



International Strategy for
Disaster Reduction

Progress and Challenges in Disaster Risk Reduction

A contribution towards the development of policy indicators
for the Post-2015 Framework on Disaster Risk Reduction

Summary and Main Findings

2014



United Nations

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Foreword

In many parts of our increasingly globalised world, processes such as badly planned and managed urban development, environmental degradation, poverty and inequality and weak governance, are driving levels of disaster risk to new heights. Given that our current approach to both public and private investment tends to discount disaster risk, the potential for future loss is enormous. This poses a critical threat to economic development, social welfare and environmental health.

Since 2005, countries have been addressing this challenge through the Hyogo Framework for Action (HFA), which aims to achieve a substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of countries and communities by 2015. This publication aims at broadening the understanding of how governments have been managing their disaster risks in the context of the HFA. It does so by analyzing Progress Reports prepared using the HFA Monitor, a multi-tier online tool for progress review, facilitated by UNISDR and led by country governments.

The publication, therefore, increases our knowledge and understanding of how countries are addressing the HFA, the challenges and issues that governments face and also the opportunities that present themselves.

Disaster risk management reduces uncertainty, builds confidence, cuts costs and creates value. The growing recognition of the value proposition of disaster risk management needs now to be translated into a more systematic approach in the new Post 2015 Framework for Disaster Risk Reduction that will be adopted by UN Member States in Sendai, Japan in March 2015.

This publication presents timely guidance for the development of an enhanced set of policy indicators for disaster risk management to underpin the Post 2015 Framework for Disaster Risk Reduction. The lessons learned in implementing the HFA are vital to inform the collective efforts of governments, the private sector, civil society and other stakeholders to build the disaster resilient communities and nations of the future.



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Acronyms and Abbreviations

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Acronyms and Abbreviations

BCP	Business continuity plan
CBA	Cost benefit analysis
CCA	Climate change adaptation
DM	Disaster management
DRM	Disaster risk management
DRR	Disaster risk reduction
EIA	Environmental impact assessment
EWS	Early warning system
HFA	Hyogo Framework for Action
INGO	International non-governmental organization
ICT	Information and communications technology
NGO	Non-governmental organization
NPO	Non-profit organization
SIA	Social impact analysis
SME	Small and medium enterprises
SOP	Standard operating procedures
UNISDR	United Nations Office for Disaster Risk Reduction

Introduction

In 2005, 168 UN Member States adopted the Hyogo Framework for Action (HFA), a comprehensive set of three Strategic Goals and five Priorities for Action designed to achieve as outcome “a substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries”.

Since 2007, governments have been assessing their progress towards the implementation of the HFA using the on-line HFA Monitor. Over three biennial reporting cycles (2007-2009; 2009-2011 and 2011-2013) governments have benchmarked their performance in each Priority for Action against 22 HFA Core Indicators and have provided supporting documentation and means of verification. The accumulated collection of over four hundred HFA Progress Reports since 2007 now represents the largest public archive for understanding how countries are addressing the HFA and the challenges, issues and opportunities that they face.

In 2013, the Chair’s Summary of the Global Platform for Disaster Risk Reduction called for The United Nations Office for Disaster Risk Reduction (UNISDR) to initiate and lead work to develop targets and indicators to monitor the reduction of risk and the implementation of a successor to the HFA, a Post-2015 Framework for Disaster Risk Reduction. The Third United Nations World Conference on Disaster Risk Reduction will be held in Sendai City, Japan, in March 2015, inaugurating adoption of this Post-2015 Framework.

As a first step towards the design of a new progress monitoring system, UNISDR conducted an in-depth analysis of the HFA Progress Reports presented by countries to date. The publication analyzes the majority of HFA Progress Reports from 2011 and 2013 in great depth and breadth. At the same time, rather than focusing on progress per se, this analysis identifies the key challenges, issues and opportunities that countries face and that will have to be addressed in the Post-2015 Framework for Disaster

Risk Reduction. It also examines the suitability of the HFA Core Indicators to measure progress in disaster risk reduction (DRR) and thus is a key input to the design of a new system of indicators for progress monitoring.

This report is compiled using 22 HFA Core Indicators and contains UNISDR’s analysis of the qualitative aspect of key policies countries have used to address disaster risk. Furthermore, this publication presents timely guidance for the development of an enhanced set of policy indicators for disaster risk management (DRM) to underpin the Post-2015 Framework for Disaster Risk Reduction. The lessons learned in implementing the HFA are vital to inform the collective efforts of governments, the private sector, civil society and other stakeholders to build the disaster resilient communities and nations of the future.

Common challenges: general trends

HFA Progress Reports voluntarily submitted by countries in the 2009/11 and 2011/13 cycles provide an informative and insightful look into the common challenges countries faced in implementing DRM policies and activities as well as into good practices that can be used by other countries in future planning. Common challenges come up time and again cutting across regions and affecting countries that are oceans apart.

The first common challenge was the insufficient levels of implementation for each monitored activity. For example, although DRM plans or risk sensitive building codes exist they are not enforced because of a lack of government capacity or public awareness or because so much development takes place in the informal sector. Risk information acquired through assessments is often not translated into policy partly because policy makers are not aware of how to use such information. Staging public awareness raising campaigns, while useful, run the risk of being a one-time event and may not bring

any real change in people's behavior or actions. In other words, it is not sufficient to have risk assessment data and institutional arrangements in place; it is important to consider how these elements actually lead to changes in behavior at all levels in a way that leads to an improved management of risks.

A second common challenge highlighted by many countries is the need to strengthen local capacities to implement DRM, including through establishing local level mechanisms and risk assessments. Weak capacity at the local level undermines the implementation of building codes and land use plans. National policies also need to be adapted to the local context (e.g. the national school curricula on DRR that can be tailored to local risks and needs). Small-scale events that many countries struggle with are local in scope.

A third challenge refers to how climate change issues are integrated into DRM (e.g. risk assessment, research, building codes, and land use planning) given that climate change will lead to shifts in risk patterns. Some countries have already combined DRM and climate change adaptation (CCA) policies and created a common platform to discuss how both need to be mainstreamed into national and local-level policies. While steps have been taken, there is still long way to go before effective policy coordination on climate change and DRM is the norm.

Fourth, DRM policymakers have difficulty in obtaining political and economic commitment due to other competing needs and priorities. While many agree that reducing disaster risks is important for saving lives and property, few countries have appropriate measures in place because other issues (e.g. poverty reduction, economic growth, social welfare and education) require greater attention and funding. This has resulted in the insufficient earmarking of financial resources for DRM policies. Land use planners also face difficulty in balancing DRR needs with economic ones. DRM policy makers are in need of clear evidence, including cost-benefit analysis, to convince both the public and politicians that commitment to DRM is as practical and necessary as any other priority.

Another common challenge refers to poor coordination between stakeholders, and a lack of information sharing, including with respect to risk assessment, monitoring and evaluation, early warning, disaster response and other DRM activities. Mainstreaming DRR in all policy areas and ensuring the commitment of sector agencies is important in preventing new risks from arising and also helps stakeholders address existing risks and strengthen the resiliency of society.

Finally, while many countries are still engaged in moving from a response based emergency management paradigm towards the DRR paradigm embodied by the HFA, still others are already pushing the boundaries beyond the HFA towards a new paradigm in which DRM becomes a hallmark of good development, as illustrated in Table 1.

Table 1: Paradigm shift in DRM policies

	Old paradigm	HFA	New paradigm
Risk perception	Exogenous	Ambiguous mix of exogenous and endogenous risks	Endogenous
Problem recognition	Need for effective response and recovery	Need for DRR	Risk is embedded in development processes (with a focus on underlying factors)
Main policy tools (examples)	Contingency plan, emergency drill	EWS, DRR investment such as levee construction	Land use planning, risk proof investment, Eco-system management
Required knowledge		Risk and loss assessment	Risk, loss and socio-economic impact assessments
Actors	DM agency	DRM agencies within different levels of government, various stakeholders (public, private, NGOs)	More involvement of other stakeholders, especially private sector and local level actors
Link		Millennium Development Goal	Sustainable Development Goal, Climate Change Policy

Priority 1

Ensure that DRR is a national and a local priority with a strong institutional basis for implementation

Core indicator 1.1

National policy and legal framework for DRR exists with decentralized responsibilities and capacities at all levels

Most countries have outlined their legislation and institutional DRM arrangements (Table 2). Legislative frameworks are important in defining roles of organizations and stakeholders, and avoiding duplication of responsibilities. Some countries report that the lack, or insufficient level, of such frameworks is a challenge. In several cases, legal frameworks are outdated and have a limited focus on DRR, which hinders the promotion of a comprehensive DRM plan. Shifting the paradigm from a “reactive” approach, with a focus on disaster relief and response, to a “proactive” one, highlighting disaster risk prevention and reduction, must be reflected properly in a country’s legal framework.

The insufficient development of national legal frameworks also stem from limited financial and human resources. Legal expertise is limited in many developing countries and needs to be mobilized to facilitate the process. In some countries, acts and plans have been developed for each category of hazard and/or agency. Consistency and coordination

between different laws and plans should be ensured so that DRM activities are implemented in a more efficient and comprehensive way.

Even if a country has sound legal framework for DRM, the enforcement of such a strategy can be a challenge. Laws cannot be enforced if there are faults within the laws themselves (e.g. if they are outdated or do not include regulatory power), if there is a lack of financial and human capacity to enforce the law or if no monitoring systems are in place. Similarly, as in the law making stage, a lack of awareness and coordination across sectors, and with different levels of government, hinders DRR activities in the implementation stage.

Some countries reported organizational issues, and institutional alignment, as major challenges. Lack of a central (focal point) agency responsible for taking the lead in DRM activities and coordinating the activity of sectoral organizations has led to the duplication of efforts and resulted in a waste of resources and, in some cases, overlooking the priority

Table 2: Examples of DRM governance framework

Country	Law	Plan/Policy/Strategy
Cook Islands	DRM Act (2007)	National Action Plan (NAP) for DRM (2009-15)
Germany	Law for Civil Protection (2004) Water Management Act (2009)	Security Policy New Strategy for the Protection of German Population"
Honduras	Law for National System of DRM	National Plan for Integral Risk Management.
Tanzania	Disaster Relief Coordination Act (1990)	National DM Policy (2004) National Operational Guideline for DM (2004) Tanzania Emergency Preparedness Plan
Thailand	Disaster Prevention and Mitigation Act (2007)	National Disaster Prevention and Mitigation Plan (2010-14) Strategic National Action Plan (SNAP) for DRR (2010-19) National Preparedness Policy

Source: HFA Progress Report for each country.

area entirely. Even in countries where focal-point agencies exist, the organizational structure of the entire government affects how effectively agencies can work on DRM. To strengthen the capability of focal-point agencies, upgrading the positioning of a focal unit within the organizational structure has proven to be effective. Placing a DRM agency within a high-ranking office (say the President or Prime Minister) will drastically improve an organization's decision-making and coordination abilities. Organizational restructuring through amalgamation can also be an appropriate solution in some cases. Institutional capacity especially needs to be strengthened when a "disaster management" agency transforms into a "disaster risk management" agency, inclusive of jurisdictional coverage for risk management (e.g. risk prevention, reduction, response and recovery). Sustainability of DRM activities cannot be assured if there is a lack of sufficient organizational commitment.

