

## **Appendix 3: HFA Progress Reports (2007-09)**

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Note 3.1: HFA Monitoring and Progress Reporting Framework (2007 – 09)  
Table 3.1: List of national interim HFA progress reports (2008)

Note 3.2: Progress and challenges reported on HFA core indicators

### **NOTE 3.1: HFA Monitoring and Progress Reporting Framework (2007 – 09)**

Actions to reduce risk from disasters and climate change are being increasingly adopted by communities, national authorities, civil society groups, and other responsible partners assisted by international agencies, to build a culture of resilience. The concept of disaster risk reduction is far more understood, and practiced than ever before. However, a lot remains to be done, better and faster.

While the HFA provides overall guidance on the possible range of measures that a country could implement to reduce disaster risk, the actual measures required depend on the country's risk profile and socio-economic development context. A country's progress in implementing the HFA can only be measured with respect to its disaster risk, without which, any judgment on the relevance or effectiveness of disaster risk reduction efforts would be inaccurate. A challenge is posed by the fact that while current knowledge permits a broad categorization of global risk by some hazard types, disaster risk information is still heterogeneous in quality and incomplete in coverage. The lack of gender disaggregated data in most countries poses a significant additional challenge.

However, global commitment to monitoring and reporting on disaster risk reduction and recovery actions is in past years, steadily gaining momentum. The recognition that it is necessary to institutionalise functions for tracking emerging trends in disaster risk and monitoring progress on risk reduction and climate change efforts is resounding. The need for better tools and capacities for monitoring disaster risk and progress being made in risk reduction has often been expressed by national institutions.

To enable countries in this respect, UNISDR in partnership with regional inter-governmental organisations, member states, UN organisations and agencies, and civil society organisations, has facilitated a first biennial, global review of progress in the implementation of the Hyogo Framework for Action (HFA), for the period June 2007- May 2009 (hereafter referred to as 2007-09).

The 2007-09 HFA review process at the national level was facilitated through the development of an online tool – the 'HFA Monitor' (see technical annex note 3 for a detailed explanation). The tool is available online for country access at [preventionweb.net](http://preventionweb.net) and is facilitated by the UNISDR. With the help of the HFA Monitor, national authorities and HFA focal points assess progress for 22 indicators associated with the 5 HFA Priorities for Action, using five levels of progress to indicate the extent of progress made in efforts for HFA implementation.

The 2007-09 HFA review process at the regional level was facilitated through sub/ regional inter-governmental institutions of which some provided analysis of key trends, areas in which progress has been made, and challenges encountered in implementing risk reduction and recovery activities with specific attention to trans-boundary efforts. Appendix 5 contains a preliminary list of reports received from regional inter-governmental institutions, as of February 2009.

Participation in the 2007-09 HFA review signals a first comprehensive step in taking stock of results achieved so far, to help collectively prioritise risk reduction actions at the local, national, regional and international levels. While the monitoring and review of national progress facilitated online provides vital information for this global assessment report, it is important to stress that the primary objective of this review process is to strengthen the capacities of countries to monitor and assess progress in efforts for disaster risk reduction on an ongoing basis. Improved capacities in monitoring and reporting will enhance both disaster risk reduction policy and practice at the national level while identifying priorities at the regional and international levels.

The Global Network of Civil Society Organization's is simultaneously also leading efforts with a range of civil society actors to strengthen public accountability for HFA implementation and enhance the ability of civil society groups to measure progress, formulate policy positions from the local level perspective, provide recommendations and establish baselines for discussions on progress in disaster risk reduction and recovery actions. The civil society review will complement the biennial HFA review facilitated by UNISDR and partners at the national level.

While the HFA provides overall guidance on the possible range of measures that a country could implement to reduce disaster risk, the actual measures required depend on the country's risk profile and socio-economic development context. A country's progress in implementing the HFA can only be measured with respect to its disaster risk, without which, any judgment on the relevance or effectiveness of disaster risk reduction efforts would be inaccurate. A challenge is posed by the fact that while current knowledge permits a broad categorization of global risk by some hazard types, disaster risk information is still heterogeneous in quality and incomplete in coverage. The lack of gender disaggregated data in most countries poses a significant additional challenge.

The results presented for the levelling of progress must be interpreted with some caveats: while guidance was offered online to assist countries with interpreting the indicators and levels of progress, the levels accorded in the national reports are entirely based on a country's self assessment. The levelling of progress is relative and not necessarily comparable across countries (on some indicators, countries may mark themselves higher – or lower - on a relative scale because of 'rate' of progress rather than any 'absolute' criteria of progress achieved). Finally, scores on the 1-5 levels of progress do not necessarily indicate that a minimum or maximum level of progress in implementation of disaster risk reduction has been attained. Instead, a level 2 might indicate far more progress (in relative terms) for some countries than a level 3 for others.

## **MONITORING AND REPORTING PROGRESS ON THE IMPLEMENTATION OF THE HYOGO FRAMEWORK FOR ACTION**

### **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 decentralised 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 trainings 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.

*Source:* Indicators of Progress: Guidance on Measuring the Reduction of Disaster Risks and the Implementation of the Hyogo Framework for Action (UNISDR, 2008).

As of 28 February 2009, 62 countries have completed interim HFA progress reports online the HFA Monitor. A complete list is provided below in **Table 3.1:**

<b>Africa (18)</b>	Algeria	<b>Asia (13)</b>	Bahrain
	Angola		Bangladesh
	Burkina Faso		Indonesia
	Burundi		Iran
	Cape Verde		Nepal
	Cote d'Ivoire		People's Dem Rep of Lao
	Egypt		Philippines
	Ghana		Rep of Korea
	Kenya		Singapore
	Madagascar		Sri Lanka
	Malawi		Syria
	Mauritius		Tajikistan
	Mozambique		Yemen
	Senegal		
	Sierra Leone	<b>Europe (12)</b>	Armenia
	Swaziland		Croatia
	Tanzania		Czech Rep
	Togo		France
			Germany
<b>Americas (15)</b>	Anguilla		Italy
	Argentina		Macedonia
	Bolivia		Montenegro
	Cayman Islands		Sweden
	Colombia		Switzerland
	Costa Rica		Turkey
	Dominican Republic		United Kingdom
	Ecuador		
	El Salvador	<b>Pacific (4)</b>	Australia
	Gautemala		Marshall Islands
	Jamaica		New Zealand
	Panama		Vanuatu
	Peru		
	USA		
	Venezuela, Bolivarian Rep. Of		

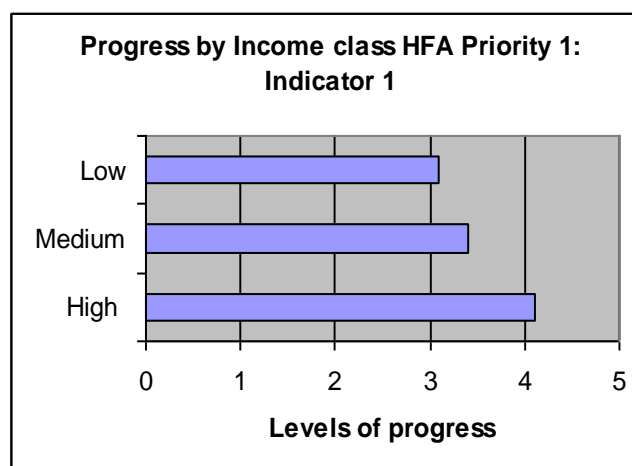
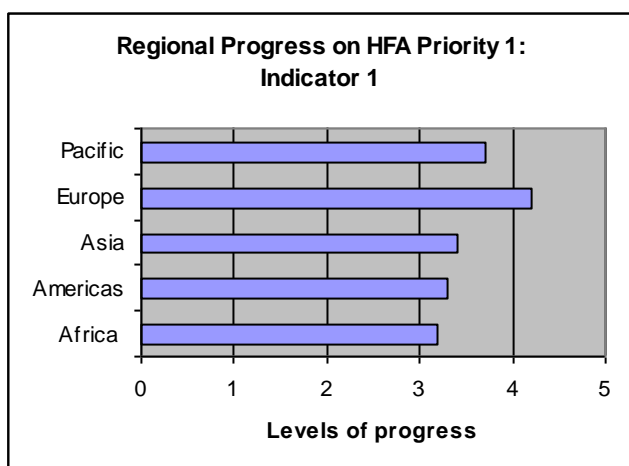
**NOTE 3.2: Progress and Challenges reported on HFA Core Indicators**

**Hyogo Framework 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 exists with decentralised responsibilities and capacities at all levels**

A country's constitution, existing laws and governance structures provide the basis to develop plans and build on institutional arrangements for all areas relating to disaster risk reduction. The existence of effective national policies and legal frameworks for disaster risk reduction, therefore, is an indicator of national commitment to disaster risk reduction. Progress against this indicator is clearly related to the second and fourth core indicator in this Priority for Action, referring to the availability of adequate resources for implementation of risk reduction measures, and the presence of multi-sector institutional systems and platforms.

In high-income countries, policies and legal frameworks addressing disaster risk generally exist in each sector, for example, building codes that incorporate hazard resistant construction. High-income countries report a mean score of 4.1 in this area but state the lack of an overarching national policy and legal framework on disaster risk reduction, which could enable the issue to be addressed more holistically. Canada for example reports that the large number of federal institutions with varied mandates makes the implementation of the Emergency Management Act a challenging task. Some countries are now engaged in formulating such holistic national policies. For example the Cayman Islands are formulating a new Strategic Framework for Disaster Risk Management, backed by a new structure, the Hazard Management Cayman Islands (HMCI). Bahrain has instituted a National Committee on Disaster Management (see **Error! Reference source not found.**), but also recognises the need for a national policy.



**National Committee for Disaster Management, Bahrain<sup>1</sup>**

The Kingdom of Bahrain has demonstrated its commitment to strengthening disaster risk reduction capacity through the creation of the National Committee for Disaster Management (NCDM) in 2006. As in other high-income countries, disaster risk reduction is already mainstreamed within individual ministries and agencies: for example Bahrain's building codes and environmental regulations are based on international standards. However, there was no overall coordinating agency or a policy to define responsibilities at different levels of government. It is expected that the NCDM will lead the formulation of a national disaster risk reduction policy and improve coordination between the different sectors.

A number of middle income countries have overarching national policies and legislation on disaster risk reduction and those that don't, are currently developing them. Political inertia in approving legislation and in developing the necessary technical and legal instrumentation and administrative arrangements for its implementation are reported, particularly in Asia. But some genuine progress is being made. Ecuador, for example, has included disaster risk management in its new constitution and, like Colombia, in its national development plan. Decentralised systems of governance for disaster risk reduction in countries across Asia (Philippines, Sri Lanka, and Iran among others) provide opportunities for participation at the local governance and community level.

The problem reported is that there is often no explicit link between national policies on disaster risk management and sector policies (such as for land use, building, social and economic development and environment), which leads to confusion regarding mandates and responsibilities for implementation, gaps and overlaps. At the same time, in many countries the impact of sector policies and legal instruments on disaster

<sup>1</sup> Interim National Progress Report on the implementation of the Hyogo Framework: Kingdom of Bahrain (2008)

risk may be only tangential. As countries such as Panama report, even when instruments exist there are problems of enforcement and accountability, or as Guatemala reports, lack of resources and political will. At the same time, in countries where much risk prone development occurs outside of government regulation, sector policies and legal instruments may be ineffective. Progress in addressing the issue of accountability, however, is being made. As illustrated in **Error! Reference source not found.**, Colombia has recently completed an audit of disaster risk reduction, an example that will be revisited in Chapter 7.

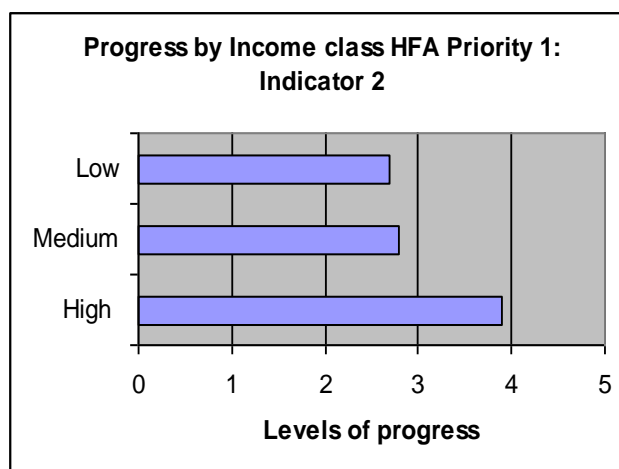
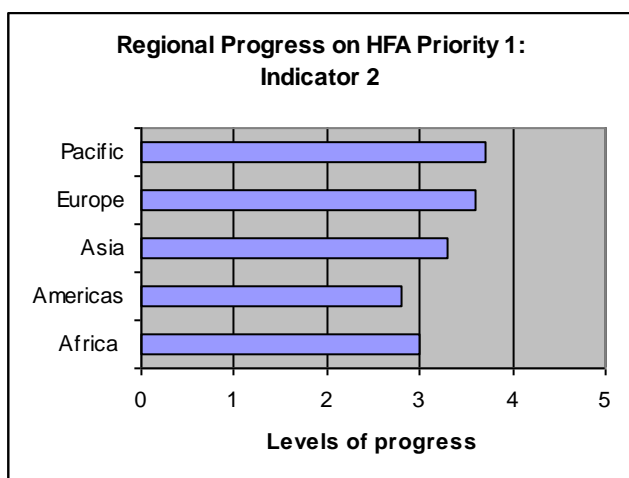
**Auditing disaster risk reduction, Colombia<sup>2</sup>**

In 2007, the General Controller of the Republic of Colombia (CGR) in 2007 carried out an audit of the disaster risk reduction activities of all the organisations of the National System for Disaster Prevention and Attention (SNPAD) with respect to their obligations under the national legal and policy framework. The results were included in an annual report to the country's Congress and focused on identifying strengths and weaknesses in the SNPAD. This initiative not only served to highlight disaster risk reduction as an issue of high political importance in public policy and legislation but also that a national audit office, mandated to ensuring a responsible use of public resources and the improvement of public administration, can play a key role in supporting implementation and accountability. The exercise not only obliged a variety of national and local government organisations to report on their activities in disaster risk reduction but also provided important guidelines to the government on how to improve the effectiveness of the SNPAD.

In many low-income countries, particularly in Africa, the lack of adequate financial, human and technical resources in the organisations mandated to address disaster risk reduction is reported as the major reason for underachievement in this area. As will be seen in the analysis presented for HFA Priority 4, while many countries report the existence of sector policies and legal instruments, national level policy and legislation on disaster risk reduction remains weak.

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

Dedicated resources refer to funds that are allocated for the implementation of disaster risk reduction related actions. The HFA recommends resource allocation that embeds disaster risk reduction into an institution's day-to-day business is necessary. When risk is considered in development investment decisions and in the design of projects, the cost of disaster risk reduction is lower.



While high-income countries indicate substantial achievement against this core indicator with a mean score of 3.8, many middle and low-income countries, with mean scores of 2.8 and 2.7 respectively, report that no systematic policy or institutional commitment has been made to providing dedicated or adequate resources. If policy and legislation is not backed up by resources, then commitment cannot be turned into action.

Problems cited include competing national priorities, the absence of legislation which makes financial allocations legally binding or the lack of political will if the short-term benefits of disaster risk reduction are not visible. In Africa, for example, the lack of financial resources has been highlighted by Angola, Burkina Faso, Burundi, Cote d'Ivoire, Djibouti, Malawi, Mozambique, Senegal and Seychelles, as the principal reason for lack of progress in addressing disaster risk, even for fulfilling responsibilities for disaster preparedness and response.

