

A faint, light blue world map is visible in the background of the top half of the page. The map shows the continents of North America, South America, Europe, Africa, and Asia.

Chapter 6

Future challenges: A common vision for disaster risk reduction



“Awareness of the potential benefits of disaster reduction is still limited to specialized circles and has not yet been successfully communicated to all sectors of society, in particular policy makers and the general public... due to a lack of attention for the issue, insufficient commitment and resources for promotional activities at all levels.”

“A number of positive results have been achieved during the first five years of the Decade, although unevenly and not in the concerted and systematic way as envisaged by the General Assembly [at the commencement of the International Decade for Natural Disaster Reduction].”

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

Future challenges: A common vision for disaster risk reduction

A number of conclusions can be drawn following ongoing consultation and research conducted for this review since late 2001. This chapter provides a summary of the main arguments and recommendations made that appear at the conclusion of each section that will be further complemented by a review of the achievements and shortcomings since the adoption of the Yokohama Strategy and Plan of Action in 1994. As a contribution to the emerging international agenda for disaster risk reduction, these recommendations will be presented at the World Conference on Disaster Reduction to be held at Kobe-Hyogo, Japan in January 2005.

The International Decade for Natural Disaster Reduction (IDNDR) proved to be a valuable learning experience for governments, specialists, communities and individuals in global efforts to reduce the negative impacts of natural hazards. The view that disasters are temporary disruptions to be managed only by humanitarian response, or that their impacts will be reduced only by some technical interventions has been replaced by the recognition that they are intimately linked with sustainable development activities in the social, economic and environmental fields. So-called “natural” disasters are increasingly regarded as one of the many risks that people face ranging from epidemics to economic downturns, lack of food, clean water and safe environment to unemployment and insecurity. Where many of these risks are compounded, impacts of disasters are often exacerbated. This explains the increasing use of the expression “disaster risk reduction” recognizing the importance of risk issues, in contrast to the previously employed “natural disaster reduction”.

Many national and local development plans have benefited from progress in using new institutional and technical tools for improved disaster reduction practices. In particular, significant advances have been made in the increasing use of risk assessments, specific methodologies and research initiatives, early warning systems, information, training, education and public awareness activities.

Effective disaster risk management is a key element in good governance. A lack of political commitment is often cited as the main hindrance to the implementation of disaster risk reduction practices, in addition to:

- competing priorities for funding and political attention such as other development needs and conflicts;
- limited visibility of disaster risk reduction compared to humanitarian assistance and basic development practices;
- lack of coherence and coordination of advocacy activities due to the varying priorities and characteristics of members of the disaster reduction community across multi-institutional and cross-disciplinary boundaries; and
- absence of accountability for systematic implementation and monitoring of progress.

The ISDR Secretariat is committed to continually review past, present and future initiatives in cooperation with its key partners. The aim of a regular review is twofold: to compile, synthesize and disseminate information on activities related to disaster risk reduction; and to initiate the development of a framework for guiding implementation and monitoring of progress to be used by governments, civil society and other relevant actors.

Providing evidence of the benefits of reducing risk and vulnerability promotes

sustained future investment and priorities in disaster risk reduction. Ongoing commitment and collaboration among local organizations, governments, the scientific and technical community, and international and regional organizations is essential to unite efforts towards the achievement of sustainable development. This is an area where the ISDR can make a difference.

Together with UNDP and with the involvement of other international and regional organizations, the ISDR Secretariat will prepare future global reports on disaster risk reduction that will incorporate recent efforts to develop a Disaster Risk Index (DRI) as described in *Reducing disaster risk: A challenge for development* (UNDP, 2004). The DRI project measures and compares relative levels of vulnerability to four natural hazard types (earthquake, tropical cyclone, flood and drought). Joint UN/ISDR-UNDP reporting is expected to improve understanding of the relationship between development and disaster risk, identify global trends and initiatives as well as encourage further discussion on disaster risk reduction based on hazard impact and vulnerability indicators and address other natural hazards gradually.

Priorities for the future

Firstly, there is a need for **disaster and risk reduction to be an essential part of the broader concerns of sustainable development**, and hence the need to make sure that risk assessments and vulnerability reduction measures are taken into account in different fields, such as environmental management, poverty reduction and financial management. These linkages introduce new challenges. Each sector, discipline or institution speaks a different language and brings new practices and experiences to the subject which need to be harmonized. The Millennium Development Goals set for the year 2015 cannot be achieved unless the heavy toll of disasters in human and economic terms is

reduced. The WSSD was a milestone event in 2002 that marked unprecedented global recognition of the importance of disaster risk reduction in the sustainable development agenda, substantiated in the Johannesburg Plan of Implementation (see annex 6).