The importance of governance cannot be over-emphasized. Vertical governance between national and local governments, as well as horizontal governance across sectors, should be improved. At the same time, the involvement of the private and civil sectors (such as non-governmental organizations (NGOs)) should be guaranteed for effective DRM implementation.

- **Bangladesh:** While the country has developed sound policies and frameworks, it lacks the capacity to implement all aspects of these policies and frameworks. Capacity challenges include: inadequate staffing, financial bottlenecks and a lack of technical resources such as space-based technology.
- **Pakistan:** Institutional mindsets based on conventional emergency management approaches are the main stumbling block in the implementation of national policies and strategies under the new DRM paradigm. Another major constraint is that institutions and communities are not sensitized to treat DRR as an integral part of sustainable development.
- **Papua New Guinea:** Cooperation with various sectors, development partners, International non-governmental organization (INGO)s and NGOs is critical for strengthening the country's overall capacities for DRM. The government recognizes that DRM is a shared responsibility and the establishment of public/private sector partnerships is essential for making DRR a priority.
- **Cayman Islands:** Medium to long term strategic planning that includes sustainability, DRR and climate change considerations have not been put into practice.

Table 2 continued from opposite page

Lead organization	Constraints	Country
Emergency Management Cook Islands (2006) under the Office of Prime Minister National DRM Committee	Limited financial resources Limited law enforcement	Cook Islands
Federal Office of Civil Protection and Disaster Assistance Federal Agency for Technical Relief	Vertical coordination in federal system	Germany
Permanent Commission of Contingencies	Limited financial resources Limited human resources	Honduras
DM Committee DM Department of Zanzibar	Limited human resources Limited financial resources Limited awareness	Tanzania
Department of Disaster Prevention and Mitigation	Limited awareness	Thailand

More than 40 countries addressed whether DRR is integrated into their national development plans. Though some examples have been reported (Table 3) few countries acknowledged that DRR is well integrated into their national development plans. More countries addressed the need for integrating DRR into development decision-making in the 2011 – 2013 term as compared to the 2009 – 2011 period. Even if DRR and DRM are integrated into a country’s national economic development plan, implementation is sometimes hindered due to the lack of financial means, absent authority and poor coordination between sectors. Balancing development pressures and DRR considerations can be a greater challenge for developing countries.

No country reported the systematic integration of DRR into sectoral planning, however health, education, agriculture and infrastructure sectors are often reported as the most advanced areas in terms of DRR mainstreaming. This reflects the level of DRR awareness in such sectors. Not every sector has high levels of awareness and capacity for DRM mainstreaming. Furthermore, sectoral plans can be inconsistent if not well coordinated with the national DRM or other sectoral plans. DRM focal points need to provide assistance to sectoral agencies to facilitate DRM mainstreaming and coordination in sectoral plans.

Table 3: Examples of DRR mainstreaming in national economic development plans

Country	DRR integrated in national economic development plan
Barbados	National Strategic Plan 2010-25
Burkina Faso	Strategy of Accelerated Growth and Sustainable Development
Mongolia	Comprehensive Policy on National Development (Vision for 2021) Strategic Plan for National Development
Peru	Sustainable Development Plan
Sweden	Vision Sweden 2025

Source: HFA Progress Report for each country.

Core indicator 1.2

Dedicated and adequate resources are available to implement DRR plans and activities at all administrative levels

Very few countries reported on their budget for DRM (Table 4) and it must be noted that even if countries reported their DRM budget, the methodology to calculate the budget and track fund usage differs widely. For example, what constitutes DRR or reconstruction in a country, and how to count DRR funds embedded in sectoral investment (e.g. risk-proof road structures), is understood differently across countries and presents a challenge for many.

Many countries explained that they do not have a system to monitor their budgets for DRM and DRR because resources are allocated to several ministries and/or agencies and DRR activities are often funded through sectoral investments. In many cases, it is difficult to track sectoral investment, and DRR investments cannot be counted separately from entire project or budget reports. Not having a DRM budget monitoring system reflects a lack of coordination amongst ministries and results in the inefficient use of resources and inadequate funds. Without knowing their current budget status, countries cannot properly evaluate the current level of DRM and estimate how much funding is required for further DRM activities.

The lack of DRR financial monitoring stems from an inadequate understanding of *what DRR is* and *what constitutes DRR*. Creating a comprehensive DRM plan and/or clearly placing DRR in an economic development framework would help national stakeholders understand the concept and by default define what represents DRR and how much funding is allocated. Creating a DRM single purpose fund or program that covers various projects also helps stakeholders create budget estimations because it generates a specific budget line for DRM. Latin American countries often utilize this method. The resulting information would enable stakeholders to analyze trends in DRR spending and contribute to strengthened strategic decision making for DRR investments and programming.

Several countries were confronted with competing priorities which resulted in insufficient financing for DRR. In many countries DRR is not a high priority and policymakers tend to allocate much greater financial resources under budgetary constraint to other urgent needs such as poverty reduction, education and public health. It is also difficult to provide a persuasive argument why there is a *sense of urgency surrounding DRR* when the threat is not perceived as immediate. In the DRM cycle, response, recovery and reconstruction also place pressure on the allocation of DRR budgets. Immediate reconstruction and compensation for victims is common in the majority of cases. In such situations, budget restructuring following a disaster often prioritises reconstruction at the expense of DRR.

Several countries reported being dependent on donor assistance. Considering the heavy dependence of some countries, analyzing the national budget alone may overlook several important details. Though external financial resources are extremely helpful for countries with constrained budgets, this could create new challenges. Aligning donor support with national priorities and operational capacities remains problematic. Greater coherence, sustainability and efficiency would result from strengthening a country driven approach to DRM programming.

- **Cook Islands:** DRM has yet to be widely accepted as a national priority in order to secure adequate budget allocations, the reality being that there are other pressing priorities (infrastructure, education, health, water and sanitation) competing for the same pool of government funding.

- **Ghana:** Many institutions executing development projects do not see the immediate benefit in DRR, while others are not prepared to shoulder the extra costs associated with DRR activities.
- **Grenada:** In most cases, DRR programming has largely been linked to external funding and not to a human resource and financial strategy that has been adopted at national and sectoral levels.

Table 4: Budget allocation for DRM compared to the national budget

Country	Report (Year)	DRR and prevention (%)	Relief and reconstruction (%)	Total (%)
Belarus	2013	0.16	0.16	0.320
Ecuador	2013	0.300	1.600	1.900
Indonesia	2013	0.286	0.413	0.699
Mozambique	2013	4.610	0.350	4.960
Papua New Guinea	2012	0.100	1.000	1.100

Source: HFA Progress Report for each country.

Core indicator 1.3

Community participation and decentralization is ensured through the delegation of authority and resources to local levels

Countries identified the legislative and institutional arrangements – including laws, guidelines, plans and organizations – that can support local level DRM (Table 5). Many countries addressed the institutional role of local governments in emergency response and preparedness while some referred to the role of local government in comprehensive DRM. Reflecting on the increasing awareness that risk is embedded in development processes, many countries highlighted in 2011-13 the role of local governments in development planning and policies. Delays in the integration of DRM in development planning at the national level only hinders the process at the local level.

Common problems involve the flow of information and coordination responsibilities. The role of the national government in providing local governments with an enabling environment is vital for facilitating local level DRM policies. Effective DRM needs both national and local support and a clear exchange of information and lessons learned. Vertical coordination between national and local level governments must therefore be improved with each role and responsibility clarified.

Another challenge is the legal legitimacy and limited authority of local governments. As legal backing is needed for local government to implement any activities and some countries still lack DRM legislation local governments can find themselves without the authority to act. The lack of coordination and legal inconsistencies between local government decrees and specific DRM acts makes the role of local government unclear, and local level implementation and enforcement of DRM policy difficult or close to impossible. The discrepancy or lack of mutual understanding between DRM and general decentralization policies at the national level aggravates this situation.

A third challenge is that financial, human and technical constraints at the local level are often addressed as singular challenges. Decentralization processes are relatively new in many countries and local governments still do not have the capacities to implement and enforce DRM policies. Some countries report that lack of awareness at the local level serves as a major constraint. A paradigm shift from discarding a reactive approach in favor of a proactive one – with a DRR focus – has not materialized in some countries at the local level. Awareness should

Table 5: Examples of local institutional frameworks

Country	DRM Organization	Plan
Dominican Republic	Municipal Committees for Risk Management and Prevention (CMPMR)	Manuals of Functioning for the CMPMR Risk Management and Emergency Plans
Nepal	Local DM Committee	District Preparedness Plan
New Zealand	Civil Defense Emergency Management Groups at the regional level	Civil Defense Emergency Management Plan for the regional level
Pakistan	DM Authority at the provincial, regional and district levels	DM Plan at the provincial and district levels
Palau	State DRM Coordinator State DM Committee	DRM Plan at the state level

Source: HFA Progress Report for each country.

be raised especially amongst decision makers and civil servants at the local level.

- **Fiji:** The disconnect between DRM, development and climate change activities initially clouded the judgment of local government and communities on their DRM roles, particularly with regards to coordination during disasters.
- **Mozambique:** Current decentralization processes, including participatory decision making, is partly limited by financial resources and the lack of local technical capacity to absorb resources decentralized to districts.
- **Pakistan:** Lack of awareness amongst local communities and departments about the importance of investing in preparedness, prevention and DRR is another challenge.

There are two main sources of financing for local governments: financial transfers from national to local governments (e.g. subsidies) and locally produced financial resources (e.g. local taxes, bonds or fees). Compared to the number of countries where institutional arrangements are explained, fewer have reported their fiscal decentralization procedures. Legal arrangements for financial decentralization are inadequate in many countries, which brings fiscal constraints at the local levels.

The financial allocation for DRR or DRM at the level of local government is not satisfactory in many countries. Local governments in most countries depend on financial transfers from upper tiers of government and face similar challenges to those of national governments (e.g. competing priorities).

The community and civil society sector play a vital role in DRM in many countries, as their activities are rooted in a local context and address local risks. Non-profit organizations (NPO)/NGOs are active in many countries in the field of DRM. Volunteers are also an integral human resource especially in the response phase.

One of the biggest challenges in effectively utilizing community and voluntary capabilities involves the sporadic and scattered nature of NPO/NGO activities, which fosters unsustainability and poor coordination. National and local governments should

institute better coordination measures, that encompass the assortment of activities and the spectrum of NGOs and volunteers, so as to avoid duplication and utilize limited resources effectively. The alignment of the activities of the government and the civil sector is desirable, with a common prioritization of target areas and the integration of good practices developed by NGOs within national and local policies.

A secondary challenge is that the capacity of the community and voluntary sector in many countries must be enhanced. More resources need to be set aside for volunteer and NGO training. Third, citizen awareness is inherently important in facilitating community participation. A lack of awareness comes from a lack of information, dependent mindsets, reactive approaches that focus on response, and low hazard profiles. Fourth, some countries have witnessed a decrease in volunteers due to social factors such as the change in residential patterns brought on by urban migration, depopulation and aging. This is a concern as the result is depopulated cities and villages (mainly in rural areas) wherein a great deal of elderly reside. This has increased the vulnerability of such areas and forces local and national governments to ask how they can maintain resiliency in such communities.

