

Chapter 5

Review of progress in the implementation of the Hyogo Framework for Action



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A detailed listing of national interim HFA progress reports prepared by 62 countries is available in Appendix 3.

In-depth case studies were also contributed by Egypt, the Philippines and Tajikistan. In Latin America, a study of best practices in disaster risk reduction governance was coordinated by Alberto Aquino (GTZ), Haris Sanahuja (UNISDR Panama) and Angeles Arenas (UNDP/BCPR) and authored by Milton von Hesse (GTZ), Joanna Kamiche and Catherine de la Torre (advisors). Additional case studies on Colombia, Nicaragua, St. Lucia and Yemen and on the Central American Probabilistic Risk Assessment were contributed by the World Bank, coordinated by the Global Facility for Disaster Reduction and Recovery. A case study on the reconstruction of Bam, Iran was contributed by Hossein Kalali (UNDP/BCPR).

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Other thematic progress reviews were undertaken on urban disaster risk reduction by Fouad Bendimerad (EMI); on recovery by Jennifer Worrell and Anita Shah (IASC Early Recovery Cluster), Yuki Matsukoa (IRP secretariat) and Dusan Zupka (UN OCHA); and on gender in disaster risk reduction and recovery by Feng Min Kan, Madhavi Ariyanbandu and Ana Cristina Thorlund (UNISDR) with inputs from Rory Mullan (UNDP DRM-Practice Network). Thanks to Michel Matera for reviewing French translations of the HFA Monitor tool.

Introduction

In 2005, 168 countries adopted the Hyogo Framework for Action (HFA), a comprehensive set of three strategic goals and five priorities for action. The expected outcome of the HFA is the “*substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries*”¹. The strategic goals and priorities for action are shown in Box 5.1, which also sets out the 22 core indicators and five levels of progress against which countries have assessed their implementation of the HFA during the first biennial progress review process (2007–2009).

This chapter reviews countries’ progress towards the achievement of the strategic goals and priorities for action. The analysis is based on interim national HFA progress reports completed by 62 national authorities for the period June 2007 to May 2009 (referred to as 2007–2009). The methodology and tools adopted for facilitating the global 2007–2009 HFA progress review are summarized in Appendix 3, which includes a description of progress and challenges against each of the core indicators and benchmarks applied. The Appendix also contains a list of countries that have completed interim national HFA progress reports as of February 2009.

The chapter also examines the extent to which disaster risk reduction is being addressed in strategies for poverty reduction and adaptation to climate change.

Summary of findings

1. Areas of HFA progress reported

Significant progress has been made in strengthening capacities, institutional systems and legislation to address deficiencies in disaster preparedness and response. Good progress is also being made in the identification, assessment and monitoring of disaster risks and in the enhancement of early warning systems. However, little progress is being made in the use of knowledge, innovation and education and in particular in the mainstreaming of disaster risk reduction into economic, social, urban, rural, environmental and infrastructure planning.

2. Progress by income and regional classification

High-income countries have achieved greater progress across all HFA Priorities for Action than middle- and low-income countries. However, while disaster risk reduction considerations are well integrated into different sectors, many countries lack a holistic policy and strategic framework for addressing disaster risk. Some least developed countries report major gaps in institutional, technical, human and financial capacities, which limit their ability to address the HFA. While many low- and middle-income countries have made good progress in developing national policies, legislation and institutional systems, they are challenged by the issue of mainstreaming disaster risk reduction into sectoral and local development.

3. Challenges reported

Specific challenges were highlighted by the review, including an ad hoc and dispersed approach to hazard monitoring and risk identification that does not facilitate comprehensive multi-hazard risk assessments; difficulties faced by national disaster risk reduction organizations in engaging development sectors; and a lack of accountability and enforcement in implementation. At the same time, however, the review highlights innovations in disaster risk reduction governance, showing that some of these challenges can be addressed.

4. Climate change and disaster risk reduction

Adaptation to climate change faces many of the same challenges as disaster risk reduction. In addition, implementation is still incipient and its policy and planning frameworks are rarely integrated with those for disaster risk reduction.

5. Poverty reduction and underlying risk drivers

Many poverty reduction strategies have potential to address the underlying risk drivers and do recognize disaster impacts as a contributing factor to poverty. However, the disaster risk reduction components in such strategies are often limited to preparedness and response aspects. In many countries, poverty reduction and disaster risk reduction are not strongly integrated in terms of policy and planning.

This first biennial HFA review has some limitations that must be made explicit at the outset. The national reports provide a reasonable sample of all regions and income classifications, but many countries remain unrepresented. While in some countries consultation exercises were held as part of the review process, the progress reports are self-assessments by the national authorities and in most countries prepared by the designated HFA focal point or organization responsible for disaster risk management. Reports do not always fully reflect the perspectives of other stakeholders, such as the private sector or civil society, or all sectors of government. Similarly, while some international organizations have contributed thematic reviews of progress for different areas, this iteration of the biennial review did not include modules for regional and international progress reporting. Nevertheless, as the first comprehensive global exercise in reporting progress on the Hyogo Framework's implementation, this review does provide a unique insight into the current level of commitment to and achievement of the HFA's strategic goals.

Box 5.1:
The Hyogo
Framework for
Action: Strategic
goals, priorities
for action,
core indicators
and levels of
progress

Source: (UNISDR, 2008a).

Three Strategic Goals

1. More effective integration of disaster risk consideration into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction.
2. Development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards.
3. Systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response and recovery programmes in the reconstruction of affected communities.

Five Priorities for Action and 22 Core Indicators

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

Core Indicator 1: National policy and legal framework for disaster risk reduction exists with decentralized responsibilities and capacities at all levels.

Core Indicator 2: Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels.

Core Indicator 3: Community participation and decentralization are ensured through the delegation of authority and resources to local levels.

Core Indicator 4: A national multisectoral platform for disaster risk reduction is functioning.

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

Core Indicator 1: National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.

Core Indicator 2: Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities.

Core Indicator 3: Early warning systems are in place for all major hazards, with outreach to communities.

Core Indicator 4: National and local risk assessments take account of regional/transboundary risks, with a view to regional cooperation on risk reduction.

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

Core Indicator 1: Relevant information on disasters is available and accessible at all levels, to all stakeholders (through networks, development of information sharing systems, etc).

Core Indicator 2: School curricula, education material and relevant training include disaster risk reduction and recovery concepts and practices.

Core Indicator 3: Research methods and tools for multi-risk assessments and cost-benefit analysis are developed and strengthened.

Core Indicator 4: Countrywide public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities.

HFA Priority for Action 4: Reduce the underlying risk factors.

Core Indicator 1: Disaster risk reduction is an integral objective of environment related policies and plans, including for land use, natural resource management and adaptation to climate change.

Core Indicator 2: Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk.

Core Indicator 3: Economic and productive sectoral policies and plans have been implemented to reduce the vulnerability of economic activities.

Core Indicator 4: Planning and management of human settlements incorporate disaster risk reduction elements, including enforcement of building codes.

Core Indicator 5: Disaster risk reduction measures are integrated into post-disaster recovery and rehabilitation processes.

Core Indicator 6: Procedures are in place to assess the disaster risk impacts of major development projects, especially infrastructure.

HFA Priority for Action 5: Strengthen disaster preparedness for effective response at all levels.

Core Indicator 1: Strong policy, technical and institutional capacities and mechanisms for disaster risk management, with a disaster risk reduction perspective are in place.

Core Indicator 2: 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.

Core Indicator 3: Financial reserves and contingency mechanisms are in place to support effective response and recovery when required.

Core Indicator 4: Procedures are in place to exchange relevant information during hazard events and disasters, and to undertake post-event reviews.

Levels of Progress:

Level 1: Minor progress with few signs of forward action in plans or policy.

Level 2: Some progress, but without systematic policy and/or institutional commitment.

Level 3: Institutional commitment attained, but achievements are neither comprehensive nor substantial.

Level 4: Substantial achievement attained but with recognized limitations in capacities and resources.

Level 5: Comprehensive achievement with sustained commitment and capacities at all levels.

5.1 A global overview

Overall findings from the 2007–2009 HFA review broadly confirm the global trends identified in the Disaster Risk Reduction: Global Review 2007². Commitment to addressing

disaster risk and achieving the strategic goals of the Hyogo Framework continues to gain momentum. By February 2009, 99 countries were in the process of preparing national reports using the online HFA Monitor tool, of which 62 provided completed interim progress reports as of 28 February 2009.

Proportionally, the Americas and Africa were the regions where most countries initiated reporting in 2008. In the Americas, 50% of countries participated; 49% of countries from Africa; 40% from Asia; 34% from Europe, and 29% from the Pacific. Absolute numbers of participants by region are shown in Figure 5.1.

As Figure 5.2 indicates, more countries participated from the medium (64%) and low (54%) human development categories than high (40%). The participation of countries with low

Figure 5.1:
Participation
in 2007–2009
HFA Progress
Review: regional
distribution

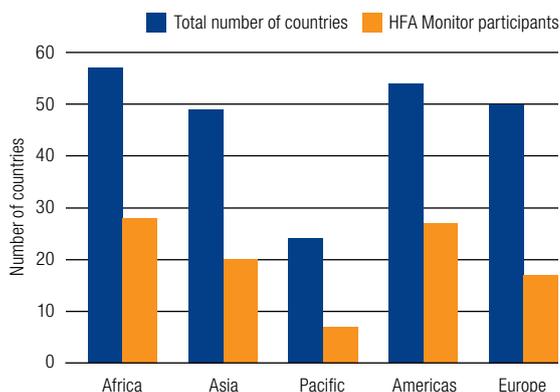
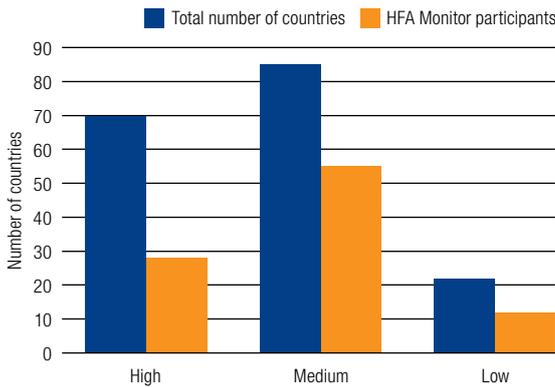


Figure 5.2:
Participating countries: distribution by human development indicators



human development, particularly from Africa, is noteworthy and indicates growing commitment in the region to reducing disaster risk.

According to interim results provided online (and illustrated in Figure 5.3), progress has been significant under HFA Priority for Action 1 – ensuring that disaster risk reduction is a national and local priority with a strong institutional basis for implementation – particularly in the development of policy and legislation, and in strengthening multi-sector institutional systems and platforms for disaster risk reduction.