Secondly, it is essential to note that **current development practices do not necessarily reduce communities' vulnerability to disasters** – indeed, ill-advised and misdirected development practices may actually increase disaster risks. A considerable challenge remains in raising awareness of this concern and to influence and enhance existing development projects, poverty reduction strategies and other programmes to systematically reduce disaster risk.

Thirdly, **political commitment by public and private policy makers and local community leaders, based on an understanding of risks and disaster reduction concepts, is fundamental to achieving change**. Progress requires effective administration and resource allocation from higher levels of authority within a society, together with the local understanding and active participation of those people most immediately affected by disaster risks.

Fourthly, even though national and local authorities bear the main responsibility for the safety of their people, it is **the international community's duty to advocate policies and actions in developing countries** that pursue informed and well-designed disaster risk reduction strategies, and to ensure that their own programmes reduce and do not increase disaster risks.

In particular, the continuing emphasis on post-disaster relief allows the costs and responsibilities for poorly managed risks to be transferred to the international community and provides little incentive for disaster-prone and developing countries to embrace significant and sustained disaster risk management practices. In some cases, communities rely

“Many of us in our rhetoric talk about [disaster risk reduction], but in practice I think very little is done in terms of integrating this into practice”. “No one is saying ‘this is what I suggest for this type of solutions’ that are not too expensive and appropriate for communities”.

Bilateral donor agency from Tearfund study, 2003



“There are three important pillars for disaster reduction activities: Jijyo (self-help), Gojyo (mutual-help), and Koujyo (public assistance).”

*Kiichi Inoue
Minister of State for
Disaster Management,
Japan*

on disasters to attract media attention and financial assistance, from both donors and the international community.

In this respect, there is a crucial role for the UN system, international organizations and bilateral donors to play in supporting national initiatives and local efforts to build capacities for improved disaster risk reduction. **Long-term commitment to support local disaster reduction endeavours is as important as funding emergency assistance following high-profile disasters.**

International and national policymakers need to proceed beyond rhetorical resolutions and invest in practical measures that address risk and vulnerability factors. These should be incorporated in those emergency assistance grants and development assistance programmes underwritten by the international community.

Such an approach needs to be coupled with the task of accommodating the short-term needs of developing countries, while simultaneously maintaining a focus on the long-term objectives of reducing risk to ensure sustainable development. Too often the link between disaster reduction and sustainable development is overlooked or ignored, especially in countries where development is overshadowed by immediate subsistence needs. The international community and national policymakers need to recognize their moral obligation to direct resources towards disaster risk reduction as part of sustainable development efforts. A moral obligation that in addition is cost-effective in the longer run as less resources will be needed to provide relief and reconstruction.

Areas of priority

This section outlines key disaster reduction priorities that remain in need of attention. In addition to the five areas identified in the framework for disaster risk reduction discussed later in this chapter, two

additional areas of priority are identified: international and regional support for disaster reduction efforts, and the monitoring and assessment of implementation.

Some of the priorities describe action to be taken by international organizations and the UN system, in concert with bilateral and multilateral development assistance programmes. Others highlight the need for the adoption of a regional approach to disaster risk reduction, bringing together those actors sharing common characteristics such as geography and language. Many require that policymakers and stakeholders at the national level unite across a broad range of sectors, demonstrating their commitment and offering concrete solutions. Most – if not all – are applicable at the local and individual scales, whereby each individual can play a part in contributing to building sustainable societies.

Political commitment and institutional development (governance)

“Each country bears the primary responsibility for protecting its own people, infrastructure, and other national assets from the impact of natural disasters.”

10th principle of the Yokohama Strategy and Plan of Action

- **Recognize disaster risk reduction primarily as national and local responsibilities.** National and local authorities need to recognize the value of investing in disaster risk reduction, ensuring sufficient resource allocation and the implementation of realistic policies. Increased national and local commitment is required, with more institutional structures set in place for the coordination of disaster reduction activities.
- **Continue efforts to decentralize disaster risk management practices.** Community

participation and local decision-making is essential to advocate increased public commitment and participation. Efforts need to be decentralized wherever possible.

- **Enhance policy development and integration** to ensure that all relevant sectors include disaster risk management as a basic tool of sustainable development. Cross-sectoral policy cooperation is necessary to ensure a coherent and consistent approach across environmental and socio-economic policy areas.
- **Increase effective intra-regional cooperation and interaction.** Policy interests and material resources need to transcend strictly national outlooks, with regional efforts strengthening national and local capacities. Information exchange and sharing of experiences at the regional level are vital to maintain a healthy dialogue for disaster risk reduction.

Risk identification and assessment

“Risk assessment is a required step for the adoption of adequate and successful disaster reduction policies and measures.”

