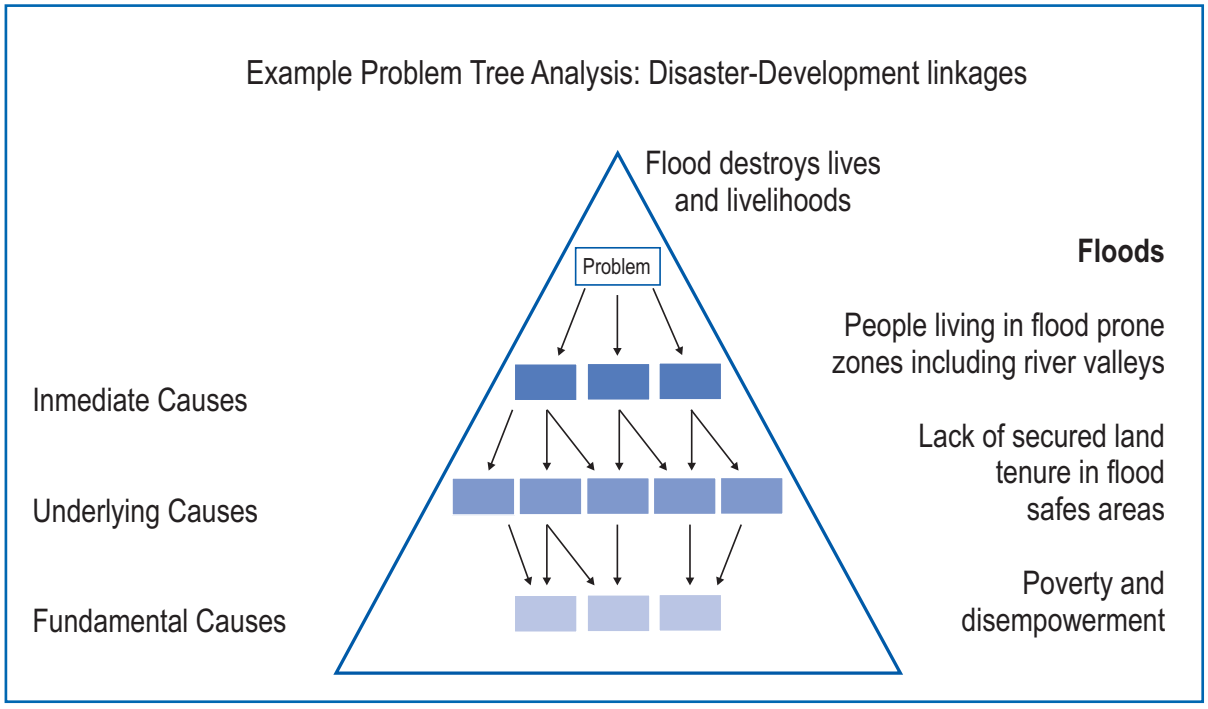
The following principles should guide the United Nation's programming process in preparing the CCA/UNDAF:



- Identify the root causes of disaster risk in terms of hazard exposure and vulnerability of exposed populations, infrastructure and economic activities.
- Assess and develop lasting in-country capacities for disaster risk reduction at individual, institutional and societal levels.
- Aim to reduce vulnerabilities of the poorest, including indigenous peoples and migrants - usually most vulnerable to disaster risk. Reducing disaster risk and enhancing the coping mechanisms of poor communities should be analysed within the context of poverty alleviation programmes.
- Address specific hazard risks and vulnerabilities that may undermine the country's efforts to achieve the MDGs and other international conventions to which the country is party.
- Utilize lessons learned on disaster risk reduction strategies from past development cooperation.

A checklist for evaluating the incorporation of disaster risk reduction into the CCA/UNDAF process is available in Annex 4 of the UN/ISDR - UNDP document: Integrating Disaster Risk Reduction into CCA and UNDAF Guidelines, which is available at: http://www.unisdr.org/eng/risk-reduction/sustainabledevelopment/cca-undaf/Annex4-Integrating-DRR-into-CCA-UNDAF.doc

Step 2: Preparing the CCA Incorporating disaster risk assessments in CCA may include:



- The compilation of relevant data and information on hazards affecting the country and consequent disaster risks.
- The determination of disaster risk levels involves the identification of hazard occurrence probability, elements at risk and vulnerability of the elements at risk to a particular hazard.
- An assessment of the underlying factors driving vulnerability increases and potential future disasters.
- An assessment of the national capacities available to address disaster risk reduction.
- The identification of indicators for reducing disaster risks associated with each potential development challenge.

