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Resilient nations.*

Disaster Risk Governance

Unlocking progress and reducing risk

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CRISIS PREVENTION AND RECOVERY



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Cover Photo: A group of women villagers raise their hoes with song, as they prepare for terracing a hilly ground for conservation and irrigation, in preparation of planting crops. Ngozi, Burundi © UN Photo/Penangini Toure

1. BACKGROUND

1.1 Introduction

This report was first commissioned by UNDP in 2013 as an input paper to the Global Assessment Report on Disaster Reduction 2015 under the global call for papers. The call and the analysis presented here responds to an identified need for more comparative studies on how governance systems¹ and development situations have shaped progress on disaster risk management (DRM). This paper reviews a selected number of different governance systems in terms of their institutional structures (centralized and decentralized); distribution of power and decision-making authority; capacities and resources; and role of different stakeholders among other characteristics.

The analysis draws on a variety of governance, risk management and adaptation indices as well as secondary literature from across a range of countries and contexts. It assesses different dimensions of disaster risk governance (DRG) and how these have developed since 2005 when the Hyogo Framework for Action (HFA) was agreed by 168 governments at the World Conference on Disaster Reduction. The aim of the paper is not to test or evaluate the effectiveness of the HFA, but rather to assess the general direction of change with regard to the institutional, policy and legislative environment, and to identify some of the key drivers of progress towards developing more proactive measures to reduce disaster risk and avoid the creation of risk in the future. One broad research question guides this analysis: *What have been the major advances and challenges experienced in the development of disaster risk governance since 2005 and how have generic governance factors and development levels shaped these outcomes?* This question is concerned with the way in which development levels and governance characteristics, such as decentralisation and participation, have influenced risk management policies and practices since 2005 and whether a trend or convergence towards a particular type of DRG system can be identified. In addition, the authors assess the extent to which systems can be considered to have undergone transformational shifts.

The concept of ‘disaster risk governance’ is defined by UNDP (2013a) and used throughout this paper to refer to ‘the way in which the public authorities, civil servants, media, private sector and civil society coordinate at community, national and regional levels in order to manage and reduce disaster and climate-related risks. This means ensuring that sufficient levels of capacity and resources are made available to prevent, prepare for, manage and recover from disasters. It also entails mechanisms, institutions and processes for citizens to articulate their interests, exercise their legal rights and obligations, and mediate their differences’. This definition includes formal arrangements such as laws and regulations and informal arrangements such as coercion and trust, as well as other mechanisms that encourage and deter collective action to manage risk at multiple scales – from the supranational, through to national, regional and local scales. The notion of DRG is used by the authors in both a normative sense, to refer to the quality of these arrangements and, as an analytical tool to explore the different dimensions of governance and how these influence decisions on how to deal with disasters.

Scales of governance is a fundamental concept in the study of DRG, as risk is configured locally but collective responses will vary according to the spatial and administrative scales at which stakeholders act, in accordance with their mandates. The types of measures adopted and the appropriateness of these have been the subject of intense debate in disaster and disaster risk studies, as well as in international, intergovernmental and NGO fora, but the institutions and structures governing these choices have received considerably less scrutiny (Wilkinson, 2013). This paper attempts to fill this gap by examining the DRG systems that shape risk management across a range of development and governance contexts.

1.2 Outline of the Paper

The paper is divided into six sections. The first provides a broad overview of global trends in DRM across those countries that signed up to the HFA and that have reported to the UN International Strategy for Disaster Reduction (UNISDR) about their progress. While these reports have an element of subjectivity, they provide a useful indication of the direction and velocity of change in policies and practices at national and sub-national levels.

Section 2 outlines two approaches used to explore variations and changes in DRG in this paper. The first involves combining different governance and DRM indices to create a composite index of DRG for 167 countries. These indices are: the National HFA Monitor; the Coping Capacity Index and Adaptive Capacity Index from the World Risk Report; and the Readiness Score from the ND-GAIN Index. The second approach involves the selection of eight countries as case studies to explore further different dimensions of DRG using secondary literature. These dimensions are: the distribution of authority and resources for DRM; vertical relationships; horizontal relationships; and informal and formal institutional arrangements for DRM decision-making at different scales.

Section 3 presents an analysis of the DRG composite index, including patterns found within each quartile of the country rankings and anomalies in the table, such as countries like Bangladesh and Cuba, which do not rank highly but have developed effective DRG systems for disaster preparedness and response.



School boats in Bangladesh © David Gough/IRIN

Section 4 provides a summary of the case study country analysis for Japan, the United States, South Africa, Mexico, the Philippines, Nicaragua, Pakistan and Uganda. The dimensions of DRG outlined above are used to explore variations across the case studies in the roles and relationships of different actors and scales of governance, as well as key drivers of change in DRG systems and obstacles to reform.

Section 5 reviews and compares findings from the two analytical approaches and reviews progress over the past decade in developing appropriate DRG reforms at national and sub-national levels.

Section 6 provides some recommendations on how a follow-up to the HFA could help generate a more favourable environment for the promotion of locally owned and driven risk reduction and risk avoidance measures.

1.3 Progress on disaster risk governance under the HFA

A review of HFA national progress reports, the *Global Assessment Report 2011* and an HFA mid-term report reveals a number of interesting trends in DRM across regions and countries. Overall, there has been a strong trend towards developing more comprehensive national DRM laws and more multi-level organisational structures for implementing DRM policies. However, this

progress 'on paper' belies a more complex and less optimistic story in practice. DRM activities largely focus on preparedness and response functions, as opposed to longer-term measures to reduce existing risk and avoid the creation of future risks, and the capacity of local governments to develop their own DRM strategies remains weak.

Since the HFA was agreed in 2005, there has been a considerable rise in awareness and enhanced political commitment among national governments to respond to growing levels of disaster risk. Promotion of the HFA as well as the impact of major disaster events have helped to focus the attention of national authorities on measures that can be taken to reduce risk, prompting some important organisational reforms. In many countries, new organisational structures have been established, and in others where systems already existed they have been modified to include a wider range of stakeholders. National-level platforms for DRM have been set up in over 70 countries, and in 40% of these civil society and relevant development sectors are represented in some way (UNISDR, 2011). This is a huge step, considering that in 2000 many countries did not have any kind of formal organisation at all for disaster management (Quarantelli, 2000). One example is Uganda, where a national platform for DRM has been established with participation from the environment, education, health and agriculture ministries. This Inter-Ministerial Technical Committee, as it is known, brings together sectoral focal points assigned to integrate disaster reduction issues into work plans and budgets, and is replicated at district level (UNISDR, 2007).

The number of national HFA focal points has also grown significantly, demonstrating clear interest by governments in the HFA process. In August 2006, 63 governments had officially designated focal points for HFA implementation; by 2011 this had risen to 192 (UNISDR, 2011). Another encouraging indicator of a growing commitment to DRM is legislative reform. Countries with new or updated laws include El Salvador (2006), Gambia (2007), Indonesia (2008), the Philippines (2009) and Zambia (2010) (UNISDR, 2011).

These formal organisational arrangements for DRM are certainly an encouraging sign that governments and parliaments are taking disaster risk more seriously but, as with any other area of public policy, laws and policy frameworks are only part of the story. Even in countries with adequate legislation and national plans, little is happening on the ground, especially in small, rural municipalities and informal settlements (UNISDR, 2009, 2011). This lack of implementation at the local level can be explained in part by insufficient expertise and resources (GNDR, 2011). However, disasters also present collective action problems because the perceived cost to individuals and governments of investing in DRM is often greater than the perceived benefit. These motivational challenges often prevent action from being taken to reduce risk. Local politicians in particular are influenced by other priorities and by voter opinion (Wilkinson, 2012a). Less visible activities are more likely to be neglected – such as environmental protection and enforcement, building inspections, risk assessments and planning processes – because they are not perceived as vote winners (Williams, 2011). These incentives and constraints are barely recognised in the HFA but are critical to the success of any strategy to manage risk, and impinge on progress towards the HFA's fourth priority area, the reduction of underlying risk factors.

To understand the governance arrangements that shape choices on managing risk, this paper compares DRG systems across a range of countries and contexts. This is done by ranking countries using a composite DRG index, which represents a normative measure of the quality of a country's governance system and its capacity to generate effective DRM policies. Governance aspects of DRM are often identified in United Nations agency and non-governmental organisation (NGO) reports into (UNISDR, 2005; Twigg, 2004), divided into:

- DRM-specific instruments and organisations such as policies, plans, political commitment and mainstreaming of DRM, legal and regulatory systems and partnership arrangements;
- Non-DRM-specific norms, such as accountability, transparency and community participation.