In many middle and low-income countries national contingency funds exist, to enable governments to address disaster response and recovery. For example, 0.15% of the national budget of Bolivia is dedicated to a

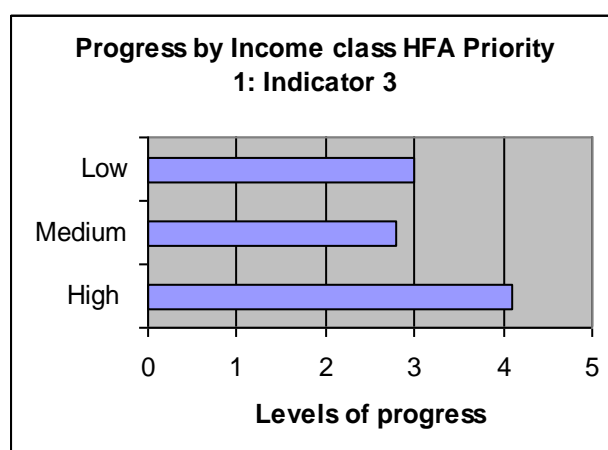
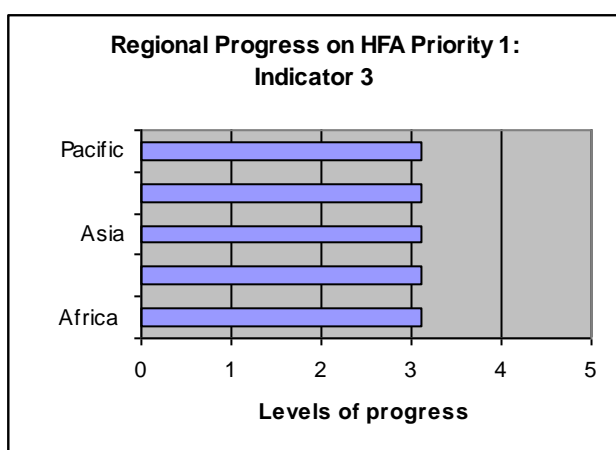
<sup>2</sup> Hesse, et al., 2008

contingency fund called FORADE. Disaster risk reduction, however, requires sustainable on-going investments not dependent on emergencies.

Only a few countries such as Colombia and Iran have explicitly included disaster risk reduction in their national budgets. In Vanuatu for example 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. In other countries, disaster risk reduction stills depends heavily 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 institutionalisation or sustainability.

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

As highlighted in the previous chapter, disaster risk is largely configured and shaped at the local level. Therefore, the strengthening of the capacities of local governments and communities to address risk is instrumental to the achievement of the strategic goals of the Hyogo Framework. Such action calls for the promotion of community participation in disaster risk reduction through the adoption of policies relevant to the local level, promotion of knowledge networks, strategic management of volunteer resources, attribution of roles and responsibilities, and the delegation and provision of the authority and resources at local levels.



The regional reporting of progress is interestingly, a consistent average of 3.1 across all regions. Variations in trends clustered by income classifications make it easier to interpret the regional trends. In Europe and many high-income countries, municipalities and local governments often have mandated responsibilities for disaster risk reduction, as well as the necessary capacities and resources. As with other core indicators, high-income countries report substantial achievement with a mean score of 4.1.

Middle and low-income countries score 2.8 and 3 respectively against this indicator. While this is far from substantial achievement, across all regions the reporting indicates a growing dedication of efforts and resources towards strengthening capacities at both the local government and community levels, as **Error! Reference source not found.** illustrates in the case of Nicaragua.

Countries from Asia, Africa and Latin America report 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 linking the local, provincial and national levels. The active coordination of NGOs wishing to work at the community level remains a challenge for national and local governments, particularly in those countries with limited resources to strengthen community capacities. In Asia, Bangladesh, Indonesia, PDR Lao, Nepal and the Philippines specifically point out insufficient budgets for risk reduction that may also be centralized and / or prioritized for response and preparedness related expenditures.

Large, relatively wealthy urban municipalities such as Bogota, Medellin and La Paz, have well-functioning city disaster risk reduction systems are now as effective and in some cases better resourced than those at the national level. The existence of national decentralisation processes has been identified as a key success factor in strengthening and sustaining disaster risk reduction capacities at the local and community levels. There are also smaller local governments in Asia, Africa and Latin America that have also been successful in addressing disaster risk. However, many local governments, particularly in rural and isolated areas lack the human, technical, financial and institutional capacities to address disaster risk. In Africa, Comoros, Madagascar, Senegal, Tanzania, Ghana and Zimbabwe report that the absence of resources at the local level is a major obstacle to be able to strengthen capacities. In practice, as was noted in the last chapter, most initiatives to strengthen local and community capacities have focused on disaster preparedness and response. Efforts to

address the underlying risk factors through local and community action have proved to be much more challenging.

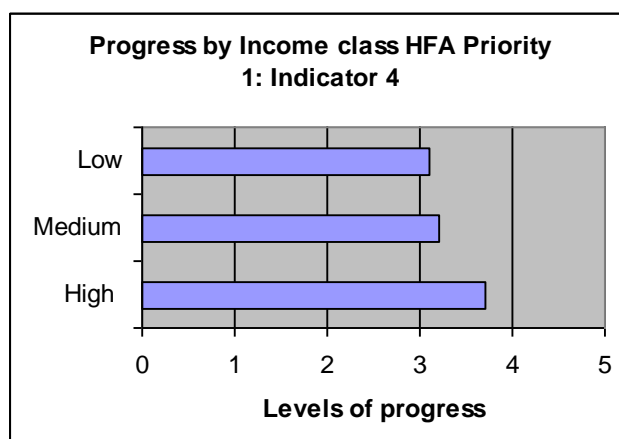
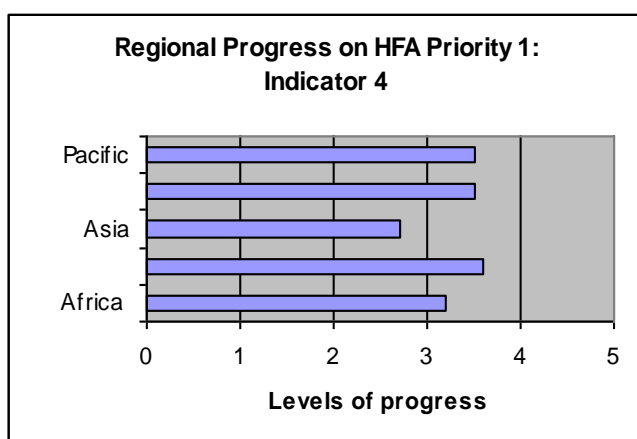
#### Local level disaster risk reduction, Nicaragua<sup>3</sup>

Through its Natural Disaster Vulnerability Reduction Project (NDVRP), the World Bank has supported the Government of Nicaragua to strengthen the National System for Disaster Prevention, Mitigation and Response (SINAPRED) at both national and local levels. SINAPRED is a multi-sector, decentralized disaster risk reduction system, created in 1999 with the support of UNDP, after Hurricane Mitch revealed once again the high vulnerability of Nicaragua to extreme hazard events. In the most high risk municipalities, the project supported risk assessments and vulnerability analyses, the development of risk-sensitive land use plans as well as specific structural and non-structural mitigation measures.

By 30 August 2008 municipalities had developed and approved Municipal Territorial Plans and Municipal Disaster Risk Management (DRM) plans, and most are using these instruments to grant new building licenses. Additionally, the maps for the municipalities produced under the project have been used by the Ministries of Health, Education, and Development planning. Mitigation measures in 15 municipalities have been funded through a social fund (FISE). Whether the results achieved can be sustained without additional international resources, however, is open to question. Despite its sophisticated legal and administrative structure SINAPRED has access to very limited budget allocations. A recent study by the Inter-American Development Bank (IDB) and the Economic Commission for Latin America and the Caribbean (ECLAC) indicate that its functioning is seriously impaired by financial and institutional limitations. At the municipal level resources budget allocations are also very limited.

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

A national multisectoral platform for disaster risk reduction has been understood as a nationally owned and led mechanism – adopting the structure of a forum or committee that facilitates the interaction of key development players around the national disaster risk reduction agenda and serves as an advocate for adopting disaster risk reduction measures at all levels. As highlighted in the discussion of core indicator 1, the progress achieved and challenges faced in the development of institutional platforms and systems for disaster risk reduction are closely associated with those faced in the development of policy and legislation.



High income countries report challenges in the creation of an integrated multi-sector institutional system for disaster risk reduction that could bring greater cohesion and synergy to on-going sector based approaches. Many countries have developed national platforms as a mechanism for representation in regional and global forums and to advocate for greater assistance to middle and low-income countries. While national platforms in the high-income countries have advocacy, networking and information sharing functions, they rarely have administrative or executive responsibilities. As such they have little in common with the multi-sector institutional systems that have emerged in many middle and some low-income countries. **Error! Reference source not found.** is an interesting example of a network of European national platforms.

#### Network of European National Platforms, France, Germany, Switzerland<sup>4</sup>

In Europe, a Network of European National Platforms has been created with the objectives to facilitate and improve the exchange of information amongst members; to support the integration of disaster risk reduction into all aspects of society at national, regional and international level of European countries; to further encourage the development of National Platforms in Europe and neighbouring countries; to partner with the European Union,

<sup>3</sup> World Bank, 2008f

<sup>4</sup> Regional Progress Report on the implementation of the Hyogo Framework: Europe (2009)



Council of Europe, in close collaboration with UNISDR; to provide consolidated and substantive input to the UNISDR Global Platform; and to ensure support disaster risk reduction in developing countries.

Middle and low-income countries, in contrast, report similar levels of achievement against core indicator 4 and core indicator 1. Inspired by a model developed in Colombia in the early 1990s, most countries in Latin America have now adopted multi-sector decentralised systems for disaster risk reduction to replace traditional civil defence or protection institutions. Bolivia, for example, has created the National System for Risk Reduction and Emergency Response (SISRADE). Both Costa Rica and the Dominican Republic are discussing similar arrangements. Under this approach, responsibilities for disaster risk reduction are vested nationally in sectors and territorially in local government, supported by a coordinating body and linked through committees and other mechanisms.

This approach to institutional systems has been promoted as a best practice by multi-lateral organisations like UNDP and under different circumstances and with important differences has also been adopted in Asian countries like Pakistan and Sri Lanka. Other countries such as Egypt have created national committees, see **Error! Reference source not found.**, while in others such as Panama, Colombia, Costa Rica, the USA and others, national platform mechanisms have been adopted.

#### **The National Committee for Crisis Management and Disaster Risk Reduction, Egypt<sup>5</sup>**

Since the Committee's establishment in 2006, it has achieved a multi stakeholder participation and allocation of resources, with representation from all Ministries, public authorities, civil society, private sector and specialised experts in order to provide coordination and to develop a culture of prevention, and to facilitate the integration of disaster management and disaster risk reduction into national policies, planning and programmes which corresponds to the various goals and Priorities for Actions outlined in the Hyogo Framework.

The Committee also aims to put in place modalities to institutionalise procedures to integrate disaster management and risk reduction measures into national sustainable development strategies, plans and programmes in key areas such as poverty reduction, housing, water, sanitation, energy, health, agriculture, infrastructure and environment to ensure that development does not create disasters.

As a recent review by UNDP indicated, however, the *systems* approach faces many challenges to be effective. Many of these challenges have been reiterated in the reporting. (**Error! Reference source not found.**)

#### **UNDP review of support to *Institutional and Legislative Systems for Disaster Risk Management*<sup>6</sup>**

This review based on 19 in-depth country reviews from all regions emphasises a number of obstacles and successes in governance for disaster risk reduction:

- The successful generation of political commitment depends on factors such as internal political stability, the role of key individuals as champions and on a tradition of decentralisation and participatory governance.
- The achievement of multi-sector commitment depends on disaster risk reduction being overseen and headed at the highest levels of government.
- Public awareness and a functioning legal system are essential to assign accountability for disaster losses and impact.
- There is a low capacity for implementation of disaster risk reduction policies, plans and strategies, in development sectors, particularly in countries where most development is informal and unregulated.
- National government resource allocation to disaster risk reduction remains low and is concentrated in preparedness and response. Allocations to address the underlying risk factors by development sectors are not adequately documented and accounted for.
- National government institutions, responsible for disaster risk reduction, may lack the skills necessary to engage civil society and the private sector effectively.

Many national systems report practical difficulties in engaging and committing development sectors and local governments to disaster risk reduction, as well as other stakeholders such as the private sector or civil society. While most systems have been able to convene other sectors to engage in disaster preparedness and response, their success in influencing planning, regulation and investment at both the sector and territorial levels has been much more discrete. In many countries, governments have delegated the establishment and coordination of institutional systems for disaster reduction to the civil defence and protection organisations traditionally responsible for emergency response. These bodies usually do not have the competence in development planning and regulation necessary to engage with other sectors nor the necessary political authority within government to do so. As a result, even some of the best functioning systems remain predominantly focused on disaster preparedness and response, although their stated objective is the mainstreaming of disaster risk reduction.

<sup>5</sup> Interim National Progress Report on the implementation of the Hyogo Framework: Egypt (2008)

<sup>6</sup> United Nations Development Programme (UNDP), 2005

In some low-income countries, even the development of effective single-institution civil defence and protection organisations remains challenging. While a number of countries have created multi-sector national platforms or committees, many such as Burkina Faso, Burundi, Cape Verde, Kenya, Swaziland and Togo, highlight the lack of resources to convene meetings and implement work plans. In Africa sub-regional approaches are being used to develop national institutional capacities. **Error! Reference source not found.** is a good example how Central African states address disaster risk management in a common strategy.

**Disaster risk management in Central Africa<sup>7</sup>**

The Economic Community of Central African States (ECCAS) which is composed of Gabon, Cameroon, Democratic Republic of the Congo, Congo, Equatorial Guinea, Sao Tome & Principe, Burundi, Angola, Central African Republic and Chad adopted an environment and natural resources policy with a sub-regional plan of action in October 2007. One component is dedicated to “disaster risk management in Central Africa” covers four major areas of action:

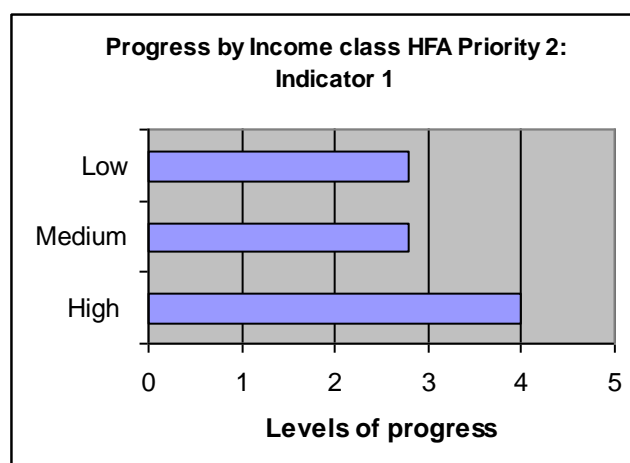
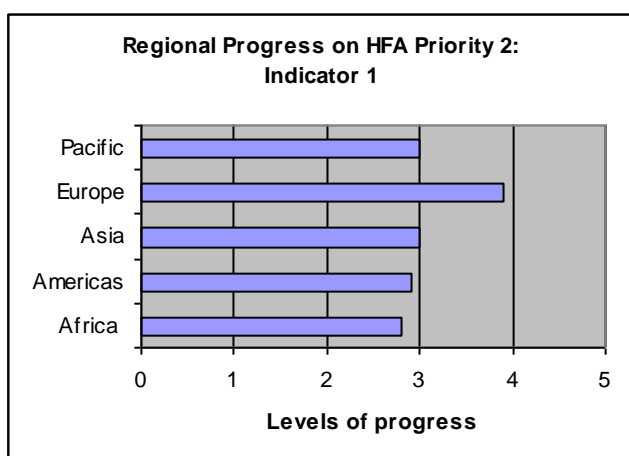
- Capacity building of national and sub-regional authorities including the establishment or strengthening of dedicated units within the national institutions dealing with disaster risk reduction in each country, within ECCAS Secretariat and within the Monetary Community of Central African States; review and enforcement of legal frameworks and disaster risk reduction strategies in ECCAS and within member states.
- Hazard and risk identification in the Sub-region including risk assessments and risk mapping.
- Formulation and implementation of national strategies for disaster risk reduction including the establishment and reinforcement of national platforms, inter-ministerial committees and an inter-governmental committee for the ECCAS region.
- Establish national and sub-regional networks for national information management for disaster risk management, and contribute to the inter-regional information management network for disaster management for the ECCAS and ACP/EU regions.