- **Vanuatu:** NGOs are using a variety of different tools, systems and approaches, which has led to mixed messages on the ground.
- **Samoa:** Implementation of DRM activities at the community level has been hampered because few NGOs have the capacity to design, develop, implement and evaluate DRM programs.
- **China:** Many provinces send large numbers of migrant workers to urban centers while senior citizens and children remain at home. This makes it difficult to drive community disaster reduction in rural areas.

Core indicator 1.4

A national multi sectoral platform for DRR is functioning

In more than eighty of the country reports it was outlined that governments have established a National Platform for DRR and DRM (Table 6). There are common challenges for the effective implementation of national multi-sectoral platforms. First, the roles and functions of national platforms and its members should be clarified for the sake of effectively coordinating multiple members and avoiding duplicative efforts in countries that already have similar, and sometimes, overlapping schemes. It is also important for raising awareness and the commitment of national platform members, as well as society on the whole. Rule making, including legalization, is required for countries that lack the necessary level of institutionalization. Several countries have noted that sustainability and continuity can be

assured through the institutionalization of membership and continuous involvement of representatives in the national platform. Integrating CCA issues in DRM platforms is another emerging challenge.

The second challenge is that sustainable funding schemes should be arranged to ensure platform members meet regularly and activities are carried out. A lack of capacity in the national platform secretariat, especially in terms of financial and human resources, has been mentioned as an additional barrier by some countries. Third, all stakeholders should be included in the platform. Involvement of the private sector and civil society organizations is low and financial and personnel constraints hinder the addition of new members. Even when all related members are included, platform management in

Table 6: Examples of national multi-sectoral platforms for DRR/DRM

Country	Name of platform	Chair	Secretariat	Finance & plan.	Sect.	Civil	Privt.	Acad.
Colombia	National System for DRM (SNGRD)	President	National Unity for DRM	3	1	2	3	6
Côte d'Ivoire	National Strategy for DRR	Prime Minister	Executive Secretariat	5	25	1	3	11
Japan	Central DM Council	Prime Minister	Cabinet Office	2	20	1	1	2
Rwanda	National Platform for DRR	Minister of MIDIMAR	Ministry of DM and Refugee Affairs (MIDIMAR)	1	20	1	1	1
Turkey	National Platform	Prime Ministry, Disaster and Emergency Management Presidency	Prime Ministry, Disaster and Emergency Management Presidency	1	14	9	3	7

Source: HFA Progress Report for each country.

such cases might operate beyond the capacity of the lead agency and hinder effective coordination.

Lastly, some countries have established multi-sectoral platforms for DRR/DRM at the sub-national level. Vertical coordination between national and local levels is often difficult even with the establishment of an overarching platform. In the event that the establishment of a local platform is problematic, representatives of local government interests should be at least included in the National Platform.

At least fifteen countries clearly reported that they do not have a national platform for DRR. The reasons for not establishing a national platform were generally not provided but where an explanation was provided, this was often ambiguous. It included inertia in the absence of disaster management (DM) laws and lengthy and arduous legislative processes. Several countries declare that existing institutional arrangements adequately perform the functions of a platform. However, other countries find it difficult to ensure the continuous commitment of all stakeholders without having a formal national platform structure in place.

Priority 2

Identify, assess and monitor disaster risks and enhance early warning

Core indicator 2.1

National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors

Many countries reported progress in carrying out risk assessments. Although few countries have multi-hazard risk assessments, the development and implementation of risk assessments for specific hazards is progressing well (Table 7).

Several challenges for promoting more widespread risk assessment were reported. The most pressing is the need for setting a national standard or framework for risk assessment. The lack of an existing standard is related to poor coordination and the implementation of multiple risk assessments by numerous organizations (often sectoral ministries and institutes). The absence of an overall framework for risk assessment brings the lack of risk assessment in key sectors. Standardized methodologies would help mitigate the burden of risk assessment in certain sectors. Detailed sectoral risk assessment

is required to define prioritization against projected investments. Schools and hospitals often reported having such assessments in place. National governments need to play a stronger role in guiding data sharing and standardizing future risk assessments.

Another challenge is that most, mainly developing, countries reported that financial and human resource capacities are insufficient for implementing or updating multi-risk assessments. Risk assessment requires a high level of technical skill and intensive financial resources. In many cases, international funding has filled resource gaps in developing countries. Hydro-meteorological and geological monitoring systems are a precondition for carrying out risk assessments. Insufficient development of such monitoring systems also prevents the implementation of a well-rounded risk assessment.

Table 7: Examples of risk assessment progress

Country	National guidelines	Multi-hazard	Specific risk/sector	Sub-national
Argentina	“CRISIS” System	Yes	Sector specific risk assessment.	
Honduras	Manuals for risk assessment for floods, landslides and buildings	No	4 sectors.	The municipal level is developing risk assessments.
Indonesia	No	Yes	Sector/organization specific risk assessments.	Multi-hazard risk assessments in all provinces.
Mexico	System for analysis and visualization of risk scenarios	Yes	10 sectors (water, education, electricity, oil, agriculture, livestock, fisheries, health, national security, roads infrastructure).	
United Kingdom	No	Annual National Risk Register		Community risk register.

Source: HFA Progress Report for each country.

A third challenge is the need for building local capacity in terms of resources (financial, human and technical). Local governments often face restrictive resource constraints. Pakistan and Samoa provide perfect examples of the negative relationship that emerges from the lack of local capacities and a dependence on international resources. Support from national governments, through the provision of risk modeling software for example, can help overcome the structural barriers at the local level.

Another challenge some countries have experienced is the technical challenge of insufficient baseline information, uncoordinated GIS mapping scales, lack of metadata, and poor data quality. The development and sharing of necessary data for risk assessment is a coordination issue that exists between specific agencies. The fifth concern is that some countries have regarded climate change and other social risks as “emerging,” to be integrated into risk assessments and a DRR framework. In order to integrate socio-economic risks into scientific risk assessments more socio-economic impact studies are required.

Last, but not least, many country reports highlighted that the risk assessment has not been used for DRR policy planning. Reasons for this ranges from a lack of awareness regarding the importance and usefulness of risk assessments in DRR policies and decision-making, the invisibility of available data to policy makers, and high turnover rates of staff in and the lack of coordination between agencies that implement risk assessments.

Many countries indicated progress in the area of hazard mapping, which is a popular tool for professional analysis and disseminating information to the public. Hazard mapping is most useful when applied at the local level and it has the potential to be utilized in spatial and land use planning. Many countries commented on the implementation of vulnerability assessments, mostly at the community level. Some countries rolled out “Vulnerability and Capacity Assessments,” which are often implemented with the support of NGOs. The assessments are often sporadic, isolated activities that lack standardized methodologies.

- **Kenya:** Assessments are disaggregated and scattered across different sectors and institutions. These institutions need to be coordinated so information can be shared with other stakeholders.
- **Indonesia:** Risk maps need to be detailed and integrated into spatial planning to guide local development planning with risk reduction considerations.

Core indicator 2.2

Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities

More than sixty countries addressed the issue of integrated information management systems. Though some successful policies have been reported. Almost all countries identified the challenge in collecting and sharing data between ministries, agencies and organizations. Consequently, there is a lack of coordination, and information is scattered across these various entities. Approaches to remedy this issue vary from country to country and include new platforms and/or networks, institutional and legal arrangements for information sharing, and the establishment of integrated data management systems and/or data management centers. GIS is expected to play a central role in information management and sharing and to improve risk communication thanks to its visualization capability. Advancements in GIS technology have been significant over the last decade; yet, more coordination is required in terms of systems and data formats across related sectors and organizations.

There are several reasons for the lack of information sharing between institutions within a country. One is the prevalence of the protective mindsets of people in certain sectors, which often leads to poor institutional coordination, hinders data sharing and also prevents the integration of data and information. Second, a lack of financing and technical expertise obstructs the establishment and maintenance of such information management systems. DRM agency capacity constraints are seen at both national and local levels. Improved integrated information management at the local level, and better reporting coordination between local and national institutions, is a necessity.

- **Fiji:** Intra-governmental information sharing is challenging before, during and after a disaster, because it is not always known who needs to know what. The absence of a national information network and/or system has limited progress

in cross-sectoral coordination, the sharing of information and generating knowledge for common DRM activities.

Many countries reported on the progress of their monitoring systems, which are often managed by a technical agency with a responsibility for monitoring a single hazard. For example, a meteorological agency is usually responsible for monitoring hydro-meteorological hazards. A growing number of countries addressed the use of satellite technology in the 2011-13 cycle. Because monitoring equipment is often costly, some countries addressed the need for additional financing under this area. It is also imperative that monitoring facilities are resilient to hazards so that data can be gleaned for future research.

Core indicator 2.3

Early warning systems (EWS) are in place for all major hazards, with outreach to communities

Countries reported progress in the development of EWS (Table 8). Most EWS are for floods, cyclones, earthquakes, tsunamis and drought. An effective EWS consists of four components: risk identification, continuous monitoring, timely information delivery and citizen response. In this sense, EWS works most effectively when combining science and technology to assess, monitor and disseminate risk information, with social and regulatory aspects, to reach vulnerable segments of communities and ensure an appropriate response.

Many countries addressed financial constraints and limited human capacity as the most pressing challenges and also outlined a dependency on donors for EWS financing. Some countries specifically addressed their incapacity to maintain and upgrade EWS equipment due to financial constraints. As a result, old systems are still in use, which may decrease the effectiveness of the entire EWS. Concerns have also been raised about securing resources so that the EWS covers the required territory. Because EWS often relies on expensive monitoring equipment it hinders the expansion of territorial coverage. Along with resource and capacity issues, many countries cited a lack of multi-hazard EWS as a major constraint. In several cases EWS for certain risks are not present, while in others, diverse EWS are poorly coordinated.

EWS rely on expertise from various ministries including DRM, meteorological, water resources management, as well as the private sector (e.g. media and mobile phone providers) and NGOs. Because of the number of stakeholders involved, information must be shared between them. Identifying the roles and responsibilities of each stakeholder is essential for ensuring cooperation and strengthening EWS. In situations where diverse EWS co-exist, these systems should be coordinated to deliver consistent

warnings to the public, and ideally integrated to establish multi-hazard warning systems. Creating a comprehensive strategy and/or standard that is agreed upon by all relevant stakeholders is one way to ensure effective governance. The establishment of a central emergency management operation center is also useful for the efficient and comprehensive delivery of early warnings.

Because hazards are distributed unevenly across territories and communities, EWS should be tailored to reflect local contexts and needs. Some countries already take this into account and allow for the flexible customization of EWS by regional and local authorities. Local level EWS are important because they save time in delivering emergency messages, which is important in the face of rapid-onset hazards. Furthermore, if the local level EWS is embedded in a community's social structure, the system will drastically improve overall outreach and response.

Some governments reported difficulties in delivering early warning to every single individual, which resulted in the creation of the phrase "outreach to the last mile". Challenges are distance and physical or topographical accessibility, social and institutional factors (e.g. taking into consideration the special needs of the disabled), as well as technical issues (e.g. a disaster happens at a time when media is not broadcasting or in places where media do not exist). Such problems can be partly mitigated by communication and transportation infrastructure development, the introduction of appropriate media in underserved communities and raising public awareness on disaster risk and EWS.