These instruments, organisational arrangements and components provide a conceptualisation of governance that is useful in the promotion of more effective DRM policies, by describing areas of intervention and standards that need to be reached. A combination of these DRM-specific and non-specific governance characteristics are included in the DRG index, as discussed in the next section.

2. RESEARCH APPROACH

2.1 The disaster risk governance composite index

Different indices have been developed to measure the level of disaster risk across countries and some include indicators for DRM capacity or effectiveness. These indices include studies from the Community and Regional Resilience Institute (CARRI) that evaluate community resilience to disasters in the US; the DARA Risk Reduction Index, which focuses on West Africa and Central America; and the Inter-American Development Bank (IDB)'s Disaster Deficit Index (DDI) and Risk Management Index (RMI), which assess financial capacity and identification, reduction and management of risk, along with governance and financial protection, in Latin American countries. Indices have also been developed to measure the ability of countries to deal with and adapt to climate change, such as the Global Adaptation Index (GAIN), prepared by the Global Adaptation Institute. However, the inclusion of governance indicators relevant to DRM in indices with international coverage has been ad hoc and uneven, making it difficult to compare across countries and regions.

The authors have therefore attempted to construct a comprehensive DRG index using three existing indices with global coverage that include both generic governance characteristics and those specific to dealing with environmental shocks and stresses, such as the development of DRM and climate change adaptation (CCA) systems and policies. The composite DRG scores are therefore a representation of how effective one could expect DRM policies to be in each country in managing disaster and climate risk. The obvious methodological limitations of such an index are discussed below, as well as the anomalies that appear in the table. The indicators included in the composite index are based on three global indices:

- 1) A combination of coping and adaptive capacities, as measured in the *World Risk Report 2012* (WRR) (Alliance Development Works, 2012):
 - Coping capacity is defined in the WRR as the 'various abilities of societies and exposed elements (for example critical infrastructure such as nuclear power stations) to minimize negative impacts of natural hazards and climate change through direct action and the resources available' (Alliance Development Works, 2012). It includes therefore, measures and abilities that are immediately available to reduce harm and damage if an event occurs. Perception of corruption (Corruption Perceptions Index), good governance (Failed States Index), the number of physicians per 10,000 inhabitants, the number of hospital beds per 10,000 inhabitants and insurance are all indicators of coping capacity.
 - In contrast, adaptive capacity is understood as a long-term process that also includes structural changes and that encompasses measures and strategies attempting to address the negative impacts of natural hazards and climate change in the future (Alliance Development Works, 2012). The adult literacy rate, combined gross school enrolment, gender parity in education, share of female representatives in the national parliament, water resources, biodiversity and habitat protection, forest management, agricultural management, public health expenditure, life expectancy and private health expenditure have been chosen to measure adaptive capacity.
- 2) The Readiness score is a component of the ND-GAIN Index, an open data browser providing national-level scores of current vulnerability to climate change and readiness to adapt for 177 countries (University of Notre Dame Global, 2012). The Readiness score is directly linked to risk governance as it focuses on those elements of the economy, governance and society that influence the speed and efficiency of absorption and implementation of Adaptation projects (University of Notre Dame, 2012). The GAIN readiness score is the second component of the DRG composite assessment score. It includes:
 - Economic indicators, such as business, trade, fiscal, financial, monetary and investment freedom, as well as government spending;
 - Governance indicators, including voice and accountability, political stability and non-violence, and control of corruption;
 - Social indicators, such as mobile phones per 100 persons, labour freedom, tertiary education and the rule of law.

3) The final index used to generate a composite score is the National HFA Monitor 2013-2015. It is a country self-reporting mechanism that assesses progress against a set of indicators under the five priorities for action of the HFA, namely:

- Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation;
- Identify, assess and monitor disaster risks and enhance early warning;
- Use knowledge, innovation and education to build a culture of safety and resilience at all levels;
- Reduce the underlying risk factors;
- Strengthen disaster preparedness for effective response at all levels.

Indicators from all five priority areas are included in the composite index, as all reflect capacities for risk management and are underpinned by the governance system.

The indicators drawn from the first two indices (WRR's coping and adaptive capacities and the GAIN Readiness Score) represent generic governance conditions such as political stability, trade freedom, access to technology, educational achievement and equity, as well as environmental governance indicators, while the HFA Monitor is more DRM-specific. Several studies, such as Harris et al. (2013) and Wilkinson (2012a), suggest that there is a strong correlation between good governance characteristics and DRM policy effectiveness. Many of these normative aspects of governance are included in the WRR and GAIN Readiness Scores, while more risk management-specific indicators can be found in both the National HFA Monitor and the WRR, and are useful for estimating the capacity of governance systems to develop legal, regulatory and enforcement frameworks for DRM, as well as risk reduction and emergency management

measures, information-sharing and risk assessment systems. Moreover, the qualitative information included in each HFA progress report provides a useful source of contextual commentary on progress in DRM across countries (Shepherd et al., 2013). The fact that HFA progress is self-reported means that each country is able to independently assess its own capacity and take steps to improve weak areas, but the data should be treated with considerable caution. The need to include this dataset in the analysis is symptomatic of a wider lack of consistent, independent and comparable data on DRM institutions, policies and practices (Shepherd et al., 2013). All three indices were normalised and weighted equally to obtain a number between 0 and 5 for each country, with higher scores representing greater DRG capacity. More than 170 countries were ranked in this composite index.



Kampong Ayer Water Village, Bandar Seri Begawan, Brunei Darussalam.

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2.2 Governmental and political systems, levels of development and risk

The authors explore the relationship between the enabling institutional environment for risk management (DRG) and other political and development characteristics using existing global indices. Political characteristics are measured using the Fund for Peace (FFP) Failed States Index 2013 and the Economist Intelligence Unit (EIU) Democracy Index 2012.ⁱⁱ The Failed States Index is based on 12 key political, social and economic indicators (each split into an average of 14 sub-indicators). Social indicators include demographic pressures (pressures on the population such as natural disasters or diseases), refugees and IDPs (pressures associated with population displacements), group grievances, migration and brain drain. Economic indicators include uneven economic

development, poverty and economic decline. The Failed States Index also uses political and military indicators such as state legitimacy (level of corruption and representativeness), public services (provision of health education and sanitation services), human rights and rule of law, security apparatus, fractionalised elites, external intervention (when the state fails to meet its international and national obligations, international actors may intervene). The 12 indicators of the Failed States Index were added together to produce a number between 0 and 120 (0 = the most stable). Countries were then grouped in the following categories:

- very stable: a score between 0 and 30 out of 120;
- stable: a score between 30 and 60 out of 120;
- medium: a score between 60 and 80 out of 120;
- fragile: a score between 80 and 100 out of 120;
- very fragile: a score between 100 and 120.

These categories can be clustered to represent strong states (very stable and stable categories), which are primarily developed industrialised countries with the ability to deliver high quality and quantities of public goods and services, including security; weak states (medium category) that provide only inconsistent or limited quality and quantities of public goods and services; and failed states (fragile and very fragile categories), where public goods and service provision is seriously deficient.

The EIU's Democracy Index is based on 60 indicators grouped in five inter-related categories, namely electoral process and pluralism, civil liberties, the functioning of government, political participation and political culture. The index is made up of numbers from 0 to 10 (10 = most democratic) and countries are grouped in four main categories according to their scores (EIU, 2012):

- 'Full democracies' include countries with scores of between 8 and 10, in which political freedoms and civil liberties are respected and underpinned by a political culture conducive to the flourishing of democracy. Countries considered by the index to be full democracies enjoy independent and diverse media, an effective system of checks and balances and an independent judiciary, and have only limited problems in the functioning of their political systems.
- 'Flawed democracies' are countries with scores of between 6 and 7.9, in which free and fair elections are conducted and civil liberties are respected. However, these countries still experience significant weaknesses in other aspects of democracy, such as problems of governance, underdeveloped political culture and insufficient political participation.
- 'Hybrid regimes' include countries with scores of between 4 and 5.9, where elections have irregularities and there are weaknesses in political culture, the functioning of government and political participation. Corruption is often widespread and the rule of law is weak, as is civil society.
- 'Authoritarian regimes' are countries with scores of below 4, where state pluralism is absent or limited, formal institutions of democracy have little substance, elections are not free nor fair, civil liberties are disregarded, media are controlled by the ruling regime, the judiciary is not independent and repression of criticism of the government as well as censorship exist.

Development characteristics are represented using the UNDP Human Development Index (HDI) 2013.ⁱⁱⁱ The HDI is a composite measure of indicators along three dimensions: life expectancy, educational attainment and command over the resources needed for a decent living. Scores are represented by numbers between 0 and 1 (1 = highest) and countries are grouped in four categories according to their scores (UNDP, 2013b):

- very high human development (0.8 to 1);
- high human development (0.712 to 0.8);

- medium human development (0.536 to 0.710);
- low human development (0 to 0.534).