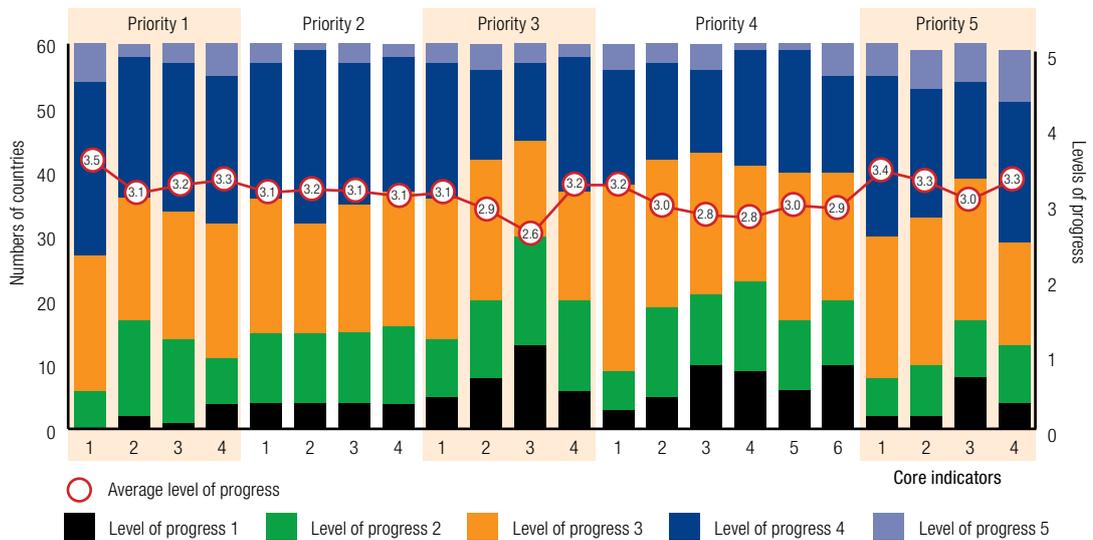
Significant progress has also been reported on HFA Priority for Action 5 – strengthening disaster preparedness for effective response at all levels – particularly in the development of

technical and institutional capacities for disaster preparedness, putting disaster preparedness and contingency plans in place, and facilitating information exchange before and during disasters. In other words, there is an overall improvement of capacities, policy, legislation, plans and mechanisms for the reduction of mortality risk, in particular for weather-related hazards. This is consistent with the findings of Section 2.5 that mortality risk is increasing at a slower rate than economic loss risk, and is actually decreasing in relation to the size of the exposed population.

Consistent progress has been reported across HFA Priority for Action 2 – identifying, assessing and monitoring disaster risks and enhancing early warning – although all countries acknowledge the need for more focused efforts on this front. Countries are still challenged to compile comprehensive risk assessments in a way that can inform disaster risk reduction, link early warning with disaster preparedness and response planning, and use national information to inform local action.

Average global progress is weak across most areas of HFA Priority for Action 3 – using knowledge, innovation and education to build a culture of safety and resilience at all levels – particularly in the development and application of research methods and tools for

Figure 5.3:
Illustration of average global progress across each of the Hyogo Framework Priorities for Action



multi-risk assessments, inclusion of disaster risk reduction and recovery concepts and practices in school curricula and education material, and the development of a countrywide public awareness strategy to stimulate a culture of disaster resilience. It is important to interpret this trend as a marker of the extent of progress being made relative to efforts in the respective areas of education, development of tools and research methods, and public awareness. In other words, a lot is being done with regard to each of these indicators, but countries report the need to do more and better.

Critically, average global progress is also weak on HFA Priority for Action 4 – reducing the underlying risk factors – which refers to the integration of disaster risk reduction into social, economic, environmental and urban development, and into the planning of infrastructure projects. This is consistent with the trends reported in Section 2.5 that in many low- and middle income countries, economic loss risk is increasing faster than mortality risk, and in Section 3.3 that there has been a rapid increase in housing damage. As described in Chapter 4, these increases are often a consequence of badly planned and weakly regulated development. It would appear that countries have difficulty addressing underlying risk drivers such as poor urban and local governance, vulnerable rural livelihoods and ecosystem decline in a way that leads to a reduction in the risk of damages and economic loss. At the same time, the governance

arrangements for disaster risk reduction in many countries do not facilitate the integration of risk considerations into development. In general, the institutional and legislative arrangements for disaster risk reduction are weakly connected to development sectors.

Globally, therefore, the results indicate that national efforts remain focused on strengthening policy, legislation, institutional frameworks and capacities for disaster preparedness, response, risk assessments, and early warning (HFA Priorities 1, 2 and 5). In contrast, much more effort needs to be made in using knowledge, education and innovative outreach programmes to stimulate a culture of disaster resilience, and to address the underlying drivers that configure disaster risk in social, economic and infrastructure development across rural and urban contexts (HFA Priorities 3 and 4).

The regional distribution of reported results (Figure 5.4) indicates that Europe, which is mostly represented by high-income and some upper-middle-income countries, reports higher progress than all other regions and across all priorities. Africa, with a majority of low-income countries, has made similar progress to other developing regions, except in Priorities for Action 2 and 3. The Pacific, weighted by the presence of high income countries like Australia and New Zealand, has made more progress in Priorities for Actions 1, 3 and 4 than all other regions except Europe. The Americas have made more progress than Asia, except in Priorities for Actions 2 and 4.

When the distribution of results is examined by income class (Figure 5.5), high-income countries, including most European countries, the United States of America, Canada, Australia, New Zealand, Bahrain and the Cayman Islands perform well across all Priorities for Action, whereas low-income countries, mainly in Africa, underperform in Priorities for Action 1, 2, 3 and 5. This result is coherent with the findings of Chapter 2 that, as countries develop, the governance capacities to reduce disaster risk generally improve. Middle-income countries outperform low-income countries in all Priorities for Action except Priority 4, though

Figure 5.4:
Regional
progress on HFA
implementation

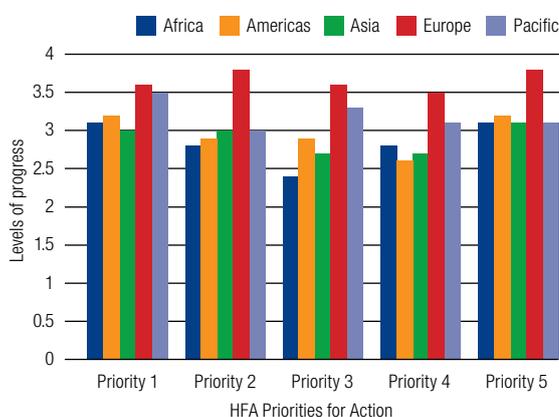
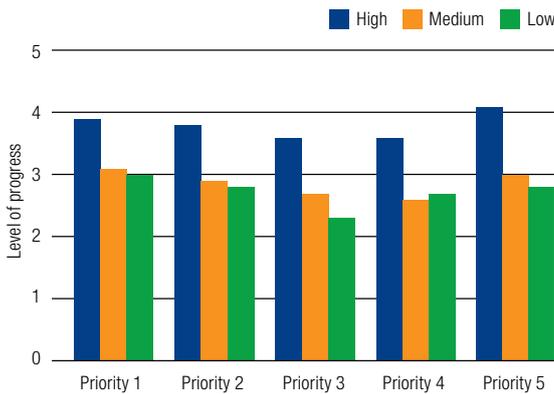


Figure 5.5:
Hyogo
Framework
progress
by income
classification



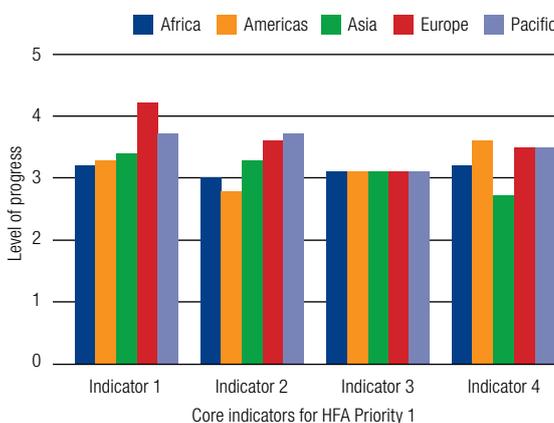
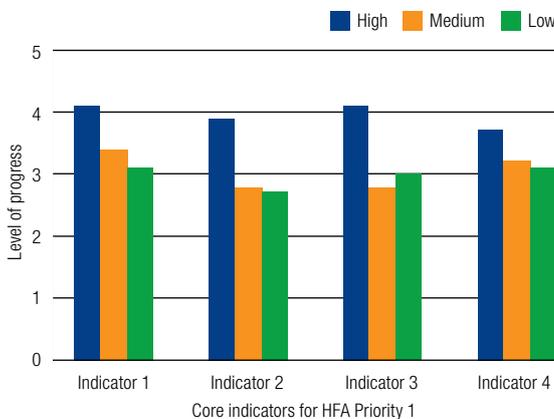
the differences between middle and low-income countries are far less significant than between high-income and the other two categories. This reinforces the finding that fast growing low- and low-middle income countries have not been able to improve their risk-reducing capacities in a way that compensates for the rapid increase in exposure. As highlighted above, capacities to reduce mortality risk have been strengthened more effectively than capacities to reduce damage and economic loss.

5.2 Trends in progress: Implementation of the Hyogo Framework for Action

The sections below discuss the trends in progress and challenges reported in relation to the

22 indicators for the five Hyogo Framework Priorities for Action. While the analysis is illustrated by examples drawn from interim national reports, a more detailed description is provided in Appendix 3. Interim national reports are available in the accompanying CD and online³. Detailed regional reports cataloguing country-level progress prepared for the ISDR Global Platform for Disaster Risk Reduction⁴ are also available online⁵.

Figure 5.6:
Average progress
towards
indicators for
Priority for
Action 1 by
income class
and region



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

Countries that develop policy, legislative and institutional frameworks for disaster risk reduction and are able to develop and track progress through specific and measurable indicators have greater capacity to manage risks and to achieve widespread consensus for, engagement in and compliance with disaster risk reduction measures across all sectors of society.

Figure 5.6 shows the average progress towards the four indicators for this priority for high-, medium- and low-income countries, and the average progress by region. Table 5.1 details the challenges and progress reported.

Table 5.1: Challenges and progress reported for HFA Priority for Action 1: Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation	Indicators	Challenges reported	Progress reported: trends and examples
	<p>Indicator 1 National policy and legal framework for disaster risk reduction exists with decentralized responsibilities and capacities at all levels.</p>	<ol style="list-style-type: none"> 1. Lack of an overarching national policy and legal framework on disaster risk reduction, which does not facilitate a holistic approach, particularly in high-income countries. 2. Political inertia in approving legislation and in developing the necessary technical and legal instrumentation and administrative arrangements for its implementation. 3. Lack of adequate financial, human and technical capacities to address disaster risk reduction is reported as the major reason for underachievement in this area, particularly in low-income countries. 4. No explicit link between national policies on disaster risk reduction and sector policies (such as for land use, building, social and economic development and environment) and which leads to confusion regarding mandates and responsibilities for implementation, gaps and overlaps. 	<ol style="list-style-type: none"> 1. Cayman Islands is formulating a new Strategic Framework for Disaster Risk Management, backed by a new structure, the Hazard Management Cayman Islands. 2. Bahrain has instituted a National Committee on Disaster Management but also recognizes the need for a national policy. 3. Ecuador has included disaster risk management in its new constitution and, like Colombia, in its national development plan. 4. Decentralized systems of governance for disaster risk reduction in countries across Asia (the Philippines, Sri Lanka, and Iran, among others) provide opportunities for participation at the local governance and community levels.
	<p>Indicator 2 Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels.</p>	<ol style="list-style-type: none"> 1. No systematic policy or institutional commitment has been made to providing dedicated or adequate resources for disaster risk reduction. 2. Competing national priorities, the absence of legislation that makes financial allocations legally binding, and lack of political will if the short-term benefits of disaster risk reduction are not visible. 3. Disaster risk reduction still heavily depends on resources from bilateral and multilateral cooperation. As a result, it is often implemented using short-term, stand-alone project or programme modalities, which generally do not facilitate its institutionalization or sustainability. 	<ol style="list-style-type: none"> 1. In Vanuatu the National Action Plan clearly tasks the Ministry of Finance and Economic Management with allocating ministerial budgets for disaster risk reduction to different ministries and departments. 2. Only a few countries, such as Colombia and Iran, report the inclusion of disaster risk reduction in their national budgets.
	<p>Indicator 3 Community participation and decentralization are ensured through the delegation of authority and resources to local levels.</p>	<ol style="list-style-type: none"> 1. Countries from Asia, Africa and Latin America report a substantial number of community-based risk reduction initiatives. However, coverage and quality is often uneven and projects are yet to be linked into a wider risk reduction system integrating the local, provincial and national levels. 2. Reporting indicates a growing dedication of efforts and resources towards strengthening capacities at both the local government and community levels. 3. Existence of national decentralization processes has been identified as a key success factor in strengthening and sustaining disaster risk reduction capacities at the local and community levels. 4. Active coordination of NGOs interested in work at the community level remains a challenge for national and local governments, particularly in those countries with limited resources to strengthen community capacities. 5. Local governments, particularly in rural and isolated areas lack the human, technical, financial and institutional capacities to address disaster risk. 	<ol style="list-style-type: none"> 1. In Europe and many high-income countries, municipalities and local governments often have mandatory responsibilities for disaster risk reduction, as well as the necessary capacities and resources. 2. Large, relatively wealthy urban municipalities such as Bogotá, Medellín (Colombia) and La Paz (Bolivia), have well-functioning city disaster risk reduction systems and are now as effective and in some cases better resourced than those at the national level. 3. In Asia, Bangladesh, Indonesia, Lao People's Democratic Republic, Nepal and the Philippines highlight budgets for risk reduction, but since these may often be centralized and/or prioritized for response and preparedness-related expenditures this can be an obstacle to strengthening local capacities for disaster risk reduction.