Many countries emphasized the role media and telecommunications providers can play in delivering EWS related services. Because these services are usually privately operated, formal procedures for cooperation may be required. In some countries,

awareness of the media and telecom sector of disaster risk and how they can play a role are nonexistent; therefore, governments must support capacity building in these sectors. In addition to television and radio, the prevalence of mobile and Internet services expands the opportunity for wider emergency outreach in a timely fashion. More and more countries are looking to social media and SMS as tools for delivering early warning messages.

Even if governments are successful in delivering early warning messages to the public there is no added value if people do not respond in an appropriate manner to these warnings. Efforts need to be made to translate warnings into concrete actions in order to reduce losses. To raise awareness on how

to respond to a specific warning, a government can provide public education programs, conduct drills, prepare standard operating procedures and generate strategies that inform the public how to act. Consulting with vulnerable groups is also important for facilitating their evacuation.

- **Yemen:** Improving the functionality of any EWS is dependent on improved coordination and information sharing amongst DRM agencies.
- **Sri Lanka:** An effective people-centered EWS was established with the participation of early warning teams (volunteers) using local communication methods (e.g. bells and horns). This local hazard monitoring system is now being scaled up in other communities.

Table 8: Examples of EWS

Country	EWS
Costa Rica	National Meteorological Institute: heavy rain, tropical cyclone, coastal events, earthquake, landslide, volcanic activity
Italy	National Civil Protection Department: National Warning System for multi hazards
Kenya	Kenya Meteorology Department: weather Ministry of Agriculture and the Arid Lands Program: draught and food security Ministry of Health and Livestock: epidemics
Malaysia	Malaysian Meteorological Department: weather, earthquake, sea level change, haze, drought, tsunami Public Works Department: landslide
Mauritius	Mauritius Meteorological Services: cyclone, torrential rain, landslide, tsunami, high wave, strong winds

Source: HFA Progress Report for each country.

Core indicator 2.4

National and local risk assessments take account of regional/trans-boundary risks, with a view to regional cooperation on risk reduction

Regional cooperation mechanisms have been developed for DRM and DRR. There are two streams of focus with regards to regional cooperation, the first being the implementation of disaster preparedness including contingency planning and a regional level response system and the other, a scientific knowledge management system that includes risk assessment, monitoring, early warning and information sharing (Table 9). Some hazards, such as tsunamis, earthquakes and cyclones, tend to occur on a regional scale and financing facilities requires large-scale investment. To this end, it is reasonable to establish regional mechanisms and share costs and knowledge between participating countries.

The challenges often highlighted are insufficient resources (financial and human) that prevented increased participation in regional activities and the

absorption of regional initiatives. Additionally, limited resources threaten regional program sustainability. Aside from insufficient resources, there is a lack of awareness amongst the public and policy makers particularly with regard to: the existence of “trans-border risks” and the need for “regional cooperation mechanisms” to reduce the impact of disaster.

Countries expect improved coordination of regional activities and a strong regional office that has programming aligned with national resources. To not do so would place too much stress on already limited resources. In every region there are countries with different capabilities and needs. The priority areas will differ from country to country, which can prolong and hamper the coordination process.

To boost regional cooperation efforts in risk assessment, monitoring and EWS, it is important to

Table 9: Examples of regional DRM cooperation mechanisms

Regional mechanism	Activities
Economic Community of West African States (ECOWAS)	<ul style="list-style-type: none"> • DRR Action Plan for West African States • DRR frameworks and strategies in West Africa • ECOWAS emergency response team
The Caribbean Disaster and Emergency Management Agency (CDEMA)	<ul style="list-style-type: none"> • 18 Member countries • Comprehensive DM strategy and framework • Tsunami and Coastal Hazards Warning System for the Caribbean and Adjacent Regions • Caribbean Risk Atlas • Annual simulation exercise • Regional emergency telecommunication network • Caribbean Catastrophe Risk Insurance Facility (CCRIF) • Emergency Assistance Fund
South Asian Association for Regional Cooperation (SAARC)	<ul style="list-style-type: none"> • 8 Member states • SAARC Comprehensive Framework on DM • SAARC Agreement on Rapid Response to Natural Disasters • SAARC DM Center (SDMC) (since 2007) • SAARC Meteorological Research Center • South Asia Disaster Knowledge Network • Establishment of a regional food reserve

Source: HFA Progress Report for each country.

ensure the smooth flow of information across borders and standardize the current methodology. Institutional and technical coordination is necessary in this regard. Another necessity is the development of an underlying information and communications technology (ICT) infrastructure that can boost the development of a regional mechanism. Along with technical and financial setbacks, political factors sometimes hinder regional mechanism development. Lack of coordination due to political conflict can worsen the impact of disasters and, in turn, further aggravate political strife.

- **Vanuatu:** Regional programs and information exchange mechanisms provide excellent opportunities to increase efficiency in technical and specialized areas like weather forecasting.
- **British Virgin Islands:** Aligning the country’s CDM Strategy to the regional strategy has the dual benefit of being well coordinated with regional initiatives and also programmatically linked to the most critical aspects of CDM, which may generate future funding opportunities.

Cooperation with neighboring countries is generally task focused and needs-based instead of focused on a comprehensive regional framework. The greatest areas of cooperation that neighbouring countries engage in are: river management, wildfire and health epidemics, rescue and response, and risk monitoring and assessment. Cross-border cooperation in river management to ensure the equitable management of trans-boundary water resources and reduce the hazard risk of flood and drought, is a politically sensitive challenge. This is

however one of the areas where cross-border cooperation is the most developed and institutionalized (Table 10). Rescue and response arrangements are also an area of cross-border cooperation though institutional coordination, such as standardized systems of command and visa arrangements, need to be in place before the onset of a disaster to ensure speedy and efficient response, especially if the disaster/emergency is in a border region. Cross-border cooperation often faces the same challenges described on regional cooperation and include: socio-political difficulties, differences in DRR policies and institutional arrangements between countries, and a lack of financial resources.

In both regional and cross-border cooperation, the involvement of the private sector, especially critical infrastructure providers, is an emerging issue. Critical infrastructure, such as transport and energy, often transcends national boundaries and the mobilization of the private sector is essential for decreasing disaster impacts. The global trend of decentralization has led to greater political responsibility of local governments in land use and local development, environmental and water management. This means that local government participation in cross-border issues has become indispensable. The example of Italy is of particular interest as the central government has granted regions the legal right to set up international agreements in relation to civil protection.

Table 10: Examples of cross-border cooperation regarding river management

Region	Cooperation mechanism	Activities
America	Sixaloa River basin coordination between Panama and Costa Rica	Vulnerability assessment during rainy season.
Asia	Mekong River Commission	Flood Management and Mitigation Strategy and Program. Flood Vulnerability Assessment and Mapping.
Europe	International River Commission (e.g. River Rhine)	Action plan regarding flood control and management. Flood risk assessment and mapping.

Source: HFA Progress Report for each country.

Priority 3

Use knowledge, innovation and education to build a culture of safety and resilience at all levels

Core indicator 3.1

Relevant information on disasters is available and accessible at all levels, to all stakeholders (through networks, development of information sharing system etc.)

Considering the usefulness of the Internet for information dissemination, many countries have reported setting up and maintaining a web portal. Most web portals are managed by DRM agencies and provide information on risks and risk management measures. Technological progress provides users with unlimited potential for DRR/DRM programming. For example, interactive functions, such as web based map viewers in Germany, can have a positive impact on civil participation in DRM activities. Limited resources (technical and financial) on the part of service providers and lack of Internet access in vulnerable communities are key challenges. It is imperative to improve the usability of such services by strengthening technological infrastructure in all locations and providing information in a clear and concise way.

Core indicator 3.2

School curricula, education material and relevant trainings include DRR and recovery concepts and practices

Regarding primary and secondary school curriculum, a comment that attracted a fair bit of attention is the lack of awareness and capacity in the Ministries of Education and teachers. Many schools have an overload of classes and there is resistance towards adding DRR in school curricula. Regardless of whether DRR and DRM issues are integrated into a school's curriculum, there is a need to build the capacity of teachers through the provision of training and materials. The lack of financing for training and providing materials is a challenge. ICT infrastructure and capacity in schools is also important for DRR education.

The second point is that the type of DRR material included in the curriculum is of the utmost importance. While Georgia has demonstrated a coordinated approach to disaster issues, only the physical characteristics of hazards are taught in several countries, leaving out DRR and response measures. DRR education should be provided in a comprehensive way, and for it to be truly effective children must be taught about the causes and the impacts to society. They should also be aware of the mitigation and preparedness strategy in place.

Another point is the need for adjusting national curricula so they cater to the local context. Locally contextualized DRM education has the potential to strengthen community level knowledge and awareness even amongst the most disadvantaged members of society.

Children can play a role in raising risk awareness and preparedness in their households. Looking at children as “active agents” of change instead of objects that need to be protected can broaden the scope of DRM education and its future impact. Several countries report the need to cater to those who are outside the formal education system. This is especially important considering the state of education and social development in many developing countries.

Universities and graduate schools have different institutional structures and perspectives compared to those seen in mandatory education programs. An elementary education in most countries is mandatory and public school based, so DRR integration in the elementary school curricula has the ability to reach larger numbers of people. Higher education, on the other hand, is provided by both public and private institutions and integrating DRR into higher education curricula leads to the graduation of professionals looking to play a leading role in DRM. There is a need to increase the number of domestic experts. More than twenty countries offer DM courses in their universities. Judging by the name of courses and/or title of degrees, most focus on DM instead of DRM or DRR. The challenge is to not only create DRM and DRR courses but also systematically integrate these issues into a variety of academic fields in the natural and social sciences.

Second, the involvement of national government is necessary for mainstreaming DRM and DRR into higher education programs. As in several cases, even if DRM courses exist, such programs are often expensive or not well known. This calls for additional support and promotion from government. Some countries utilize their national platforms for conducting an inventory on DRR related courses to increase their visibility.

Fifteen countries highlighted the presence of professional training institutes for government officials, especially those engaging in DM. These institutes serve as centers of excellence. Several countries have integrated DRM and DRR components into the curriculum of institutes that train all public officials. Considering that DRM and DRR are cross-cutting issues, the involvement and capacity of all government officials should be raised further.

Core indicator 3.3

Research methods and tools for multi-risk assessments and cost benefit analysis are developed and strengthened

Government agencies, public research institutes and universities often take the lead on research initiatives. While there are good practices that can be scaled up and replicated, there are still countless challenges that need to be overcome. First, some countries placed a low priority on research, especially if it was linked to DRR. This has led to decreased budgets for scientific research, as well as ad-hoc and unsustainable investigations. It is necessary to raise awareness amongst policy makers of the need to kick-start research for effective DRM policy making.

Second, most countries report the need for improved coordination between research institutions, as well as projects. This is necessary to increase efficiency and improve knowledge transfer across institutions. Without a coordinated framework, countries waste valuable resources by duplicating activities and have difficulty in identifying knowledge gaps and/or developing strategies to prioritize weak areas of research. DRM Agencies or National Platforms are expected to play a leadership role in coordination. Some countries have created comprehensive research plans and/or strategies to clarify priorities and ensure continuity of research. Others have established a network of research institutions to facilitate information exchange (Table 11).

Third, some countries have pointed out the difficulty in applying knowledge gained from research and putting it into practice. To bridge this gap some countries set up a platform for strategic cooperation between scientists and end-users. These examples show how multi-stakeholder platforms can facilitate needs-based and implementation-oriented research. Strengthening the link between researchers and practitioners, and implementing needs-based research can contribute to addressing research funding gaps.