**Hyogo Framework 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**

National risk assessments allow decision-makers and communities to understand the country’s exposure to various hazards and its social, economic, environmental and physical vulnerabilities. In more actionable words, national risk assessments allow communities to take effective action to reduce disaster and environmental risks.

High, middle and low-income countries report progress of 4, 2.8 and 2.8 respectively against this core indicator. In high-income countries, Australia and New Zealand report a comprehensive integrated multi-hazard approach to risk assessment. In Europe, 80% of the reporting countries state that substantial or comprehensive achievement has been attained. For example, Switzerland aims to cover the whole 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. The main challenges reported refer to the lack of standardised data and methodology and inter-sector coordination.



<sup>7</sup> ECCAS input for the Africa Status Report, DRAFT prepared November 2008, for UNISDR Nairobi Office

In middle-income countries across both the Americas and Asia, there is a large and increasing involvement of universities, research institutes and the private sector in hazard monitoring and risk assessment. In Asia, in particular, risk assessment has been catalysed by the recovery and reconstruction efforts after major disasters, supported by the widespread dissemination of the *build back better* approach. Critical sectors have been identified for risk assessments in some countries, with institutional commitment attained. In Bangladesh for instance, progress had been made in the agriculture sector, while hospitals, schools, water and sanitation have been identified as urgent priorities. Progress in community level risk assessment is also reported, for example in the Philippines (**Error! Reference source not found.**).

#### Philippines READY<sup>8</sup>

The Philippines project on Hazards Mapping and Assessment for Effective Community Based Disaster Risk Management – ‘READY’ lists significant achievements. The project covers 28 provinces which have been selected on the basis of level of hazard exposure, elements at risk, availability of base maps, economic indicators and accessibility. READY builds on the experience of an earlier pilot project which used a similar approach, with replicable results at the province level.

The READY project has been developed within existing institutional structures and it provides the environment for local stakeholders to work together with clear roles and responsibilities, which creates an enabling environment in communities. The project focuses on high risk areas selected on the basis of population size and the number of hazards to which they are vulnerable, marking the first attempt in the country to approach disasters in a multi-hazard fashion. The project includes the development of community-based early warning systems, information, education, and communication activities and is an input for the creation of a standard methodology that can be replicated in the rest of the country.

The principal challenge reported across Asia and the Americas, is that 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. Experiences of institutionalisation and application of such assessments in development and territorial planning or for the design of building codes is rarer still, with some notable exceptions such as the state Government of Gujarat in India and in the Cayman Islands.

A clearly identified problem is that responsibilities for both hazard monitoring and risk assessment are split between multiple institutions in most countries. At the same time, and as highlighted above there is rarely a functioning national policy and institutional framework that links development sectors and disaster risk reduction. In other words, there is no institutional home to house multi-risk assessment. The lack of standardisation of data sources and methodologies is likewise a challenge, reported for example by Indonesia, which makes it difficult for results to be applied systematically across sectors.

New initiatives, however, are beginning to address this challenge. One example is the development of indicators for disaster risk management for 12 countries in the Americas by the Inter-American Development Bank.<sup>9</sup> Another ongoing initiative is a comprehensive disaster risk assessment for Central America, see **Error! Reference source not found.**

#### Central American Probabilistic Risk Assessment (CAPRA)<sup>10</sup>

CAPRA is a modular system of models to evaluate hazard, vulnerability and risk at local, regional and national levels consistently and with an appropriate resolution according for well defined purposes: risk reduction, public and private investments, emergency management, and financial risk transfer strategies through the development of cost-benefit analysis, land use planning tools, incorporating indicators of risk, risk retention and transfer evaluations, early warning and on-time loss assessment mechanisms.

The platform allows selecting the type of hazard –earthquakes, hurricanes: wind/surge, floods, landslides, volcano, tsunami– scale and resolution according to the quality of information available, and purpose of evaluation. A major objective of this GIS platform is to develop a risk communication tool to assist in socializing risk assessment and to aware policy makers about a country’s exposure and provide them with open source tools to help them design risk management strategies. The multi risk modeling platform is based on open and dynamic architecture allowing for wide distribution and future update and improvement by the users.

This initiative is led in Central America by CEPREDENAC in collaboration with Central American governments with the technical and financial support of the World Bank, IADB and USISDR. The technical work is refined to make use of the System of Indicators of Risk and Risk Management for the Americas, and to articulate explicit deliverables for Country Risk Profiles requested by the countries of the Central and South America.

In Africa, Burkina Faso, Cape Verde, Cote D’Ivoire, Gambia, Ghana, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, South Africa and Tanzania all report undertaking disaster risk assessments for specific sectors and hazards. Most, however, acknowledge that their national and sector emergency plans are not based on risk assessments. Challenges reported include a generalised absence of sub-national or local

<sup>8</sup> Philippines National in depth Review: Implementation of the Hyogo Framework (2008)

<sup>9</sup> Universidad Nacional de Colombia - Sede Manizales Instituto de Estudios Ambientales (IDEA), 2005

<sup>10</sup> Evaluación de Riesgos Naturales - ERN (2008). *CAPRA Overview: Project Report*, The World Bank, Washington

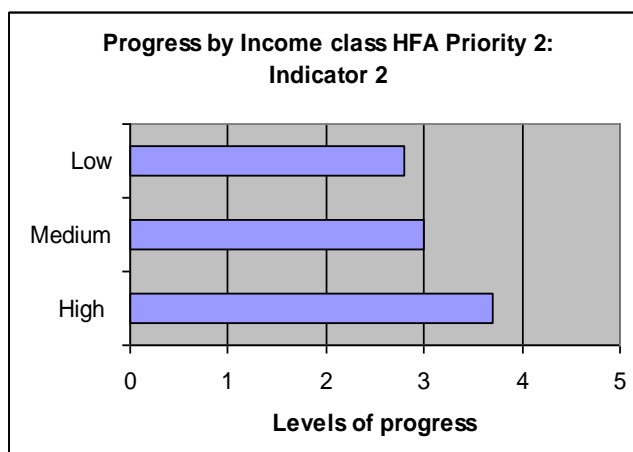
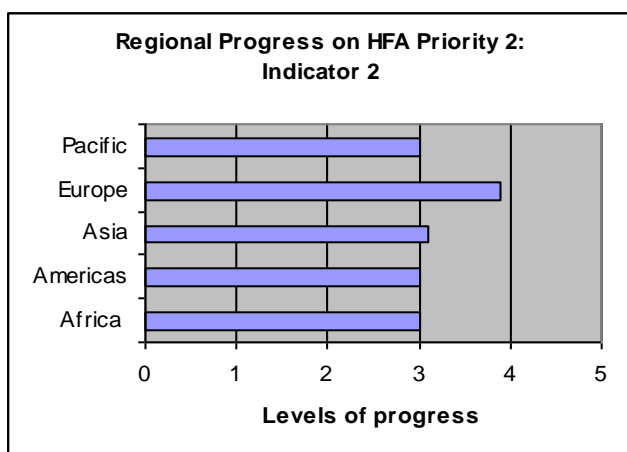
data, particularly for new or less frequent hazards; weak or non-existent specialised institutions; financial constraints and a dependency on external partners that sometimes do not respond to national priorities.

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

Data collection and dissemination processes allow decision-makers and the public to understand the country's exposure to various hazards and its social, economic, environmental and physical vulnerabilities. Such information, disseminated in an appropriate and timely manner, allows communities to take effective action to reduce risk.

Against this core indicator, Europe reports the most progress, followed by Asia which reports marginally better progress than the remaining regions. High, middle and low-income countries score a mean achievement of 3.7, 3 and 2.8 respectively. The challenges reported by all income classifications relate to difficulties in coordination and integration. In some middle and most low-income countries, the lack of resources to acquire and maintain equipment and the general lack of human technical capacities is reported as a constraint. Hazard monitoring is recognised to be a key activity that underpins both risk assessment and early warning.

In most countries, governmental responsibilities for hazard monitoring rests with a wide range of scientific and technical bodies responsible for meteorology, geology, seismology, oceanography etc. The development of a seismic monitoring network in Tajikistan (see **Error! Reference source not found.**) is illustrative of the progress being made by many countries in improving hazard monitoring.



**Seismic Monitoring Network, Tajikistan<sup>11</sup>**

The overall goal of the project is to strengthen the capacity of the Seismologic Service of the Republic of Tajikistan to improve monitoring seismic events and to provide disaster related information to national and international stakeholders. A network of seven up-to-date digital seismic stations have been installed and the collected and processed data are shared with analysts, planners, and other stakeholders via the project website to assess risks of earthquakes and related hazards, including landslides, debris flows, floods, building collapse, and fires.

The project is implemented by the national NGO - Prevention, Mitigation, and Preparedness International in close cooperation with the Institute of Earthquake Engineering and Seismology of the Academy of Sciences of the Republic of Tajikistan, and the Ministry of Energy.

The Government has recognized the importance of accurate seismic information for human and infrastructure security and for long-term economic development. Therefore, the restoration of the State Geo-Physical Survey is reconsidered on the basis of the newly installed digital seismic network and as a consequence of the project has joined the Federation of Seismic Digital Networks.

Across Africa, more than 50% of the reporting countries state that they have hazard monitoring systems in place, mainly focusing on specific hazards. But few countries report a capacity to systematically archive or disseminate the data. The problems reported are broadly similar to those listed for disaster risk assessments.

Many countries, however, report major difficulties to coordinate, share information and adopt common data standards and methodologies, when hazard monitoring is spread across many specialised institutions. Some countries, such as El Salvador (**Error! Reference source not found.**), have addressed this problem by creating a single institutional platform that brings together all the specialised scientific organisations under one

<sup>11</sup> Tajikistan National in-depth Review: Implementation of the Hyogo Framework (2008)

framework and integrates hazard information to feed into risk assessments. Other countries such as Colombia are considering similar initiatives. This case will be revisited in Chapter 7.

**The National Service of Territorial Studies (SNET), El Salvador<sup>12</sup>**

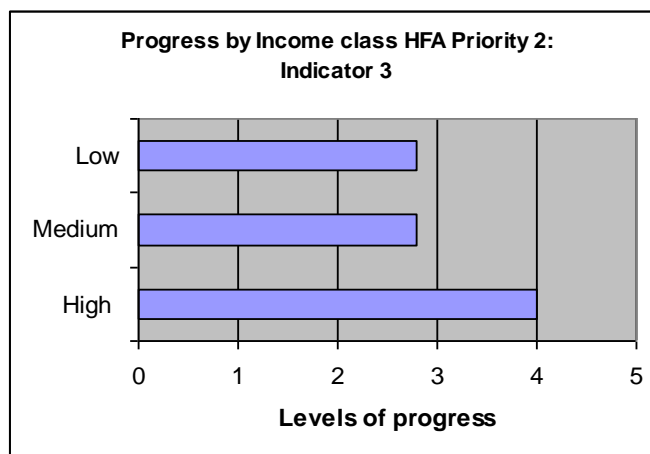
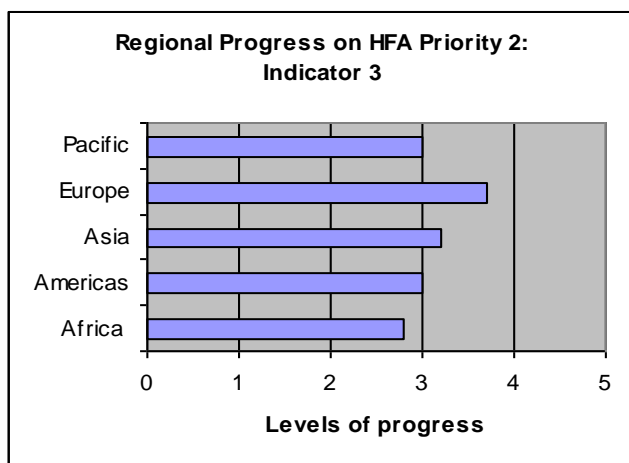
Following the impact of Hurricane Mitch in 1998 and the earthquakes of 2001, the Government of El Salvador merged the National Meteorological Service and the Centre for Geotechnical Research to create a single platform for hazard monitoring and risk and vulnerability analysis and for producing information to support disaster risk reduction in the country. SNET is structured around five areas closely related to disaster risk reduction: geology, meteorology, hydrology, oceanography and territorial studies. The creation of SNET enabled the elimination of duplication and gaps that existed between the different stand-alone scientific and technical organisations, helped bridge the gap between hazard monitoring and the generation of multi-hazard risk scenarios; created a single information window for national and local government organisations involved in disaster risk reduction and led to savings in administrative costs. Nevertheless, SNET has weaknesses related to insufficient budget allocations and a perceived loss of institutional autonomy when it was absorbed within the Ministry of Environment and Natural Resources in May, 2007.

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

Early warning systems should be an integral component of any nation’s disaster risk reduction strategy, enabling the authorities and communities to take appropriate measures for protecting lives and livelihoods in anticipation of a disaster. Over the last 50 years, while the recorded number of disasters, caused by natural hazards, and their associated economic losses have increased by nearly 10-fold and 50-fold, respectively, loss of life associated with hydro-meteorological hazards has decreased 10-fold. This has been primarily associated with the development of early warning systems and emergency preparedness and planning at national to local levels. Assessing capacity against the four elements of early warning (risk knowledge, monitoring and warning services, dissemination and communication, and response capabilities) is essential to empowering individuals and communities threatened by hazards to act in sufficient time and in an appropriate manner so as to reduce the possibility of personal injury, loss of life, damage to property and the environment, and loss of livelihoods.

Average progress reported across the regions shows that Europe assesses itself at an average of 3.8 while Asia reports an average of 3.2, followed by the Americas and the Pacific at 3, and Africa at 2.8. Average progress reported by income classification is similar among low and middle income countries with respect to hazard monitoring (2.8) with high income countries reporting progress at an average of level 4.

Africa has a long history of early warning to monitor drought, food security, desertification and other risk factors<sup>13</sup> that go back to the Sahel drought of the 1970s. As in hazard monitoring and risk assessment, the main constraints reported relate to a lack of technical capacities, equipment, human and financial resources. Countries also report difficulties in communicating early warning information to poor and vulnerable communities and a lack of coordination between the institutions responsible for disaster preparedness and those responsible for hazard monitoring.