1st principle of the Yokohama Strategy and Plan of Action

- **Increase the widespread understanding of hazards and vulnerability as the two components of disaster risk.** Disaster reduction measures should be based on continuous assessment of vulnerability and hazards, ensuring a comprehensive understanding of disaster risks. Environmental impact assessments need to routinely consider risk. Early warning systems need to be better understood and recognized for their value in informing authorities and the public on impending risks, allowing for timely action to be taken.
- **Increase accuracy of risk assessment.** Risk assessments need to reflect the dynamic nature of the environment, taking into consideration new and complex forms of danger. Emerging trends in hazards and vulnerability such as provoke changes in risk perception as well as risk assessment procedures, such as climate change, urban growth, disease and environmental degradation.

- **Improve quality of information and data.** Reliable data is crucial for the identification of trends in hazards and vulnerability and for forecasting and early warning. Decision-makers need access to relevant and accurate data in order to make sound decisions and adopt appropriate strategies, including factoring disaster risk reduction into national planning and budgets.
- **Improve communication channels among early warning stakeholders.** There is a need to capitalize on existing early warning technologies by strengthening the link between forecasts and the intended recipients. Better coordination is needed among actors in the early warning chain to provide optimum conditions for informed decision-making and response actions.

“An integrated, multi-hazard, inclusive approach to address vulnerability, risk assessment and disaster management, including prevention, mitigation, preparedness, response and recovery, is an essential element of a safer world in the 21st century. Actions are required at all levels to...develop and strengthen early warning systems and information networks in disaster management...[actions are required to] promote the access and transfer of technology related to early warning systems and to mitigation programmes to developing countries affected by natural disasters.”

Johannesburg Plan of Implementation, World Summit on Sustainable Development, 2002

Knowledge management

“The development and strengthening of capacities to prevent, reduce and mitigate disasters is a top priority area.

Vulnerability can be reduced by the application of proper design and patterns of development focused on target groups, by appropriate education and training of the whole community.”

4th and 7th principles of the Yokohama Strategy and Plan of Action

- **Increase education and public awareness on risk and disaster risk reduction options** adapted according to geographical and cultural contexts. Inclusion of disaster reduction in educational programmes at all levels, effective public awareness and information campaigns, media



involvement in advocacy and information dissemination, community training programmes and access to technical specialists are key ingredients to support the knowledge base for effective disaster risk reduction.

- **Develop educational programmes about the social dimensions of risk with a strong gender balanced approach.** Further support should be provided to academic studies and formal educational programmes that address socio-economic and environmental conditions of vulnerability, matters of social equality related to risk and local community participation with a gender balanced approach, in particular those courses targeted at public administrators.
- **Integrate disaster risk issues into professional training.** Educational institutions need to include disaster risk issues in the training of professionals such as engineers, meteorologists, social scientists, teachers, social communicators and journalists, urban planners, environmental managers and physical scientists.
- **Expand partnerships and networking at all levels,** including among the private sector, academic institutions, NGOs, local communities and government. This should be a primary focus for national platforms for disaster risk reduction, bringing together a range of actors and valuable resources, harmonizing efforts and leading to greater overall impact.
- **Improve information availability and access to support research.** There is a growing need for research centres dedicated to the compilation and dissemination of the wide range of research and experience available to support policy development and decision-making. Documenting risk factor analysis and disaster statistics can represent a valuable investment for disaster risk reduction.

Risk management applications and instruments

“Environmental protection as a component of sustainable development consistent with poverty alleviation is imperative in the prevention and mitigation of natural disasters.”

9th principle of the Yokohama Strategy and Plan of Action

Instruments for risk management have proliferated especially with the recognition of environmental and natural resources management, poverty reduction and financial management tools as complementary solutions.

- **Bring the ecological sphere into disaster risk reduction and vice versa.** Disaster reduction has primarily focused on physical protection to hazards and the economic and social spheres of sustainable development. Disaster risk reduction needs to be integrated into environmental and natural resource management. Wetland and watershed management to reduce flood risks, deforestation to control landslides, ecosystem conservation to control droughts are among the best-known applications.
- **Use social and economic development practices and policies for poverty alleviation to reduce vulnerability to hazards.** Social protection and safety nets are increasingly recognized as useful tools for reducing risks and self-reliance in recovery. Financial instruments in the form of insurance, calamity funds, catastrophe bonds as means to spread risks still prove difficult to establish in low-income countries. However, micro-finance and public-private partnerships in insurance could be easily developed in the poorest countries and communities.
- **Improve and use physical and technical measures** such as flood control techniques, soil conservation practices, retrofitting of buildings and land use planning. Existing tools and technologies need to be utilized and enhanced, using lessons learned to further enhance their effectiveness. Consistent emphasis on the protection of critical facilities is vital, focusing in particular on schools and health facilities and lifeline infrastructure such as water, energy and communications.
- **Acknowledge and adopt local and traditional knowledge and practices.** Examples of peoples and communities of the past successfully protecting themselves and their resources by traditional methods should be recognized, documented and applied wherever appropriate. Local experience should be promoted, as it often proves superior to foreign “quick-fix” remedies imposed on the community.