Many countries commented on cost benefit analysis (CBA) of DRR. CBA is an important tool for stakeholders to integrate DRR into development and public investment planning. The use of CBA is also expected to raise the awareness of policy makers, including financial officers. However, existing CBA research is often sporadic or inadequate and most countries cited a strong and urgent need for enhanced, integrated CBA.

A major reason for the insufficient level of CBA is the lack of awareness and technical capacity to perform CBA (in terms of methodology and tools). Financial constraints are also addressed as challenges in some countries. The most difficult methodological issue to deal with is how to

Table 11: Examples of DRR related research strategies and networks

Country	Name of strategy or network
Canada	The Canadian Risk and Hazards Network (established in 2005)
India	India Disaster Knowledge Network
Kazakhstan	Interagency Scientific and Technical Council on Problems of Emergency Situations and Civil Defense
Korea	Comprehensive Plan on Disaster and Safety Management Technology Development
Slovenia	Technology for Security and Peace 2006-12

Source: HFA Progress Report for each country.

estimate the benefits of DRR investment. In probabilistic CBA, avoided damage is assumed to be a “benefit” of DRR policies. The dearth of basic socio-economic data hinders stakeholders’ ability to estimate “benefits”.

The sharing of research results will improve the quality and standardization of the CBA, however, several countries have identified that information sharing is a challenge. Progressive examples include the establishment of a standardized CBA methodology and e-tools for wider application. Other examples highlight the missing link between scientists and financial officials. And that strengthening the link between natural science research and the economic elements of the CBA process will help facilitate DRR policy implementation.

Few country reports provided comments on economic impact analysis. Assessing the economic impact of disasters is important for mid to long term economic planning. This analysis however, presents several methodological challenges. These include how to define the impact (not only direct losses, but also indirect losses and macro-economic impacts) and how to deal with inter-sectoral linkages. Little research has been carried out in this field and more methodological courses of action should be pursued. Inputs from the private sector are also required to have good quality economic impact analyses. Further less countries addressed the need for a social impact analysis (SIA) even though SIA is important because the scale of disasters differ depending on the vulnerability of the community. Poor people, children, the elderly and the disabled are more vulnerable to hazards. SIA is an important tool for supporting social policy planning and requires disaggregated data (e.g. age and gender) to identify the vulnerable segments of society that need support.

- **British Virgin Islands:** There is a need for greater focus on the incorporation of CBA to illustrate the benefits of DRR. The CBA of mitigation measures and risk reduction incentive schemes could be established at the policy level.
- **Barbados:** One constraint continues to be the weak link between research outputs generated by scientists and the cost benefit analyses produced by finance officers, so as to support planning and development policy decision making.
- **New Zealand:** Challenges include improving the ability to assess the full range of consequences and vulnerabilities, especially in regard to secondary impacts, undertaking comparative economic analyses and assessing the social and environmental costs and inter-dependencies.

Core indicator 3.4

Countrywide public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities

Reflecting on the importance of improving public awareness, governments have looked to activities for sharing information and raising public awareness through TV, radio, newspapers and other forms of media. Many countries utilize International Disaster Reduction Day and/or designate a specific day or week for campaigns. National Disaster Reduction Day is often used to commemorate victims of past disasters and inspire the public. NGOs also play a role in raising citizen awareness, especially at the local level.

Developing a strategic approach involving all stakeholders is important for coordination and the sustainability of public awareness raising activities. Without a strong strategy, awareness raising activities tend to be sporadic and inefficient. Some countries, though not many, already have systematic strategies in place (Table 12). Implementation however, remains a challenge. Along with public awareness raising strategies, an institutional arrangement for coordination must be established at the national and local levels. Creating a common understanding of risks and responses amongst sectoral institutions is important in delivering harmonized messages to the public. Risk communication techniques should

be researched and applied, and DRM terminology must be easy for the public to understand.

In ensuring a strategic approach to implementing, expanding and maintaining public awareness, the biggest challenge is the availability of financial and human resources. Inadequate financial resources leads to weak program coverage in vulnerable communities, a lack of awareness-raising materials and unsystematic and unsustainable advocacy activities. Awareness raising amongst politicians could elevate DRR issues on the national political agenda and also increase resources.

The second challenge is that national level public awareness strategies must be tailored to the local context while remaining consistent with national level policies and guidelines. The focus on local needs and contexts improves the effectiveness of DRM awareness raising activities. Financial resources and expertise are required at the local level. Third, public awareness strategies and programs should reflect the paradigm shift from a reactive to a proactive approach with a focus on DRR. The strategy should promote the options of self and collaborative help in communities and it is important

Table 12: Examples of public awareness raising strategies

County	Plan or Strategy
Australia	Disaster Resilience Strategic Communications Plan
Egypt	National Communication Strategy for Raising Societal Awareness in the Area of Risk Reduction and Crisis Management
Japan	Basic Framework for Promoting a Nationwide Movement for Disaster Reductions: Actions with Added Value to Security and Safety
Romania	National Strategy for Emergency Situations Public Information and Education
Samoa	Community Disaster Awareness Strategy

Source: HFA Progress Report for each country.

to highlight that risk reduction can be embedded in a country's development process. Key messages should be clear and consistent, especially between governments and stakeholders.

The forth challenge is to overcome the human tendency to forget past disasters and maintain public awareness. This human characteristic also makes it difficult to retain public awareness of low frequency events. Raising the public's awareness should be ongoing and sustainable if the public's interest is to be maintained in the long-term. Fifth, and most importantly, beyond increasing public awareness, transforming awareness into action is regarded as the ultimate challenge in many countries. Public awareness raising strategies and programs should be evaluated in terms of their ability to change people's behavior. Evaluation results should feed back into the public awareness strategy, however few countries have evaluated their awareness raising programs.

- **Malawi:** As a result of inadequate resources (financial, human and material), most awareness raising campaigns and training are limited to a few targeted rural districts and central level officials.
- **New Zealand:** The major challenge is changing the behavior of individuals and organizations. Behavior changes can result from sustained education campaigns over the long term, for which the maintenance and revision of programs are an ongoing requirement.

Outreach to all communities, including the most vulnerable, is regarded as a challenge and tailored approaches for specific segments of people has been adopted in many countries. Disabled and socially disadvantaged people are especially vulnerable to disasters; therefore, countries should take special care to reach out to these groups. Difficulties are also experienced in reaching small communities in remote and isolated areas. The development of transportation and communication infrastructure is one solution for improving outreach levels. Such infrastructure also contributes to EWS delivery and speedy response after a disaster. Special attention

to diverse communities is often addressed in the provision of public awareness programs, especially in multi-lingual countries. Program resources should be provided not only in the official language but local languages as well. The rapid movement of people, especially across borders, has increased the need to reach persons who speak different languages. Furthermore, new and temporary residents (the displaced and tourists included) often have little awareness of the existing disaster risks or past disasters specific to certain areas.

Strategic mobilization of mass media is important for raising public awareness on DRR/DRM. TV and radio are some of the most significant mass media tools due to their outreach capacity. Globally, mass media is not fully equipped and/or used to increase public awareness on disaster risk. Governments and the media need to have a mass communication policy in place. Journalists should be trained on how to improve their own DRM/DRR knowledge as well as methodologies to share this knowledge with the public.

Technological progress should be fully utilized for raising public awareness. Internet and ICT development have the potential for increasing and expanding outreach. Social media is increasingly addressed in 2011 – 2013 HFA reports, reflecting the expectations that result from improving access to prompt information delivery and exchange. On the other hand, several countries addressed the importance of using traditional knowledge, as it can play a role in mitigation efforts and improving resiliency – especially at the community level. Some countries recommended that traditional practices be integrated in education and awareness raising activities. Because traditional knowledge includes local wisdom that is often eroded due to social mobility and urbanization, it is important to document and record these practices.

Priority 4

Reduce the underlying risk factors

Core indicator 4.1

DRR is an integral objective of environment related policies and plans, including for land use natural resource management and adaptation to climate change

More than sixty countries have seen developments in their CCA policies and most report having a general institutional and/or legal framework for CCA policies in addition to, or in lieu of, singular projects or programs. This implies that countries have taken a systematic approach to CCA due to its cross-sectoral characteristics. Integration of DRM and CCA is an emerging issue and not many countries have completed the process with only a few countries reporting joint strategies for DRM and CCA (Table 13). Joint approaches should be promoted to secure resources, avoid duplication and create synergy between stakeholders.

Some countries provided examples of the organizational structures used to facilitate collaboration between DRM and CCA policy makers. Harmonization can be achieved through the participation of DRM agencies in the CCA committees or through organizational restructuring.

There are three challenges regarding integration and joint efforts of DRR and CCA. First is the lack of awareness on the part of both DRR and CCA policy stakeholders, which hinders effective coordination. Second, broader interaction with land use and building policies is necessary due to their close relationship with DRR and CCA. CCA and disaster risk should be considered through a territorial development lens. Third, local level implementation is often reported as a challenge for CCA. This implies that local level collaboration of DRR and CCA is difficult.

Many countries report general environmental policy frameworks (such as environmental laws) and regulations. The challenge most countries face is an inability to put policy into practice and/or enforce those that have been passed into law. Reasons for the lack of enforcement are different depending on the country.

Table 13: Examples of how countries integrate DRM and CCA strategies

Pattern A: Joint strategies	
Cook Islands	Joint National Action Plan for DRM and CCA (JNAP)
Maldives	Strategic National Action Plan (SNAP)
Niue	Joint National Action Plan for DRM and CCA (JNAP)

Pattern B: Integration of DRR in CCA strategies	
Bhutan	The National Adaptation Program of Action
Comoros	National Action Plan for Adaptation to Climate Change and Variability
Germany	German Strategy on Adaptation to Climate Change (2008)
Niger	National Action Plan for Adaptation to Climate Change and Variability
Panama	Integrated Management Strategy for Climate Change

Source: HFA Progress Report for each country.

The first challenge cited by several countries was that laws were unclear and outdated, and few offered avenues of reprieve/sanctions in the case of violation. Second, socio-economic conditions hinder the enforcement of environmental laws and regulations. Conservation of ecosystems often conflicts with the economic interests of the private sector and in some countries people need to exploit natural resources because they are impoverished. In this regard, there is a lack of awareness regarding environmental vulnerabilities, concerns and policies.

Third, a shortage of human and financial resources has prevented governments from monitoring the enforcement of laws and regulations. In some cases, corruption is part of the issue. Furthermore, the lack of coordination between sectors and levels of governments sends inconsistent messages and acts as a barrier to the implementation of law. As environmental and DRM issues are cross-sectoral and rather new, coordination across sectors is generally inadequate, especially with regards to environmental and DRR policy. Creating a systematic and comprehensive strategy contributes to strengthening the coordination of stakeholders.

Water and coastal management are often addressed given their importance in reducing hydro-meteorological losses. Many countries mentioned issues relating to water management infrastructure, such as sea walls, river dykes and drainage – unsurprising considering that flooding is one of the most frequent disasters. Flood management is increasingly recognized as a combination of hard (e.g. levees, dams, drainage) and soft measures (e.g. awareness raising through hazard mapping, land use planning, improved building codes and evacuation planning). When it comes to water infrastructure, standards and criteria should be reviewed to reflect hazards linked to climate change. Forest management is also often raised due to the positive impact it can play in reducing disaster loss.