In many countries across Asia, early warning was given a major impulse, following the experience of the 2004 Indian Ocean tsunami. Institutional commitment to develop end-to-end early warning systems for major and

<sup>12</sup> Hesse, et al., 2008

<sup>13</sup> For example: Famine Early Warning Systems Network (FEWS NET) at: <http://www.fews.net/Pages/default.aspx?l=en>, FAO’s Global Information and Early Warning and Information System (GIEWS) at: <http://www.fao.org/giews/english/index.htm>, SADC Drought Monitoring Centre at: <http://www.sadc.int/dmc/>, Drought Monitoring Centre for the Greater Horn of Africa at: <http://www.dmcn.org/>

frequent hazards has been secured in all reporting countries in Asia. 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, Sri Lanka and Bangladesh. Challenges in other countries remain the strengthening of local capacities and the linking of hazard monitoring to disaster preparedness systems.

In the Americas, in addition to installed capacities to monitor cyclones, floods, volcanic eruptions and earthquakes, capacities to monitor drought and tsunamis are also being developed. Most of these initiatives, however, are specific projects and programmes, supported through bilateral and multilateral cooperation rather than mainstreamed national programmes as in Asia. As in other regions, there is only an incipient development of early warning systems for localized small scale hazards, meaning that many extensive risks are not addressed.

Most high-income countries, in Europe and elsewhere, report well-developed early warning systems although recognising a need for improvement in data quality and coordination. Italy reports that early warning has been improved since the "National warning system" is in place. Information is composed by a Central Functional Centre and some Regional Functional Centres and is circulated daily among decision-makers of the National Civil Protection System.

#### **Status of early warning systems<sup>14</sup>**

On the basis of an extensive survey of national capacities for meteorological, hydrological and climate-related forecasting and warning services conducted by the World Meteorological Organisation (WMO), and a survey conducted by the ISDR-PPEW (Platform for the Promotion of Early Warning) and UNU-EHS (United Nations University's Institute for Environment and Human Security), as well as input from international agencies that support the development of early warning systems, a global report on the status of early warning systems has been prepared.

The report presents a comprehensive analysis of capacities of national stakeholders with a focus on governance and organisational 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, while there has been some progress in strengthening early warning systems capacities, there is a need for strengthened commitment to addressing the development of these capacities. 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, must be aligned across community, provincial, and national levels, ensuring that financial and operational resources are routed to the communities for improving preparedness and response operations on the ground.
2. There is need for further strengthening of monitoring and forecasting infrastructure and skills of the staff of technical agencies (e.g. National Meteorological and Hydrological Services, geological services, ocean services, etc) that are responsible for monitoring and forecasting of hazards. This needs to be further complemented with strengthened cooperation, coordination and knowledge sharing among the technical agencies and with their disaster risk management counterparts for provision of improved warnings.
3. National technical agencies could benefit from strengthened regional cooperation for access to data and latest tools and technologies for monitoring and forecasting of hazards, as has been demonstrated through a number of existing regional cooperation mechanisms such as the Pacific and the Indian Ocean Tsunami Warning Systems (coordinated by UNESCO-IOC) and the WMO global tropical cyclone programme, which facilitates tropical cyclone and storm surge forecasts and bulletins through six regional specialized centres to all countries at risk. Furthermore, there is need for strengthened cooperation among neighbouring countries for establishment of standards, procedures and protocols for warnings on trans-boundary issues.
4. There is need for establishment of standardized hazard and impact databases, as well as national technical capacity development for utilization of hazard and risk mapping tools to support emergency response and preparedness planning and integration of risk information in warning messages.
5. In most countries, dissemination channels that link national warning systems to the communities need to be strengthened significantly, taking into consideration cultural and communities' needs as well as sustainability issues on the basis of resources available. Feedback mechanisms to verify that warnings have reached the authorities and at-risk communities must be established. Furthermore, there is need for training programmes targeted at the authorities, emergency response staff and the public for understanding the source of the warnings, content of the warning messages and linking this information to concrete actions on the ground based on the risk levels (e.g. establishment of risk readiness levels, etc).
6. Emergency preparedness and response plans need to be developed utilizing hazard and vulnerability maps. There is need for increased drills and public awareness programmes at the community level, particularly when the community does not experience hazards frequently.

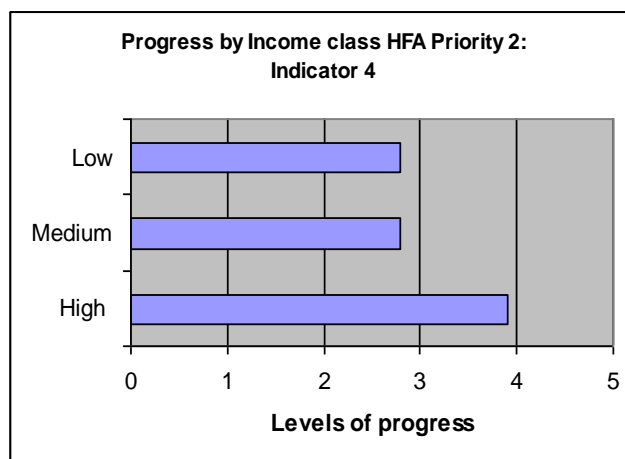
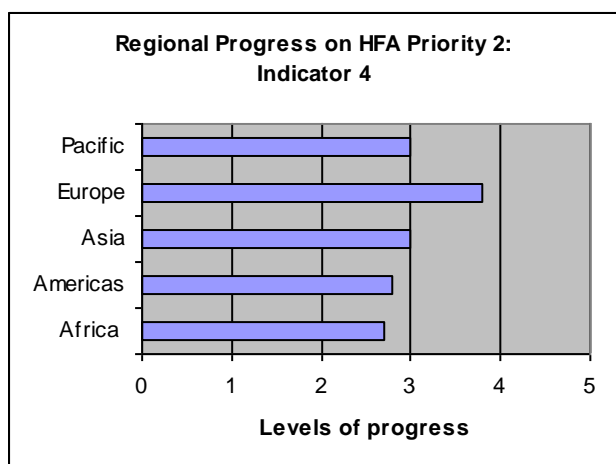
<sup>14</sup> World Meteorological Organization (WMO), 2009. See detailed list of inputs in chapter 6 acknowledgements.

7. There is need for development of Concept of Operations and Standard Operational Procedures for early warning systems of different hazards enabling effective coordination and cooperation across various components of the early warning systems from national to local levels.
8. Early warning system programmes should be complemented with 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 the national EWS programmes.

**Core indicator 4: National and local risk assessments take account of regional / trans-boundary risks, with a view to enhance regional cooperation on risk reduction**

This indicator refers to the need to cooperate regionally and internationally to assess and monitor regional and transboundary risks, exchange information and provide early warnings through appropriate arrangements. This would imply having standardised and accessible information and data on regional disaster risks, impacts and losses.

High, middle and low-income countries report a mean achievement of 3.9, 2.8 and 2.8 respectively against this indicator. Within the European Union, due to the floods of the Rivers' Oder (in 1990) or Elbe (in 2002) important trans-boundary collaborations have improved. Germany is an active member in several trans-boundary International Commissions for the Protection of the river Rhine, Danube, Elbe, or Odra which all carry out flood risk assessments. Another important step forward to improve regional coordination in South East Europe was attained in September 2007 when the 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 co-ordination by signing a Memorandum of Understanding (MoU) on the Institutional Framework of the Disaster Preparedness and Prevention Initiative for South Eastern Europe (DPPI SEE).<sup>15</sup>



Armenia for example signed an inter-governmental 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.

In Africa, 40% of the reporting countries such as Angola, Burkina Faso, Cote d'Ivoire, Ghana, Mauritius and Togo report substantial progress in cooperation with neighbouring countries to reduce trans-boundary risks, including flooding in shared watersheds, tsunami early warning systems, locust infestations and health related risks. Collaboration on trans-boundary risk management is often institutionalised through the Regional Economic Council's such as ECOWAS (see **Error! Reference source not found.**), SADC and the AU, as well as through regional meteorological services such as CILLS. However, it is recognised that a more prominent lead by the Regional Economic Council's would serve to enhance and regulate cooperation and information exchange amongst member countries.

<sup>15</sup> Disaster Preparedness and Prevention Initiative for South Eastern Europe (DPPI SEE) at: <http://www.dppi.info/25.09.07.pdf>

### Disaster risk reduction in West Africa<sup>16</sup>

Recognizing that increasing disaster risk in the sub-region due to increasing vulnerability and emerging hazards can only be addressed effectively through disaster reduction interventions at both national and sub-regional levels the Heads of State of the Economic Community of West African States (ECOWAS)<sup>17</sup> adopted the ECOWAS Policy on Disaster Risk Reduction in 2007. The key principles of the Policy include: playing a catalytic role in enhancing self-protection by people and communities; providing material, financial and other emergency management assistance to member states, and adopting multi-stakeholder participatory approaches that are gender and culturally sensitive.

The Policy mandated the establishment of a Disaster Risk Reduction Division and an inter-departmental co-ordinating committee within the Department of Humanitarian and Social Affairs, which is responsible for supporting, facilitating and coordinating the implementation of the Policy within the Commission and the sub-region.

In order to facilitate the implementation process for mainstreaming disaster risk reduction into sustainable development planning and activities in West Africa the ECOWAS Programme of Actions focuses on: increasing political commitment and public awareness, improving governance of disaster risk reduction institutions, enhancing the identification and assessment of disaster risks and knowledge management; integrating disaster risk reduction in key sectors and into emergency response management and strengthen preparedness for response.

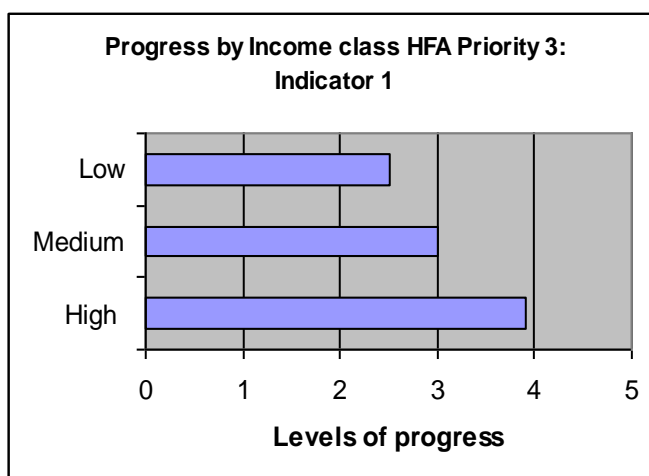
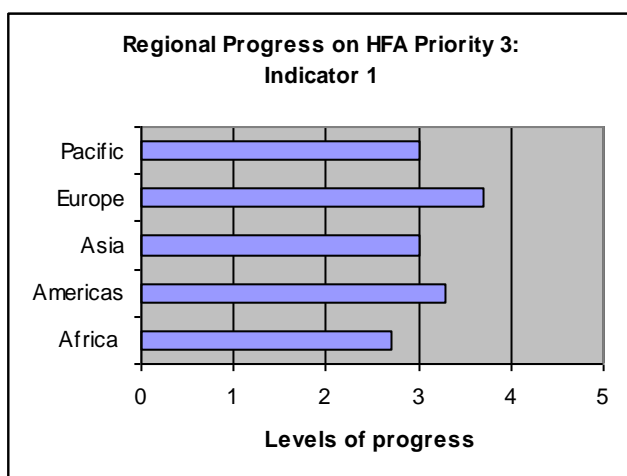
Progress in the Americas has been possible due to the density of sub-regional and regional initiatives aimed at improved coordination, information sharing and collaboration, for example through the Caribbean Disaster emergency Response Agency (CDERA), Association of Caribbean States (ACS), the Andean Committee for Disaster Prevention and Assistance (CAPRADE), the project to support Disaster Prevention in the Andean Community (PREDECAN), and the regional programme of the European Union – PREVDA etc. Bilateral efforts also exist - Peru and Ecuador, for example are collaborating in a bilateral programme of sustainable cities that factors disaster risk reduction considerations into land-use planning. As in Africa, it is reported that cultural and linguistic differences can be a deterrent to bilateral or trans-national initiatives, for example between Dominican Republic and Haiti. Regional frameworks for disaster risk management in Asia address trans-boundary risks for different hazards across the Asian sub regions are also advancing through cooperation agreements in the context of the Association of South East Asian Nations (ASEAN) and the South Asian Association for Regional Cooperation (SAARC).

Trans-boundary initiatives, however, also face limitations. They are mainly dependent on member states contributions, which imply that the signing of cooperation agreements is not necessarily reflected in implementation, or incorporated into national disaster risk reduction planning. There may be an absence of common data bases and equipment to monitor and assess trans-boundary risks; and countries are sometimes not willing to share sensitive information with neighbours on particular hazards.

### Hyogo Framework 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**

As adopted in the HFA, information on disaster risks and protection options, especially to citizens and local authorities in high risk areas, should be easily available and understandable to enable for them to take actions to reduce risk, and build resilience.



<sup>16</sup> Brief on the ECOWAS disaster risk reduction division activities

<sup>17</sup> ECOWAS member states include Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo



Europe reports most progress on making relevant information accessible and available to all stakeholders, followed by the Americas, Asia, the Pacific and Africa. High, middle and low income countries report an average level of 3.9, 3 and 2.5 respectively. These varied levels of achievement are a reflection of a number of different factors, including the generation of information, the penetration of the internet and the capacity to institutionalize information systems.

In high income countries, mainly in Europe, as well as across the Americas and Asia, a growing volume of information is becoming available through websites, information portals and publications. Internet based tools and data bases, including disaster databases<sup>18</sup> and the results of hazard and risk assessments, are now increasingly accessible to both national and local stakeholders. The Swedish Emergency Management Agency (SEMA)<sup>19</sup> for example has developed a national, internet-based information system, called WIS. The system is created to facilitate information sharing between players in the national emergency management system before, during and after emergencies.

In Asia both regional and global knowledge networks are active in producing information relating to 'learning from disasters' and 'preparing for disasters' and materials widely disseminated across countries that have experienced recent major earthquakes, flooding, cyclones or tsunami events in recent years. Knowledge fairs and international campaigns are other tools that have been used to for information dissemination.

In Africa, however, 14 countries report that information systems do not reach vulnerable households in rural areas, while 11 countries state that information on disaster risk is not necessarily being shared and made accessible to all stakeholders. Some countries, however, are experimenting with innovative approaches. Ghana, for example, publishes 'handbills' for distribution to all stakeholders nationwide that show where disasters occur, the extent of the impact, and recovery initiatives undertaken.

Challenges include the need to make information appropriate and specific to risk and cultural contexts; to ensure updating and maintenance of databases and to move from disaster preparedness and response to focus on new emerging themes such as adaptation to climate change, environmental degradation and urban risks. Ultimately there are few countries where households can easily access accurate information on the risks they face. Lack of progress in the development of comprehensive risk assessments and early warning systems, therefore undermines the value of information systems.

A recent World Bank report states that the 'institutional dimension – the hidden wiring' – ultimately determines the effectiveness of the systems in place for disaster information management and dissemination. The report notes that "while software programmes are steadily developing the real difficulty lies in anchoring the technology in an institutional context where it is supported by relevant and effective operating procedures, agreed terminology and data labelling and a shared awareness of the benefits of proper handling of disaster information".<sup>20</sup>

### **Core indicator 2: School curricula, education material and relevant trainings include disaster risk reduction and recovery concepts and practices**

Incorporating disaster risk-related issues into existing education curricula contributes to continuous learning and reinforces knowledge for disaster risk reduction. Training activities also provide the opportunity to consider indigenous knowledge and traditional practices for risk reduction and mitigation.