Finally, the level of multi-hazard risk for each country is derived from an analysis carried out by the UK Met Office for a report by Shepherd et al. (2013), *The geography of poverty, disaster and climate extremes in 2030*.^{iv} The level of hazard risk is based on a country's exposure to five hazards (droughts, floods, high temperatures, tropical cyclones and earthquakes) between 1971 and 2000.

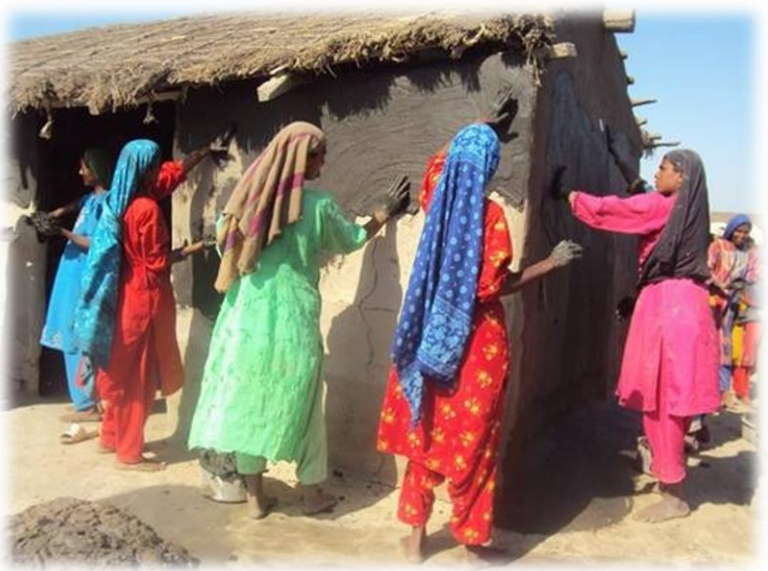
2.3 Case study selection and analysis

Understanding the dynamics of complex governance systems and how these shape risk management decisions is a challenge. Relevant conceptual frameworks in the social sciences, such as regime theory, new institutional economics and game theory, fail to capture the complex, context-specific nature of governance regimes (Young, 2007, cited in Pahl-Wostl, 2009), while policy-oriented research on DRM and CCA tends to conflate governance with normative concepts of good governance. The governance indicators included in the DRG composite index conceptualise governance in such a way as to identify areas of intervention and standards that need to be reached. However, what this conceptualisation gains in instrumentality it loses in analytical power, as it does not explain how the governance components evolve, how they are connected or their specificity to context. In short, lists of governance aspects of DRM are of limited explanatory use as they describe outputs and not institutional processes.

In order to overcome this constraint and contrast the results from the global analysis of DRG capacity with a more in-depth study of institutional relationships and change, four dimensions of DRG have been identified:

- distribution of authority and resources;
- actors and networks (horizontal governance);
- central-local arrangements (vertical governance);
- formal and informal institutional relationships (which cuts across the previous three).

To further explore DRG and in particular to understand changes since 2005, eight case studies were selected for further analysis. This selection was based on two criteria: i) ranking in the DRG capacities table and ii) availability of relevant literature. The first criterion was that case study countries needed to represent different levels of capacity, based on rankings in the DRG capacities table. Two countries were selected from each quartile of the table, based on their representativeness of the development and governance characteristics of other countries in the same quartile. The second criterion was the availability of secondary data on the selected countries. Several countries in each quartile met the first condition, but for many there was very little literature on DRG characteristics. In order to select the two countries in each quartile, a review of journal articles (using MetaLib) and grey literature (using Google Scholar and PreventionWeb) was conducted using a number of keywords (see Table 1).



Women in a cash-for-work programme plaster their houses with mud to make them flood proof © UNDP Pakistan

Table 1: Search terms for academic and grey literature

First Search	Second Search
• Disaster risk governance • Disaster risk reduction DRR • Disaster risk management DRM • Institutions and DRM/DRR • Reforms and DRM/DRR • Formal/Informal institutions and DRM/DRR • Central/Local governance/institutions and DRM/DRR • Actors and networks and DRM/DRR • Capacities and resources and DRM/DRR • Distribution of authority and DRM/DRR • Social capital and DRM/DRR • Political economy of disasters/DRM/DRR • Regulations and disaster/DRM/DRR • Disaster/DRM/DRR legislation	• Fragile states and DRM/DRR • Failed states and DRM/DRR • Catalyst for change in DRM/DRR • Change in DRM • Adaptive and coping capacities, disasters • Enabling environment for effective DRM • Conflict and disaster governance • DRM and authoritarian regimes • Climate change adaptation and governance • Political champions disaster and climate • Réduction des risques de catastrophes • Gestion des catastrophes naturelles • Préparation aux risques de catastrophe naturelle • Institución/GRD/RRD • Gobierno/GRD/ RRD • Gobernanza/GRD/RRD • Gobernabilidad/GRD/RRD • Toma de decisiones/GRD/RRD
⇒ Around 55 academic documents	⇒ 40 new documents

The articles selected for inclusion in a database were ones that looked at decision-making on DRM at different scales and at the governance systems that shape these decisions. The literature review searches were carried out in English, Spanish and French, and eight case studies were selected:

- Quartile 1: Japan and the United States
- Quartile 2: South Africa and Mexico
- Quartile 3: Nicaragua and the Philippines
- Quartile 4: Uganda and Pakistan.

These countries therefore represent a mix of DRG capacities (signified by their rankings in a composite index of generic and DRM-specific governance characteristics) and geographical coverage, while at the same time can be considered to be representative of other countries in the same quartile. Thus, the intention is that results from the case study analysis on how different aspects of the governance system have shaped progress on DRM can be generalised to countries and contexts elsewhere.

3. ANALYSIS OF THE DISASTER RISK GOVERNANCE COMPOSITE INDEX

3.1 Observations on variation in disaster risk governance

Countries in the DRG composite index have been divided into quartiles according to their DRG score. The first quartile includes countries that have what could be considered to be favourable DRG regimes, while the last quartile (fourth quartile) incorporates countries that face significant governance constraints for developing effective DRM policies. Table 2 compares these country rankings on DRG characteristics with development levels, political conditions and government structures, as well as their risk profiles.

Some broad trends can be identified:

- Countries that have the most favourable governance characteristics for developing effective DRM measures are mostly European and OECD countries with very high levels of human development, political stability and democracy. The first quartile includes New Zealand, Switzerland, the Netherlands, Australia, Finland, Norway, Japan, Slovenia, Sweden, the UK, Denmark, Canada, Iceland, Hungary, South Korea, Germany and the US.
- Countries in the second quartile are mainly in Latin America and the Caribbean (30.9%), Africa (19%) and the Middle East (16.7%). Almost half of them are characterised by high levels of human development, medium stability and what the EIU refers to as 'flawed democracy'. Examples of countries in the second quartile include Argentina, Mexico, Colombia, Panama, Cuba, Peru, Brazil and China.
- The third quartile includes countries in Africa (31.7%) and Asia (22%) with medium levels of development and stability, as well as 'hybrid regimes'. Countries in this quartile include Morocco, Kenya, Senegal, Bolivia, Honduras, Vietnam, India, Bhutan and the Philippines.
- Finally, countries in the fourth quartile are mainly African nations (66.7%) and over half are considered fragile and authoritarian, with an even higher predominance of low levels of human development. These include Sudan, Togo, Burundi, Uganda, Côte d'Ivoire, Cameroon, Comoros, Democratic Republic of Congo (DRC), Central African Republic, Afghanistan, Myanmar, Chad, Zimbabwe and Guinea-Bissau.

This analysis suggests that high levels of human development, political stability and democracy are key to creating an enabling environment for DRM. However, this observed relationship could be due to the fact that some of the dependent and independent variables are the same – for example, some of the generic governance indicators included in the composite index (e.g. corruption), are also included in the Failed States Index and the Democracy Index. To assess the importance of this, countries were ranked again but only according to their governance scores relevant to risk management (i.e. only the HFA Monitor was used). The results can be seen in the second column of Table 2. Notably, the rankings do not change significantly, though some lower-income, fragile and more authoritarian countries move up the table when HFA Monitor indicators alone are used, making the quartiles more diverse. Examples include Mozambique, Nigeria, Uzbekistan, Burkina Faso, Cuba, Zambia, China, Pakistan and India. However, the overall characteristics of countries in each quartile do not change. The first quartile is still mainly characterised by very stable (54.8%), very democratic (41.9%), OECD and European countries with very high levels of human development (61.3%), whereas the last quartile includes fragile (40.7%) and authoritarian (44.4%), African and Asian countries with low levels of development (48.1%).