The conservation of environmentally vulnerable areas is done through national regulation (e.g. the designation of national parks). Such national area designation tends to have a limited coverage of

sensitive areas, making community involvement an important issue, for example in the active demarcation of areas for protection and conservation. Aside from regulation, some countries have introduced economic incentives to protect at-risk areas, such as tax deductions to citizens for selling or donating wetlands to a qualified organization or policies that entail an environmental payment system to protect vulnerable natural resources and ecosystems from exploitation. The challenges to such measures are the costs and the need to raise public awareness.

- **Vanuatu:** Bringing together the task force for National Adaptation Plan of Action (NAPA for climate change) and a national DM action plan (NAP for DRR-DM) may help strengthen coordination and adaptation of a multi hazard approach and may help government and donors to make balanced decisions regarding the most pressing DRR priorities based on a holistic assessment of all hazards.
- **India:** Stakeholders need to understand the various facets of environmental vulnerabilities especially in the context of hazard risks and how they can affect natural ecosystems and environmental resources.

Core indicator 4.2

Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk

Women, children, the elderly, the disabled and the poor are often addressed as a country's "vulnerable people". Social policies to cater to these groups include poverty reduction, employment policies, and micro-finance and micro-insurance measures. Information regarding social development is not as detailed as other HFA Core Indicators. This is due in part to the perception that social development policy does not constitute DRM policy.

Poverty is seen as an important underlying factor that makes people more vulnerable in times of disaster. Poverty hinders the implementation of DRM activities even though DRM can contribute to reducing disaster losses and avoiding the poverty trap. Social policies should be reviewed using a DRM perspective and agencies pursuing DRM should work in close cooperation with policymakers to elevate DRM issues on the social policy agenda.

The most addressed challenge under this indicator is financial. Developing countries that suffer from budgetary constraints often have a large percentage of poor people. Second, some countries address the need for assessing vulnerability and identifying whom the vulnerable are and how vulnerable they are. Such assessments are important in terms of providing efficient and effective social safety nets and also ensuring a sense of fairness, providing accountability and curbing corruption.

Third, informal social safety nets based on family, religious or traditional social structures can improve the resiliency of people. Several countries report the existence of such informal social networks even though they have been on the decline due to urbanization. While urban vulnerability is an important facet of DRM, the impact of urbanization on rural areas is equally important. Fourth, communities in remote locations tend to experience slow economic growth and have little access to formal social safety

nets. Remote regions tend to be some of the most disadvantaged and vulnerable.

Gender issues cut across several HFA Core Indicators. In many cases, women are regarded as both a vulnerable group that requires protection, and active agents for change that have a role to play in reducing disaster losses. The consideration of gender issues is especially important in the disaster response and reconstruction phases. In the disaster response phase, special care should be given to responding to the specific needs of women; while their participation should be expected in reconstruction phases in order to achieve more resilient societies. While policies addressing gender in DRM policy have been reported in some countries (e.g. national guidelines have been drafted in Rwanda) they are often described within the wider framework of societal gender equalization policies. It is important that DRR issues are integrated into these gender equalization policies.

More than ten countries listed food security activities in the context of DRM. Some highlighted the use of advanced technologies such as early maturing and drought resistance seeds, while others spoke of traditional farming practices like food preservation. The combination of technological progress and traditional knowledge is important in ensuring food security, especially with regards to drought risk. Both supply side support (e.g. risk proof crops) and market policies are important for improving food security and protecting the agricultural sector.

Core indicator 4.3

Economic and productive sectoral policies and plans have been implemented to reduce the vulnerability of economic activities

Many countries addressed the protection of economically productive and/or important sectors. Lack of awareness amongst relevant ministries and private stakeholders regarding risk-proofing economic activities is perhaps the biggest challenge in planning and implementing DRR policies to protect such sectors from the impact of disasters. Agriculture and tourism were the most frequently referenced sectors, possibly because they are among the most vulnerable in times of disaster, and because commonly they are the most important to the macro-economy in several countries.

Many countries emphasized the importance of critical infrastructure protection as it ensures the business continuity of government and the private sector. Critical infrastructure is important for the speedy roll-out of emergency activities and contributes to improving resiliency in society. Sectors like energy, transport, communication and water are seen as critical infrastructure. Often network based, a disruption in one part of the infrastructure raises the possibility for damage across entire networks. Several high-income countries show a high level of institutionalization and have established strategic documents for the protection of critical infrastructure (Table 14). Public and private partnerships have been observed in such initiatives reflecting the increasing share of infrastructure that is privately owned.

Critical infrastructure protection is a relatively new policy area that has attracted more attention following the September 11th attacks in 2001 in the United States of America, and in the wake of recent disasters such as the Great East Japan Earthquake and Thai Floods of 2011. It has been recognized that damage to key infrastructure, such as energy and transport, will prolong deleterious economic impacts.

The interdependence of critical infrastructure should be analyzed. For example, the disruption of the energy sector affects all other sectors. Links between sectors should be considered to prevent cascading effects from occurring. The role and responsibility of critical infrastructure providers should be considered in all phases of DRM.

Many countries commented on the fundamental importance of business continuity planning (BCP) for societies to recover smoothly from disasters, and yet the private sector has little incentive, or has yet to identify the incentive, to invest in BCP and/or contingency planning. In such cases the government must facilitate BCP and contingency planning in the private sector through the enforcement of law and regulation and by providing technical guidance or financial incentives. This is especially important for small and medium enterprises (SME) that often lack expertise and financial resources to prepare such plans.

Several countries made remarks about the need to provide incentives for private sector entities so that they implement DRR activities; very few countries have such policies in place. Incentives include subsidies, tax deductions and low interest loans to implement DRR activities. Several innovative incentive schemes, such as incentives for the use of the latest DRM technologies and lending schemes utilizing disaster reduction ratings are proactive because they promote advanced DRM in the private sector.

Table 14: Examples of critical infrastructure protection strategies

Country	Strategy
Australia	Critical Infrastructure Resilience Strategy (2010)
Canada	National Strategy for Critical Infrastructure
Germany	Guide “Critical Infrastructure Protection: Risk and Crisis Management”
New Zealand	Civil Defense Emergency Management Act (2002) Lifeline Engineering Project
United Kingdom	National Security Strategy Sectoral Resilience Plan
United States of America	National Infrastructure Protection Plan (2009)

Source: HFA Progress Report for each country.

Core indicator 4.4

Planning and management of human settlements incorporate DRR elements, including enforcement of building codes

Many countries addressed the importance of building codes, which points to the relevance of such tools in achieving HFA indicator 4.4. Several countries reported deficiencies in building codes. In many cases the building codes are not legally binding and sometimes the codes remain in draft form for a long time. A lack of legal obligation weakens code enforcement. In some cases, the coverage of building codes is restricted in certain areas, in others there are questions as to whether building codes are up to date or appropriate.

Second, many countries cited weak building code enforcement as a challenge. The most common reasons for weak enforcement include governments lacking technical and financial capacity to monitor and enforce the codes, and resistance of both the private business and the general public in adhering to the law. With regards to enforcement, boosting the capacity of local government to enforce legalities surrounding building codes is a challenge. In many countries building codes are often applied and enforced by local governments because regulations should be in alignment with local context. In order to develop and implement building codes that reflect local risks, it is important to strengthen the human and financial resources of local governments. National governments must support and complement the capacity of their local counterparts.

Raising awareness in the private sector and amongst citizens is important. Observing building codes entails an additional cost; private developers trying to maximize profit, and poor people attempting to save money, resist complying with strong regulation. Raising awareness of building codes and zoning, and why these practices are important is key. Economic interests should be balanced with safety concerns. Risk assessments of buildings will contribute to increasing owner and resident

awareness of risk. Adequate training will create awareness amongst engineers, architects and masons of disaster resistant technology and will help cost efficient resilient building methodologies.

The last challenge is retrofitting existing buildings so they comply with the most recent building code. Because retrofitting is costly, some governments provide financial incentives in the form of subsidies and tax reductions. Historic buildings require additional attention and care in terms of retrofitting. An emerging issue is that building codes should integrate risk from climate change where possible. Because retrofitting is costly and challenging, proactive building codes should be crafted.

- **Marshall Islands:** Raising awareness of what building codes and zoning mean and why they are important is desperately needed.
- **Canada:** Since infrastructure built today will be in use for decades to come, it is important that adaptation options (taking changing climate into account) are developed and that future changes be incorporated into design where possible.
- **Pakistan:** The continuous increase in population and urbanization will push more people to move to hazard prone locations; thereby increasing year on year the proportion of society that is vulnerable.

Many countries expounded on the need for land use planning and regulations for the achievement of indicator 4.4. Land use planning and regulations are applied not only to the buildings but also to certain areas based on an analysis of social, economic and environmental considerations and the coordination of diverse interests and concerns. Though there are differences between building codes and land use planning, the challenges they face regarding DRR are similar.

First, many countries reported a lack of legally binding land use regulations that integrate DRR considerations. Even if the national level government creates risk-proof land use planning acts or frameworks, without application at the local level, positive impact is unattainable. Raising awareness and capacity building at the local level is required for improving the enforcement of land use plans. Second, several countries commented on the weak enforcement of land use regulations. One reason for this is the lack of human resources available to the government for monitoring and enforcing land use regulation. The lack of knowledge of land use planning and its relation to risk, also contributes to weak enforcement. Third, significant challenges in land use planning emerge as a function of development pressures and coordinating diverse interests and concerns in the face of limited land availability. The conflict of interest can be strong and may entail political intervention at the highest level; an increase in vulnerability to hazards in the long term can be the result. Population growth and urbanization puts pressure on developing more land even in areas prone to hazards. Technological innovation can contribute to solutions by strengthening building structures in risk prone areas.

Fourth, there is a need for legal and organizational coordination amongst DRM agencies, town and country planning bodies, public works groups and environmental organizations. Land use planning reflects economic, social and environmental priorities in the country and improved coordination will lead to the creation of frameworks for risk sensitive land use planning. Fifth, another issue that attracts attention are the problems that precede the establishment of regulation. In many legal systems, regulation of a new law does not need to be applied to pre-existing situations. Unless a government provides incentives to remedy existing problems, the pre-regulation state can remain for a very long time.

Many countries raised concerns about informal settlements and unplanned urban growth. Unplanned urban growth is caused by social and economic pressures for development and is accompanied by under-developed urban infrastructure. The poor often live in informal settlements in hazard-prone areas, which increases their exposure and vulnerability to disasters. The lack of land use planning and inadequate enforcement has contributed to the development of informal settlements. Balanced development between urban and rural regions will decrease the pressure for urban migration, contributing to improved resilience in both urban and rural areas. In this regard, spatial planning (which tends to have a wider geographic coverage than local plans) can contribute to the shared spatial development vision held by diverse urban and rural stakeholders.

Core indicator 4.5

DRR measures are integrated into post disaster recovery and rehabilitation process

When addressing the need to integrate DRR into recovery and rehabilitation processes, many countries identified the need for institutionalizing recovery plans or frameworks; several countries reported having such plans or frameworks in place (Table 15). Without systematic institutionalization, DRR integration in recovery and reconstruction is ad-hoc at best. Such institutionalization can ease coordination across sectors, especially between DM and development agencies. Good practices exist where comprehensive frameworks national development strategies and national recovery plans, improving the engagement of development sectors. Tools for risk sensitive investment are also relevant for the reconstruction process – for example risk assessments and economic assessment (e.g. cost benefit analyses). The process of carrying out loss and needs assessments can be utilized for integrating DRR into reconstruction efforts.