Progress against this core indicator is reported at an average score of 3.6, 2.8 and 2.3 for high, middle and low-income countries respectively, indicating minor progress in most countries. Challenges noted include the lack of capacity among educators and trainers, difficulties in addressing needs in poor urban and rural areas, the lack of validation of methodologies and tools and little exchange of experiences. The 2006-2007 international disaster risk reduction campaign "Disaster Risk Reduction Begins at School",<sup>21</sup> however, has furthered and raised awareness of the importance of the education agenda across some countries.

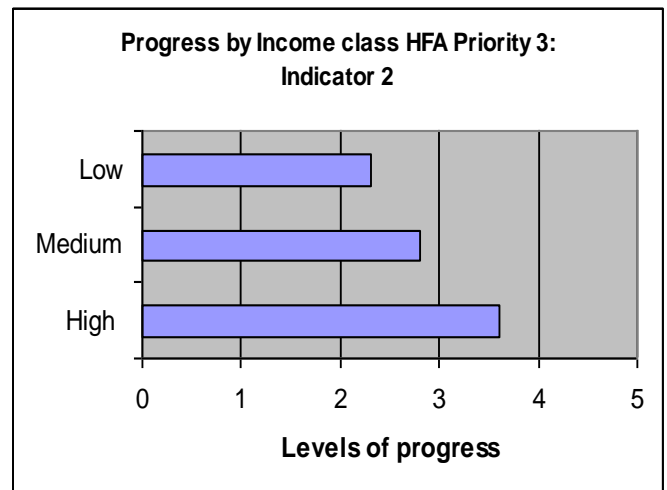
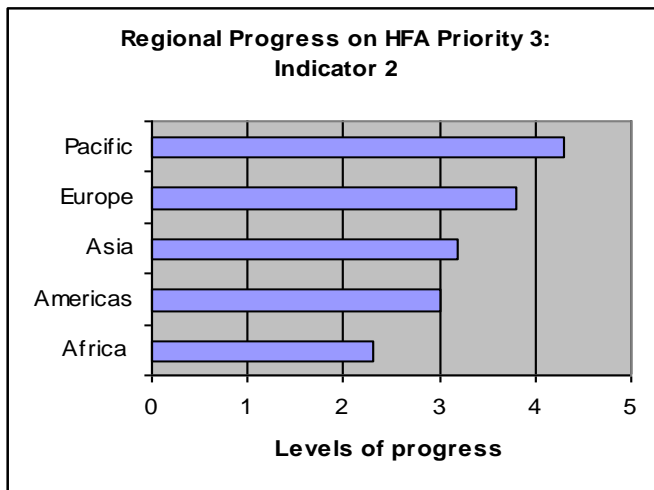
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<sup>18</sup> See for example the DesInventar disaster databases for Asia and the Americas at: <http://online.desinventar.org/>

<sup>19</sup> On 31st December 2008, the Swedish Rescue Services Agency, the Swedish Emergency Management Agency, and the Swedish National Board of Psychological Defence have ceased to operate. Instead, from 1st January 2009, a new, consolidated authority, the Swedish Civil Contingencies Agency (MSB), is responsible for matters concerning societal safety, in other words, emergency prevention, planning, preparedness, response, recovery and civil defence.

<sup>20</sup> Amin and Goldstein, 2008

<sup>21</sup> The 2006-2007 international disaster risk reduction campaign 'Disaster Risk Reduction Begins at School' at: [http://www.unisdr.org/eng/public\\_aware/world\\_camp/2006-2007/wdrc-2006-2007.htm](http://www.unisdr.org/eng/public_aware/world_camp/2006-2007/wdrc-2006-2007.htm)



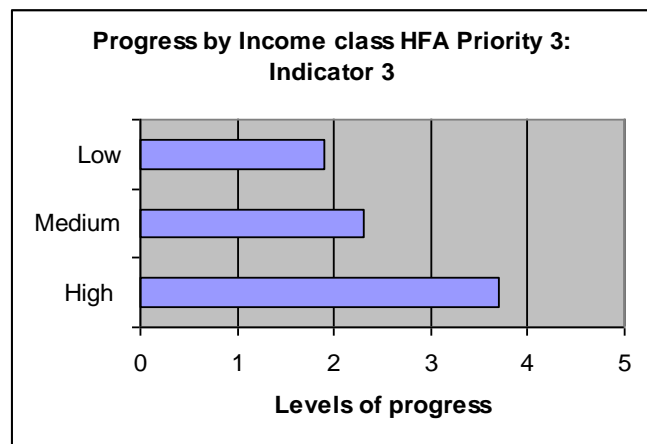
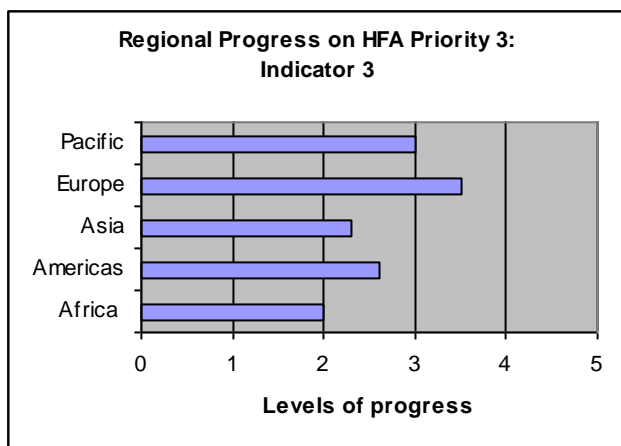
In the Americas, networks are being formed, for example the Central American and Dominican Republic Framework for Education and Disaster Risk Reduction; a Latin American regional thematic educational platform with the support of UNISDR, and a network of universities with the support of regional and international agencies. There is also an increasing commitment and involvement of Ministries of Education, with disaster risk reduction included in a growing number of primary, secondary and higher education curricula as well as at the university level. Non-formal education is also being promoted through media, knowledge fairs, community outreach and campaigns targeting civil society.

In Asia and the Pacific, systematic policy or institutional commitment has been achieved. Iran, Australia, New Zealand, Nepal, Syria and Korea, Indonesia, Philippines and Lao, are instances, but such countries also however, report the absence of policy and guidelines on how to integrate disaster risk reduction into curriculum, education materials and training. Yemen reports language barriers given that much available 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.

In Africa, while Madagascar and Malawi report substantial achievement most other countries report only minor progress. In all, 12 countries state that disaster risk reduction has not been included in educational curriculum. 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. 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. Mozambique has started pilot projects in primary schools, in training teachers and children in how to live with disasters. In Burkina Faso 'environmental education' for primary school level has been adopted and disaster risk reduction is partly integrated into higher education. Most of the countries that have not integrated disaster risk reduction into the school curriculum yet, list the lack of educational materials especially in vernacular languages, as a major obstacle.

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

Authorities at national and regional level have a key role to play in strengthening technical and scientific capacities to develop and apply methodologies, studies and models to assess vulnerabilities and impacts of hazards, including the improvement of regional monitoring capacities and assessments.



Progress on this indicator is rather uneven across the regions and income classifications, but is also in fact the weakest amongst all other indicators. Europe and the Pacific report consistent but not spectacular progress (at level 3 and above), while other regions report only some instances of progress. This area is clearly one of the weakest links in the successful implementation of the HFA and countries acknowledge the need for much more dedicated effort, capacities and sharing tools and methods between countries to improve progress on this important front.

In Europe, only 40% of countries (such as the Czech Republic) report the application of tools for cost-benefit analysis which mainly focus research on forecasting and warning systems, modern types of dissemination and flood protection.

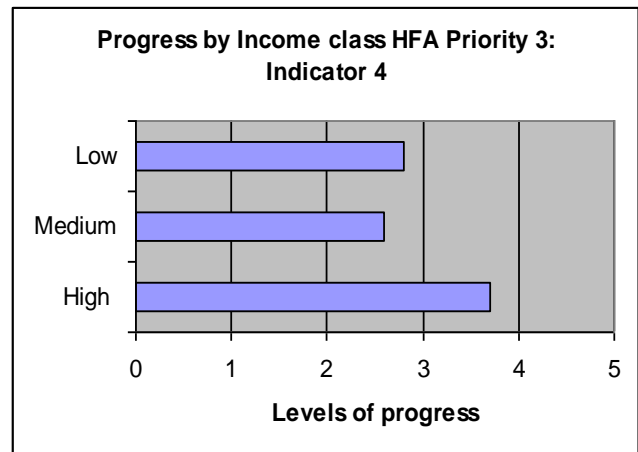
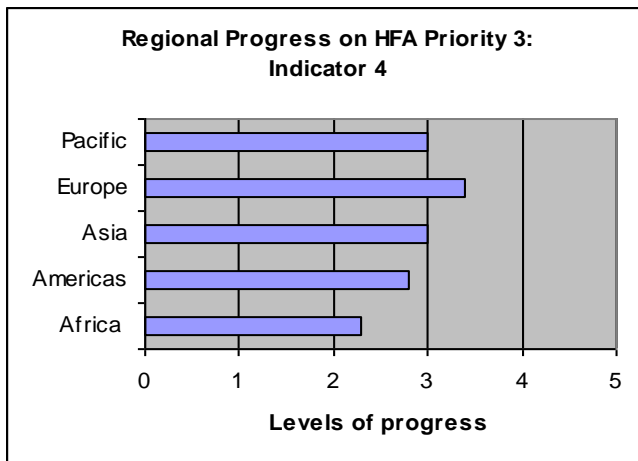
In Africa, only Malawi reports substantial achievement in this area. 9 other countries report minor progress while 7 countries have no capacity in place at all. The challenges reported are familiar, namely constraints in financial, technical and human capacities. The strong dependency on external funds and partners, with a lack of transfer of skills and competency, is also seen as an obstacle.

As in the case of core indicators 1 and 2 of Priority Area 2, progress in 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. Tools are certainly available, but due to the lack of a functional institutional and policy framework that links disaster risk reduction and development sectors, most research has not led to mainstream applications in development planning and investment decisions. For example, Bangladesh reports success in the development of Community Risk Assessment methods and tools, the up-scaling of which is challenged, however, 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.

It may be worthwhile to note that many national universities or institutions of technical education, learning or research may well have other or more routine capacities existing within their departments, faculties or programmes of Geography, Agriculture, Forestry, Meteorology, Geology, Hydrology etc that are pertinent and relevant in both knowledge and data – but which are often disregarded or ignored when one thinks in terms of “national” or “official” capabilities.

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

A countrywide public awareness strategy – represented by a national, long-term plan of action with specific goals that organizes how the general population is informed about disaster risk and the ways they can act to reduce their exposure to hazards is critical. Public awareness actions are important tools to help integrate disaster risk reduction into every-day life.



Progress on this indicator has been reported with averages of 3.7, 2.6 and 2.8 respectively for high, medium and low-income countries.

In high-income countries, for example, tools and guidelines include "RiskPlan"<sup>22</sup> in Switzerland to learn about and implement disaster risk reduction and "EconoMe"<sup>23</sup> to justify investments in risk reduction. 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 disasters.<sup>24</sup>

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 of the countries.

The major challenge reported by countries is that increased awareness does not necessarily lead to reducing disaster risks. As highlighted in the previous chapter, poor rural and urban households are faced with severe livelihood and environmental constraints to reducing risk, which cannot be addressed by awareness alone.

Examples of effective impacts from international campaigns include the Safe Hospitals Campaign, launched by WHO, ISDR and the World Bank, that is raising awareness that disaster damage to health systems can have an enormous impact on economic and human development. At the same time, even small investments for making health facilities safer can reduce considerably the impact of disasters. The campaign provides a platform for strengthening of hospitals, health facilities and systems in the context of risk reduction and emergency preparedness and response.

#### Hyogo Framework 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**

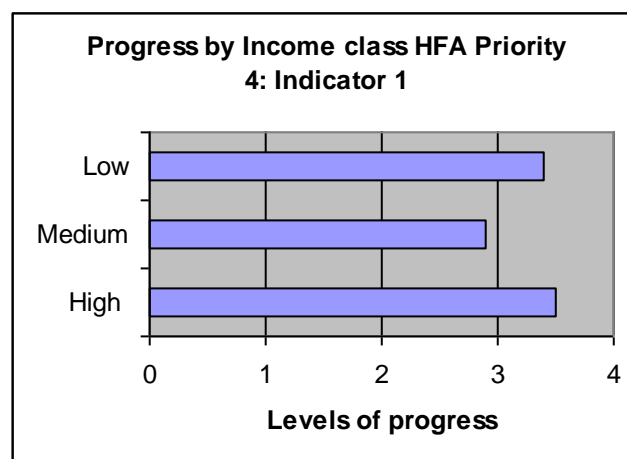
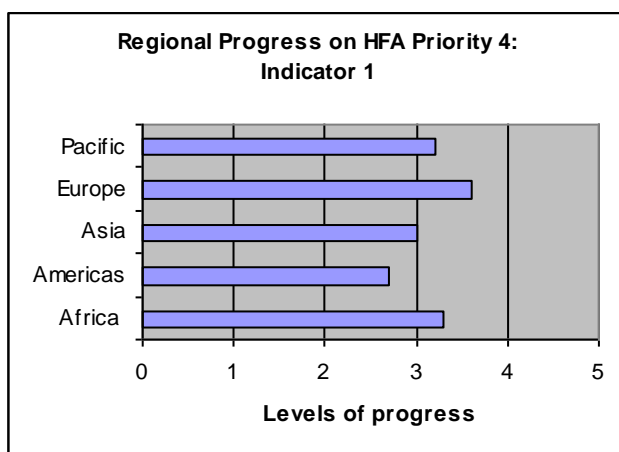
The scope of environment risk management policies can have major impacts on disaster risk reduction, and should explicitly incorporate risk reduction goals and strategies. When environmental and natural resource policies specifically incorporate disaster risk reduction elements, they can help reduce underlying risk factors.

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. Similarly 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. Given the importance of environment and climate change on most national agendas, it is unsurprising that in the context of HFA Priority 4, this is the only core indicator against which many countries report an achievement of institutional commitment. Progress reported by income classifications are 3.5, 2.9 and 3.4 across high, middle and low-income countries.

<sup>22</sup> RiskPlan at: [www.riskplan.admin.ch](http://www.riskplan.admin.ch)

<sup>23</sup> EconoMe at: <http://www.econome.admin.ch/>

<sup>24</sup> Get Ready, get Thru' at: [www.getthru.govt.nz](http://www.getthru.govt.nz)



Some countries report that they are making substantial progress. For example, the Marshall Islands report that the implementation of Environment Impact Assessment (EIA) regulations started only in 2005 with a constantly increasing number of large projects complying with the requirements. These numbered 5 in 2005 compared 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.

Other countries have adopted a regional, trans-boundary approach. For example **Error! Reference source not found.** presents a good example of how East African countries are working together to tackle concerns emanating from climate change processes.

#### Disaster risk reduction in East Africa<sup>25</sup>

The Intergovernmental Authority on Development (IGAD) in East Africa developed a programme on disaster risk reduction and civil protection in collaboration with all member states including Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda. The programme has been approved by the Council of Ministers and funds have been secured from the European Union.

Additionally, IGAD established specialized centres dealing with aspects of disaster risk reduction such as the Conflict Early Warning and Response Mechanism (CEWARN) and the IGAD Climate Prediction and Application Centre (ICPAC). The ICPAC annually organizes regional climate outlook forums before the onset of the major rainfall season to formulate regional consensus on climate forecasts and mitigation strategies on food security and malaria in collaboration with partners.