The results of the composite index and HFA Monitor rankings support the hypothesis that political stability, democracy and high levels of human development help to create an enabling environment for DRM. These countries have the kind of institutions needed to support the development and implementation of DRM legislation and regulations; establish effective coordination mechanisms; monitor and analyse natural hazards; disseminate information and raise awareness of disaster and climate change issues; protect and preserve the environment; and devote sufficient resources to managing disaster risks.

Conversely, countries that are characterised by low levels of human development, authoritarian governments and weak institutions will be less able to develop and implement effective DRM policies as they lack the technical capabilities to monitor and analyse hazard information, establish effective early warning systems, invest in data collection or build capacity. Furthermore, when corruption levels are high or a country is struggling with internal conflict, resources are often embezzled and/or diverted at the

expense of delivery of public goods and infrastructure needed for risk reduction and avoidance activities. Local taxes and central government transfers are two vital sources of funding for local governments and can be used to support the implementation of DRM initiatives, but they are usually very low or non-existent in countries with very weak institutions (Harris et al., 2013).

The formal structure of government (federal versus unitary and republic versus monarchy) does not, however, appear to be critical to the enabling environment for DRM. Among the 22 countries with the highest rankings, eight are republics with unitary systems of government (Finland, Singapore, Slovenia, Iceland, Hungary, South Korea, Ireland, France), seven are monarchies with unitary systems of government (the UK, New Zealand, Netherlands, Norway, Japan, Sweden, Denmark), three are federal monarchies (Australia, Canada and Belgium) and four are federal republics (the Switzerland, the US, Germany and Austria). Nonetheless, *de facto* levels of fiscal and political decentralisation are likely to be critical to an enabling environment for DRM (a factor explored in Section 4 through the analysis of the distribution of authority and vertical governance dimensions of DRG). However, there is no up-to-date, comprehensive dataset that can be used to classify countries in terms of these actual levels of decentralisation, so this independent variable could not be included in Table 2.

Table 2: Disaster risk governance composite index

Characteristics of countries in each quartile	DRG composite assessment score (HFA, WRI, GAIN)		Disaster risk-specific governance characteristics (HFA)		Generic governance characteristics (WRI and GAIN)	
First quartile	3.8/5 to 3.08/5		4.68/5 to 3.73/5		3.72/5 to 2.9/5	
Geographic region	69%	Europe	41.9%	Europe	70%	Europe
	9.5%	Asia	19.4%	Latin America and the Caribbean	7.5%	Asia
	7.1%	Latin America and the Caribbean	16.1%	Asia	5%	North America
	4.8%	North America	6.5%	North America	5%	Middle East
	4.8%	Oceania/Pacific	6.5%	Oceania/Pacific	5%	Latin America and the Caribbean
	2.4%	Africa	6.5%	Africa	5%	Oceania/Pacific
	2.4%	Middle East	3.2%	Middle East	2.5%	Africa
Level of human development (Human Development Report, 2013)	81%	Very high	61.3%	Very high	95%	Very high
	16.7%	High	25.8%	High	5%	High
	2.4%	Medium	6.5%	Medium		
			6.5%	Low		
Level of stability (Failed States Index, 2013)	59.5%	Very stable	54.8%	Very stable	60%	Very stable
	33.3%	Stable	22.6%	Medium	35%	Stable
	7.1%	Medium	9.7%	Stable	2.5%	Medium
			9.7%	Fragile	2.5%	Fragile
			3.2%	Very fragile		
Level of democracy (Democracy Index, 2012)	54.8%	Full democracy	41.9%	Full democracy	57.5%	Full democracy
	40.5%	Flawed democracy	29.1%	Flawed democracy	37.5	Flawed democracy
	2.4%	Hybrid regime	16.1%	Authoritarian	2.5%	Hybrid regime
	2.4%	Authoritarian	12.9%	Hybrid regime	2.5%	Authoritarian
Unitary or federal Republic or monarchy	62.0%	Unitary republic	64.5%	Unitary republic	62.5%	Unitary republic
	21.4%	Unitary monarchy	16.1%	Federal republic	17.5%	Unitary monarchy
	7.1%	Federal republic	12.9%	Unitary monarchy	12.5%	Federal republic
	9.5%	Federal monarchy	6.5%	Federal monarchy	7.5%	Federal monarchy

Level of risk (Shepherd et al. (2013) and UK Met Office)	31% Medium low 23.8% Medium high 11.9% Medium 11.9% Low 9.5% Very high 4.8% High 4.8% Very low 2.4% No data	22.6% Medium high 19.4% Medium low 19.4% Very high 19.4% High 12.9% Medium 3.2% Low 3.2% Very low	30% Medium low 25% Medium high 12.5% Low 10% Medium 7.5 Very high 5% Very low 5% High 5% No data
Second quartile	3.07/5 to 2.59/5	3.68/5 to 3.36/5	2.89/5 to 2.32/5
Geographic region	30.9% Latin America and the Caribbean 19% Africa 16.7% Middle East 14.3% Europe 14.3% Asia 2.4% Oceania/Pacific 2.4% South Caucasus	41.4% Africa 20.7% Europe 20.7% Asia 13.8% Latin America and the Caribbean 3.4% Middle East	29.3% Latin America and the Caribbean 22% Europe 14.6% Middle East 12.2% Africa 9.8% Asia 7.3% South Caucasus 2.4% Eurasia 2.4% Oceania/Pacific
Level of human development (Human Development Report, 2013)	45.2% High 33.3% Medium 14.3% Very high 7.1% Low	34.5% Low 31% High 20.7 Medium 13.8% Very high	63.4% High 31.7% Medium 4.9% Very high
Level of stability (Failed States Index, 2013)	47.6% Medium 21.4% Stable 21.4% Fragile 4.8% Very stable	34.5% Medium 27.6% Fragile 20.7% Stable 10.3% Very stable 6.9% Very fragile	63.4% Medium 22% Stable 7.3% Very stable 4.9% Fragile 2.4% No data
Level of democracy (Democracy Index, 2012)	51% Flawed democracy 23.8% Authoritarian 16.7% Hybrid regime 2.4% Full democracy	51.7% Flawed democracy 24.1% Authoritarian 13.8% Hybrid regime 10.3% Full democracy	48.8% Flawed democracy 24.4% Authoritarian 19.5% Hybrid regime 4.9% No data 2.4% Full democracy
Unitary or federal Republic or monarchy	73.8% Unitary republic 16.7% Unitary monarchy 7.1% Federal republic 2.4% Federal monarchy	79.3% Unitary republic 17.2% Federal republic 13.8% Unitary monarchy 6.9% Federal monarchy	65.9% Unitary republic 17.1% Unitary monarchy 14.6% Federal republic 2.4% Federal monarchy
Level of risk (Shepherd et al. (2013) and UK Met Office)	26.2% High 23.8% Medium low 21.4% Very high 14.6% Medium high 9.5% No data 2.4% Low 2.4% Medium	31% Medium high 20.7% Medium low 17.2% High 17.2% Very high 6.9% Medium 6.9 No data	36.6% Medium low 26.8% High 14.6% Very high 9.8% Medium high 4.9% Low 4.9% No data 2.4% Medium