Disaster preparedness, emergency management and contingency planning

“Disaster prevention and preparedness are of primary importance in reducing the need for disaster relief.”

2nd Principle of the Yokohama Strategy and Plan of Action

Disaster risk reduction requires better synergy between disaster risk management practices and sustainable development, and greater recognition of the role of early warning.

Effective contingency planning and response capacities are important tools for humanitarian assistance. This is a significant area in its own right, which has not been elaborated on in this review.

- **Increase synergies and coordination between disaster managers and development sectors.**
Disaster risk reduction includes investing in preparedness and emergency management, both effective instruments in reducing fatalities from direct and indirect effects of disasters. A well-organized disaster management system - often represented by civil protection or defence organizations - comprises effective early warning systems, contingency plans, well-rehearsed national and local preparedness plans, a well-organized network of volunteers and close coordination with local Red Cross/Red Crescent societies, seamless communication and coordination as well as the logistics infrastructure and emergency funds to respond in an appropriate manner. Preparedness at the local level requires careful attention as individuals and communities are often the greatest contributors to the reduction of life and livelihood losses.
- **Strengthen people-centred early warning systems**
Early warning systems need to blend technical and social capacities, to ensure useful information is available and can be acted upon by authorities and individuals. This requires a more integrated approach than is often the case, combining skills in risk monitoring and prediction, communication of timely and clear warnings, and effective responses, which requires education, training and community involvement. Early warning can be a powerful vehicle for achieving many of the other priorities.

Sustained international and regional support and cooperation for disaster reduction efforts at national and local levels

“The international community accepts the need to share the necessary technology to prevent, reduce and mitigate disaster; this should be made freely available and in a timely manner as an integral part of technical cooperation.

...The international community should demonstrate strong political determination required to mobilize adequate and make efficient use of existing resources, including financial, scientific and technological means, in the field of natural disaster reduction, bearing in mind the needs of the developing countries, particularly the least developed countries.”

8th and 10th principles of the Yokohama Strategy and Plan of Action

Disaster risk reduction needs to become a higher priority within bilateral and multilateral donor policy and international financial institutions, in relation to both relief and development planning and programming.

- **Increase resources for disaster risk reduction, and allocating them where needs are the most urgent.**
Reporting on the “success” of disaster reduction activities is extremely complex, whereby organizations and practitioners are often expected to speculate on the number of lives and losses that were avoided due to donor investment. Both donors and recipients of funds need to overcome this obstacle, by the former having a better understanding of the subject and the latter an appreciation of accountability to donors.
- **Disaster risk reduction is both a humanitarian and a development issue, which requires the integration of the subject in both sectors.**
Neither relief nor development sectors “own” disaster reduction outright. Rather, they both need to invest in reducing risk and vulnerability to natural and technological hazards within their specialist domains. Their respective investments simultaneously complement one another, in addition to those of other sectors such as education, health, agriculture, urban management, employment, transport, infrastructure, among others.



Monitoring and assessment of implementation

“You do not see results in 3 years, you do not achieve political commitment without persistence and time (and a couple of major disasters unfortunately). Benchmarks have to reflect this long-term dimension.”

Claude de Ville de Goyet

On-line conference on the framework to guide and monitor disaster risk reduction, 2003

- **Measure progress.** The overarching challenge in disaster risk reduction is to achieve a reduction in fatalities and property loss across an increasing number of countries and communities. In order to do this, it is essential to document increased understanding of the concept and its implications, develop benchmarks and indicators and put disaster reduction measures into practice. Self-assessment is a first step, which should be guided by a commonly agreed framework for disaster risk reduction.
- **Develop indicators for disaster risk reduction measures.** Monitoring and evaluation of the impact of disaster reduction initiatives increases appreciation of and promotes investment to achieve its long-term benefits. Developing indicators is a multifaceted process that requires the adoption of a qualitative approach to assess progress.

The basis for a common framework for disaster risk reduction

At the outset of the task to conduct this global review of disaster reduction initiatives in 2001, the advisory panel recommended that a set of criteria be developed to measure the effectiveness of disaster risk reduction. These should ultimately reflect how lives and assets have been saved, as well as where countries stand in accomplishing the objectives of the ISDR.