ICPAC is also a member of a network on knowledge sharing for climate change adaptation for Africa and is undertaking pilot projects on quantification of socio-economic benefits of climate early warning information and products and on integrating indigenous knowledge and modern climate early warning for community adaptation to climate change.

ICPAC is also the regional implementation centre for IGAD's components on "monitoring of environment for sustainable development" thematic area on land degradation and nature conservation.

Two kinds of issues, however, are highlighted in the country reporting. Across most low- and middle-income countries, there is a general lack of application and enforcement of environmental standards, norms and regulations. Many countries in the Americas and Asia, for example, have established environment and climate change as national priorities and have developed legislation, policy and institutional frameworks. It has been far more difficult to ensure implementation and enforce compliance through sanctions, incentives and disincentives, as highlighted by the Philippines.

The second issue is that there is often little synergy between land-use planning, strategies to adapt to climate change, environmental protection laws and other similar instruments with policy and legislation addressing disaster risk. As mentioned under challenges reported in implementing HFA Priority 1, often organisations responsible for disaster reduction have neither the political authority nor the technical capacity to intervene in environmental planning and regulation. While both kinds of policy and legislative frameworks may acknowledge the other, there may be far less real integration in practical terms.

Only in some high-income countries has this issue been resolved. In Switzerland, for example, disaster risk reduction and environmental protection are closely related in Federal laws and are overseen by one common institution at the Federal level. This means that the use of water, forests and soil and protection from associated hazards is considered in a holistic way.

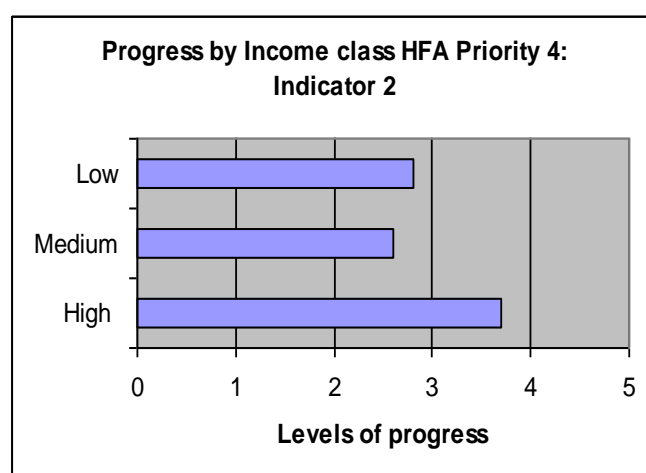
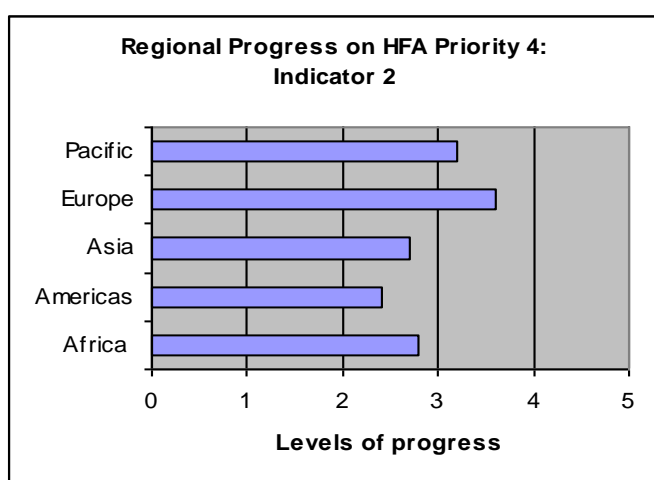
<sup>25</sup> Intergovernmental Authority on Development: <http://www.igad.org/>

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

The HFA recommends that this indicator can be achieved by addressing issues of food security, public health, risk sharing mechanisms, protection of critical public infrastructure, among others. When public awareness, education, early warning and environmental policies specifically incorporate disaster risk reduction elements, they can help reduce underlying risk factors and reduce the vulnerability of more marginalised groups.

Progress against this core indicator is reported to be quite gradual with high, middle and low income countries reporting achievements of 3.8, 2.6 and 2.8 respectively.

A considerable number of countries report that social development plans that will reduce the vulnerability of disaster risk prone communities are in place. Many countries reporting from Africa have social development policies, plans or programmes that address vulnerability and poverty living conditions through improving water supply, sanitation, food security, health and literacy. Some countries, such as Burkina Faso, Cote 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.



In the Americas, most countries report that commitment to the Millennium Development Goals, poverty reduction and social inclusion is included in development plans and strategies as well as in institutional mechanisms. Countries reporting from Asia state the increasingly targeted action of national and local plans to reduce social and economic vulnerability. 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 and cheap food and burial benefits. Australia and New Zealand report an explicit practice of the 'social inclusion agenda' in all national and local development policies and plans. A growing diversification of social safety net programmes with the very active role of non-governmental organisations is reported from Bangladesh. Some of these reports cite the need for detailed evaluations to identify the exact benefits for communities and to better understand the inter-relation between micro-finance and risk reduction.

As highlighted later in this chapter the key challenge is that while PRSPs and similar instruments may mention disaster risk reduction, it is unlikely that this reflects a real integration of poverty and disaster risk reduction policy frameworks and programme initiatives in practice. As in the case of environment, it seems unlikely that the organisations responsible for disaster reduction 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.

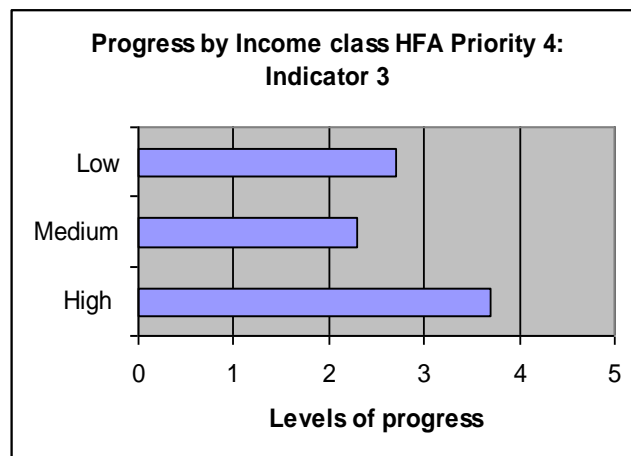
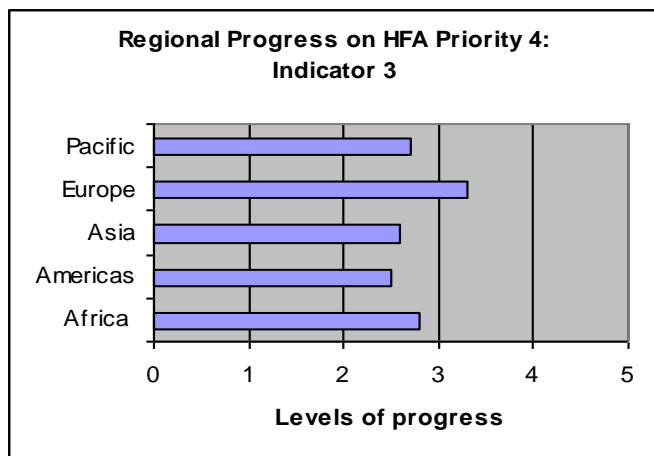
**Core indicator 3: Economic and productive sectoral policies and plans have been implemented to reduce the vulnerability of economic activities**

Countries previously affected by frequent and/ or large scale disasters will tend to agree with this indicator's assertion that focusing on the protection of a state's most vulnerable economic activities and productive sectors is an efficient strategy to help reduce the overall impacts of disasters.

This core indicator is crucial given the increasing asset exposure revealed in Chapter 2. However, across all countries and HFA Priorities, this indicator has the second lowest average level of achievement reported - 3.7,

2.3 and 2.7 in the case of high, middle and low-income countries respectively. From reports it is evident that it's still not the norm to factor the costs of disaster risk 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.

As in other areas of the HFA Priority 4, 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. At the same time, there is very little systematic integration of the economic development and disaster risk reduction policies and legislation. As in other sectors, it is unlikely that in most countries disaster risk reduction organisations have the political authority or technical capacity to intervene in economic development planning.



In some countries, however, progress is being made. In the Republic of Korea the “Support for Enterprises Voluntary Disaster Mitigation Activities” Act in 2007 provides small and medium businesses with guidelines and standards for disaster risk reduction. Australia’s Trusted Information Sharing Network presents the case of an interesting forum in which the owners and operators of critical infrastructure can work together by sharing information on security issues which affect critical infrastructure.

In the Americas, reports indicate that it is becoming more common to incorporate disaster risk considerations into economic development planning in sectors such as petroleum, agriculture, energy, fishing and mining and tourism. The last is of particular importance in the case of the Caribbean. In Peru, the Ministry of Economy and Finance has fully incorporated disaster risk reduction into the National System for Public Investment, which requires a risk evaluation to improve all public investment across sectors and in both central and local government. This case is described in **Error! Reference source not found.** and will be revisited in Chapter 7. The Planning and Economic Policy Ministry in Costa Rica has likewise recently added disaster risk evaluation to its requirements to approve public investment projects.

**The National System for Public Investment (SNIP), Peru<sup>26</sup>**

The SNIP was created in 2000 in order to improve the quality of public investment in Peru by introducing cost-benefit and cost-effectiveness methodologies into the process of project evaluation in order to ensure their social benefits, their sustainability and compatibility with national policies.

Between 2004 and 2006, with support from GTZ the Ministry of Economy and Finance developed specific methodologies and guidelines to include disaster risk reduction considerations into all public investment projects as well as to train public officials in all regions of the country. In particular, public investment projects were evaluated objectively to determine if the increase in investment, operating and maintenance costs due to an introduction of disaster risk reduction measures were equal or less than the likely savings in reconstruction costs and in lost profits for different probabilities of hazard occurrence.

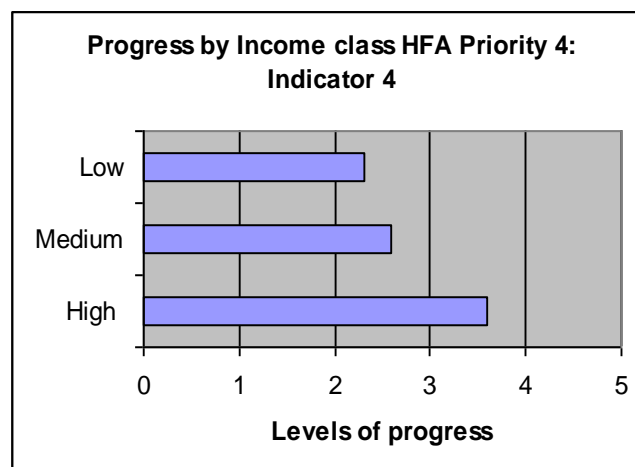
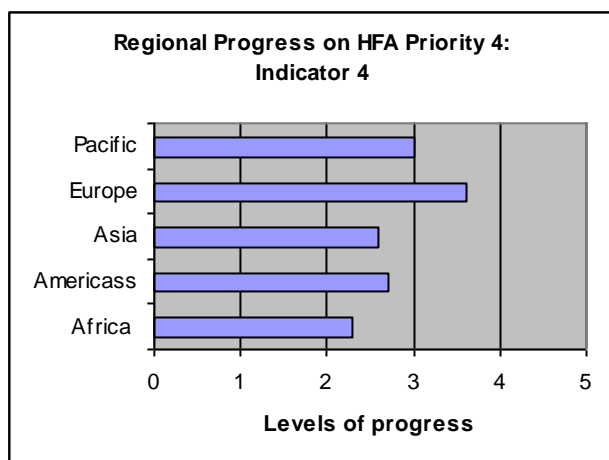
This experience indicates that it is possible to successfully introduce disaster risk reduction considerations into public investment in a low-middle-income country, when political priority is given to improving the quality of public spending.

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

<sup>26</sup> Hesse, et al., 2008

Including disaster risk reduction elements in land-use plans is widely recognised as an important strategy for reducing the vulnerability of communities to hazards. Land use planning that is carefully designed and rigorously implemented is a useful approach to managing expanding human settlements and minimizing associated risks.

Progress reported against this indicator, at average levels of 3.7, 2.6 and 2.3 for high, middle and low-income countries respectively shows a critical gap given the existing accumulation of urban disaster risk and the rate of urbanisation in most developing countries.



In most European and high-income countries, disaster risk considerations are already incorporated in building and planning regulations and codes. The flooding in the United Kingdom in 2007 or the impact of Hurricane Katrina in the United States of America in 2005, both of which caused massive asset loss, however showed that there is no room for complacency. Disaster risk is dynamic and may increase due to developments in one sector (encroachment of flood-plains in the United Kingdom or destruction of wetlands in New Orleans) which increase risks in another. Nevertheless, high-income countries have functioning systems of land-use planning and building regulation in place, which can be adopted for disaster risk reduction and the necessary resources to upgrade and adapt urban infrastructure, housing and hazard protection measures.

#### Mainstreaming disaster risk reduction into development planning, Colombia<sup>27</sup>

Since the creation of its National System for Disaster Prevention and Attention following the traumatic experience of the Armero volcanic eruption in 1985, Colombia has been an innovator in strengthening capacities for disaster risk reduction. In 2001, disaster prevention line item was included in the national government's annual budget process for the first time allowing municipalities to spend budgetary allocations on disaster risk reduction. Soon after disaster risk reduction was included in the national development plan.

In 2004, the government with support from the World Bank began a 10 year programme to reduce risk nationally and in key municipalities through the Ministry of Environment, Housing and Territorial Planning. Nationally, outmoded hydrologic, seismic, and volcanic detection and forecasting systems are to be upgraded and integrated into a national system for managing and sharing information on disaster risk management. Additionally, technical assistance is being provided to municipalities to include disaster risk reduction in land-use planning and to develop action plans. In Colombia, municipalities shoulder a large part of responsibility for disaster risk reduction. While large and wealthy municipalities such as Bogota are already investing heavily in retrofitting schools, hospitals and kindergartens, in part with World Bank finance, a key challenge in Colombia is to strengthen the capacity of weaker municipalities in high risk areas.

Most middle-income and all low-income countries including Senegal and Cape Verde, report inclusion of disaster risk reduction into their building codes. Togo, Angola, Congo and Mozambique report that risk considerations are factored into land-use planning and settlement siting decisions. Other countries such as Algeria are involved in efforts to improve their building codes and planning laws to reduce future risk. While this progress is positive it is likely to have only a tangential impact on building vulnerability in contexts, where, as highlighted in Chapter 4, most urban development occurs through the growth of unregulated, informal settlements. Weak implementation and enforcement mechanisms are a constant in all countries where most urbanisation is informal. Unfortunately, the absence of mention in the reporting suggests that there is less activity now in introducing hazard resistant building into risk prone urban informal and rural housing, through activities such as mason training and the introduction of appropriate technologies than there was in the 1970s and 1980s, with some notable exceptions such as Pakistan.

Some progress however, is being made. As highlighted in **Error! Reference source not found.** and **Error! Reference source not found.** there is a growing movement by city governments to address disaster risk and which demonstrate how improvements in urban governance can provide a framework for reducing disaster risk.