Indicators	Challenges reported	Progress reported: trends and examples
<p>Indicator 4</p> <p>A national multisectoral platform for disaster risk reduction is functioning.</p>	<ol style="list-style-type: none"> Challenges exist in the creation of an integrated multi-sector institutional system for disaster risk reduction that could bring greater cohesion and synergy to ongoing sector-based approaches. Difficulties in gaining commitment to disaster risk reduction from development sectors and local governments, as well as other stakeholders such as the private sector or civil society, due to a lack of political authority and the necessary technical capacities. 	<ol style="list-style-type: none"> Countries such as Egypt⁶ have created national committees, while in other countries such as Colombia, Costa Rica, Panama and the United States of America, national platform mechanisms have been adopted. Central African states have addressed disaster risk management in a common strategy undertaken by the Economic Community of Central African States (ECCAS)⁷, which adopted an environment and natural resources policy with a sub-regional plan of action in October 2007. The strategy aims to build the capacity of national and sub-regional authorities; review and enforce legal frameworks and disaster risk reduction strategies within ECCAS and member states; and to formulate and implement national strategies for disaster risk reduction. This includes the establishment and reinforcement of national platforms, inter-ministerial committees and an intergovernmental committee for the ECCAS region. The National Controller's Office of Colombia carried out an audit of disaster risk reduction implementation across government, indicating a commitment by the state as a whole to ensure implementation across sectors and local governments.

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

The starting point for reducing disaster risk and for promoting a culture of disaster resilience lies in knowing the hazards and the physical, social, economic and environmental vulnerabilities to disasters that most societies face, and the

ways in which hazards and vulnerabilities are changing in the short- and long-term, followed by action taken on the basis of that knowledge. Figure 5.7 shows the average progress towards the four indicators for this priority for high-, medium- and low-income countries, and the average progress by region. Table 5.2 details the challenges and progress reported.

Figure 5.7:
Average progress towards indicators for Priority for Action 2 by income class and region

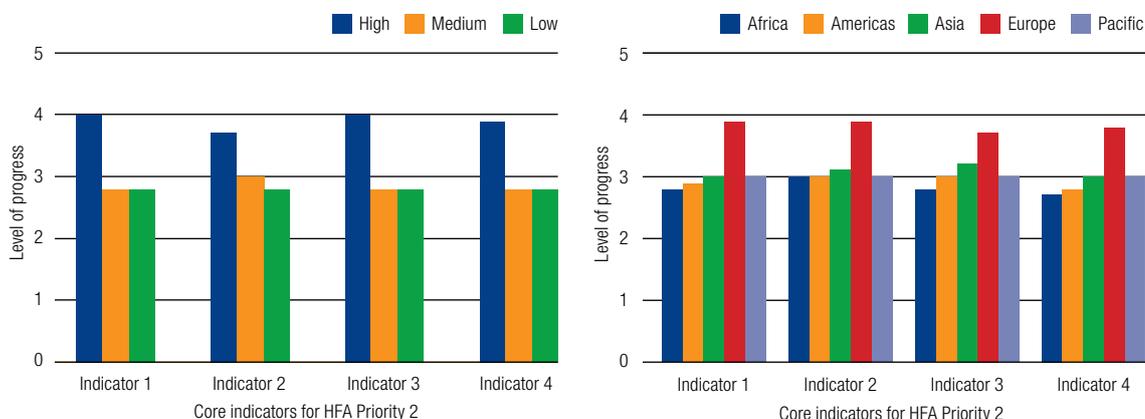


Table 5.2: Challenges and progress reported for HFA Priority for Action 2: Identify, assess and monitor disaster risks and enhance early warning	Indicators	Challenges reported	Progress reported: trends and examples
	<p>Indicator 1 National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.</p>	<ol style="list-style-type: none"> 1. Most reports acknowledge that national and sector emergency plans are not based on risk assessments. Challenges include a generalized absence of sub-national or local data, particularly for new or less frequent hazards; weak or non-existent specialized institutions; financial constraints and a dependency on external partners that sometimes do not respond to national priorities. 2. While progress is being made in single hazard, sector and territory specific assessments, there is far less progress in achieving comprehensive national multi-risk assessments. 3. Experiences of institutionalization and application of such assessments in development and territorial planning, or for the design of building codes, is rarer still. 4. Responsibilities for both hazard monitoring and risk assessment are split between multiple institutions in most countries. Multi-risk assessment has no institutional 'home'. 5. Lack of standardized data sources and methodologies is a challenge reported, for example, by Indonesia that makes it difficult for results to be applied systematically across sectors. 	<ol style="list-style-type: none"> 1. Australia and New Zealand report a comprehensive, integrated, multi-hazard approach to risk assessment. Other examples include the state Government of Gujarat in India and the Cayman Islands. 2. Switzerland aims to cover the entire country with hazard maps and assessments by 2011, for both geological and hydrological hazards, and have them applied in land-use planning and building regulation by municipalities. 3. In Bangladesh progress has been made in the agriculture sector, while hospitals, schools, water and sanitation have been identified as urgent priorities. 4. Progress in community-level risk assessment is also reported, for example in the Philippines through the Hazards Mapping and Assessment for Effective Community-based Disaster Risk Management project⁸. 5. The IADB (Inter-American Development Bank)⁹ is enabling the development of indicators for disaster risk management for 12 countries in the Americas. The Central American Probabilistic Risk Assessment¹⁰ is another ongoing initiative which is a comprehensive disaster risk assessment for Central America. 6. In Africa, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, South Africa and Tanzania, all report undertaking disaster risk assessments for specific sectors and hazards.
	<p>Indicator 2 Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities.</p>	<ol style="list-style-type: none"> 1. Difficulties occur in coordination, sharing information and adopting common data standards and methodologies, when hazard monitoring is spread across many specialized institutions. 2. Lack of resources to acquire and maintain equipment and the general lack of human technical capacities is reported as a constraint. 3. Governmental responsibilities for hazard monitoring often rest with a wide range of scientific and technical bodies responsible for meteorology, geology, seismology, oceanography etc. 	<ol style="list-style-type: none"> 1. Hazard monitoring is recognized as a key activity that underpins both risk assessment and early warning. 2. Development of a seismic monitoring network in Tajikistan¹¹ is illustrative of the progress being made by many countries in improving hazard monitoring. 3. The National Service of Territorial Studies, El Salvador¹² has created a single institutional platform that brings together all the specialized scientific organizations under one framework and integrates hazard information to feed into risk assessments. Other countries are considering similar initiatives.
	<p>Indicator 3 Early warning systems are in place for all major hazards, with outreach to communities.</p>	<ol style="list-style-type: none"> 1. There is a lack of technical capacities, equipment, human and financial resources. 2. Difficulties occur in communicating early warning information to poor and vulnerable communities. Coordination is lacking between the institutions responsible for disaster preparedness and those responsible for hazard monitoring. 3. Strengthening of local capacities and the linking of hazard monitoring to disaster preparedness systems is reported as a common challenge. 	<ol style="list-style-type: none"> 1. Institutional commitment to developing end-to-end early warning systems for major and frequent hazards has been secured in all reporting countries in Asia. 2. Good progress has been reported in the use of both technology and local capacity to develop effective early warning systems for frequent hazards, such as cyclones and floods, in Lao People's Democratic Republic, Sri Lanka and Bangladesh. 3. Italy reports that early warning has been improved since the National Warning System has been in place. Information is compiled by a Central Functional Centre and Regional Functional Centres, and is circulated daily among decision makers of the National Civil Protection System.

Indicators	Challenges reported	Progress reported: trends and examples
<p>Indicator 4</p> <p>National and local risk assessments take account of regional/transboundary risks, with a view to regional cooperation on risk reduction.</p>	<ol style="list-style-type: none"> 1. Transboundary initiatives are mainly dependent on member states' contributions, which implies that the signing of cooperation agreements is not necessarily reflected in implementation, or incorporated into national disaster risk reduction planning. 2. There is an absence of common databases and equipment to monitor and assess transboundary risks. Countries report unwillingness to share sensitive information with neighbours on particular hazards. 	<ol style="list-style-type: none"> 1. Germany is an active member of several transboundary international commissions for the protection of the Rhine, Danube, Elbe and Odra Rivers, which all carry out flood risk assessments. 2. In September 2007 government representatives of Albania, Bulgaria, Croatia, the Former Yugoslav Republic of Macedonia, Montenegro, Moldova, Romania, Slovenia and Turkey took an important step forward in their efforts to improve the region's disaster preparedness, prevention and response capability and coordination by signing a Memorandum of Understanding on the Institutional Framework of the Disaster Preparedness and Prevention Initiative for South Eastern Europe¹³. 3. Armenia has signed an intergovernmental agreement on seismic risk reduction with the Islamic Republic of Iran and the Republic of Tajikistan; an international Armenian–Russian project on seismic hazard prediction in the Caucasus has been renewed between Armenia and the Russian Federation. 4. Angola, Burkina Faso, Côte d'Ivoire, Ghana, Mauritius and Togo report substantial progress in cooperation with neighbouring countries to reduce transboundary risks, including flooding in shared watersheds, tsunami early warning systems, locust infestations and health-related risks. 5. Collaboration on transboundary risk management is often institutionalized through Regional Economic Councils such as ECOWAS¹⁴, the Southern African Development Community (SADC) and the African Union (AU), as well as through regional meteorological services such as the Comité permanent inter-États de lutte contre la sécheresse dans le Sahel. However, it is recognized that a more prominent lead by the Regional Economic Councils would serve to enhance and regulate cooperation and information exchange amongst member countries. 6. Progress has been possible in the Americas due to the large number of sub-regional and regional initiatives aimed at improved coordination, information sharing and collaboration. These include CDERA, Association of Caribbean States, CAPRADE, PREDECAN, and the regional programme of the European Union – Programma regionale di Programma regionale di riduzione della vulnerabilità e del degrado ambientale. 7. Regional frameworks for disaster risk management in Asia to address transboundary risks for hazards across the Asian sub-regions are advancing through cooperation agreements in the context of ASEAN and SAARC.