The main data, trends and findings need to be transferred into cause-and-effect relationships, in order to identify root causes underlying the development challenges. Applying analytical tools such as a causality tree helps to identify contributing causes and clarifies their various determinants.

Step 3: Preparing the UNDAF

After completion of the CCA, the United Nations - with its key partners - will address the core problems identified in the CCA process.

The United Nations country teams may organize a review, analysis and discussion around the CCA with all relevant national government and civil society actors, so as to develop a disaster risk reduction strategy for inclusion in the UNDAF. When major disasters occur between the CCA/UNDAF cycles, it may be necessary to prepare an addendum to the existing UNDAF. The United Nations country teams will then develop an outcome as shown in the example below.

UNDAF Outcome 1: Reduced number of households living in poverty through the realization of economic potential and the provision of social welfare.

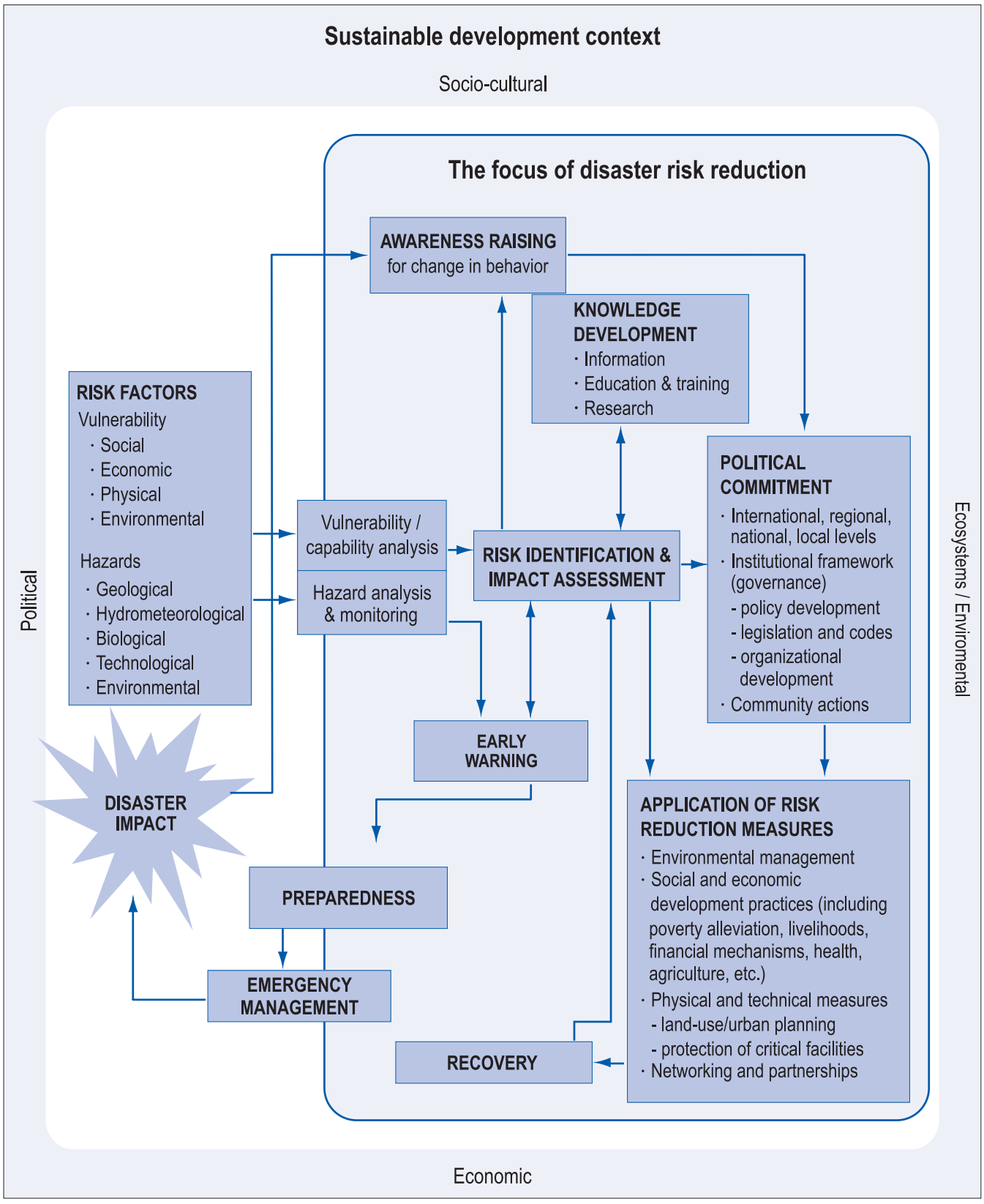
Country Programme Outcomes	Country Programme Outputs	Partners
1.1 Increased government capacity to adopt and implement government and joint poverty reduction policies and programmes, through the realization of economic potential.	1.1.2 Creation of income generation opportunities through employment and production supported, including diversified income options for populations in high-risk areas to reduce their vulnerability to hazards (WB, IMF, IOM, WFP, FAO).1.1.3 Access to and the utilization of resources by the poor, vulnerable and food insecure improved (WFP, WB, UNDP, IOM, FAO).	Ministry of Agriculture, Ministry of Labour, Health and Social Affairs, Ministry of Environment.
1.2 The adoption and implementation of government and joint social protection mechanisms addressing the needs of verified vulnerable population groups (pensioners, elderly, disabled adults and children, street children, children at risk of institutionalization, disadvantaged households and those vulnerable to disasters).	1.2.2 Formulation of social protection and child welfare system reform supported (UNICEF, WFP, UNDP, UNHCR, IOM) including microfinance and social safety nets and micro-insurance schemes to insulate livelihoods against disaster risks.	State United Social Investment Fund, Ministry of Labour, Health and Social Affairs, Ministry of Justice, Ministry of Finance, Ministry of Education.