As the conclusions indicate, throughout the review it became evident that a globally agreed framework for disaster risk reduction would help to harmonize and systematize the various elements and achievements in the field of comprehensive disaster risk management. In collaboration with UNDP, the ISDR Secretariat developed a model for this framework, with the aim of both guiding action as well as monitoring progress. This was

done in conjunction with a growing number of stakeholders in UN, international, national and local organizations, through the Inter-Agency Task Force on Disaster Reduction as well as by means of an on-line consultation in August 2003, attracting over 300 participants from around the world.
<<http://www.unisdr.org/dialogue>>

Such a framework could constitute the necessary backbone to collect information and data as well as capture and disseminate good practices. It could help to analyze trends in disaster reduction practices, identify gaps and constraints for informed decisions. The framework is expected to:

- provide a basis for political advocacy as well as practical action and implementation;
- reflect the multi-dimensional, inter-disciplinary and multi-hazard nature of disaster risk reduction;
- assist a wide range of users in determining roles, responsibilities and accountabilities for their own circumstances;
- assist users to highlight areas where capacities are to be developed; and
- provide the basis for setting goals and targets, adapted to different contexts, against which progress can be measured and gaps identified.

The framework can also provide a strong impetus for the promotion of disaster risk reduction in a coherent and thus effective manner. This role is essential in the lead up to the second World Conference on Disaster Reduction in early 2005. As described earlier, the review of progress since the Yokohama Strategy and Plan of Action is based on the thematic areas of the framework and the findings will feed into the outcomes of the Conference.

These outcomes will complement and enhance the International Strategy for Disaster Reduction and facilitate the attainment of the objectives of the Johannesburg Plan of Implementation and the Millennium Development Goals forming a stronger basis to reduce risk and vulnerability to natural hazards and ensure sustainable development.

Setting goals and targets offers a means to build momentum and accelerate the pace of progress in disaster reduction and measuring its results. It would also facilitate implementation by governments and organizations. While such goals and targets would be set at the global level, they need to be carefully designed to be easily adapted for implementation at national, local or organizational levels. The framework is intended to guide the setting of these goals and targets, in addition to identifying gaps, defining national priorities and action plans to meet them.

Table 6.1

A framework to guide and monitor disaster risk reduction (see graphic representation in figure 1.3)

Thematic area 1: POLITICAL COMMITMENT AND INSTITUTIONAL DEVELOPMENT (GOVERNANCE)

Governance is increasingly becoming a key area for the success of sustained reduction of risks. Defined in terms of political commitment and strong institutions, good governance is expected to elevate disaster risk reduction as a policy priority, allocate the necessary resources for it, enforce its implementation and assign accountability for failures, as well as facilitate participation from civil society private sector.

Thematic areas/ Components	Characteristics	Criteria for benchmarks (very tentative)
Policy and planning	<ul style="list-style-type: none"> • Risk reduction as a policy priority • Risk reduction incorporated into post-disaster reconstruction • Integration of risk reduction in development planning and sectoral policies (poverty eradication, social protection, sustainable development, climate change adaptation, desertification, natural resource management, health, education, etc) 	<ul style="list-style-type: none"> • National risk reduction strategy and plan • Disaster reduction in poverty reduction strategy papers, in national Millennium Development Goals reports • Disaster reduction in National Adaptation Plan of Action (for LDCs) on climate change • National follow up on WSSD Plan of Implementation
Legal and regulatory framework	<ul style="list-style-type: none"> • Laws, acts and regulations • Codes, standards • Compliance and enforcement • Responsibility and accountability 	<ul style="list-style-type: none"> • Requirement of compliance by law • Existence and update of codes and standards • Existence of systems to ensure compliance and enforcement
Resources	<ul style="list-style-type: none"> • Resource mobilization and allocation: financial (innovative and alternative funding, taxes, incentives), human, technical, material, sectoral 	<ul style="list-style-type: none"> • Evidence of budgetary allocation • Staffing allocation • Public-private partnerships
Organizational structures	<ul style="list-style-type: none"> • Implementing and coordinating bodies • Intra and inter-ministerial, multidisciplinary and multisectoral mechanisms • Local institutions for decentralized implementation • Civil society, NGOs, private sector and community participation 	<ul style="list-style-type: none"> • Existence of an administrative structure responsible for disaster reduction • Sectoral programmes in line ministries • Consultation with and role for civil society, NGOs, private sector and the communities. • Existence of "watchdog" groups

Thematic area 2: RISK IDENTIFICATION AND ASSESSMENT

Identification of risks is a relatively well-defined area with a significant knowledge base on methods for disaster impact and risk assessment. Systematic assessment of losses, particularly the social and economic impact of disasters, and mapping of risks are fundamental to understand where to take action. Pre-investment appraisals of disaster risk to development and vice versa, consideration of disaster risks in environmental impact assessments is still to become routine practice. Early warning is increasingly defined as a means to inform public and authorities on impending risks, hence essential for timely inputs to reduce their impact.