**Box 5.2:
Status of
early warning
systems¹⁵**

A global report on the status of early warning systems has been prepared, based on an extensive survey of national capacities for meteorological, hydrological and climate-related forecasting and warning services conducted by the WMO, and a survey carried out by the ISDR Platform for the Promotion of Early Warning and the United Nations University's Institute for Environment and Human Security, with input from international agencies that support the development of early warning systems.

The report presents a comprehensive analysis of capacities of national stakeholders with a focus on governance and organizational coordination; capacities for forecasting, detection and monitoring of hazards; international, regional and national dissemination and communication capacities; and capacities for linking warnings to emergency preparedness and response mechanisms at national to community levels. The report also examines the level of international and regional cooperation in support of strengthening national early warning systems.

The report states that while there has been some progress in strengthening early warning systems, greater commitment to addressing the development of these capacities is needed. Key issues highlighted in the report include:

1. Existing national and local emergency preparedness and response plans need to be re-evaluated, based on hazard and vulnerability mapping, and must be supported by enforceable legislation. These plans need to clearly indicate the line of command, roles and responsibilities of different agencies engaged in different components of early warning systems. They must also be aligned across community, provincial, and national levels, ensuring that financial and operational resources are routed to communities for improving preparedness and response operations on the ground.
2. There is a need for further strengthening of the monitoring and forecasting infrastructure and staff skills of technical agencies (for example, national meteorological, hydrological, geological, and ocean services) that are responsible for monitoring and forecasting of hazards. This needs to be further complemented by strengthened cooperation, coordination and knowledge-sharing among the technical agencies and with their disaster risk management counterparts.
3. National technical agencies could benefit from strengthened regional cooperation on access to data and the latest tools and technologies for monitoring and forecasting of hazards. Such cooperation has been demonstrated by a number of existing regional cooperation mechanisms such as the Pacific and the Indian Ocean Tsunami Warning System (coordinated by UNESCO Intergovernmental Oceanographic Commission) and the WMO Global Tropical Cyclone Programme, which provides tropical cyclone and storm surge forecasts and bulletins through six regional specialized centres to all countries at risk. Furthermore, strengthened cooperation is needed among neighbouring countries to establish standards, procedures and protocols for warnings on transboundary issues.
4. Standardized hazard and impact databases need to be established, and technical capacity needs to be built at the national level in the use of hazard and risk mapping tools to support emergency response and preparedness planning and the integration of risk information in warning messages.
5. In most countries, dissemination channels that link national warning systems to communities need to be significantly strengthened, taking into consideration cultural norms and communities' requirements, and the resources available. Feedback mechanisms to verify that warnings have reached the appropriate authorities and at-risk communities must be established. Furthermore, there is a need for training programmes targeted at the authorities, emergency response staff and the public to assist them to understand the source and content of warning messages, and to link this information to concrete actions on the ground, based on risk level (for example, the establishment of risk readiness levels).
6. Emergency preparedness and response plans need to be developed utilizing hazard and vulnerability maps. More drills and public awareness programmes are needed at the community level, particularly when the community does not experience hazards frequently.
7. Concept of operations and standard operational procedures need to be developed for early warning systems for different hazards, enabling effective coordination and cooperation across various components of the systems from national to local levels.
8. Early warning system programmes should be complemented by an effective regional–national–local, multi-agency operational evaluation and feedback mechanism to improve the systems over time.
9. Strengthened cooperation, coordination and strategic planning among international agencies could lead to a more effective approach for the development of national early warning system programmes.

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

Disasters can be substantially reduced if people are well informed and motivated to adopt a culture of disaster prevention and resilience, which in turn requires the collection, compilation

and dissemination of relevant knowledge and information on hazards, vulnerabilities and capacities. Figure 5.8 shows the average progress towards the four indicators for this priority for high-, medium- and low-income countries, and the average progress by region. Table 5.3 details the challenges and progress reported.

Figure 5.8:
Average progress towards indicators for Priority for Action 3 by income class and region

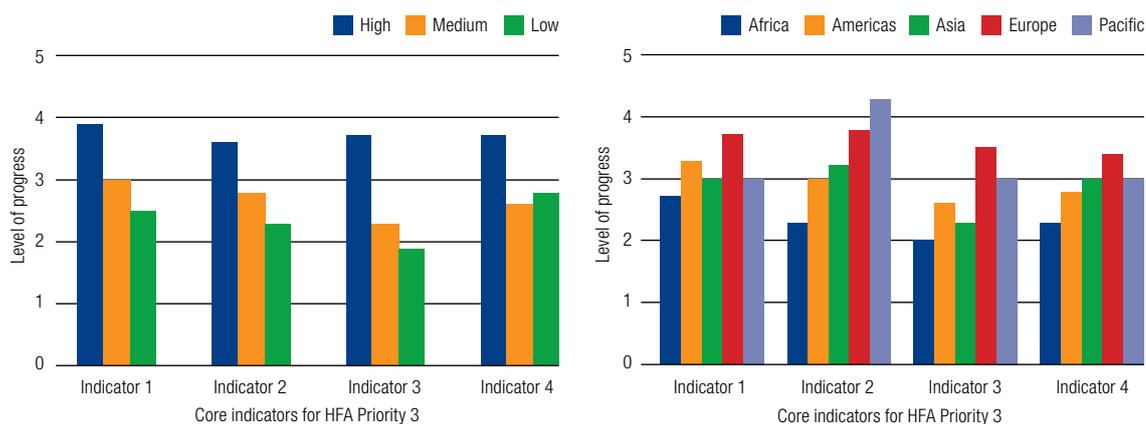


Table 5.3:
Challenges and progress reported for HFA Priority for Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

Indicators	Challenges reported	Progress reported: trends and examples
Indicator 1 Relevant information on disasters is available and accessible at all levels, to all stakeholders (through networks, development of information sharing systems, etc).	<ol style="list-style-type: none"> Challenges include the need to make information appropriate and specific to risk and cultural contexts. Difficulties were reported in ensuring that databases are updated and maintained. There is a need to move from disaster preparedness and response to a focus on new emerging themes such as adaptation to climate change, environmental degradation and urban risks. Few countries can ensure that households have easy access to accurate information on the risks they face. Lack of progress in the development of comprehensive risk assessments and early warning systems undermines the value of information systems. 	<ol style="list-style-type: none"> Ghana publishes 'handbills' for distribution to all stakeholders nationwide that show where disasters occur, the extent of the impact and recovery initiatives undertaken. Internet-based tools and databases, including disaster databases¹⁶ and the results of hazard and risk assessments, are now increasingly accessible to both national and local stakeholders. The Swedish Emergency Management Agency¹⁷ for example has developed a national, Internet-based information system, called WIS. The system was created to facilitate information sharing between players in the national emergency management system before, during and after emergencies. Regional knowledge networks across Asia are active in producing information relating to 'learning from disasters' and 'preparing for disasters' and materials are widely disseminated across countries that have experienced recent major earthquakes, flooding, cyclones or tsunami events. Knowledge fairs and international campaigns are other tools that have been used for information dissemination.

Indicators	Challenges reported	Progress reported: trends and examples
<p>Indicator 2</p> <p>School curricula, education material and relevant trainings include disaster risk reduction and recovery concepts and practices.</p>	<ol style="list-style-type: none"> 1. Challenges include the lack of capacity among educators and trainers. 2. Difficulties were noted in addressing needs in poor urban and rural areas. 3. There is a lack of validation of methodologies and tools and little exchange of experiences. 4. Some countries report the absence of policy and guidelines on how to integrate disaster risk reduction into curricula, education materials and training, despite there being systematic policy and institutional commitment. 5. Most of the countries that have not yet integrated disaster risk reduction into the school curriculum, cite the lack of educational materials, especially in vernacular languages, as a major obstacle. 	<ol style="list-style-type: none"> 1. The 2006–2007 international disaster risk reduction campaign Disaster Risk Reduction Begins at School¹⁸ has furthered and raised awareness of the importance of the education agenda across some countries. 2. The Central American and Dominican Republic Framework for Education and Disaster Risk Reduction has been established as a Latin American regional thematic educational platform, with the support of UNISDR, a network of universities, and regional and international agencies. 3. Systematic policy or institutional commitment has been achieved in Australia, Indonesia, the Islamic Republic of Iran, Lao People's Democratic Republic, Nepal, New Zealand, the Philippines, the Republic of Korea and Syria. 4. Yemen reports difficulties with language barriers because much material has not been translated into Arabic. An active Knowledge and Education for Disaster Risk Reduction Platform is now functional in the region, which may contribute to increasing future capacities in this area. 5. In Angola and Burundi, UNICEF has collaborated with the Ministries of Education in arranging workshops and promoting the integration of disaster risk reduction into education. 6. In Madagascar, the Ministry of Education and the UN have jointly developed school materials on disaster risk reduction and manuals that are used in all schools throughout the country. 7. Mozambique has started pilot projects in primary schools, to train teachers and children how to live with disasters. 8. In Burkina Faso, environmental education has been adopted at primary school level and disaster risk reduction is partly integrated into higher education.
<p>Indicator 3</p> <p>Research methods and tools for multi-risk assessments and cost–benefit analysis are developed and strengthened.</p>	<ol style="list-style-type: none"> 1. Constraints were reported in financial, technical and human capacities. 2. The strong dependency on external funds and partners, with a lack of transfer of skills and competency, is seen as an obstacle. 3. Progress in some regions like the Americas and Asia has mainly depended on a range of specific initiatives through universities and research institutions, insurance companies and development banks, rather than coherent national programmes. 4. Tools are available but, due to the lack of a functional institutional and policy framework linking the disaster risk reduction and development sectors, most research has not led to mainstream applications in development planning and investment decisions. 	<ol style="list-style-type: none"> 1. Bangladesh reports success in the development of community risk assessment methods and tools. Up-scaling is challenged by the absence of a centralized agency that could act as a repository of technical information and advice on the suitable application of tools across the territory.

Indicators	Challenges reported	Progress reported: trends and examples
<p>Indicator 4 A countrywide public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities.</p>	<p>1. Increased awareness does not necessarily lead to a reduction in disaster risks. For instance, poor rural and urban households are faced with severe livelihood and environmental constraints on their ability to reduce risk that cannot be addressed by awareness alone.</p>	<p>1. Tools and guidelines include RiskPlan¹⁹ in Switzerland, to learn about and implement disaster risk reduction, and EconoMe²⁰, to justify investments in risk reduction.</p> <p>2. In New Zealand, a long-term public education programme and social marketing campaign, 'Get Ready, get Thru', was launched in 2006, aimed at greater individual and community preparedness for disasters²¹.</p> <p>3. In Africa, almost all reporting countries state that they have public awareness campaigns in place which cover national, regional and community levels. Many of the countries with awareness campaigns utilize media such as radio, newspapers and television, with Mauritius, Mozambique and Madagascar reporting a high level of public awareness for the main risks.</p> <p>4. Examples of effective impacts from international campaigns include the Safe Hospitals Campaign, launched by the WHO, ISDR and the World Bank, to raise awareness that disaster damage to health systems can have an enormous impact on economic and human development. At the same time, even small investments in making health facilities safer can considerably reduce the impact of disasters. The campaign provides a platform for strengthening hospitals, health facilities and systems in the context of risk reduction and emergency preparedness and response.</p>

5.2.4 Hyogo Framework Priority for Action 4: Reduce the underlying risk factors

Disaster risks related to changing social, economic and environmental conditions and land use, and the impact of hazards associated with geological events, weather, water, climate variability and climate change are addressed in

sector development planning and programmes as well as in post-disaster situations. Figure 5.9 shows the average progress towards the four indicators for this priority for high-, medium- and low-income countries, and the average progress by region. Table 5.4 details the challenges and progress reported.