There are many challenges in implementing risk sensitive recovery and rehabilitation activities; the first being the financial cost. Even if disaster risk assessments are integrated into the design process of reconstruction projects, inadequate allocation of funds will result in a shortsighted recovery approach that does not take into consideration long-term DRR impacts. The second challenge is the lack of capacity at the local level. Local governments are often in charge of long-term recovery and rehabilitation efforts. This means the involvement of the local government and community is necessary. Third, a lack of awareness on the importance of DRR in reconstruction efforts hinders the effective implementation of programming. Shifting the paradigm from reactive to proactive programming should be emphasized in the reconstruction phase.

Fourth, governments are often pushed to ramp up recovery efforts in the reconstruction stage even though DRR integration requires additional funds

and time. Speed is an important factor for carrying out reconstruction efforts in the wake of a disaster; however, consensus building regarding reconstruction (e.g. identifying new locations for infrastructure) takes a long time. Governments need to find ways to establish a dialogue with communities on risk sensitive development in times of peace to speed up consensus making processes after disaster.

Many developed countries gave examples of how the national government financially supported sub-national institutions in the wake of a large disaster. Canada requires a certain percentage of the budget to be allocated for DRR in assistance programs. The federal government in Australia supports their state counterparts in implementing mitigation strategies in reconstruction efforts.

- **Niger:** Despite the inclusion of DRR in existing recovery programs, the lack of financial resources impedes their continuity.
- **Bangladesh:** In many cases, disaster managers prioritize the implementation of time bound projects rather than taking more time and investing it in innovative DRR tools and programs.

Many country reports highlighted the need for improving physical structures, with most countries highlighting the strengthening of housing and building structures and several addressing the importance of infrastructure reconstruction. This reveals the importance of accorded DRR for the strengthening of physical structures. In addition, some countries raised the concern of environmental improvement. The post-disaster period is also a good time to review existing regulations and update them if necessary. Several countries commented on the importance of reviewing and enforcing regulation (especially with reference to building codes) in this phase.

Many countries reported having housing relocation policies in place. The immediate aftermath of a disaster is the time when most citizens want to move from hazard prone areas to safe zones. Though this relocation may seem reactive, it is in fact proactive as it helps to prevent future losses. Relocation plans are slow to catch on in many countries due to insufficient funds, weak political will and because people do not want to migrate to new areas far away from their current homes. Limited safe areas, due to topography and land tenure systems, also make relocation difficult. Relocation policies

often combine land use regulation and building strengthening; they should also include social components that acknowledge the need to keep communities together.

Many countries provided details on the support they gave to affected populations, with several countries explaining how they supported businesses and employment, especially SMEs and small-scale farmers. Public private partnerships and co-operation with the financial sector is a fundamental factor in business support schemes.

Table 15: Examples of recovery and reconstruction frameworks

Country	Organization	Plan or framework
Australia	Disaster Recovery Committee	National Disaster Relief and Recovery Arrangements
Bangladesh	National Disaster Response coordination Group	Early Recovery Action Plan
Vanuatu	National Recovery Committee	Vanuatu Risk Reduction and DM Arrangement

Source: HFA Progress Report for each country.

Core indicator 4.6

Procedures are in place to assess the disaster risk impacts of major development projects, especially infrastructure

Public investment plans are, logically and practically, in alignment with economic development planning. More countries addressed DRR integration, or lack thereof, in their public investment plans in the 2011-2013 period, reflecting the growing attention on this issue. Highlighting the need for DRR in public investment planning is critical for risk-proof public investments. On a project basis, it is critical to introduce disaster risk and cost benefit analyses in project evaluations. Several countries reported that disaster impacts are a part of their public investment decision-making processes.

Public investment is often bankrolled by the Ministry of Finance and implemented by diverse sectoral ministries, meaning that cooperation is needed between the various stakeholders. Strong governance arrangements that include guidance from the focal DRM agency, Ministry of Finance and sectoral ministries is imperative for mainstreaming DRR in public investment decision making.

The biggest challenge is overcoming capacity issues with regards to skills, methodology and data availability. Strong leadership and guidance from national governments are required. The second challenge is how to ensure the enforcement of assessment directives. Even if disaster impact assessments are implemented, projects might not comply with recommendations due to financial reasons. Innovative and cost effective approaches for risk proof investment will facilitate implementation. Monitoring and evaluation at the implementation and post-implementation stages will also remedy any setbacks, however weak regulation and insufficient resources for monitoring are likely to hamper progress.

Many countries underscored the importance of disaster risk assessments in relation to environmental impact assessments (EIA). Though EIAs are a well-established scheme in many countries,

disaster risk assessment is relatively new, and consequently, disaster risk assessment is often inadequately integrated in EIA.

Some countries detailed how better governance arrangements can mitigate technical constraints. Cementing the commitment of DRM authorities in the EIA process improves the quality of disaster risk assessments. Cooperation between environment management agencies and DRM institutions will upgrade the effectiveness of EIA by facilitating the smooth exchange of information. Because many investment projects are designed and implemented by sectoral agencies, a better understanding and awareness of DRM by the sectoral agencies is also required.

The first challenge in integrating DRR into EIA processes is determining if there are any technical capacity problems. Disaster impact assessments require technical skills and a sound methodology. Capacity building is required not only for environment ministries but also for other related institutions and private sector entities. To ensure consistency in the application of EIA, a standardized methodology is required; this can be developed by related experts and stakeholders.

Second, the integration of disaster risk assessments in EIA should be implemented in efficient way. Developers have often criticized the EIA for having long procedures that delay the entire process and decrease project efficiency. EIA also places an administrative burden on government officials, which is a reason for limiting the application of EIA to projects over a certain threshold. Finding a balance between risk concerns and economic and administrative efficiency should be the goal of stakeholders. Streamlining and clarifying the entire process should help mitigate additional requirements.

Third, many countries mentioned weak enforcement as challenge. Insufficient financial and human resources and poor monitoring procedures in implementation and post-development phases lead to the weak enforcement of EIA recommendations. Sectoral agencies and private sector entities taking part in EIA process often have little awareness and understanding about the risks and are thus disinclined to follow recommendations. EIA reports and recommendations need to be easily understood by developers and the general public. Boosting the capacity and resources of implementation agencies and raising the awareness of developers are necessities.

Lastly, EIA has potential for extended coverage and deeper analysis. The Indonesian government has required more comprehensive Strategic Environmental Analysis (SEA) to complement EIA in areas that have many development projects and where the environment is at risk. Disaster risk considerations, if properly integrated into the SEA, have the potential to be applied to any area at the policy, plan and program levels (as opposed to the project level alone).

- **Lao PDR:** The indirect and longer term impacts on ecosystem productivity, environmental resilience and social capacity for DRM are not adequately considered in EIA.
- **Fiji:** When risk evaluations are taken and information on hazards and vulnerabilities reach decision makers, insufficient resources can limit the implementation of recommended DRR measures resulting in a high level of accepted risk.

Priority 5

Strengthen disaster preparedness for effective response at all levels

Core indicator 5.1

Strong policy, technical and institutional capacities and mechanisms for DRM, with a DRR perspective, are in place

Infrastructure for disaster avoidance and mitigation is one of the main tools for DRR. However, building, maintaining and upgrading infrastructure is costly, which hinders overall improvement. Climate change is another factor increasingly considered in infrastructure planning and development. Coordination between the DRM sector and infrastructure investment agencies (e.g. the Ministry of Public Works) is essential for infrastructure to be made resilient. Some infrastructure is not erected for the *sole* purpose of disaster mitigation, but plays an important role in DRR and DRM regardless. For example, road infrastructure is important for search and rescue activities and delivery of aid during emergencies.

School and hospitals are one of the most important sectors for providing critical public services. DRR measures are divided into hard and soft policies: protecting building structures by assessment, compliance to regulation and retrofitting, and relocation to safer areas, as well as improving preparedness through contingency planning and drills. With reference to health, besides promoting contingency plans for every hospital, national level contingency plans are often prepared.

As for the improvement of the physical structure of facilities, some countries prepare national guidelines or issue requirements that structures must be resilient to disaster. Few countries have implemented assessments and retrofitting for all schools and hospitals. Consistent policies, awareness raising and funding is required for retrofitting existing facilities and building new risk-proof facilities. Nepal points out the difficulty in balancing the urgent need for the simultaneous construction of many schools, and factoring in risk, which often entails additional costs and time.

To improve preparedness in schools, the focus is on students, teachers and parents; while in hospitals the focus is on patients, doctors and nurses. As most countries can boast large numbers of schools and hospitals (both public and private), sharing best practices is important for transferring knowledge from one facility to another. Improving resiliency in schools and hospitals is important not only because children and patients are vulnerable groups and require special care, but also because they are important facilities where critical services are provided during times of emergency (temporary shelter for the evacuated and injured). Schools can play an important role in promoting DRR in local communities.

- **Mozambique:** Little interest has been paid to assessing the disaster impacts and climate change risks on schools and hospitals.
- **Nepal:** Developing safer schools protects the lives of children and, as schools are distributed throughout the country, are an effective medium for disseminating DRM/DRR know-how to communities.

Core indicator 5.2

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 programs

More than 70 countries outlined having response/contingency plans and national institutional frameworks for emergency response (Table 16). Inadequate coordination of contingency plans at the national, sectoral and local levels was raised as a challenge. Improved coordination amongst stakeholders and specific contingency plans is required so as to reduce the risk of overlapping activities.

Regarding sectoral response plans, many countries address health sector plans and the role they have when a country must respond to disasters, especially pandemics. Contingency planning is necessary for a country's strategic sectors, for example, communication, transportation and utilities. Coordination between sectoral plans is important for providing consistent action in emergencies. At the local level, countries report the lack of technical and financial resources as a severe impediment.

Even if contingency plans exist, their impact will be limited if not implemented during the response

phase. The lack of finances is often seen as a challenge to the implementation of activities in such plans. The lack of coordination in the planning process and a lack of awareness both contribute to the poor implementation of contingency plans. The division between policy makers (politicians) and government administrators must be clarified in advance. The chain of command must be clearly outlined in emergency response plans to avoid confusion when disasters occur.

Some countries reported on government BCP which was different from response or contingency planning. Government BCP lists the critical services for which continuous delivery must be assured by governments during and after emergency situations, and specifies resource allocations for such purposes.

Table 16: Examples of contingency plans

Country	National	Sectoral	Local
Bangladesh	National Earthquake Contingency Plan	Ministry and Sectors' Contingency Plan	Local contingency plan at district, sub-district (upazila), and union levels
Colombia	National Contingency Plan	Sectoral Contingency Plans (health, energy, water, agroforestry, environment)	All districts and municipalities have contingency plans
Georgia	Disaster Preparedness Plan, contingency plans	Response plan for all ministries (obligatory)	Legally obliged Local Disaster Preparedness Plan and contingency plans
Niue	National Emergency Plan (2009)	Each department has disaster plans	Village Disaster (or Emergency) Plans are in place for 14 villages
Tanzania	Tanzania Emergency Preparedness and Response Plan	Contingency plans in few sectors	Zanzibar Emergency Preparedness and Response Plan, District Emergency Preparedness and Response Plans in three districts

Source: HFA Progress Report for each country.