Thematic areas/ Components	Characteristics	Criteria for benchmarks (very tentative)
Risk assessment and data quality	<ul style="list-style-type: none"> • Hazard analysis: characteristics, impacts, historical and spatial distribution, multi-hazard assessments, hazard monitoring including of emerging hazards • Vulnerability and capacity assessment: social, economic, physical and environmental, political, cultural factors • Risk monitoring capabilities, risk maps, risk scenarios 	<ul style="list-style-type: none"> • Hazards recorded and mapped • Vulnerability and capacity indicators developed and systematically mapped and recorded • Risk scenarios developed and used • Systematic assessment of disaster risks in development programming
Early warning systems	<ul style="list-style-type: none"> • Monitoring and forecasting • Risk scenarios • Warning and dissemination • Response to warning 	<p>Effective early warning systems that include:</p> <ul style="list-style-type: none"> • Quality of forecasts • Dissemination channels and participation at local level • Effectiveness of response to warnings



Table 6.1 (Continued)

A framework to guide and monitor disaster risk reduction (see graphic representation in figure 1.3)

Thematic area 3: KNOWLEDGE MANAGEMENT

Information management and communication, education and training, public awareness and research are all parts of improving and managing knowledge on disaster risks and their reduction. Inclusion of disaster reduction with a strong gender balanced approach at all level of education, effective public awareness and information campaigns, media involvement in advocacy and dissemination, availability of training for the communities at risk and professional staff, targeted research are the ingredients to support the knowledge base for effective disaster reduction.

Thematic areas/ Components	Characteristics	Criteria for benchmarks (very tentative)
Information management and communication	<ul style="list-style-type: none"> Information and dissemination programmes and channels Public and private information systems (including disaster, hazard and risk databases & websites) Networks for disaster risk management (scientific, technical and applied information, traditional/local knowledge) 	<ul style="list-style-type: none"> Documentation and databases on disasters Professionals and public networks Dissemination and use of traditional/local knowledge and practice Resource centres and networks, in particular educational facilities
Education and training	<ul style="list-style-type: none"> Inclusion of disaster reduction at all levels of education (curricula, educational material), training of trainers programmes Vocational training Dissemination and use of traditional/local knowledge Community training programmes 	<ul style="list-style-type: none"> Educational material and references on disasters and disaster reduction Specialised courses and institutions Trained staff Evidence of systematic capacity development programmes
Public awareness	<ul style="list-style-type: none"> Public awareness policy, programmes and materials Media involvement in communicating risk and awareness raising 	<ul style="list-style-type: none"> Coverage of disaster reduction related activities by media Public aware and informed Visibility of disaster reduction day
Research	<ul style="list-style-type: none"> Research programmes and institutions for risk reduction Evaluations and feedback National, regional and international cooperation in research, science and technology development 	<ul style="list-style-type: none"> Existence of a link between science and policy (evidence-based policy and policy-oriented research) Indicators, standards and methodologies established for risk identification Regional and international exchange and networking

Thematic area 4: RISK MANAGEMENT APPLICATIONS & INSTRUMENTS

Instruments for risk management have proliferated especially with the recognition of environmental management, poverty reduction and financial management tools as complementary solutions. The role of **environmental and natural resource management** in reducing climatic disaster risks is acknowledged. Wetland and watershed management to reduce flood risks, deforestation to control landslides, ecosystem conservation to control droughts are among the best known applications. For effective results, synergies need to be built between sustainable development and disaster risk management practices. **Social and economic development practices** with proven results in poverty alleviation such as social protection and safety nets are increasingly regarded as ways of reducing risks and instruments for self-reliance in recovery. Financial instruments in the form of micro-financing and public-private partnerships can be of great help. Others such as insurance, calamity funds, catastrophe bonds are useful in spreading risks though still difficult to establish in low-income countries. **Physical and technical measures** such as flood control techniques, soil conservation practices, retrofitting of buildings or land use planning are well known practices and have been implemented with mixed results. Their failure is often due to poor governance rather than knowledge of what to do. Moreover, such measures, while effective in hazard control, can often be inadequate for social protection and economic recovery.