Figure 5.9:
Average progress towards indicators for Priority for Action 4 by income class and region

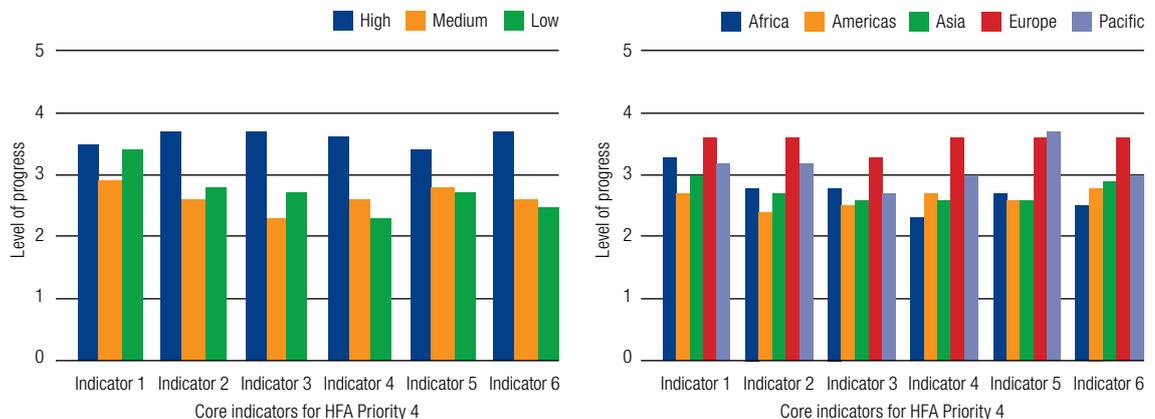


Table 5.4: Challenges and progress reported for HFA Priority for Action 4: Reduce the underlying risk factors	Indicators	Challenges reported	Progress reported: trends and examples
	<p>Indicator 1</p> <p>Disaster risk reduction is an integral objective of environment related policies and plans, including for land use, natural resource management and adaptation to climate change.</p>	<ol style="list-style-type: none"> 1. There is a general lack of application and enforcement of environmental standards, norms and regulations. 2. There is little synergy between land-use planning, strategies to adapt to climate change, environmental protection laws, other similar instruments, and policy and legislation addressing disaster risk. 3. Organizations responsible for disaster reduction often have neither the political authority nor the technical capacity to intervene in environmental planning and regulation. While disaster risk reduction and environmental policy and legislative frameworks may acknowledge each other, real integration in practical terms is lacking. 	<ol style="list-style-type: none"> 1. Many countries in the Americas and Asia have established environment and climate change as national priorities and have developed relevant legislation, policy and institutional frameworks. 2. Environmental protection and adaptation to climate change have been established as priorities in all regions, and most countries have legislation, policies and institutional frameworks to address a range of environmental and natural resource management concerns. 3. Most countries are signatories to the United Nations Framework Convention on Climate Change (UNFCCC) and to the Kyoto Protocol, and are developing strategies and plans to address climate change, an issue that will be revisited later in this chapter. 4. The Marshall Islands report that the implementation of Environmental Impact Assessment (EIA) regulations started only in 2005, with a constantly increasing number of large projects complying with the requirements (up from five in 2005 to 40 in 2007). A test case for the EIA process was a dry dock project which was denied on the basis of the inappropriate nature of the site. 5. Other countries have adopted a regional, transboundary approach. For example, disaster risk reduction in East Africa²² presents a good example of how East African countries are working together to tackle concerns emanating from climate change processes.
	<p>Indicator 2</p> <p>Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk.</p>	<ol style="list-style-type: none"> 1. While PRSPs and similar instruments mention disaster risk reduction, this may not reflect a real integration of poverty and disaster risk reduction policy frameworks and programme initiatives in practice. As with environment, the organizations responsible for disaster reduction may not have the political authority or the technical capacity to intervene in the design of social development and poverty reduction plans and programmes. It should be noted that very few countries report a substantial reliance on social equity considerations as a driver of progress. 	<ol style="list-style-type: none"> 1. A considerable number of countries report that social development plans to reduce the vulnerability of disaster risk prone communities are in place. 2. Many countries reporting from Africa have social development policies, plans or programmes that address vulnerability and poor living conditions through improving water supply, sanitation, food security, health and literacy. Some countries, such as Burkina Faso, Côte d'Ivoire, Guinea, Swaziland and Togo, report having integrated disaster risk concerns into their PRSPs. Mauritius and Tanzania have special emergency assistance funds in place, while Mozambique is working to create alternative income activities for vulnerable sectors and invest in drought resistant crops. 3. In the Americas, most countries report that commitments to the MDGs, poverty reduction and social inclusion are included in development plans and strategies as well as in institutional mechanisms. 4. Countries in Asia report the increasingly targeted action of national and local plans to reduce social and economic vulnerability. The Philippines reports the efforts of the National Poverty Commission, which has designed a poverty reduction strategy for people in hazard prone areas that incorporates interventions ranging from microfinance and insurance instruments to rice credits, cheap food and burial benefits.

Indicators	Challenges reported	Progress reported: trends and examples
Indicator 2 continued		<ol style="list-style-type: none"> 5. Australia and New Zealand report that an explicit 'social inclusion agenda' must be incorporated into all national and local development policies and plans. 6. Bangladesh reports growing diversification of social safety net programmes, with an active role for NGOs. Some reports cite the need for detailed evaluations to identify the exact benefits for communities and to better understand the interrelation between microfinance and risk reduction.
Indicator 3 Economic and productive sectorial policies and plans have been implemented to reduce the vulnerability of economic activities.	<ol style="list-style-type: none"> 1. The costs of disaster risk are not normally factored into public investment decisions. As a result, disaster risk reduction considerations become factored into economic and productive development on an ad hoc rather than a systematic basis. 2. Underlying problems include the difficulties surrounding economic development planning itself. African countries, for example, highlight political instability, poverty and weak governance as factors which endanger the implementation of economic development plans. 3. There is little systematic integration of economic development and disaster risk reduction policies and legislation. As in other sectors, it seems that in most countries disaster risk reduction organizations do not have the political authority or technical capacity to intervene in economic development planning. 	<ol style="list-style-type: none"> 1. In the Republic of Korea the Support for Enterprises Voluntary Disaster Mitigation Activities Act of 2007 provides small and medium businesses with guidelines and standards for disaster risk reduction. 2. Australia's Trusted Information Sharing Network provides a forum in which the owners and operators of critical infrastructure can work together by sharing information on security issues. 3. In Peru, the Ministry of Economy and Finance has fully incorporated disaster risk reduction into the National System for Public Investment²³, which requires a risk evaluation to improve all public investment across sectors and in both central and local government (see Box 5.3). 4. The Planning and Economic Policy Ministry in Costa Rica has recently added disaster risk evaluation to its requirements for approval of public investment projects.
Indicator 4 Planning and management of human settlements incorporate disaster risk reduction elements, including enforcement of building codes.	<ol style="list-style-type: none"> 1. Weak implementation and enforcement mechanisms are common to all countries where most urbanization is informal. The lack of coverage of this issue in reports suggests that there is less activity now in introducing hazard resistant building into risk prone, informal urban and rural housing (for example, through mason training and the introduction of appropriate technologies) than there was in the 1970s and 1980s, with some notable exceptions such as Pakistan. 	<ol style="list-style-type: none"> 1. Senegal and Cape Verde report the inclusion of disaster risk reduction into their building codes. 2. Angola, Congo, Mozambique, and Togo report that risk considerations are factored into land-use planning and settlement siting decisions. 3. Algeria is involved in efforts to improve building codes and planning laws to reduce future risk. 4. A large number of cities, including Amman, Aqaba, Bogota, Caracas, Istanbul, Kathmandu, Kerman, La Paz, Lima, Manila, Mumbai, Quito and Tehran have developed a comprehensive understanding of their exposure to hazards and are in the process of taking steps to improve their capabilities to respond and reduce disaster risks. Some have done so under their own initiative – others with support from national governments; international organizations, such as the World Bank and UNDP; or NGOs such as EMI and Geo-hazards International. 5. Progress is also being made in some countries to ensure that public facilities such as schools or hospitals are either retrofitted or built to hazard resistant standards. Significant investments by Colombia and Iran to retrofit schools to seismic resistant standards are excellent examples of this kind of initiative. In 2007, Iran also initiated retrofitting residential buildings in rural areas, aiming to retrofit around 300,000 houses annually.

Indicators	Challenges reported	Progress reported: trends and examples
Indicator 4 continued		<p>6. Disaster resilient schools and health facilities are being built in cooperation with the World Bank in Madagascar, while in the Americas increasing concern for the safety of schools and hospitals and critical infrastructure is also reported.</p> <p>7. The priority given to emergency preparedness and risk reduction by national governments and communities in Latin America and the Caribbean has reduced vulnerabilities and risks, and turned previously frequent hazardous impacts with disaster potential into more manageable events. This has been achieved with strong and sustained support by the WHO/Pan American Health Organization, multilateral and non-governmental organizations.</p>
Indicator 5 Disaster risk reduction measures are integrated into post-disaster recovery and rehabilitation processes.	<ol style="list-style-type: none"> Overall, most countries report that there has been much discussion around this issue in past years, in the aftermath of recent, large-scale disasters. However, thorough and consistent implementation of these recovery principles is yet to be seen. Recovery and reconstruction projects and programmes are generally stand-alone initiatives with clearly bounded limits. Therefore, even when disaster risk is effectively incorporated, it does not necessarily lead to a more mainstream adoption of disaster risk considerations into ongoing planning and regulation systems. Lack of political will and initiative to recognize disaster risk, the pressure to rebuild quickly and the absence of pre-existing mechanisms and capacities to support hazard resistant, owner-driven housing, are all obstacles that inhibit the use of reconstruction as a window of opportunity for disaster risk reduction. It is found that even if hazard resistant construction is promoted and achieved, this does not always address the needs of poor urban and rural households, nor of specific social groups such as women headed households. 	<ol style="list-style-type: none"> The reconstruction of Bam, Iran, following the 2003 earthquake is a good example of how reconstruction processes have provided good entry points for the introduction of hazard resistant construction if the necessary political will and institutional commitment are present²⁴. The early recovery model in Mozambique²⁵ shows that it is possible to integrate disaster risk reduction into post disaster recovery and reconstruction, provided that this is factored into the design of recovery plans and strategies from the beginning. A number of initiatives are now beginning to address the issue, through mechanisms such as IRP and the Cluster Working Group on Early Recovery²⁶. For example, the IRP is promoting an Earthquake Risk Reduction Preparedness and Recovery Programme²⁷, through UNDP. This aims to promote regional partnerships and enable appropriate and fast implementation of recovery activities with SAARC, including Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.
Indicator 6 Procedures are in place to assess the disaster risk impacts of major development projects, especially infrastructure.	<ol style="list-style-type: none"> While environmental impact assessments of major development projects are carried out, these do not necessarily include disaster risk considerations. Procedures and regulations may be in place but insufficient technical and human resources exist to evaluate and approve projects or for enforcement. Only 35% of African countries state that they conduct impact assessments and, again, these mainly focus on environmental impact. Awareness of the role that inappropriate development projects may have in increasing disaster risk is very low (except in the case of some infrastructure projects, such as dams) while the political and economic interests at stake may be very high. It is still rare for the opportunity costs and co-benefits of alternative ways of providing infrastructure to be identified in a way that reduces the disaster risk faced by poor urban and rural households. 	<ol style="list-style-type: none"> In Peru, mandatory evaluations of disaster risk reduction have been incorporated into the National System for Public Investment.