Annex VI

Conceptual framework for disaster reduction

Summary of the Hyogo Framework for Action

Conceptual framework for disaster reduction



United Nations
International Strategy for Disaster Reduction

SUMMARY of the Hyogo Framework for Action 2005-2015:
Building the Resilience of Nations and Communities to Disasters

Expected outcome, strategic goals and priorities for action 2005-2015

Expected Outcome
The substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries.

Strategic Goals

- The integration of disaster risk reduction into sustainable development policies and planning.
- The development and strengthening of institutions, mechanisms and capacities to build resilience to hazards.
- The systematic incorporation of risk reduction approaches into the implementation of emergency preparedness, response and recovery programmes.

Priorities for Action

Key Activities

1. Ensure that disaster risk reduction (DRR) is a national and a local priority with a strong institutional basis for implementation.	**2.** Identify, assess and monitor disaster risks and enhance early warning.	**3.** Use knowledge, innovation and education to build a culture of safety and resilience at all levels.	**4.** Reduce the underlying risk factors.	**5.** Strengthen disaster preparedness for effective response at all levels.
• DRR institutional mechanisms (national platforms); designated responsibilities; • DRR part of development policies and planning, sector wise and multisector; • Legislation to support DRR; • Decentralisation of responsibilities and resources; • Assessment of human resources and capacities; • Foster political commitment; • Community participation.	• Risk assessments and maps, multi-risk: elaboration and dissemination; • Indicators on DRR and vulnerability; • Data and statistical loss information; • Early warning: people centered; information systems; public policy; • Scientific and technological development; data sharing, space-based earth observation, climate modeling and forecasting; early warning; • Regional and emerging risks.	• Information sharing and cooperation; • Networks across disciplines and regions; dialogue; • Use of standard DRR terminology; • Inclusion of DRR into school curricula, formal and informal education; • Training and learning on DRR: community level, local authorities, targeted sectors; equal access; • Research capacity: multi-risk; socio-economic; application; • Public awareness and media.	• Sustainable ecosystems and environmental management; • DRR strategies integrated with climate change adaptation; • Food security for resilience; • DRR integrated into health sector and safe hospitals; • Protection of critical public facilities; • Recovery schemes and social safety-nets; • Vulnerability reduction with diversified income options; • Financial risk-sharing mechanisms; • Public-private partnership; • Land use planning and building codes; • Rural development plans and DRR.	• Disaster management capacities: policy, technical and institutional capacities; • Dialogue, coordination and information exchange between disaster managers and development sectors; • Regional approaches to disaster response, with risk reduction focus; • Review and exercise preparedness and contingency plans; • Emergency funds; • Voluntarism and participation.

Cross Cutting Issues

- Multi-hazard approach
- Gender perspective and cultural diversity
- Community and volunteers participation
- Capacity building & technology transfer

Contributing to the achievements of the internationally agreed development goals (including the MDGs).

DRR= disaster risk reduction

Implementation and Follow-Up

In order to achieve the strategic goals and act upon the priorities for action, the Framework identifies the following tasks for implementation and follow-up by States, regional and international organizations in collaboration with civil society and other stakeholders. The ISDR partners, in particular the Inter-agency Task Force on Disaster Reduction (IATF/DR)* and secretariat, are requested to assist in implementing the Hyogo Framework for Action.