Thematic areas/ Components	Characteristics	Criteria for benchmarks (very tentative)
Environmental and natural resource management	<ul style="list-style-type: none"> Interface between environmental management and risk reduction practices, in particular in coastal zone, wetland and watershed management, integrated water resource management; reforestation, agricultural practices, ecosystem conservation 	<ul style="list-style-type: none"> Use of wetland and forestry management to reduce flood and landslide risk Trends in deforestation and desertification rate Use of environmental impact assessments in disaster reduction planning

Table 6.1 (Continued)

A framework to guide and monitor disaster risk reduction (see graphic representation in figure 1.3)

Thematic areas/ Components	Characteristics	Criteria for benchmarks (very tentative)
Social and economic development practices	<ul style="list-style-type: none"> • Social protection and safety nets • Financial instruments (involvement of financial sector in disaster reduction: insurance/reinsurance, risk spreading instruments for public infrastructure and private assets such as calamity funds and catastrophe bonds, micro-credit and finance, revolving community funds, social funds) • Sustainable livelihood strategies 	<ul style="list-style-type: none"> • Access to social protection and safety nets as well as micro-finance services for disaster risk reduction • Use of safety nets and social protection programmes in recovery process • Insurance take up • Public-private partnerships for micro-financing and insurance at community level
Physical and technical measures	<ul style="list-style-type: none"> • Land use applications, urban and regional development schemes • Structural interventions (hazard resistant construction and infrastructure, retrofitting of existing structures, drought, flood and landslide control techniques) • Soil conservation and hazard resistant agricultural practices 	<ul style="list-style-type: none"> • Construction reduced/zoning plans enforced in floodplains and other mapped hazard-prone areas • Compliance of public and private buildings with codes and standards. • Public buildings (health facilities, schools, lifelines, etc) at high risk retrofitted • Regular maintenance of hazard control structures

Thematic area 5: DISASTER PREPAREDNESS, CONTINGENCY PLANNING AND EMERGENCY MANAGEMENT

Preparedness and emergency management have been effective instruments in reducing life losses from direct and indirect effect of disasters. A well-prepared system is expected to be effectively informed by early warning, have in place national and local preparedness plans regularly rehearsed establish communication and coordination systems, as well as adequate logistics infrastructure and emergency fund to respond from. Local level preparedness, particularly of the communities, including their training deserves special attention as the most effective way of reducing life and livelihood losses.

Thematic areas/ Components	Characteristics	Criteria for benchmarks (very tentative)
Preparedness and contingency planning	<ul style="list-style-type: none"> • Contingency plans (logistics, infrastructure) • National and local preparedness plans • Effective communication and coordination system • Rehearsal and practice of plans 	<ul style="list-style-type: none"> • Testing and updating of emergency response networks and plans (national/local, private/public) • Coverage of community training and community based preparedness • Emergency funds and stocks
Emergency management	<ul style="list-style-type: none"> • Civil protection and defence organizations and volunteer networks 	<ul style="list-style-type: none"> • Effective response to disasters and mobilization of volunteers, including NGOs, in particular Red Cross/Red Crescent Societies

Source: UN/ISDR, October 2003

Building disaster risk reduction targets

The objectives and targets for disaster risk reduction should be “SMART”, in order to develop and assess effective disaster risk reduction strategies:

- **Sustainable** over time.
- **Measurable**, with defined criteria for success and specific benchmarks.
- **Achievable** within the timeframes that governments set. This may extend over months or years depending on available resources and national priorities.
- **Relevant**, to satisfy varied national situations related to national hazards, vulnerabilities and capacities and set within national governmental structures.

Box 6.1

Example of a disaster reduction objective and target

Objective

Make disaster risk reduction a national policy.

Targets

- A national disaster risk reduction policy adopted by [year].
- Supporting legislation for disaster reduction adopted by [year], including regulations and mechanisms to determine non-compliance and its treatment.
- A special budget line allocated for disaster risk reduction in the national budget [by year] and local administrative budgets by [year] [%].
- Disaster risk reduction integrated into sectoral policies and programmes [health, agriculture, infrastructure, environment, education] by [year].



- Timely, related to carefully framed tasks, with clear short and long-term goals.

Targets need to be adapted to each specific geographical and cultural context and tested accordingly and should build on goals to be defined following each thematic area of the framework for disaster risk reduction.

Measurement of progress – the benefits of reporting

A number of experts, scholars and agencies have called for the determination and application of specific disaster risk reduction baselines, targets and indicators during the last decade. To date several valuable global or regional initiatives have been developed to accomplish this, among them being UNDP and UNEP/GRID's Disaster Risk Index as part of its report *Reducing Disaster Risk: A challenge for development*; the development of indicators for disaster risk management in the Americas carried out by the Instituto de Estudios Ambientales, Universidad Nacional de Colombia and the Inter-American Development Bank; the Global Disaster Risk Hotspots project developed at Columbia University supported by the ProVention Consortium, the World Bank and the ISDR Secretariat; as well as the development of risk indicators for water management, coordinated by the inter-agency World Water Assessment Programme coordinated UNESCO (see chapter 4). All aim at supporting international and national policy development through the determination of baseline data on risk and vulnerability.