Box 5.3:
Investing in
disaster risk
reduction, the
case of Peru

Table 5.5 shows detailed estimates of the cost of factoring disaster risk reduction considerations into public sector investments in Peru (prepared by the Ministry of Economy and Finance)²⁸ in comparison with the avoided losses and reconstruction costs over a period of ten years for different probabilities of disaster occurrence, ranging from a 25% to 100% probability of a disaster occurring in ten years.

This indicates that at a 75% probability of disaster loss in 10 years, all the investments in disaster risk reduction were cost-effective. At a

25% probability four of the six investments were cost-effective. Furthermore at the 75% probability level, the ratio of benefits to costs ranged from 1 to 37.5. This indicates that the much quoted estimate that investments in disaster risk reduction produce benefits of seven times the cost needs to be nuanced, according to the kind of investment and the probability of loss. The key point is that most disaster reduction investment should be viewed as a very effective way of reducing the real costs of addressing the underlying risk factors.

Table 5.5:
Cost-benefit
analysis of public
investment
projects in Peru²⁹

Note: Shaded cells indicate that value of avoided losses exceeds additional costs of disaster risk reduction investment

Public investment project	Additional cost of disaster risk reduction (US\$)	Estimated value of avoided losses and reconstruction costs			
		25% probability of disaster in 10 years	50% probability of disaster in 10 years	75% probability of disaster in 10 years	100% probability of disaster in 10 years
Reconstruction of housing and water infrastructure following the 23 June, 2001 earthquake in Castilla Province	382,788	132,601	265,202	397,802 Benefit / cost ratio = 1	530,403
Prevention and preparedness for mudslides and floods in the upper Rimac Valley	95,616	330,986	661,971	992,957 Benefit / cost ratio = 10	1,323,942
Extension of the Pampacolca health centre (module to attend pregnant women)	15,570	6,789	13,579	20,368 Benefit / cost ratio = 1.3	27,158
Rehabilitation and construction of dykes in the Cansas Valley	1,958,539	24,441,946	48,883,891	73,325,837 Benefit / cost ratio = 37.5	97,767,783
Rehabilitation of the Machupicchu hydroelectric plant	9,276,153	57,452,287	114,904,573	172,356,860 Benefit / cost ratio = 19	229,809,147

5.2.5 Hyogo Framework Priority for Action 5: Strengthen disaster preparedness for effective response at all levels

At times of disaster, impacts and losses can be substantially reduced if authorities, individuals and communities in hazard prone areas are well prepared and are equipped with the knowledge

and capacities for effective disaster preparedness and response. Figure 5.10 shows the average progress towards the four indicators for this priority for high-, medium- and low-income countries, and the average progress by region. Table 5.6 details the challenges and progress reported.

Figure 5.10 :
Average progress towards indicators for Priority for Action 5 by income class and region

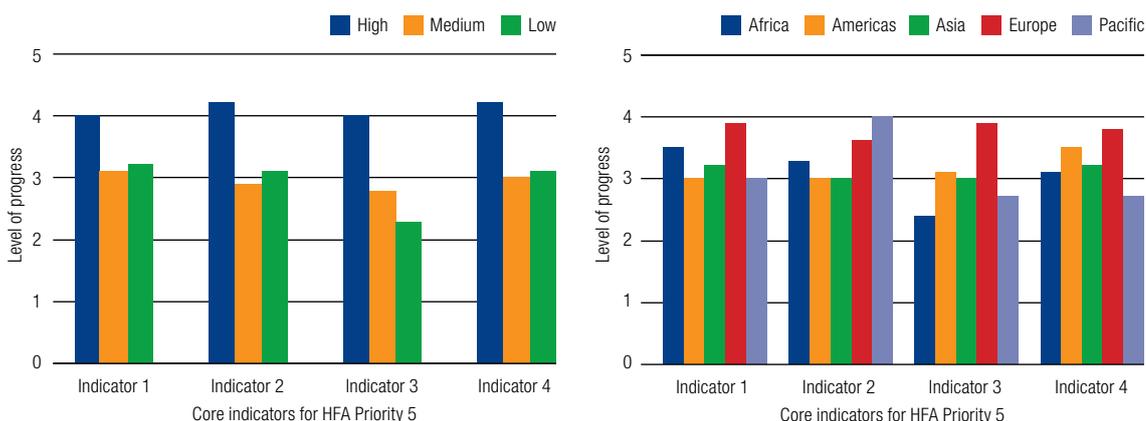


Table 5.6:
Challenges and progress reported for HFA Priority for Action 5: Strengthen disaster preparedness for effective response at all levels

Indicators	Challenges reported	Progress reported: trends and examples
<p>Indicator 1 Strong policy, technical and institutional capacities and mechanisms for disaster risk management, with a disaster risk reduction perspective, are in place.</p>	<ol style="list-style-type: none"> 1. Countries report a lack of appropriate policies and legislation for disaster risk management with a decentralized allocation of capacities and resources. 2. While a disaster risk reduction perspective has been introduced into the language of many national disaster management institutions and into a range of activities, in practice it is usually consistent with a shift in emphasis from response to preparedness and from an ad hoc to a planned approach, complemented by specific investments in hazard mitigation, for example the construction of river defences. 3. Needs identified in this area include increased and permanent budgetary allocation and financial support, resources, and capacity development, particularly at the local level. Some countries still report a lack of political commitment to move the focus from emergency response towards disaster risk reduction. Germany and Norway explicitly note the integration of disaster risk reduction measures. 	<ol style="list-style-type: none"> 1. All countries, and particularly those in Asia and the Americas, report overall progress in strengthening their capacities to manage disaster risks. 2. The Government of Saint Lucia has worked with the World Bank to strengthen DRM capacities since 1998. Over the past ten years, two of its projects have reduced the country's vulnerability through a range of investments in risk mitigation activities, including the construction of sea defences, the reinforcing and retrofitting of key infrastructure and strengthening the capacity of the National Emergency Management Office. 3. Most countries in Africa report the establishment of institutions for disaster management and deem capacities and mechanisms 'sufficient', but with scope for improvement. 4. UNOCHA³⁰ has been promoting disaster preparedness and prevention at the national, regional and global levels through its initiatives with the Capacity for Disaster Risk Reduction Initiative and the Guidance and Indicator Package for Implementing Priority Five of the Hyogo Framework for Action with UNISDR, among other activities.

Indicators	Challenges reported	Progress reported: trends and examples
<p>Indicator 2</p> <p>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.</p>	<ol style="list-style-type: none"> Emergency plans exist in all countries but the extent to which they are implemented systematically at all levels varies widely. Drills and simulations occur but not methodically nor necessarily in all areas. There is a need to systematize experiences, coordinate efforts at the different levels to ensure consistency in carrying out simulations, as well as for developing and/or updating contingency plans. Major weaknesses are identified in local capacities in many high risk areas, in the absence of methodical and regular drills and simulations, outdated contingency plans, and a lack of accountability. 	<ol style="list-style-type: none"> Italy reports that a National Civil Protection Fund has been set up, with the allocation of regional funds and contingency mechanisms. Syria reports that contingency plans are available for all administrative levels and field training is conducted by using crisis management techniques listed in contingency plans. The training is evaluated in order to identify strengths and weaknesses. Progress reported from Mozambique shows that the implementation of plans has as much to do with political will and good organization as with the availability of financial resources. Following a regional survey, the WHO Office for the Eastern Mediterranean Region has developed a model for planning emergency preparedness and risk reduction programmes, with community capacity enhancement as the ultimate goal. Broad goals and specific skills for local disaster planning programmes have been identified. Training tools on emergency preparedness, response and recovery for use in community-based intervention areas are being developed. An optimum package for risk reduction, emergency preparedness and response is in development. A multi-hazard and risk atlas is being developed.
<p>Indicator 3</p> <p>Financial reserves and contingency mechanisms are in place to support effective response and recovery when required.</p>	<ol style="list-style-type: none"> Experience with contingency funds is varied. Governments may use the funds to cover other contingencies or budget deficits, while they are often insufficient to cover the response and recovery costs of a large-scale disaster. Emergency programmes are often dependent on external funds because those allocated at the national level are ad hoc or, in some countries, no core funding is allocated for such contingencies. Often, government responsibility for household level disaster loss is not explicitly defined, which is a major obstacle to the development of insurance-based mechanisms. In particular, small scale recurrent losses associated with extensive risk may not be addressed at all. Across much of Africa, Asia and the Americas, countries still have to rely on unpredictable international humanitarian assistance to address response and recovery needs. 	<ol style="list-style-type: none"> Some countries report the establishment or existence of contingency funds. In Africa, for example, Kenya, Malawi, Mozambique, Seychelles, South Africa and Tanzania, report the existence of a fund, as do a number of countries in the Americas (Colombia, Costa Rica and El Salvador) and in Asia (Iran, the Philippines) and the Pacific (Australia, New Zealand). In Bolivia, 0.15% of the national budget is dedicated to a contingency fund. It is important to highlight that disaster risk reduction, however, requires sustainable ongoing investments not dependent on emergencies. Insurance and new mechanisms such as catastrophe pools and bonds are now being increasingly adopted in upper middle-income countries in order to replace traditional relief and reconstruction funding from government and international sources. Mexico has issued a catastrophe bond to provide a funding mechanism for response and recovery in the case of a major earthquake. Such mechanisms are an emerging good practice that will be examined in greater detail in the next chapter.
<p>Indicator 4</p> <p>Procedures are in place to exchange relevant information during hazard events and disasters, and to undertake post-event reviews.</p>	<ol style="list-style-type: none"> Overall progress in this area is often a result of ad hoc initiatives rather than institutionalized practices or strategies per se. In the recent past, there has been increased recognition of the need for coordination on information management and dissemination functions in post-disaster scenarios. However, it has been challenging to coordinate information both within and between multilateral organizations such as the UN and the World Bank, and the national authorities responsible for disaster management, relief, recovery and rehabilitation. 	<ol style="list-style-type: none"> Ghana has established a website and regions are linked by VHF radio. Kenya has put in place a National Disaster Operation Centre. The Mauritius Meteorological Centre has established an effective communication system for use during disasters. These achievements, however, may refer to emergency communication rather than information management in a broader sense. The Marshall Islands report that securing resources for continuous information exchange is a challenge.

Indicators	Challenges reported	Progress reported: trends and examples
Indicator 4 continued	<ol style="list-style-type: none"> 2. Standardized information systems, protocols and procedures for information management need to be in place before disasters occur and must be able to manage damage and loss information, and recovery-need information, as they arise. 3. Evaluations, such as a recently completed study of the ten years following Mitch in Central America by the World Bank³¹, show how both affected countries and donors alike may quickly forget about commitments made in the aftermath of a regular disaster. Frequent post-disaster evaluations with broad stakeholder participation are therefore critical to promoting greater accountability. 	<ol style="list-style-type: none"> 2. Post-disaster evaluation is becoming more widespread, highlighted by the experience of the Tsunami Evaluation Coalition. 3. Countries such as Armenia and Turkey report taking into account the experiences of past disasters to prepare emergency response plans, development and research projects, purchase new equipment, and educate and train members of rescue and relief forces, as well as the public. 4. In Jamaica, information and lessons learnt are shared and communicated through reports from all sectors after a disaster event.