Third quartile	2.57/5 to 2.26/5		3.32/5 to 2.82/5		2.3/5 to 1.92/5	
Geographic region	31.7%	Africa	34.4%	Africa	42.1%	Africa
	22%	Asia	25%	Latin America and the Caribbean	26.3%	Asia
	17%	Latin America and the Caribbean	18.8%	Asia	21.1%	Latin America and the Caribbean
	7.3%	Europe	6.3%	Middle East	7.9%	Oceania/Pacific
	7.3%	Middle East	6.3%	Oceania/Pacific	2.6%	Middle East
	7.3%	Oceania/Pacific	6.3%	Europe		
	4.9%	South Caucasus	3.1%	South Caucasus		
	2.4%	Eurasia				
Level of human development (Human Development Report, 2013)	48.8%	Medium	50%	Medium	60.5%	Medium
	24.4%	Low	25%	Low	23.7%	Low
	24.4%	High	21.9%	High	15.8%	High
	2.4%	Very high	3.1%	Very high		
Level of stability (Failed States Index, 2013)	53.7%	Medium	43.8%	Fragile	50%	Medium
	34.1%	Fragile	37.5%	Medium	44.7%	Fragile
	4.9%	Stable	9.4%	Stable	5.3%	No data
	2.4%	Very fragile	6.3%	No data		
			3.1%	Very fragile		
Level of democracy (Democracy Index, 2012)	41.5%	Hybrid regime	37.5%	Hybrid regime	36.8%	Hybrid regime
	31.7%	Authoritarian	31.3%	Flawed democracy	34.2%	Authoritarian
	14.6%	Flawed democracy	25%	Authoritarian	23.7%	Flawed democracy
			6.3%	No data	5.7%	No data
Unitary or federal Republic or monarchy	72.0%	Unitary republic	90.6%	Unitary republic	84.2%	Unitary republic
	14.0%	Unitary monarchy	9.4%	Federal republic	10.5%	Unitary monarchy
	14.0%	Federal republic			5.3%	Federal republic
Level of risk (Shepherd et al. (2013) and UK Met Office)	26.8%	Medium low	25%	Very high	26.3%	Medium high
	24.4%	Very high	25%	Medium low	26.3%	Very high
	19.5%	Medium high	18.8%	High	18.4%	Medium low
	14.6%	High	18.8%	Medium high	15.8%	High
	7.3%	Medium	6.3%	Low	5.7%	Medium
	4.9%	No data	6.3%	Medium	5.7%	No data
	2.4%	Low			2.6%	Low
Fourth quartile	2.22/5 to 0.57/5		2.77/5 to 1.05/5		1.91/5 to 1.26/5	
Geographic region	66.7%	Africa	33.4%	Africa	69.2%	Africa
	19%	Asia	29.6%	Asia	15.4%	Asia
	7.1%	Middle East	11.1%	Middle East	10.3%	Middle East
	4.8%	Latin America and the Caribbean	11.1%	Oceania/Pacific	2.6%	Oceania/Pacific
	2.4%	Oceania/Pacific	7.4%	Latin America and the Caribbean	2.6%	Latin America and the Caribbean
			3.7%	Europe		
			3.7%	South Caucasus		
Level of human development (Human Development Report, 2013)	73.8%	Low	48.1%	Low	84.6%	Low
	19%	Medium	40.7%	Medium	15.4%	Medium
	4.8%	High	7.4%	High		
			3.7%	Very high		

Level of stability (Failed States Index, 2013)	57.8% Fragile 31% Very fragile 14.3% Medium	40.7% Fragile 29.6% Medium 18.5% Very stable 7.4% Stable 3.7% No data	64.1% Fragile 30.8% Very fragile 5.1% Medium
Level of democracy (Democracy Index, 2012)	64.3% Authoritarian 26.2% Hybrid regime 9.5% Flawed democracy	44.4% Authoritarian 29.6% Hybrid regime 14.8% Flawed democracy 11.1% No data	59% Authoritarian 33.3% Hybrid regime 7.7% Flawed democracy
Unitary or federal Republic or monarchy	82.5% Unitary republic 5.0% Federal republic 12.5% Unitary monarchy	63% Unitary republic 25.9% Unitary monarchy 11.1% Federal republic	76.9% Unitary republic 20.5% Federal republic 2.6% Unitary monarchy
Level of risk (Shepherd et al. (2013) and UK Met Office)	45.2% Medium high 19% Medium low 12.2% Low 9.5% Very high 7.1% High 7.1% No data	29.6% Medium low 14.8% High 14.8% Very high 14.8% Medium high 14.8% No data 7.4% Low 3.7% Medium	41% Medium high 17.9% Medium low 12.8% Very high 10.3% Low 10.3% High 5.1% No data 2.6% Medium

In addition, and somewhat surprisingly, there is no apparent relationship between the level of risk and the development of an effective enabling environment for DRM: i.e. recurrent hazards and/or high levels of social vulnerability and exposure do not always prompt national governments to develop suitable institutional mechanisms to address these problems. The countries in the top quartile represent a mix of risk profiles, with only three having very high levels of risk. That said, high-profile disaster events often act as catalysts, triggering DRM reforms (discussed in Section 4 under drivers of change).

Further quantitative analysis of the composite index scores is beyond the scope of this paper but, overall, the results presented above to indicate some of the key aspects of an enabling environment for DRM, while also underscoring the importance of qualitative research to probe the relevance of concepts and indicators used.

3.2 'Good enough' disaster risk governance?

Unsurprisingly perhaps, analysis of the composite index suggests that a more favourable governance context for DRM can be expected more from stable, democratic OECD countries with very high levels of human development than from less stable, more authoritarian low-income countries. However, a handful of countries that are not in the first quartile of the table have also been applauded for their attempts to manage disaster risk. The Philippines, Indonesia and Colombia (Shepherd et al., 2013), for example, are today recognised as leaders in creating comprehensive DRM systems. In Indonesia and the Philippines, governments have prioritised the control and management of disaster risk, devoting national expertise and resources to this issue and strengthening national frameworks for mitigation, preparedness, response and recovery (UN, 2011). Colombia is widely considered as a regional leader in promoting a multi-sectoral approach to DRM. It has made use of innovative financial instruments to do so, including the Catastrophe Deferred Drawdown Option (CAT DDO). According to the Global Facility for Disaster Reduction and Recovery (GFDRR), Colombia is probably today the most densely monitored country in Latin America for both hydro-meteorological and geological hazards (GFDRR, 2010). Efforts to increase DRM capacity are also visible in other countries that are much lower down the table, such as Cuba and Bangladesh, where progress has been made, particularly on disaster preparedness at the local level, despite significant governance and development constraints (see Box 1).

Conversely, some countries appearing in the first quartile of the table would appear to face serious constraints in developing effective DRM systems. This is, for example, the case for Italy and Turkey, where recent disasters have highlighted the need for further improvements in DRM. In Italy, the collapse of a recently modified school building in San Giuliano di Puglia in 2002 during a moderate-sized earthquake, which killed 25 schoolchildren, was not an isolated incident (Spence, 2004). The earthquake of magnitude 6.3 on the Richter scale that struck close to the town of L'Aquila in central Italy in April 2009 left more than 300 people dead and caused \$2.5 billion in damage; some of this was due to mistakes in risk communication and also to poor building construction. In comparison, the worst damage that an earthquake of this magnitude has ever caused in Japan is \$586 million (Neumayer et al., 2012).

Box 1: Disaster preparedness in Cuba and Bangladesh

According to the International Federation of the Red Cross (IFRC), Cuba's success in saving lives through the timely evacuation of more than 700,000 people in less than 48 hours when Hurricane Michelle struck in November 2001 gives a model of effective government-driven disaster preparedness. This is all the more impressive in a country with very limited financial resources. According to Oxfam, Cuba has a good enough legal and institutional DRM framework, with a well-organised civil defence and early warning system and also well-equipped rescue teams and emergency stockpiles. However, what really explains Cuba's success in DRM are the intangible qualities of its society, such as a culture of mobilisation, solidarity and social organisation, as well as a basic trust in the government to prioritise human life in an emergency situation. This and the high levels of education and training in Cuba are key elements of Cuba's success in DRM (Thompson and Gaviria, 2004).

In Bangladesh, despite persistent poverty, improved disaster preparedness and response and relatively high levels of household coping and adaptive capacity have dramatically decreased the number of deaths caused by disasters. NGOs, humanitarian organisations and, most importantly, coastal communities themselves have constructed cyclone shelters, improved forecasts and warnings, and taken action to protect the environment (and biodiversity) through extensive coastal reforestation programmes (IPCC, 2012). Recurrent river flooding has also prompted wide-ranging private adaptations such as households using varieties of rice adapted to floods and droughts, constructing their homes on natural levees (*bhiti*), raising the courtyards of schools and mosques to the level of abnormal floods to use as flood shelters, and purchasing boats for transport during the monsoon season (Keefer, 2009). A useful comparison is with neighbouring Myanmar: in November 2007 Cyclone Sidr hit Bangladesh, causing just over 3,400 fatalities; six months later, Cyclone Nargis struck in Myanmar and caused more than 138,000 deaths. Myanmar and Bangladesh are both classified as least developed countries (LDCs), but these two comparable events had vastly different impacts because of differences in the quality of governance, notably in voice and accountability, rule of law, regulatory quality and government effectiveness.

Effective local-level preparedness practices help explain the relatively high HFA Monitor scores of Bangladesh and Cuba, although the DRG composite index rankings suggest that the governance systems in these countries do not favour the development of effective DRM policies. However, the index does not capture what is happening below the national level.

In Turkey, the 1999 earthquakes in Kocaeli and Düzce killed more than 18,000 people. The deaths were caused primarily by the collapse of relatively recent buildings, erected without proper design or building control. Despite the efforts made following these disasters, four years later more than 100 children were trapped when a school dormitory collapsed in Bingöl due to an earthquake of magnitude 6.4 on the Richter scale (Spence, 2004). In Turkey and Italy, high levels of human development and strong governance and institutional performance did not translate into investment in DRM regulatory quality (Lassa, 2010).