- **The Former Yugoslav Republic of Macedonia:** Although many institutions have preparedness plans, legal inconsistencies mean there is an institutional overlapping in the creation of contingency plans.
- **Solomon Islands:** Contingency plans require full implementation and practical testing. Sector participation in drills and exercises is crucial if these plans are to be useful in a practical setting.

Drills and exercises are important in improving the capacity of participants, raising awareness and testing the effectiveness of response plans. Training would be implemented for government officials with a focus on building professional capacity, while training for the public would be developed with a focus on awareness raising. Training for decision makers, including politicians and mayors, has also been implemented in some countries. Also of interest is the establishment of specialized training institutes, and the systematic approaches being defined by law or exercise strategy. Some countries have also implemented large-scale exercises that mobilize large portions of the population.

There are challenges in implementing drills and exercises. First, a lack of funding hinders the use of regular drills in many countries, while time and resource constraints of the host agency serve as a secondary challenge. Second, appropriate training must be provided to fill capacity gaps. Training needs analysis can be developed through the evaluation of ongoing training in improving capacity. Considering the turnover rate of government officials, the development of a database for tracking training records of officials would be helpful.

Missing link between training and contingency planning is pointed out. Planning cycles (plan-do-see) are not always executed properly. Exercises and simulations should be considered as an opportunity for reviewing contingency plans by checking the effectiveness of the plan and examining how to fill the gaps.

Core indicator 5.3

Financial reserves and contingency mechanisms are in place to support effective response and recovery when required

Many countries cited having contingency fund mechanisms in place – including semi-contingency funds that do not carry over to the next fiscal year (Table 17). Because of the wording, it was often difficult to differentiate between contingency funds and annual allocations for contingency without carry over; Differences should be clarified in order to understand which schemes countries should adopt and to understand the implications for public finance programs and entities.

Many countries cited the lack of financial resources as a challenge, preventing the creation of contingency mechanisms. In other instances, no funds have been set aside even though a mechanism exists. The main reasons for insufficient funds include competing priorities, increased demand for response and recovery, and general economic conditions. Some countries reported they do not receive enough finances from the fund and need to find complementary mechanisms to respond to large-scale disasters.

Several countries noted the importance of timely fund release. One objective of contingency funds is to provide immediate finances without having to engage in the time-consuming process of budgetary reallocation. The speed of government response influences the scale of a disaster, especially in the

immediate response phase. Attention to speed is therefore crucial for DM agencies, as is the transparency of contingency fund design. The balance between the need for speed and ensuring democratic accountability protocols must be pursued.

Discussions on contingency funding often take place at the central level within the Ministry of Finance. This has led to concerns about the role of sectoral agencies/ministries. Some countries have local level contingency fund mechanisms in place, which have proved to be useful in many cases. Few of the country reports were explicit about the use of a contingency fund; however, concerns did surface regarding the use of contingency funds to finance immediate response only. Some countries discussed the need to make financing available for DRR (and reconstruction).

Several countries highlighted that they do not have contingency funds in place and instead respond to relief needs by budget reallocation (regrouping existing budget lines). While two countries intentionally chose this option, many others were obliged to adopt this approach, in part due to their inability to establish contingency financing mechanisms. Fundamentally, budget reallocation takes time and can affect the smooth delivery of relief efforts. In the long run, it can also affect economic growth by depleting funds allocated to other development projects.

Table 17: National contingency fund mechanisms

Country	Name of Scheme	Scale
Bangladesh	Disaster Response Fund	USD 300 million
Haiti	National Emergency Fund	USD 23 million
Marshall Islands	Disaster Assistance Emergency Fund	USD 400,000 annually USD 1.2 million as of 2012
Mozambique	Contingency Plan Funds	USD 3-4 million

Source: HFA Progress Report for each country.

Several countries addressed the possibility of acquiring external financial resources such as aid from international organizations and INGOs. External financing has been important in complementing (often meagre) resources in developing countries, however the expectation of acquiring resources in this way risks hindering national efforts to establish contingency mechanisms.

Several countries have dedicated catastrophe insurance, others in need of such insurance to protect public finances, subscribe to a regional facility. The expectations for having a regional insurance mechanism in place are high in some regions (e.g. Pacific, Africa and southeastern Europe). The need for catastrophic insurance and bonds comes from the inadequacy of funds for recovery efforts, especially after large-scale, intensive disasters. The problem is that insurance is often costly, and a regional mechanism is required to spread the risk and decrease premiums to a reasonable level. Catastrophe bonds are not prevalent and Mexico is the only country that reports having them. Contingency loans were also mentioned in some country reports.

Crop insurance is especially important for countries dependent on agriculture. More and more governments have introduced or are developing schemes for crop insurance. While crop insurance involves an aspect of social policy to support vulnerable farmers and ensure food security, the cost of insurance premiums is often beyond the reach of

farmers. The challenge is determining how to develop the private market by gradually decreasing the involvement of government.

Insurance is the most important contingency mechanism in the private sector. The type of insurance provided (the risks they must respond to and items that are being insured) is dependent on each country. Some countries make insurance a legal requirement, while others debate whether to make insurance compulsory by law. Some countries reported a lack of private insurance markets, and even when there is a market, the penetration rate is too low or at an undesirable level. One reason for such low penetration rates is an absent insurance culture. Raising awareness regarding the importance of insurance is one necessary step. Second, insurance premium payments are out of reach for poor households and communities. Governments need to support access to insurance for low-income groups or communities through the use of subsidies on premiums. Other factors that empower private insurers are the existence of reinsurers, enabling laws and regulations, and capacity building of public and private sectors. The strong involvement of government is necessary to support the development of the private insurance market, and public-private partnerships can be a promising avenue for increasing penetration rates.

Table 18: Examples of countries using DesInventar

Country	Date recorded	Country	Date recorded
Argentina	1970-2009	Maldives	1946-2008
Chile	1970-2011	Pakistan	1885-2014
Djibouti	1944-2012	Serbia	1980-2013
Ethiopia	1957-2012	Trinidad and Tobago	1970-2000
Iran	1895-2011	Yemen	1971-2013

Source: HFA Progress Report for each country.

Core indicator 5.4

Procedures are in place to exchange relevant information during hazard events and disasters, and to undertake post-event reviews

Countries cited the importance of information exchange during a disaster and many countries have a functioning central emergency operations center or network. Despite the existence of such centers, many countries have suffered from poor information exchange. Sectoral divides still impede the smooth flow of information, and the clear assignment of roles and institutional arrangements are needed to ensure the commitment of all stakeholders. Technical arrangements connecting different systems and reporting styles are also a challenge due to intensive resource requirements.

Local level information sharing and dissemination have been identified as challenges, as has the importance of fostering stronger links with national governments. Considering that disasters often occur on a scale beyond local administrative borders, the leadership of the national government in defining information templates and formats should be promoted and capacity building facilitated at the local level. Carrying out staff training/drills and updating technological systems is important for emergency operation centers to work smoothly. Information flows should be reviewed and tested regularly through simulations and drills. Regarding the dissemination of information to the public, involvement of the media is important. Institutional arrangements with the media and telecommunications sectors should be established to ensure better information delivery to the public.

Many countries carry out post-event reviews to share thoughts on experiences and lessons learned in preparation for a subsequent event. The review process is important for determining bottlenecks and for sharing information across sectors. Though countries seem to agree on the importance of facilitating such reviews, they are not implemented in a systematic manner. In addition, the commitment of all stakeholders varies, the views of which are

essential to assure relevant post-disaster review and impactful recommendations for avoiding future losses. Lessons from post disaster reviews should be reflected in policy. The distinction made in the United Kingdom between “lessons identified” and “lessons learned” is meaningful in this regard because in some cases, usually due to resource limitations, lessons are dismissed while vulnerability remains.

Countries commented on two kinds of post-event assessments. The first is a rapid assessment of damage, loss and needs, which is urgently required for estimating recovery costs immediately after a disaster. The second is a more detailed analysis that includes economic and social factors and measures the impact of a disaster more accurately and comprehensively. There are five challenges for both kinds of assessments.

The first is the need to establish and improve standardized methodologies for rapid assessments and socio-economic impact analyses. In rapid loss and needs assessments, many countries stated that they had adopted internationally or regionally established methodologies. This is less the case for socio-economic impact analyses. Second, governments need to offer training to researchers and users on how to carry out assessments and analyses. Human capital is important, as speedy needs assessments are essential for the release of emergency funds and applying for international aid. Countries that have well developed insurance markets can complement the human capital provided by the public sector. Public and private partnerships are important in such cases. Third, un-systematic data collection and assessment across sectors can mislead response and reconstruction activities. Coordination across sectors (e.g. developing common data collection templates and adopting a universal methodology) is required. Fourth, it is important to

prepare baseline information in times of calm to facilitate post-disaster assessments and analyses. Fifth, assessments are rarely carried out in remote and geographically inaccessible areas because of limited human resources and the inability of experts to visit such areas. Transportation and communication infrastructure development contributes to the full territorial coverage of assessments.

Fewer countries commented on the use of economic and social impact analyses, than did on rapid loss and needs assessments. An economic and SIA is important for promoting smooth reconstruction and preparing for future events. Analyzing disasters that have occurred will contribute to the CBA and the economic and social impact modeling of probable disasters. Different skills are required for rapid assessment as opposed to comprehensive socio-economic impact analyses implemented at a prescribed time after the disaster. The biggest challenge in carrying out economic and social impact analyses is the lack of common definitions regarding impacts. This leads to ambiguity about the type of data that should be collected. When it comes to social impact analyses – usually implemented to measure the impact of disasters on vulnerable populations – more detailed and disaggregated data based on population groups is required. Estimating the economic and social impact of disasters and storing such information in a database is a precondition for estimating future disaster impacts.

- **United Kingdom:** The collection of lessons learned is only useful if there is a clear process for acting upon the lessons and resolving issues in a reasonable timeframe.
- **Barbados:** Disaster loss data has not been mainstreamed into scientific and financial data streams, hindering the transition from hazard and risk assessment, to analysis of disaster losses and policy/decision-making for recovery funding.
- **Bolivia:** Despite the existence of disaster loss databases like *DesInventar*, the permanent diffusion, easy access and quality of data are challenges.

Some countries reported having a centrally managed “disaster database” to store data of past events, a useful step towards the central management of all DRR related information. The challenge is securing financial resources that can boost efforts in data collection, collation and synthesis. The usefulness of disaster databases will be improved if loss data can be added to the catalogue. To fill the gap between assessing losses and projecting future impacts, data needs to be stored for several years so it can be analyzed. In this regard, *DesInventar* (a conceptual and methodological tool for the construction of databases of losses, damages or effects from disasters) contributed to the construction of disaster loss databases in many countries (Table 18).

If data is going to be used for policy-making purposes, databases should be systematically and regularly reviewed and updated and any technical issues (including collection methods, data definition and coverage) should be minimized. Second, because the coordination of loss assessments across sectors is rare, assessment results are often stored within individual government ministries/agencies. This has led to challenges in creating comprehensive and consistent national disaster loss databases. Third, how disaster loss data is used is a challenge. The capacities required to analyze data and use it for effective policy making may be lacking. Appropriate measures for database use should be researched and communicated to stakeholders and the capacity of potential users needs to be strengthened.