5.3 Drivers of progress

'Drivers of progress' are the factors that catalyse the achievement of substantial progress in disaster risk reduction. These factors vary across national and local contexts, but typically emphasize the issues that countries consider important for integration into plans, policies and programmes as a means of achieving disaster risk reduction goals.

Member states were requested to assess the extent to which disaster risk reduction efforts rely on drivers of progress such as multi-hazard integrated approaches; integrating gender perspectives into risk reduction and recovery; capacity development for disaster risk reduction; human security and social equity approaches; and engagement and partnerships for disaster risk reduction. The information reported is too generic to permit an in-depth analysis of these drivers, but does indicate some general tendencies.

More than 45% of countries report substantial and ongoing reliance on engagement and partnerships as a driver of progress in reducing disaster risks. While major differences between countries and regions exist, there is increased participation by NGOs, the private sector, academic and scientific organizations and civil society in general. This may also be due to the large number of disaster risk reduction initiatives in low- and middle-income countries

that rely heavily on international partnerships, technical assistance and resources from bilateral and multilateral organizations. The reliance on engagement and partnerships may also reflect the growing role of sub-regional and regional cooperation between countries in all regions.

35% of countries report substantial reliance on capacity development as a driver, a low figure, considering that many countries highlight capacity deficiencies as a reason for their lack of achievement. Few countries report dedicated budgets and systematic national and local initiatives to build capacity on an ongoing basis. Local-level efforts are usually dependent upon external funding and NGOs that work through civil society organizations. This dependency often leads to significant imbalances in coverage with funding and activities typically restricted to areas recently hit by major disasters, while highly vulnerable areas that may experience smaller-scale disasters on a much more frequent basis remain uncovered. It also undermines sustainability.

Only 31% report substantial reliance on multi-hazard integrated approaches. This may reflect the difficulties of mainstreaming disaster risk considerations into development sectors, and of coordinating the efforts of a large number of specialized scientific and technical institutions.

Reliance on human security and social equity approaches for disaster risk reduction and recovery activities is low with 35% of the countries reporting substantial reliance on this driver. This indicates that there is probably not explicit recognition of the impacts of disaster risk on poverty, highlighted in Chapter 3, which translates into a lack of concern for social protection and longer-term impacts.

While progress has been made in integrating gender into disaster risk reduction, it has been slow and inconsistent. Only 20% of the reporting countries mention substantial reliance on this driver. Lack of understanding of gender

issues, an absence of political accountability and weak institutional capacities on gender and disaster risk reduction pose great challenges. The important role played by NGOs and the academic community in advocating gender sensitive disaster risk reduction and recovery practices has indeed had some positive impacts at the grassroots level and this influence is mentioned in some national reports. Box 5.4 takes stock of the progress being made at the regional and international levels in this area. Replicating such practices will be crucial to the fulfilment of this Hyogo Framework 'cross-cutting' issue.

Box 5.4:
Progress on
mainstreaming
gender
considerations
into disaster
risk reduction³²

Disasters highlight gender imbalances in society, revealing vulnerabilities and capacities, along with other social and economic imbalances arising from class, caste, disability and minority status. Gender cuts across all segments of society and thus has implications for every aspect of disaster risk reduction. International efforts by the UNDP, UNISDR and UNDESA, together with experiences from disasters such as the Indian Ocean tsunami or Hurricane Katrina, have raised awareness of gender issues amongst the international and academic communities. However, progress at national and regional levels has not kept pace. Regional intergovernmental policies and strategies on disaster risk reduction rarely include an explicit commitment to gender. Any increase in recognition of gender issues in disaster risk reduction at the regional level is mostly due to the dedicated work of a handful of organizations and women's activist groups.

The Delhi Declaration³³ from the Second Asian Ministerial Conference on Disaster Risk Reduction in 2007 was an exception to this, with the stated aim to *"encourage the national governments to make special efforts to mainstream gender issues in disaster risk reduction so as to reduce the vulnerability of women and to recognise the important role women can play in disaster risk reduction."* Some progress has also been made at the regional

level in producing information, guidelines and capacity building on the subject. For instance, Duryog Nivaran/Practical Action, the International Centre for Integrated Mountain Development and the Asia Pacific Forum on Women, Law and Development produced guidelines for addressing gender issues in disaster management.

UNDP has supported a number of regional initiatives. In Latin America, the Risk Management with Gender Equity Learning Community organized a first regional meeting in 2007 and has conducted a knowledge management project. The Community identifies, systematizes, disseminates and strengthens existing resources and services to integrate a gender focus within disaster risk management.

A current UNDP Caribbean Risk Management Initiative project, Enhancing Gender Visibility in Caribbean Disaster Risk Management, uses research from five selected countries in the Caribbean, which is expected to shed light on the extent to which disaster risk reduction governance mechanisms incorporate gender considerations. UNDP has also supported capacity development in South Asia by making policy and practical guidelines on gender and disaster risk reduction available in local languages. In 2008, the United Nations Development Fund for Women initiated the Thematic Group on Gender in Asia that includes disaster risk reduction as a focus area.

5.4 Poverty reduction

Disaster risk reduction was not included amongst the MDGs. However, as highlighted by UNDP³⁴, the achievement of the MDGs would address many of the underlying risk drivers, and conversely reducing disaster risk would contribute to the achievement of many of the MDGs.

Poverty reduction frameworks, strategies, policies and programmes configure a constellation of local, national, regional and international actions. Multilateral cooperation on poverty reduction is provided through many different channels including PRSPs and United Nations Development Assistance Frameworks (UNDAFs)³⁵.

PRSPs describe a country's macroeconomic, structural and social policies and programmes to promote growth and reduce poverty, as well as associated external financing needs. PRSPs are prepared by governments in low-income countries which receive either debt relief under the Heavily Indebted Poor Countries Initiative³⁶ or concessional lending from the World Bank, through the International Development Association, or the International Monetary Fund (IMF). It is a participatory process involving civil society and external development partners, including the World Bank and the IMF³⁷. By the end of 2008, 59 completed and 8 interim PRSPs were available on the World Bank's website³⁸. Of the completed PRSPs, 20 countries had submitted progress reports.

It is beyond the scope of this Report to comprehensively survey whether the progress made in poverty reduction has contributed to addressing the underlying factors of disaster risk.

However, in order to obtain some measurement of the strength of this relationship, a desk survey was carried out of a sample of 67 PRSPs and 67 UNDAFs, to examine whether disaster risk reduction is recognized in the documents.

For this study, 59 completed and 8 interim PRSPs were reviewed, 35 from African countries, 19 from Asia, 6 from Europe and 7 from Latin America and the Caribbean. The findings show that approximately 20% of the PRSPs analysed devote a whole chapter or section to disaster risk; 55% of the reports mentioned the relationship between disaster risk and poverty, while 25% do not mention disaster risk at all. There is a notable difference in the extent to which disaster risk is reflected in the strategies: 29% of the PRSPs prepared in Latin America and the Caribbean countries dedicated a whole chapter to disaster risk, whereas no European PRSPs dedicated a chapter and 33% did not mention disaster risk reduction at all (Table 5.7). Countries that have integrated disaster risk reduction into their PRSPs include Bangladesh (2005), Malawi (2006), Mozambique (2006) and Viet Nam (2006).

The review of 67 UNDAFs from Asian countries showed that 65% of the UNDAFs reviewed included disaster risk in one of their outputs or outcomes and 15% recognized the relationship between poverty reduction and disaster risk reduction. However, 20% did not mention risk reduction at all. See Appendix 6 for a complete list of UNDAFs and PRSPs studied for the desk review.

In principle, the result is encouraging as it indicates that many PRSPs and UNDAFs at

Table 5.7: Overview of PRSP recognition of disaster risk reduction as a tool to reduce poverty		Total %	Africa %	Asia %	Europe %	LAC %
Disaster risk reduction not mentioned		25	23	20	33	14
Disaster risk reduction mentioned		55	54	65	67	57
Whole section/chapter on disaster risk reduction		20	23	15	0	29

least recognize some of the underlying factors of disaster risk, in particular the vulnerability of rural livelihoods and that the poor are most at risk. Areas prioritized include food security, agriculture, early warning systems, drought, climate change issues, rural (infrastructure) development and disaster preparedness and response. Such poverty reduction instruments, therefore, clearly have an enormous potential to address the underlying risk drivers described in Chapter 4. It is less clear, however, whether they explicitly target these drivers. In particular, urban poverty is given far less attention than rural poverty, a critical gap given its scale and the growth of urban disaster risk.

It is also unclear whether PRSPs are linked to policies and institutional frameworks for disaster risk reduction. If not informed by disaster risk reduction information and expertise such as hazard assessments, they may not target the communities with the highest disaster risk. It is

also possible that mainstream poverty reduction and social development investments may inadvertently increase rather than decrease risk, and may be ineffective in reducing the impact of disaster losses on the poor. A school built in a relatively poor settlement in an earthquake prone country offers to improve access to education and contribute to the fulfilment of MDG targets. However, if it is not built to seismic resistant standards, the school may collapse in an earthquake, as was tragically highlighted by the deaths of at least 9,000 children and teachers in the Sichuan earthquake in China in 2008. The short- and long-term effects of disasters on attainment of the MDGs have implications that cannot be ignored. In the same way, a lack of awareness of how development shapes disaster risk may mean that opportunities to use poverty reduction and social programmes to proactively reduce risks may be lost.

5.5 Climate change adaptation

Since countries signed the UNFCCC in 1992, multilateral negotiations have focused on the challenge of mitigating climate change by reducing GHG emissions, through instruments such as the Kyoto Protocol. Climate change mitigation is essential as all the evidence points to the probability that a ‘business as usual’ approach to development will lead to catastrophic global outcomes. Even if mitigation is successful, however, climate change impacts will continue to increase until stocks of GHGs in the atmosphere stabilize. As both governments and the international community recognize that some degree of climate change is inevitable, the need to assist countries to adapt to climate change has taken on a greater prominence. The term adaptation appeared in the First Assessment Report of the IPCC in 1990 and was captured in Article 4 of the UNFCCC, which calls upon states to “*cooperate in preparing for adaptation to the impacts of climate change, develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture,*

and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods”.³⁹

Furthermore the Article recognizes the responsibility of the developed countries with the largest carbon footprints to assist those developing countries that suffer the consequences. It goes on to state: “*developed country Parties . . . shall . . . assist developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting the costs of adaptation to those adverse effects. [. . .] The extent to which developing country Parties will effectively implement their commitments under the Convention . . . will fully take into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties*”.

As described in Section 4.4, climate change magnifies the existing unevenness in the geographic and social distribution of disaster risk, meaning that its effects are disproportionately felt by the rural and urban poor in developing countries. Adaptation to climate change,

however, is fundamentally similar to disaster risk reduction. Many countries face difficulties in addressing the underlying risk drivers, and they are also, therefore, badly adapted to existing climate patterns. If the underlying drivers can be addressed, then disaster risk will be reduced and at the same time the magnifying effect of climate change will be lessened. Similarly, strengthening capacities to address the underlying drivers of disaster risk will strengthen capacities to adapt to climate change.