The cases of Cuba, Bangladesh, Italy and Turkey, amongst others, suggest that there may be aspects of DRM that are not strongly related to a particular type of governance system. Some countries in the second and third quartiles of the table have developed effective early warning systems and are able to evacuate people in advance of hydro-meteorological hazards that can be predicted and tracked. On the other hand, risk reduction and avoidance measures such as environmental protection, retrofitting and enforcement of land use planning regulations, and building codes require a high level of risk awareness amongst local

governments and communities – a characteristic of DRG that is not captured in the table. Overall, the composite index provides an indication of the types of governance characteristics more likely to produce an enabling institutional environment for DRM, but this should not be taken to mean that other types of governance regimes in countries with lower levels of human development are not able to develop effective elements of a DRM system. Critically, the index does not capture other influential factors such as the informal institutions that affect decision-making on DRM, including networks of actors and community ties. These informal institutions are often particularly effective in coordinating emergency response efforts, as was evident in Japan in the 1995 Kobe earthquake, where more people were rescued by neighbours than by official emergency services (see discussion on formal and informal relationships in the next section). They can also help promote social learning and ensure that improvements in DRM practice are sustained, even when there is short institutional memory in government (Handmer and Dovers, 2007; Quarantelli, 2000; Wilkinson, 2012b). This was found in the Mexican case study (discussed below) where informal relationships between civil protection officials and civil society representatives in the Yucatan Peninsula have ensured that lessons learned in hurricane preparedness have not been lost.

4. DISASTER RISK GOVERNANCE CASE STUDIES

4.1 Diversity in disaster risk governance

This section presents findings from a review of the secondary literature on DRG in Japan, the US, South Africa, Mexico, the Philippines, Nicaragua, Pakistan and Uganda. The aim is to contrast the analysis of good governance indicators and the self-assessments of DRM progress through the HFA Monitor with a more in-depth and critical assessment of DRG characteristics within eight case study countries (see Table 3). The focus is on sub-national governance structures and capacities, as well as horizontal and vertical governance relationships for the management of disaster risk. CCA structures and policies are brought into the analysis when the literature deals with these alongside DRM reform, but this is rarely the case. More work needs to be done to assess how the institutional and policy arrangements for these linked agendas converge and diverge, to ensure that recommendations address this. The horizontal and vertical governance arrangements for both DRM and CCA are usually neglected in quantitative and national-level studies of risk governance, and results of the comparative case study analysis below represent an attempt to fill that gap.

The eight case study countries represent different levels of DRG capacity according to the DRG composite index, as well as diverse combinations of human development levels, political stability and government structures. Despite these very different profiles, however, all eight countries exhibit some similar trends in the development of DRM policies and organisational structures, although there are also significant differences between them in terms of progress in implementing these policies at the sub-national level.

Table 3: Case study countries' development and governance characteristics

Country	DRG index ranking	Human development	Fragility	Democracy/authoritarian	Government structure	Level of risk
Japan	7	Very high	Very stable	Full democracy	Unitary monarchy	Very high
United States	17	Very high	Very stable	Full democracy	Federal republic	Very high
Mexico	49	High	Medium	Flawed democracy	Federal republic	Very high
South Africa	77	Medium	Stable	Flawed democracy	Unitary republic	Medium/low
The Philippines	89	Medium	Medium	Flawed democracy	Unitary republic	Very high
Nicaragua	104	Medium	Fragile	Hybrid regime	Unitary republic	Very high
Pakistan	126	Low	Very fragile/unstable	Hybrid regime	Federal republic	High
Uganda	146	Low	Fragile	Hybrid regime	Unitary republic	Medium/high

The case studies exhibit a wide range of governance characteristics and strongly suggest that there is no single recipe for success or particular DRG system that will generate effective DRM policies. This is partly because assessing and managing risks involves such a wide range of actors, relationships and policy processes that characterising any one combination of these would be an oversimplification. Also, DRG systems evolve over time and are shaped by context, including issues such as levels of state capacity and penetration, as well as strength of community ties, all of which are shaped by the nature of the broader political economy (Wilkinson, 2013). These political economy factors, as they are often referred to, include structural, longer-term features of a country or sub-national region such as demography, geography, geopolitics, culture and social structure, historical legacies and technological progress, as well as relevant institutions including processes for drafting and enacting formal laws and regulations.

Some general observations can nonetheless be made, including the fact that vertical and horizontal governance characteristics of countries in the first quartile of the DRG table (Japan and the US) are not so different from those in the second quartile (Mexico and South Africa), and only slightly more so from those in the third quartile (the Philippines and Nicaragua). In these countries, comprehensive DRM policies have been developed, along with integrated systems that recognise and define clear roles for sub-national actors that go beyond emergency preparedness and response. In Pakistan and Uganda the DRG characteristics look slightly different, because local governments play only a very limited role in DRM and other non-state actors are involved in DRM that are not coordinated by the state or brought into local planning processes in some way. However, one critical difference identified in the literature between first quartile countries and the rest is that for the latter, the main problem for DRM is one of poor implementation and, underlying that, lack of technical and financial capacity at the local level.

4.1.1 Distribution of authority and resources

A central concern in assessing DRG is the autonomy enjoyed by local decision-makers vis-à-vis central government authorities, donors, regional organisations, NGOs and other exogenous actors. This is important from a normative perspective, as DRM strategies, policies and plans are expected to be more effective in responding to local risk conditions and building on community efforts if led by local stakeholders (Lavell et al., 2003; UNISDR, 2009; Wilkinson, 2012a). Research on environmental governance reveals numerous examples of resource users with relative autonomy to design their own rules for governing and managing common pool resources, achieving better outcomes than when external experts do this for them (see, for example, Ostrom, 1990).

An additional concern is the capacity of local authorities to reduce disaster risk. Despite the broad benefits of decentralising decision-making and resources for DRM, decentralised structures may undermine local collective action, particularly where regulatory capacity is weak (Wild et al., 2012). In countries that have sub-national levels of government, municipalities are usually responsible for controlling construction and they do so through the development of land use regulations, environmental protection measures and building codes. However, enforcement is often a problem and capacity is lacking to analyse risk, understand how to reduce it and implement suitable policies (Henstra, 2006). Hence actors, knowledge and institutions at higher levels of governance are also needed to support local authorities in managing disaster risk – what is often referred to as an enabling environment (Wilkinson, 2013).

In all the case study countries there is a clear tendency to decentralise responsibility for DRM, in line with the broader decentralisation reforms that are under way in some countries. In both Japan and the US, responsibilities for DRM are clearly divided between levels of government. In Japan, DRM is implemented through huge public investment, although fiscal constraints in recent years have undermined local government capacity to invest in risk reduction (Yokkaichi, 2012), while in the US the federal government encourages a partnership approach to financing DRM (Sylves and Cumming, 2004). In Mexico, the lack of fiscal decentralisation limits municipal capacity to implement risk reduction and avoidance measures (see Box 2), and similarly in South Africa many municipalities face difficulties in allocating sufficient funds to risk reduction from their budgets (SALGA South African Local Government Association, 2011; UNDP, 2010). Nonetheless, in both of the second quartile countries, preparedness and response measures have improved substantially since 2005 as these activities require lower levels of funding.

Box 2: Limits to decentralisation of DRM in Mexico

In Mexico, the National Civil Protection System (SINAPROC) is divided into three levels of governance: national, state and municipal. The National Board of Civil Protection is responsible for strategic coordination and within the Interior Ministry the General Coordination of Civil Protection (CGPC) is responsible for policy direction; these bodies are replicated at state and municipal levels. The CGPC oversees the general directorate, which is in charge of vertical integration with sub-national civil protection councils and units and is a contact point for working with non-government stakeholders (OECD, 2013). This promotion and coordination of civil protection policies among sub-national units is a light-touch approach as states and municipalities are autonomous units of government, responsible for providing a range of public services in response to local needs and development priorities. However, Mexico has a long history of centralist, autocratic rule from the presidency. A 25-year process of decentralisation and democratic transition has given the municipalities greater financial and political autonomy, although municipal government capacity to implement DRM measures that respond to local needs remains weak (Wilkinson, 2012b).

Municipalities do not receive any earmarked funds for DRM and most are unable to raise more than 5% of revenues locally, so funds have to come from unconditional transfers. These transfers represent 36% of total municipal income on average, and civil protection's share of this pie tends to be less than 1%. Additional funding for municipal DRM projects is available through the Disaster Prevention Fund (FOPREDEN), but the review process is slow and local governments find it difficult to meet the requirements (Wilkinson, 2012b).