General Considerations

- Implementation by different stakeholders, multi-sectoral approach; participation of civil society (NGOs, CBOs, volunteers), scientific community & private sector is vital.
- States primarily responsible; an enabling international environment is vital, incl. strengthened regional capacities.
- Build multi-stakeholder partnerships.
- Particular attention to:
  - Small island developing States: Mauritius Strategy;
  - Least developed countries;
  - Africa.
- States, regional and international organizations to foster coordination among themselves and a strengthened International Strategy for Disaster Reduction (ISDR).
- Follow-up integrated with other major conferences in fields relevant to DRR; reviews as appropriate.

Actors

Critical tasks

States

- Designate national coordination mechanisms for the implementation and follow up, communicate to the ISDR secretariat;
- National baseline assessments of the status of DRR;
- Publish and update a summary of national programme for DRR including international cooperation;
- Develop procedure for reviewing national progress including systems for cost benefit analysis and ongoing monitoring on risk;
- Consider acceding to, approving or ratifying relevant international legal instruments and make sure they are implemented;
- Promote the integration of DRR with climate variability and climate change into DRR strategies and adaptation to climate change; ensure management of risks to geological hazards.

Regional Organizations and Institutions

- Promote regional programmes including for technical cooperation, capacity development, the development of methodologies and standards for hazard and vulnerability monitoring and assessment, the sharing of information and effective mobilization of resources;
- Undertake and publish regional and sub-regional baseline assessments;
- Coordinate and publish reviews on progress and support needs, and assists countries in preparation of national summaries;
- Establish specialized regional collaborative centers;
- Support the development of regional mechanisms and capacities for early warning, including for tsunami.

International Organizations (including UN System and IFIs)

- Encourage the integration of DRR into humanitarian and sustainable development fields;
- Strengthen the capacity of the UN system to assist disaster-prone developing countries in DRR and implement measures for assessment of progress;
- Identify actions to assist disaster-prone developing countries in the implementation of the Hyogo Framework, ensure integration and that adequate funding is allocated; assist in setting up national strategies and programmes for DRR;
- Integrate actions into relevant coordination mechanisms (UNDG, IASC, RCs and UN Country Teams);
- Integrate DRR into development assistance frameworks such as CCA/UNDAF, PRSP;
- In collaboration with networks and platform support: data collection and forecasting on natural hazards and risks; early warning systems; full and open exchange of data;
- Support States with coordinated international relief assistance, to reduce vulnerability and increase capacities;
- Strengthen international mechanisms to support disaster stricken States in post-disaster recovery with DRR approach
- Adapt & strengthen inter-agency disaster management training for DRR and capacity building.

ISDR (Inter-Agency Task Force on Disaster Reduction and secretariat)

- Develop a matrix of roles and initiatives in support of follow-up to the Hyogo Framework;
- Facilitate the coordination of effective actions within the UN system and other international and regional entities to support the implementation of the Hyogo Framework, identify gaps, facilitate processes to develop guidelines and policy tools for each priority area;
- In broad consultation, develop generic, realistic and measurable indicators. These indicators could assist States in measuring progress in the implementation of the Hyogo Framework;
- Support national platforms and regional coordination;
- Register relevant partnerships with Commission on Sustainable Development;
- Stimulate the exchange, compilation, analysis and dissemination of best practices, lessons learnt;
- Prepare periodic review on progress towards achieving the objectives of the Hyogo Framework and provide reports to the UNGA and other UN bodies.

Resource Mobilization: States, Regional and International Organizations

- Mobilize resources and capabilities of relevant national, regional and international bodies, including the UN system;
- Provide and support the implementation of the HFA in disaster prone developing countries, including through financial and technical assistance, addressing debt sustainability, technology transfer, public-private partnership and North-South and South-South cooperation;
- Mainstream DRR measures into multilateral and bilateral development assistance programmes;
- Provide adequate voluntary financial contribution to the UN Trust Fund for DR to support follow-up activities to Hyogo Framework; review usage and feasibility for the expansion of this fund;
- Develop partnership to implement schemes that spread risks, reduce insurance premiums, expand insurance coverage and increase financing for post-disaster reconstruction, including through public and private partnerships. Promote an environment that encourages a culture of insurance in developing countries.

Source: Outcome of the World Conference on Disaster Reduction, Kobe, Hyogo, Japan, 18-22 January 2005

* The IATF/DR was replaced in 2007 by the Global Platform for Disaster Risk Reduction

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UN/ISDR-02-2007-Geneva