<sup>27</sup> World Bank, 2008e



### **Progress in urban disaster risk reduction**

A large number of cities, including Istanbul, Tehran, Mumbai, Manila, Quito, Kathmandu, Amman, Aqaba, Kerman, Bogota, La Paz, Lima, and Caracas 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 organisations, such as the World Bank and UNDP, or NGOs such as the Earthquake and Megacities Initiative (EMI) and Geo-hazards International.

At the international level, a significant development is presented by the Global Forum for Urban Disaster Reduction which was launched at the First Global Platform for Disaster Risk Reduction as a broad forum of UN organisations, city governments, the ProVention Consortium and other partners. UNISDR with a range of partners has established the Alliance for Local Government and two regional task forces for Urban Risk Reduction (in Latin America and the Caribbean and in Asia and the Pacific) which are facilitating coordination between the multitude of city-specific regional initiatives.

While a large number of urban disaster risk reduction initiatives now exist, in practice most initiatives still consist of studying and mapping urban risk and in improving preparedness and response capacities. In a number of countries, such as Colombia, Turkey and Iran, planning has been followed up with major investments in retrofitting risk prone structures and in the development of innovative partnerships between local government and civil society to manage local disaster risks.

### **The Taiz Municipal Development and Flood Protection Project, Yemen<sup>28</sup>**

The Taiz Municipal Development and Flood Protection project built flood protection structures that would channel floodwater to a catch basin south of the city, thereby protecting city residents and businesses. The project financed Yemen's first urban resettlement village, located at Al Birarah, which included access to decent housing, tenure security, and adequate services, as well as reducing disaster risk. Some of the key achievements of the Project included: the resettlement of 2,440 low-income families while ensuring access to livelihoods; zero flood-related losses in lives or property in the areas protected, benefiting an estimated 10,000 households and 1,000 businesses; an exchange programme with an Indian NGO with extensive experience in providing affordable housing for slum dwellers and integrated community development.

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 Iran to retrofit schools to seismic resistant standards is an excellent example of this kind of initiative. In 2007, Iran also initiated retrofitting residential buildings in rural areas, aiming to retrofit around 300,000 houses annually.

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.

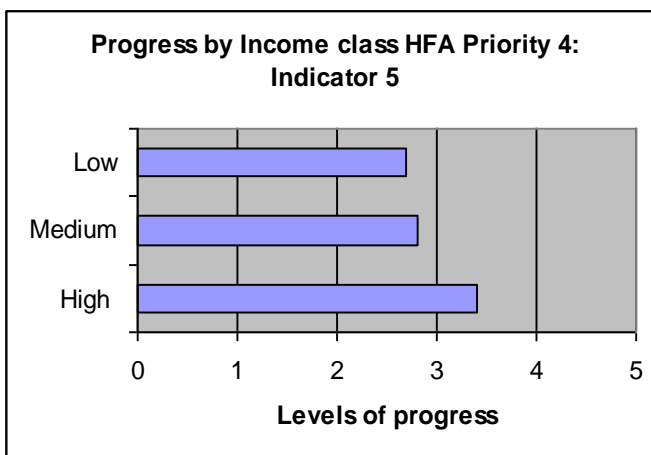
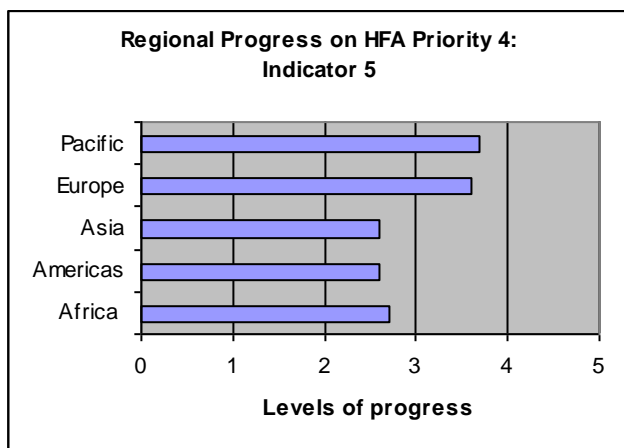
The priority given to emergency preparedness and risk reduction by national governments and communities in Latin America and the Caribbean, with strong and sustained support by WHO/Pan American Health Organization (PAHO) and multilateral and non-governmental organizations, has reduced the vulnerabilities and risks and turned the previously frequent hazardous impacts with disaster potential into more manageable events. The supporting regional structures, including decentralized regional teams, the production of a large body of technical publications and guidelines over more than 20 years and support of information collection and sharing practices, the development of state-of-the-art Wind Hazard Maps for Caribbean islands and nearby coastal areas of Central and South America, the HELID disaster library, and tools such as the Hospital Safety Index, a tool for countries to assess risk and vulnerability in health facilities, have all been important to emergency preparedness in the region. Consequently, these effective preparedness mechanisms have resulted in more and more self-reliance in risk reduction, preparedness, response and recovery.

### **Core indicator 5: Disaster risk reduction measures are integrated into post disaster recovery and rehabilitation processes**

It is essential to consider disaster risk reduction principles when designing post disaster recovery and rehabilitation processes in order to 'build back better' and not recreate risk. There is an identified need for the national and local implementation of international post disaster recovery and reconstruction norms and standards.

Average progress against this indicator is quite substantive across Europe and the Pacific with institutional commitment to the principles highlighted above, having been attained. Other regions report lower levels of progress with some commitment attained in principle, but lagging implementation. By income classification, countries report progress at 3.4, 2.8, and 2.7 for high, medium and low-income countries respectively. Overall, most country reports signal the fact that there has been plenty of discussion around this area in past years, as a reaction to how to better integrate risk reduction principles in the aftermath of recent large scale disasters. However, thorough implementation of these recovery principles is yet to be seen as a consistent undertaking.

<sup>28</sup> Interim National Progress Report on the implementation of the Hyogo Framework: Yemen (2008)



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 is present (**Error! Reference source not found.**).

#### Recovery of Bam<sup>29</sup>

The 26 December 2003 Bam earthquake measuring 6.3 on the Richter caused the death of 32,000 people and left over 26,000 injured and about 75,000 homeless. Approximately 85% of the houses, commercial units, health and educational facilities and administrative buildings in the city and surrounding villages were either severely damaged or completely destroyed.

Given the extent of the devastation, rebuilding Bam in all its dimensions - social, economic, physical and cultural was and still is a major challenge for Iran. Reconstruction and rehabilitation of Bam required significant financial resources, skilled human resources and innovative institutional arrangements.

The challenges associated with the reconstruction of the city reflect the complexity of post disaster urban reconstruction. In the aftermath of the disaster, the government established necessary institutional mechanisms capable of being able to design, implement and monitor a national recovery plan including a Steering Committee at the central level, a Provincial Reconstruction Focal Point at the local level and the Housing Foundation of Iran (HF), was immediately assigned to act as the main executing body for the overall coordination and implementation of recovery programmes.

In December 2004, a national strategy for housing reconstruction was also formulated and published. The housing reconstruction policy aimed for a rapid and seismically safe reconstruction and a smooth and planned transition from emergency sheltering to permanent housing. Care was taken to avoid a prolonged reconstruction process that would otherwise be ended in temporary houses become permanent.

In the initial stages of reconstruction, the Government established an Engineering Services and Exhibition Site in Bam. Participants included a wide range of national architectural and engineering consulting firms, Construction Companies, private sector representatives. The objective was to provide the required consulting, technical and engineering services through certified consulting companies as well as providing construction materials.

The aim of this initiative was to provide a supervised seismic proof design, in line with "Iran's National Building Standards" to household demand and to ensure that the reconstruction of the buildings follows the quality-control guidelines.

This process enabled the Bam resident to choose the pre-approved design and construction models, to assure the use of good-quality, controlled construction material, this process provided the needed materials, which have been approved of by a group of material testing laboratories at a low and affordable price.

At the same time, post-disaster recovery has acted as the major stimulus for the design of new policies, legislation and institutional systems for disaster risk reduction, as well as of innovative mechanisms for risk financing.

#### Early recovery, Mozambique<sup>30</sup>

The recent experience with floods in Mozambique (2000-2008, Zambezi River), demonstrated the need for improving settlement location planning, in flood risk areas. Following the floods in 2007 and 2008 a large resettlement programme was set up aiming to transfer 59,000 families that were affected to new safer location. The objective of the resettlement programme was to build 30,000 new improved houses using conventional materials (burnt bricks) produced by each family with support from the Government.

To ensure that people remained in the 73 new resettlement areas, the areas were chosen by the community leaders. In cyclone affected areas, houses were built using locally improved cyclone resistant technologies. Sensitisation meetings were carried out about safe construction practices and community members were trained to implement settlement

<sup>29</sup> Contribution from Hossein Kalali, UNDP

<sup>30</sup> Interim National Progress Report on the implementation of the Hyogo Framework: Mozambique (2008)

expansion plans. Basic infrastructure (roads, schools, health facilities, and water supply) and social facilities (childhood education centres, and women training centres) were built in resettlement areas, while damaged ones remained closed to avoid return to high risk areas. Local Government and community leaders were instructed to allow people to use flooded lands only for food production and not for human settlement.

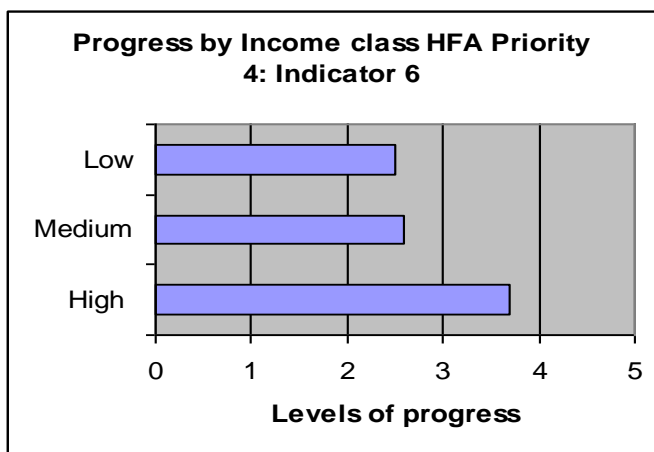
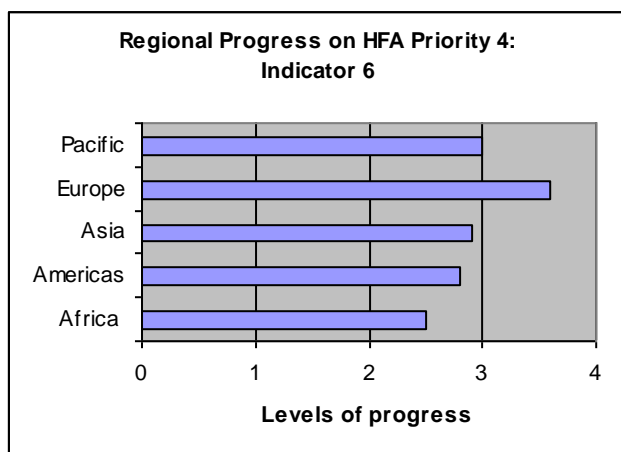
Unfortunately, recent assessments of post-disaster recovery and reconstruction carried out by the Tsunami Evaluation Coalition (TEC) in affected countries in the Indian Ocean and for the tenth anniversary of Hurricane Mitch in Central America,<sup>31</sup> show that while the concepts of *building back better* or of *reconstruction with transformation* have been adopted by both governments of affected countries and donors alike, it has not always been easy to move from rhetoric to implementation. One problem highlighted, is that even when disaster risk is effectively incorporated into recovery or reconstruction projects and programmes, because these are stand-alone initiatives with clearly bounded limits they do not necessarily lead to a more mainstream adoption of disaster risk considerations into on-going planning and regulation systems in the country concerned.

The reporting across the Americas, Asia and Africa indicate that the lack of political will and initiative to recognise 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. 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.

Overall achievement against this core indicator is low, even though a number of initiatives are now beginning to address the issue in different regions, through mechanisms such as the International Recovery Platform (IRP) and the Cluster Working Group on Early Recovery (CWGER).<sup>32</sup> For example, the IRP is promoting an Earthquake Risk Reduction Preparedness and Recovery Programme (ERRP),<sup>33</sup> through UNDP is aimed at promoting regional partnerships but also at creating a safe and assured community and region that enable appropriate and fast implementation of recovery activities with the South Asian Association for Regional Cooperation (SAARC) for the South Asian region, including India, Sri Lanka, Nepal, Pakistan, Bangladesh, Maldives and Bhutan.

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

It is critical to institutionalise procedures to integrate disaster risk reduction measures into national development strategies, plans and programmes especially with reference to critical areas such as poverty reduction, housing, water, sanitation, energy, health, agriculture, infrastructure and environment to ensure that development does not create further disaster (risks).



Reporting on this indicator shows slow progress across the regions and by income classifications. High, medium and low income countries report average progress at 3.7, 2.6 and 2.5 respectively.

It has been established that the factoring of disaster risk considerations into the development of critical infrastructure is critical to sustainable development. In the United States of America this has been recognised as

<sup>31</sup> Mansilla, 2008b

<sup>32</sup> Cluster Working Group on Early Recovery at:

<http://www.humanitarianreform.org/humanitarianreform/Default.aspx?tabid=80>

<sup>33</sup> Earthquake Risk Reduction Preparedness and Recovery Programme (ERRP) at:

<http://www.hyogo.uncrd.or.jp/hesi/pdf/nepal/murata.sengupta.pdf>

a major challenge as with other high-income countries – where it is clear that more needs to be done to factor disaster risk reduction considerations into major infrastructure projects.

Countries across the Americas report that while environmental impact assessments of major development projects are carried out, these do not necessarily include disaster risk. As mentioned above, exceptions are countries such as Peru, where mandatory evaluations disaster risk reduction have been incorporated into the National System for Public Investment. Other countries report that procedures and regulations may be in place but insufficient technical and human resources exist to evaluate and approve project or for enforcement. Only 35% of African countries state that they conduct impact assessments and again these mainly focus on environmental impact.

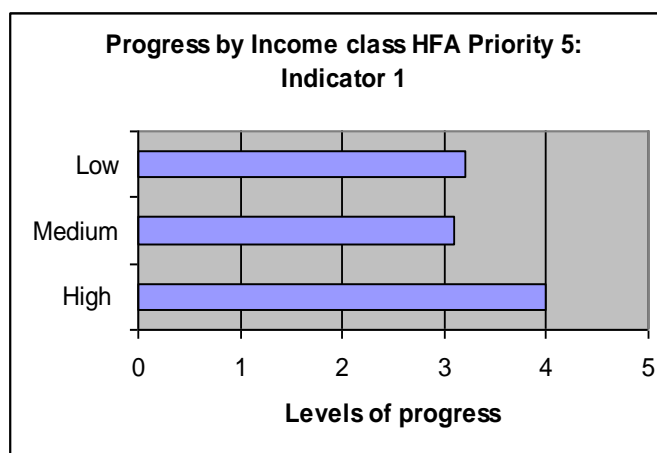
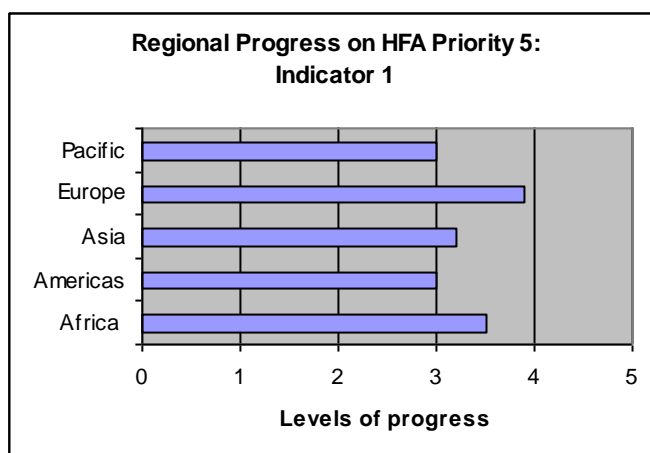
In Asia, only four countries report comprehensive achievements in this respect (Australia, Iran, Marshall Islands and New Zealand). Others report institutional commitment, and some progress towards implementation. Vanuatu for instance has initiated the development of an overall policy requiring risk assessments for all projects.