In the Philippines (Benson, 2009) and Nicaragua (GFDRR, 2010), local governments are identified in national frameworks as being a key actor, but in both countries NGOs and donors play an equal or more important role in implementing ex-ante community-based activities. Local DRM authorities in Pakistan (Murtaza et al., 2012) and Uganda (Tumushabe, 2013) are also playing an increasingly important role in DRM, but they started from a very low base and in practice have little autonomy to act even to prepare and respond to disasters, let alone take action to reduce vulnerability. In Pakistan, this is further complicated in conflict-affected areas and by the fact that budgets are variable at sub-provincial levels, while in Uganda these fluctuations are created by volatile inflation and uncertainties in donor funding (see Box 3).

Box 3: Challenges to local delivery in Uganda

The lack of capacity and financial resources at all levels has been one of the main challenges to implementing DRM policies in Uganda. Local government bodies are funded through central government grants, local revenues and borrowing. The Fiscal Decentralisation Strategy gives local governments greater discretion in resource allocation, but more than 80% of the budget comes through conditional grants (none of which are for DRM), so in practice they have little flexibility to determine the extent of DRM financing within their jurisdictions. In addition, recent studies reveal erratic cash management, volatile inflation, low tax revenues and uncertain donor funding, challenging the effective delivery of the limited public resources that do exist for CCA and DRM activities (Tumushabe et al., 2013).

Overall, there is a clear tendency in all the case study countries towards recognising lower levels of government and incorporating these units in national DRM systems, but in practice local authorities play a limited role in DRM. Lack of genuine decentralisation presents a major challenge to developing DRM systems based on the principle of subsidiarity.

The quantitative analysis presented in the previous section suggests that the formal structure of government is not critical to creating an enabling environment for DRM. This is supported in the case study analysis, as although federal systems of government give local authorities greater *de jure* independence to create their own DRM legislation, this may not always be a good thing in practice, particularly if state and municipal legislatures choose not to pursue progressive legislation on DRM. In India, federal law

is generally regarded as more comprehensive and more focused on risk reduction than the laws in most states (IFRC-UNDP, forthcoming) but in Mexico the opposite was the case in many states until the federal law was finally updated in 2012.

4.1.2 Vertical governance

One key aspect of DRG is the coherence and consistency of DRM policies and practices across different levels. Vertical integration is of particular interest and relates to the division of roles and responsibilities between decision-makers at different scales; in particular, between local governments and other tiers higher up – including provincial governments (or states in federal systems of governance) and national governments – and regional authorities like the European Union. Vertical fragmentation in service delivery often occurs because of poorly defined and overlapping mandates (resulting in omission and/or duplication in service delivery), overly complex structures (Pahl-Wostl, 2009), capacity constraints and unfunded mandates (Posner, 1998), as well as centralist tendencies in public administration systems (Wilkinson, 2012a). All of this can constrain progress on managing disaster risk. A focus on the different vertical decision-making units, and in particular the dependence/autonomy relationships in central-local interactions within these case studies, is useful because disasters create exceptional circumstances in which central authorities typically have a legal mandate to interfere in local affairs.



The thick mangrove areas in the Philippines protect the islands from tidal waves, strong winds and storm surges. Here children plant mangrove saplings. © Sandra Gätke/Plan International/UNISDR

In most of the case study countries, intergovernmental mandates for DRM are clearly defined in legislation, but in practice roles are often different from those stipulated because of lack of local capacity. Vertical integration is also lacking in practice because local stakeholders participate very little in national dialogues and have a limited influence on national-level programmes, with the exception of the US. In South Africa this lack of vertical integration is in both directions, with local authorities participating very little in national-level DRM structures and national government departments unaware of local initiatives and coordination structures.

In Mexico, municipal governments are by law expected to undertake preparedness, risk reduction and risk avoidance activities, including land use planning and environmental protection, but in practice centralized operational aspects of SINAPROC, such as decisions around early warnings, make it difficult for municipalities to carry out these functions (Macías, 2005). Municipalities have

very limited resources (as discussed in the previous section), particularly small, rural ones – of which there are many in Mexico - so state and federal support is needed if municipalities are to develop and implement plans and regulations (Wilkinson, 2012b).

The situation is different in the US, where local governments are responsible for all aspects of DRM, with federal government only really providing guidance and incentives to support local government (see Box 4). The intergovernmental system includes penalties for local governments that fail to comply with federal mandates such as reducing exposure to flood risk and taking out flood insurance. However, although these responsibilities are clear, federal and state commitment to enforce regulations is sometimes lacking (May and Handmer, 1992: 52).

Box 4: Intergovernmental system for disaster mitigation in the US

Regulations governing land use and building construction in the US are established at the local level, with risk reduction and avoidance a local responsibility (Henstra and Sancton, 2002; Prater and Lindell, 2000). This limits the ability of the federal government to intervene to reduce disaster risks, except in cases in which state and federal laws pre-empt local decision-making. The federal government can establish guidelines and provide financial support for local and state DRM efforts, but cannot directly intervene in those activities. Nor can the federal government pre-empt local and state decision-making during a disaster response period, except in cases involving catastrophic events (Tierney, 2012). Local government compliance with federal flood plain policy is encouraged, however, through a deterrent regulatory system and local governments can incur a series of sanctions for failing to comply with federal flood plain management guidelines.

Overall, this intergovernmental system is considered to be effective, although it requires 'substantial resources and staffing, in addition to federal (or state) commitment to follow through with enforcement actions when communities fail to fulfil their regulatory responsibilities' (May and Handmer, 1992: 52). Moreover, in the light of Hurricane Katrina, a preference for structural measures to reduce risk has been criticised for not addressing the root causes of disasters by creating a false sense of security and failing to discourage development in flood plains (Brookings Institution, 2005; Henstra and McBean, 2005). More generally, Hurricane Katrina shows how important local political will and organisational and administrative capacity are in mitigating these kinds of events. The existence of warnings, federal mandates and financial support for local mitigation measures means nothing if they are not implemented by state and local governments.

In the Philippines, on the other hand, local governments play a key role in the implementation of national strategy. This creates high financial burdens and highlights the importance of leveraging external resources. Here, the province of Albay is considered an example of good practice and has been successful in accessing international and national programmes and funds, in particular for climate-compatible development (Uy, 2011). In Nicaragua,^v Pakistan (Ainuddin et al., 2013) and Uganda (Friis-Hansen et al., 2013), lack of local capacity is identified as a constraint on municipal actors playing an active role in the national DRM system. In Nicaragua meanwhile, international NGOs have been working principally at community level and engaging little with government.

Vertical governance relations between national governments and international agencies are also critical for DRM in some countries, and donors can be highly influential in shaping the structure, content and formation of government departments, particularly in small states heavily dependent on external aid. Vanuatu (see Box 5) provides an example of this, where a restructuring of departments to better reflect the inter-connectedness of disaster risk, climate change and related issues was supported by donor investment in the country.

Box 5: Vertical integration of DRM and CCA in Vanuatu

Vanuatu ranks 76th out of 171 countries in the DRG composite index; 87th (out of 122) in the DRM-specific governance index (based on HFA); and 85th (out of 158) in the generic governance index (WRI and GAIN). In all three rankings it is situated in the third quartile.

DRG in Vanuatu, as in other small island developing states (SIDS), is heavily influenced by donor policies. The interests of a small number of key donors heavily influence decisions on how to manage disaster and climate change risks, although the Government of Vanuatu has taken more radical steps (than its development donors) to restructure its formal institutions to reflect the interconnectedness of disaster risk with other areas of development.

Acknowledgement of the importance of linking climate change and disaster policies paved the way for the formation of the National Advisory Board (NAB) on Climate Change and Disaster Risk Reduction in 2012. The government's prioritisation of these issues is also evident through the formation of a new Ministry for Climate Change Adaptation, Meteorology, Geohazards, Environment, Energy and Disaster Management. This new structure ties together previously disparate policy areas that shared substantial overlaps, with the aim of generating a coordinated approach to engaging with climate change and disaster issues. The Government of Vanuatu is thus doing its part to ensure that it is optimally positioned to engage with these issues through its formal governance arrangements.

Donor programmes are governed by international financing – which is often compartmentalised – and as such are often projectised, piecemeal and geographically focused on accessible areas. Despite recognition of the high risk context in which development spending takes place, translating complex inter-related risks into similarly interconnected programmes remains a challenge for donors and government alike. Bilateral, multi-country and regional efforts could be better coordinated, as could projects focused on different aspects of risk (AusAID, 2012). Overall, although there has been significant action on DRM and CCA, organisational arrangements need to be more joined up (Peters and Bahadur, 2014).

4.1.3 Horizontal governance

This dimension of DRG emphasises the role and interactions of state and non-state actors involved in DRM at any given level. Attention is paid to these relationships, rather than inter-ministerial ones, because this study is ultimately interested in progress on DRM at the local level, where relationships between state and non-state actors are fundamental.