In the past, scientific and technical approaches have focused on indicators to suggest a hierarchy of accomplishment (for example, number of risk assessments carried out, existence of databases, number of decrees or legal acts, research programmes, educational reforms). The quantitative measurement of the impact of individual disaster reduction initiatives often spanning a relatively short period of time is particularly challenging. If no disaster were to occur after measures had been put in place it would be difficult to test the relative effectiveness of these measures. One approach to deal with this dilemma would be an attempt to identify

Box 6.2

Benefits of reporting

Benefits of systematically compiling information about disaster reduction initiatives include:

- identification of existing problems, increasing their accepted importance on the political agenda, and promoting solutions through new or improved policies, programmes, plans, institutional relationships and resource allocation;
- relationship and the integration of disaster risk management issues into broader development agendas;
- establish generic standards and guidelines for disaster reduction;
- determine priorities within the domain of disaster reduction;
- develop systematic, comprehensive data and information management systems about disaster reduction;
- guide research and advancement in disaster reduction; and
- compare approaches and analyze trends.

situations where a before-and-after scenario could apply.

Measuring qualitative accomplishments is even more demanding as changes in perceptions, values, attitudes and behaviour through education and public awareness activities are difficult to assess. Nevertheless, these are the essential factors needed to make progress in the pursuit of sustainable development. Benchmarks and indicators for reducing disaster risk can also become valuable instruments to monitor other sustainable development requirements in fields such as education, gender balance, community participation, local management and self-reliance, sustainable livelihoods, environmental management and land-use planning.

Measuring progress of disaster risk reduction in a country or region requires different frameworks at different timescales. In the long-term, disaster-induced changes in indicators of sustainable development such as the human development index, gross domestic product, poverty reduction and improved environmental management practices should reflect, to a degree, the extent to which a community has become more resilient to disasters as in the case of developed countries as well as some in the developing world.

A collective effort to implement disaster risk reduction

While the motivation and the responsibility to evaluate progress towards more effective risk reduction rest within individual countries and local communities, there is a collective requirement that extends throughout the international community to increase knowledge about available methodologies and resources.

Disaster risk reduction benchmarks require focussed and practical action to ensure progress towards reducing risk and vulnerability to natural hazards. It is important that the process adopted be regularly reviewed and adjusted to reflect progress as well as changing circumstances and capacities.

At the national and local level, each country would adapt goals and targets to their own priorities and timetables, developing implementation plans as appropriate. The process could be supported by national, regional and international partnerships, with many activities taking place at the community level. Work in larger urban areas will be of particular relevance given the rapid urban and vulnerability growth expected in the coming years.

At the regional level, countries would cooperate in sharing information and resources, exchanging experiences and seeking solutions to common problems in similar contexts. Regional organizations and regional development banks in cooperation with NGOs and the private sector

could provide guidance as well as technical support and assistance for national implementation, monitoring and reporting of progress. Regional “centres of excellence” in areas related to disaster risk reduction can support national efforts, facilitate knowledge and information transfer, technical cooperation, capacity-building and assistance policies.

At the international level, donors, international financing institutions, the UN system and other international organisations as well as NGOs and the private sector should provide incentives and guidance, as well as technical and financial support for national and local implementation. These can address sectoral needs and requirements for monitoring and reporting progress, and can integrate goals and targets for disaster risk reduction as part of their priorities, work programmes, investment and technical cooperation, capacity-building and assistance policies.

For coordination purposes at the global level and in line with the recommendations of the Johannesburg Plan of Implementation, the ISDR Secretariat stands ready to facilitate monitoring and reporting of progress on implementation with support from relevant partners, in particular with UNDP and other UN agencies, technical, regional and international organizations working in the Inter-Agency Task Force on Disaster Reduction. The ISDR Secretariat is gradually strengthening its capacity as an information clearinghouse to follow ongoing and emerging global initiatives and develop partnerships to support disaster risk reduction.



A window of opportunity

Two Chinese characters, which together form the word crisis, separately mean threat and opportunity. A combined concept like this is a reminder that, as conditions change, so can attitudes. In a world in which things seem sure to get worse, there is increasing incentive to make sure they do not.

When old menaces seem to multiply, new thinking must provide the solutions. Communities must adopt the notion that disaster impacts can be reduced and therefore not wait for disasters to be managed. In some cases, it might even be possible to reduce hazards. In others it is certainly possible to reduce human vulnerability to those hazards.

The combination of science and history is instructive – it provides the assurance that disasters that happen once can happen again and again. Earthquakes, for instance, are a fact of life at tectonic plate boundaries and these have been well mapped. Floods are a fact of life on flood plains and their rich soils are down-to-earth proof of this.

To shift from disaster management to disaster risk reduction is to exploit hindsight and develop foresight through insight.

危机

Crisis = threat + opportunity