5.5.1 Existing linkages in practice and policy

The Fourth Assessment Report of the IPCC lists a large number of possible adaptation measures, classified as anticipatory, autonomous and planned adaptation, that are fundamentally disaster risk reduction measures⁴⁰. Despite the existence of parallel policy and institutional frameworks at both the international and national levels, many adaptation initiatives developed under the UNFCCC in practice focus on disaster risk reduction. Of the 36 NAPAs submitted to the UNFCCC Secretariat by least developed country parties since 2004, most justify potential adaptation activities in terms of their effectiveness with respect to reducing vulnerability to disasters and alleviating poverty. In practice, some NAPAs have already led to a greater integration of disaster risk reduction and adaptation to climate change at the national level. Disaster risk reduction has also been recognized in the Bali Action Plan⁴¹ and in the Adaptation Fund⁴².

The Maldives' Safe Islands Strategy is a good example of how adaptation and disaster risk reduction can be linked. It is an official government policy intended to address expected sea level rise over the course of this century which gained momentum after the 2004 Indian Ocean tsunami submerged the entire small island nation for several minutes. Residents of hard-to-reach outlying islands are being voluntarily relocated to Hulhumale, a man-made island near the country's capital that sits at a higher elevation than the rest of the Maldives' 200 inhabited islands⁴³.

However, while disaster risk reduction and climate change adaptation may be closely linked

in practice, the functional linkages between the respective international frameworks (the HFA and the UNFCCC) are far weaker. The weak linkages between these frameworks inhibits the integration of climate change adaptation with disaster risk reduction, and of both with poverty reduction and development. The existence of parallel frameworks involves different counterparts in developing countries in complex and overlapping international processes on policy formulation, negotiation, monitoring and reporting.

This lack of integration is replicated at the national level, where responsibilities for climate change adaptation are usually vested in environment ministries. As in the case of disaster risk reduction, this does not facilitate its integration into mainstream national planning and budgeting. In turn, this can lead to the perception that adaptation is an environmental problem and result in the packaging of adaptation initiatives as a series of small stand-alone projects (for example, strengthening coastal defences or managing a particular watershed) that are disconnected from both disaster and poverty reduction planning and implementation. UNDP, for example, reports that in a review of 19 PRSPs, only four identified specific links between climate change and future vulnerability⁴⁴.

5.5.2 Resources and implementation mechanisms

Several financial mechanisms exist under the UNFCCC, the Kyoto Protocol and the Global Environment Facility (GEF) to support adaptation, particularly in least developed, low- and middle-income countries (see Figure 5.11).

The UNFCCC mechanisms include the Least Developed Countries Fund (LDCF), which has supported the development of NAPAs and should assist countries in implementing activities identified in those plans. As of October 2008, cumulative net allocations approved by the Council of the LDCF amount to US\$ 53.45 million. Of this, US\$ 48.49 million is for projects and project preparation activities, including US\$ 15.48 million that has been committed, and US\$ 12.77 million already disbursed⁴⁵. While the fund was designed to "*support projects addressing the urgent and immediate adaptation needs of the*

least developed countries (LDCs) as identified by their NAPAs⁴⁶, 49 of the 50 activities funded to date have been for the preparation of NAPAs. As of September 2008, of the 38 NAPAs submitted, 21 contemplate disaster risk reduction⁴⁷. In Ethiopia's NAPA, for example, the three highest-ranking adaptation activities are: 1) promoting drought–crop insurance; 2) strengthening the drought and flood early warning systems; and 3) developing small-scale irrigation and water-harvesting schemes in arid parts of the country⁴⁸. So far, in total only 2 out of 19 projects funded under the LCDF are at implementation stage: a project that reduces climate change-induced risks and vulnerabilities from glacial lake outbursts in Bhutan, and a community-based coastal afforestation project in Bangladesh.

The Special Climate Change Fund (SCCF) is available for all low- and middle-income countries, covering adaptation and other activities such as technology transfer, mitigation and economic diversification. So far, 15 SCCF Adaptation Program projects have been approved, but only one – a water-resource management initiative in Tanzania – is under implementation⁴⁹. As of October 2008, cumulative net allocations approved by the Council of the SCCF amount to US\$ 68.58 million, of which US\$ 26.53 million have been committed to projects and project preparation activities, and US\$ 15.29 million have been disbursed⁵⁰.

The Adaptation Fund, established under the Kyoto Protocol, is based on private-sector replenishment through a 2% levy on Clean Development Mechanism (CDM) projects plus voluntary contributions from high-income countries, currently amounting to US\$ 5 million pledged by Canada. Potentially, it is considered that the levy could generate US\$ 160–950 million by 2012⁵¹. While the Adaptation Fund board outlined a work plan at its second meeting, it has not finalized its 'specific operational guidelines' nor begun disbursing funds. It was agreed at the June 2008 session that the board would begin reviewing submitted projects in June 2009⁵².

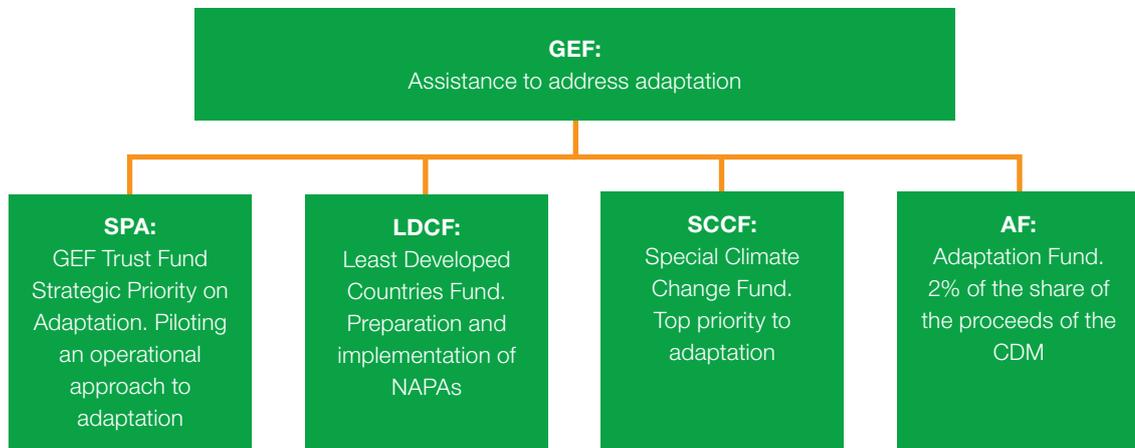
The Strategic Priority on Adaptation contains about US\$ 50 million⁵³ from GEF trust funds to support pilot adaptation projects of which, to date, some US\$ 14.8 million have been disbursed.

In contrast to the resources available through the above mechanisms, UNDP estimates the total resources required for climate change adaptation at US\$ 86 billion per year by 2015, representing approximately 0.2% of GDP of developed countries⁵⁴. This figure is consistent with estimates by Oxfam⁵⁵, which calculated an annual requirement of US\$ 50–80 billion per year for adaptation in low- and middle-income countries.

More resources are flowing into adaptation from other bilateral and multilateral donors. It

Figure 5.11:
GEF mechanism to support adaptation to climate change

Source: GEF, 2008a



has been estimated that bilateral resources total approximately US\$ 110 million for 50 projects in 17 countries. As of December 2008, the World Bank funds ten adaptation projects at a cost of approximately US\$ 94 million⁵⁶. UNDP also reports a growing adaptation portfolio totalling approximately US\$ 200 million. More resources are probably flowing directly to adaptation activities in developing countries through large international NGOs, and the Red Cross and Red Crescent movement. However, it seems unlikely that total international resource flows for adaptation in developing countries currently exceed US\$ 50–100 million per year, which represents less than 0.2% of that required.

At the same time, a review of the portfolios of six major bilateral and multilateral donors⁵⁷ has illustrated that much development assistance is failing to take into account the potential losses from the magnified risks posed by climate change. According to UNDP⁵⁸, between US\$ 16 and US\$ 32 billion of existing development assistance is currently at risk from climate change. This implies that 1,000 times more development assistance is at risk from climate-related hazard than has been committed by donors to support climate change adaptation through the multilateral mechanisms described above.

There is a mismatch, therefore, between the estimated costs of adaptation, the resources committed and the speed of implementation. Given the urgency posed by climate change, there is clearly an urgent need to increase the investment and the speed of implementation.

5.5.3 Adapting to climate change or adapting to poverty?

In developed countries, it is difficult but not impossible to calculate the costs of adaptation. The cost of climate proofing buildings and infrastructure can be calculated, as can that of the investments in irrigation and water management necessary to enable agricultural production to adapt to longer periods of drought. The cost of maintaining flood defences in London over 100 years, taking into account climate change, has been calculated at US\$ 3–6 billion⁵⁹, for example. When this approach is

applied to developing countries, UNDP has estimated (building on earlier calculations by the World Bank)⁶⁰ that the cost of climate proofing development investments and infrastructure will be approximately US\$ 44 billion annually by 2015. A recent UNFCCC paper⁶¹ has also addressed this cost.

An approach based purely on climate proofing infrastructure, however, does not address the underlying risk drivers in many developing countries, given that disaster risk for both the rural and the urban poor is characterized by a deficit of assets that could be adapted. As described in Chapter 4, the climate-related disaster risks faced by poor rural households are closely associated with their lack of access to productive assets to sustain their livelihoods. Poor urban households in most developing countries occupy unsafe makeshift homes on illegally sub-divided and occupied land and with deficient or non-existent infrastructure and public services.

As the Archbishop Emeritus of Cape Town, Desmond Tutu, wrote for the 2007/2008 Human Development Report⁶²: *“Adaptation is becoming an euphemism for social injustice on a global scale. While the citizens of the rich world are protected from harm, the poor, the vulnerable and the hungry are exposed to the harsh reality of climate change in their everyday lives. Put bluntly, the world’s poor are being harmed through a problem that is not of their making. The footprint of the Malawian farmer or the Haitian slum dweller barely registers in the Earth’s atmosphere.”*

Many NGO initiatives, and some bilateral efforts, in rural areas implicitly recognize this issue. At the local level, despite the disconnection between the scale of the need and the funds available for investment, much climate change adaptation is building on existing efforts to strengthen rural livelihoods and to protect and manage ecosystems. Less attention, however, is being given to the adaptation needs of the urban poor. The Fourth Assessment Report of the IPCC notes that urban centres, the infrastructure that they concentrate, and the industries that form a key part of their economic base are often capable of considerable adaptation to reduce the risks from the direct and indirect impacts of

climate change⁶³. This is certainly true of many well-governed cities in high-income countries. However, its relevance to the several hundred million poor urban residents living in informal settlements in flood prone and exposed coastal locations in developing countries, for example, is highly questionable. How city governments that have historically proved incapable of protecting the majority of their citizens from existing climate hazard will be able to adapt, is difficult to envisage.

The implications of this analysis are threefold. First, the linkages between the frameworks for disaster risk reduction, poverty reduction and climate change adaptation need to be strengthened, at the international and national levels. Second, disaster risk reduction and climate change adaptation should both give priority to addressing underlying risk factors such as vulnerable rural livelihoods, poor urban governance and ecosystem decline, if the magnifying effects of climate change on disaster risk are to be avoided. Third, there is a need for increased investment and more rapid implementation, given the urgency of the challenge.

While the linkages between disaster risk reduction and climate change adaptation need to be strengthened, both face common challenges. Many low and middle income countries still have weak capacities to address the underlying risk drivers and lack suitable governance arrangements for integrating risk reduction into development.

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