In general, 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 addressing infrastructure need to be identified in a way that reduces the disaster risk faced by poor urban and rural households.

### Hyogo Framework 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**

An investment of time and resources in systematically evaluating and subsequently improving disaster preparedness capacities and mechanisms provides states with a substantial increase in readiness for managing disaster impacts, and improves response measures.



Relatively good progress has been reported on this indicator by countries across regions and income classifications at 4, 3.1 and 3.2 for high, medium and low income countries respectively. It is however worth emphasising that while relative progress on this indicator may be encouraging, in real terms, there still remains quite a lot to be achieved.

Most countries in Africa report the establishment of institutions for disaster management and deem capacities and mechanisms ‘sufficient’, but with scope for improvement. Some countries point out that disaster risk reduction is a ‘new process’ and therefore implementation of policies is rather slow in this regard. Countries also state a lack of appropriate policies and legislation for disaster risk management with a decentralised allocation of capacities and resources.

All countries in Asia and the Americas report progress in strengthening their capacities to manage disaster risks, see for example **Error! Reference source not found.** However, 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.

### Capacity building, St. Lucia<sup>34</sup>

The World Bank has worked with the Government of Saint Lucia to strengthen Disaster Risk Management (DRM) capacity since 1998. Over the past ten years, two of its projects in partnership with the Government have reduced the country's vulnerability to adverse natural events, 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 (NEMO). St. Lucia has joined the Caribbean Catastrophic Risk Insurance Facility (CCRIF) to protect its sovereign risk and was the first country to receive support from the facility for US\$ 418,976 due to an earthquake of magnitude 7.4 with epicentre close to the island of Martinique that triggered the CCRIF in December of 2007.

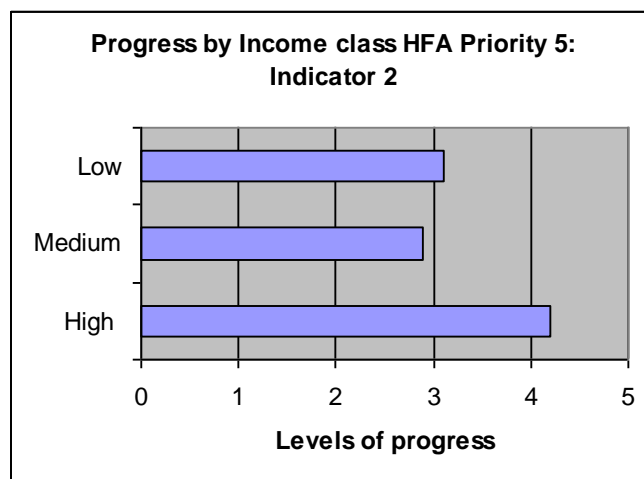
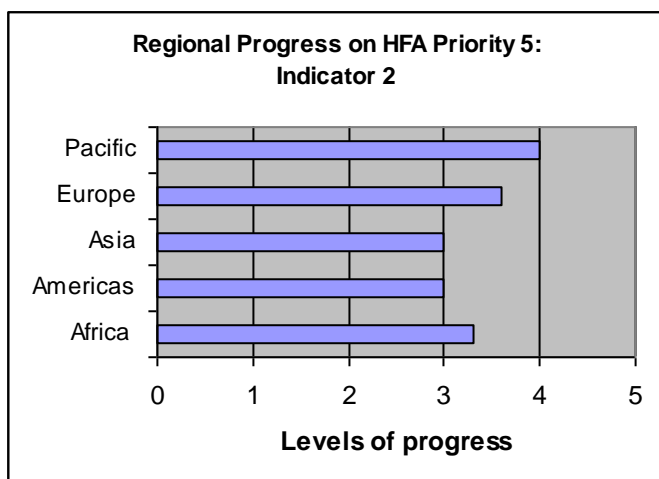
In St. Lucia, nevertheless, heavy rainfall causes flooding and landslides, which often cause more damage than wind shear during a hurricane. With an estimated 60% of housing unregulated in the islands, some communities do not have access to drainage which increases flood risk. Efforts to reduce the impact of landslides and flooding can only be addressed effectively at the local level. A challenge will be to increase capacities for and investment in local disaster risk reduction. As in other countries sustainability to give continuity to disaster risk reduction and to keep plans up to date is an issue given the lack of both trained human and financial resources.

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. There are however, a couple of countries which explicitly note the integration of disaster risk reduction measures, namely Germany and Norway.

### 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

Disaster preparedness and response planning for recovery and rehabilitation efforts should be informed by the lessons learned from previous disasters as well as knowledge of risk reduction measures in order to avoid missing the underlying causes of risk. Disaster risk reduction actions should be required in the design and implementation of both types of planning.

Good progress is being made against this core indicator with mean scores of 4.2, 2.9 and 3.1 respectively for high, middle and low-income countries. 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 systematise experiences, coordinate efforts at the different levels to ensure consistency in carrying out simulations, as well as for developing and/or updating contingency plans.



In Europe, disaster preparedness and contingency planning is organised in an interdisciplinary manner and merges professional and voluntary rescue services with both government and private sector accountability. Usually, municipalities have clear legal responsibilities to respond to emergencies and to reduce risks while companies have similar obligations to protect their employees and property. Often the private sector may co-finance disaster preparedness in the municipalities, where they are located. Technical and institutional capacities exist, emergency management plans are in place at local, regional and national level and regular trainings is performed. 70% of the countries state that substantial or comprehensive achievement has been attained over the last few years. Italy for example reports that a National Civil Protection Fund has been set up, with the allocation of regional funds and contingency mechanisms.

<sup>34</sup> World Bank, 2008d

In Asia and the Americas, countries are progressing at different rates. 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 trainings are evaluated in order to locate strength and weakness points. Other countries report that major weaknesses refer to weak local capacities in many high risk areas, the absence of methodical and regular drills and simulations, outdated contingency plans and a lack of accountability.

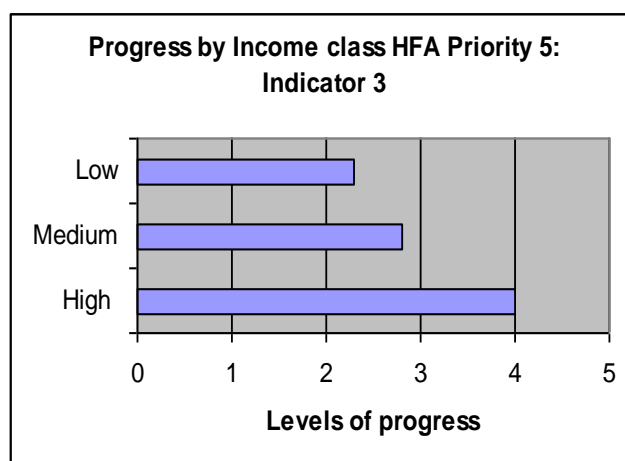
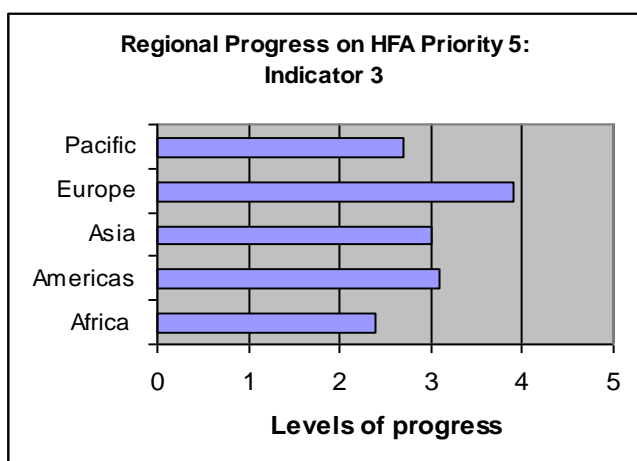
In Africa, financial and capacity shortfalls are reported, as in other areas. However, the progress being made in countries such as Mozambique show that achievement has as much to do with political will and good organisation as with the availability of financial resources.

The WHO Office for the Eastern Mediterranean Region (EMRO) has developed a model for planning emergency preparedness and risk reduction programme, after a regional survey, 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 now being worked on. A multi-hazard and risk atlas is being developed.

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

It is important for governments to commit resources for early recovery programmes, including quick assessment of damage, needs and capacities, restoration of critical infrastructure and livelihood, following major disaster events to support the resilience of affected communities, until long term reconstruction of assets takes place.

Average scores of 4, 2.9 and 2.3 respectively have been achieved for high, middle and low-income countries. In the regions, Africa and the Pacific report less progress compared to the other regions.



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 (El Salvador, Costa Rica and Colombia) and in Asia (Iran, Philippines) and the Pacific (Australia, New Zealand). Experience with such funds, however is mixed. 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. Other countries report that emergency programs are often dependent on external funds since funds allocated at the national level are either ad hoc, or in some countries there is no core fund allocated for contingencies at the national level.

In high-income countries, property insurance has always been used as a mechanism for post disaster recovery and reconstruction financing, though it does not automatically promote the adoption of disaster risk reduction measures. Contingency funds also exist at the national and municipality level, in some countries. Private fund raising (e.g. Swiss Solidarity) is also a major source of funding in case of major disasters. In the Czech Republic for example financial reserves are coordinated at the state level by the Ministry of Interior and are backed by law.

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. The Caribbean Catastrophic Risk Insurance Fund (CCRIF) allows countries to protect their sovereign risk while at the same time reduces costs through pooling risk. The Turkey compulsory insurance pool (see Box 6.16), provides a catastrophe pool for risk prone households and also promotes

awareness and safe construction. Mexico has issued a catastrophe bond to provide a funding mechanism for response and recovery in the case of a major earthquake (**Error! Reference source not found.**). Such mechanisms are an emerging good practice that will be examined in greater detail in the next chapter.

However, in most countries 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, therefore, countries still have to rely on the unpredictability of international humanitarian assistance to address response and recovery needs.

#### The Mexican Catastrophe Bond<sup>35</sup>

In 1996 the Government of Mexico established a self-insurance fund to finance emergency needs in the aftermath of a disaster. Initially, the fund was supposed to be covered by an annual allocation within the Government budget which shrank over time and the total expenses of the fund exceeded its resources. The implementation of a risk financing strategy with market-based financial instruments made the fund less dependent on Government allocations of post-disaster funds.

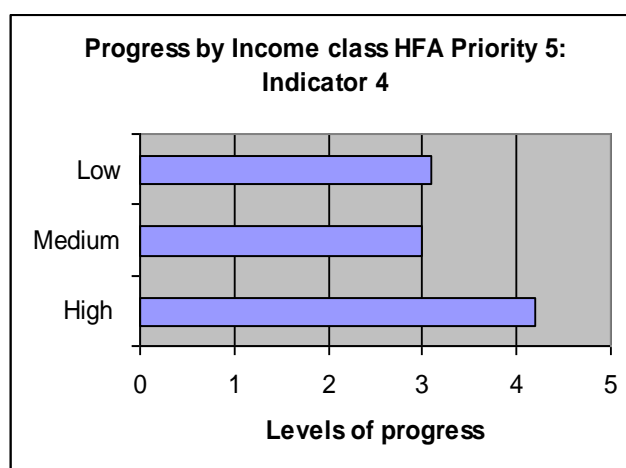
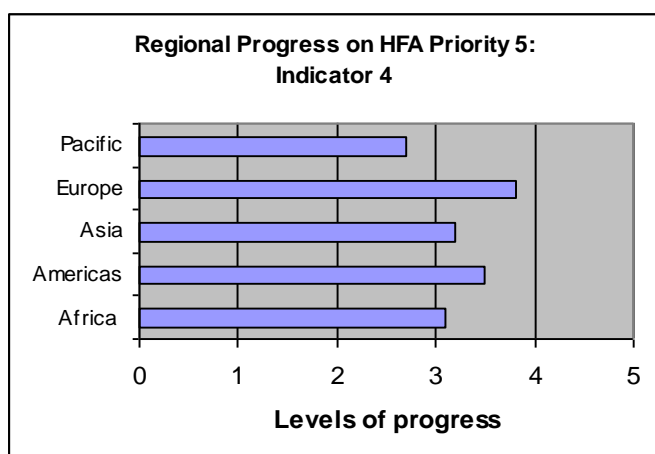
In March 2006, Mexico purchased a US\$ 450 million catastrophe coverage, of which US\$ 160 million was issued a catastrophe bond, to cover against the risk of earthquakes which has been sold to institutional investors and acts now like an insurance policy for the Mexican Government. This is the first time a sovereign country has issued a catastrophe bond.

Catastrophe (CAT) bonds are an example of alternative risk transfer (ART) instruments that transfer catastrophic risk to the capital markets via the issue of a bond, where repayment of principal is contingent upon occurrence of a predefined catastrophe. The specified value limit of the CAT bond is paid out when a predetermined indemnity level, index, or parametric trigger occurs. The parametric trigger, based on scientifically measurable characteristics of a hazard (for example, wind speed, earthquake intensity), is the most frequent. Although it is still an experimental market, the annual stream of CAT bond issues more than doubled between 2006 and 2007, with a peak at US\$7.7 billion in 2006. It should also be pointed out that according to others, these financial vehicles could be very costly and only protect for the very extreme events. In many cases, countries do not get paid for more frequent events that can still cause major losses. In other words, insurance transfers, but does not reduce risk.

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

Emergency preparedness and response as well as planning for recovery and rehabilitation efforts should be informed by the lessons learned from previous disasters. Disaster risk reduction actions should be included in the design and implementation of all types of planning.

Relatively consistent progress is being made against this core indicator with mean scores of 4.1, 3 and 3.1 respectively for high, middle and low-income countries.



While overall progress is being made in this area it is often as a result of ad hoc initiatives rather than institutionalised practices or strategies *per se*. In the recent past, in spite of increased recognition for coordination on information management and dissemination functions in post disaster scenarios, it has been found challenging to coordinate information both within and between multilateral organisations such as the United Nations and the World Bank, and the national authorities responsible for disaster management, relief, recovery and rehabilitation.

<sup>35</sup> Cummins and Mahul, 2009

There is a continual need, therefore, for the adoption of standardised information systems, protocols and procedures for information management that are in place before disasters occur and that can manage damage and loss information and recovery need information as it arises. While a number of initiatives are underway in this area under the auspices of the World Bank and the CWGER, it is clear that there is a long-way to go before they become mainstreamed at the country level in middle and low-income countries.

A number of countries from Africa report substantial achievements. Ghana for instance, has established a website and regions are linked by VHF radio, Kenya has a National Disaster Operation Center in place, the Mauritius Meteorological Centre has established effective communication system 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.

Post-disaster evaluation is becoming more widespread, highlighted by the experience of the Tsunami Evaluation Committee (TEC), mentioned above. 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. Jamaica also reports that information and lessons learnt are shared and communicated through reports from all sectors after a disaster event. In contrast, other evaluations such as a recently completed study of the ten years following Mitch in Central America by the World Bank<sup>36</sup> 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.

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<sup>36</sup> Mansilla, 2008b