Local risk management functions such as formulating regulations to control development in high risk areas are usually carried out by public agencies, but many other DRM functions are dispersed amongst a range of actors (Tierney, 2012). For example, private companies and NGOs often deliver key services and are responsible for the larger infrastructure projects that can control risk, such as dykes and sea walls, while households contribute labour and assets to housing and other low-tech construction projects (Wilkinson, 2013).

Actors and groups are brought together through networks, which are largely governed by informal institutions. Networks are decentralised structures, often described as 'meso level' forms of organisation, falling between the market and bureaucratic hierarchies (Newig et al., 2010). They incorporate different knowledge sources and competencies than either markets or bureaucracies and play a particularly important role in large-scale disasters, where emergency response functions are often carried out by emergent groups that lack central coordination (Dynes et al., 1990; Quarantelli, 1993).

In all four case study countries in the bottom two quartiles of the DRG index (the Philippines, Nicaragua, Pakistan and Uganda), civil society groups play an active role in DRM at community level. In Uganda, international NGOs dominate because of weak local government capacity to prepare for disasters, and activities tend to be carried out in parallel to government initiatives (Barihaihi, 2010). Communities in the Philippines, on the other hand, have a longer tradition of participating in local planning activities and this permeates DRM, with NGOs adopting a community-based (CBDRM) approach to support this local capacity all over the country (see Box 6).

Box 6: The pros and cons of community-led approaches in the Philippines

In the Philippines, many civil society organisations (CSOs) are involved in DRM activities. Participation is valued highly and formal civil society representation at all levels of decision-making is also embraced in legislation. Committee hearings in the House and in Senate, for example, must involve all NGO and CSOs affected by the bill under discussion and 20% of the members of local development councils must be representatives of NGOs (Polack et al., 2012). NGOs can also be represented in executive committees and other bodies dealing with development matters. These arrangements allow CSOs and NGOs to influence policy-making at all levels.

CSOs have been a major driver of DRM policy reform, raising awareness of government responsibilities, enhancing citizens' capacities, influencing policy through formal representation, building social and political capital and an evidence base for good practice, as well as taking local issues to higher political levels (Polack et al., 2012). They have also driven forward the CBDRM approach, and in 2008 were identified as having implemented CBDRM-related activities in 55 provinces and cities around the country. In parallel, considerable efforts have been made by government and NGOs to institutionalise CBDRM. In 2005 the government initiated a hazards mapping project for CBDRM, to encourage a more systemic approach across communities. In June 2007, a stakeholders' meeting was held on the crafting of a strategic plan for integrating CBDRM into socio-economic development processes (Victoria, n.d).

Recent studies of CBDRM have noted, however, that as well as empowering people it can in certain cases also disempower vulnerable communities. One of the criticisms is that CBDRM can place too much responsibility on local communities, without proportionally strengthening their capacities to act or their political power to address processes contributing to vulnerability. Moreover, while government actors and NGOs are cooperating on DRM and CCA issues, too often these actors are competing for international funds and popular support. In addition, mutual suspicion and lack of trust between these two sets of actors have negatively impacted DRM operations, complicating collaboration on preparedness in particular (Bankoff and Hilhorst, 2009).

In Nicaragua, levels of local organisation and collective action are high but these are controlled by the state through cooperative structures. This is beneficial to NGOs implementing preparedness programmes and small-scale risk reduction measures that do not conflict with or challenge government-led initiatives (UNDP, 2005; Wilkinson, 2011). Conversely, in Pakistan some actors play a more controversial role. The Pakistan Army and some Islamist organisations and banned jihadi groups have been involved in response and recovery activities (Cochrane, 2008; Madiwale and Virk, 2011). Meanwhile, many of the smaller NGOs that play a significant role in DRM are undervalued and marginalised by international actors because they lack English-speaking staff and do not have a presence in Islamabad (Cochrane, 2008).

The other case studies reveal very different types of horizontal governance arrangements, with the US displaying more mature roles for NGOs and the private sector in DRM, although the quality of these relationships with local government varies from one community to the next (Tierney, 2012). Some cities have developed more inclusive styles of governance and partnership approaches to financing local-level DRM, which is innovative and rarely found in other countries (Norris-Raynbird, 2005). Japan, on the other hand, has a history of state dominance of public life, although civil society groups have played a key role in responding to recent disasters and their activities have been recognised in national legislation (see Box 7). In Japan, the government has taken

steps to formalise relationships with volunteer groups and networks, while in Mexico, despite a loosening of the state's grip on societal affairs, these relationships are still tense at times and local civil society groups have little influence on public investment decisions (Rowland 2001). In South Africa a range of committees and forums exists to encourage participation in DRM planning, but NGO involvement in these activities remains limited (IFRC, 2012).

Box 7: More inclusive risk governance in Japan

Japan has a long history of state dominance of public life. That pattern began to change after World War II, but the largest boost to the Japanese NGO sector came about as a consequence of the 1995 Kobe earthquake, which killed approximately 5,000 people and left 1.5 million homeless. During the emergency response period, more than 1 million people volunteered to assist disaster victims and numerous citizen groups emerged, some of which went on to function as more permanent disaster-related NGOs. Prior to the Kobe event, the Japanese bureaucracy was not particularly receptive to the non-governmental, non-business sector, but after the earthquake national legislation was changed to recognise and regulate NGOs, thus formalising these relationships. The Nippon Volunteer Network Active in Disaster is a good example of an NGO currently active in the disaster arena. The Great East Japan Earthquake in 2011 once again led to the formation of new citizen groups, including those engaged in science activities to monitor radiation in crops and livestock (Tierney, 2012).

The Japanese government has taken steps to encourage the participation of communities in DRM, and some municipalities provide subsidies to voluntary DRM organisations and publish guidelines for community activities. Saijo City in the west of the country conducts risk-awareness programmes using grassroots participatory methods to enhance local community relationships and DRM practices (UNISDR, 2010), and Japan's National Research Institute for Earth Science and Disaster Prevention (NIED) has developed a participatory flood risk communication support system as part of a five-year research project aimed at making society more resilient to disasters (Ikeda et al., 2008).

4.1.4 Formal and informal arrangements

This DRG dimension is concerned with the relationships between, and relative importance of, the formal and informal institutions shaping DRM activities. Institutions can be formal, including legislation and parliamentary procedures, or informal, such as cultural rules for decision-making (Handmer and Dovers, 2007; Pelling and Holloway, 2006). The goals of formal and informal institutions may be either compatible or conflicting (Pahl-Wostl, 2009), but if the two types of system complement each other, governance processes are likely to be more efficient and effective.

Discussion in the literature of formal and informal institutional relationships and their influence on the types of DRM policies implemented is more limited than for other aspects of DRG. Still, it is interesting to note that despite authority for DRM being formally concentrated in local authorities in countries such as the US and Mexico (both federal states), considerable *de facto* control over resources to implement risk reduction activities is held by other actors – in the case of the US, the private sector (Tierney, 2012) and in the case of Mexico, state governments (see Box 8). Local elite capture of public resources for DRM is also noted in Pakistan (Murtaza et al., 2012).

Box 8: State government control over local resources for DRM in Mexico

Municipal autonomy in Mexico is constrained by the considerable financial and political influence that state governments exert over municipal affairs (Cabrero Mendoza and Carrera Hernández, 2004; Edmonds-Poli, 2006; Grindle, 2007). For example, bylaws and local development plans have to be approved and municipal budgets reviewed by state legislatures, and states have the power to dismiss municipal government officials if they are found to be in dereliction of their duty (Grindle, 2007). Conflicts over allocation of financial resources are particularly common and often occur when state and municipal

governments are controlled by different political parties (Rodríguez, 1995). In summary, despite having a formally decentralised structure, Mexico's civil protection system is highly centralised in practice, with the federal government controlling most of the resources available for risk management and taking important decisions about disaster preparedness and response, and state governments often intervening directly in municipal affairs.

The case of Japan highlights the benefits of a well-established formal risk management system as well as the differentiated but equally important role of autonomous community action in disaster response. Still, there is a tendency in Japan towards formalising these arrangements, with local authorities encouraging community-based organisations (CBOs) to register and carry out stipulated activities.

Overall, the case studies presented in this section on DRG dimensions demonstrate a number of common features and represent general tendencies over the past 10 years across the globe. They suggest that the HFA has been influential in prompting institutional reform in many countries. These include efforts to develop multi-tiered systems that recognise the role of local authorities and non-government actors. The case studies also illustrate the difficulties that many countries face in clearly articulating the roles and inter-dependencies between stakeholders. However, each of the case study countries has a very particular set of institutional arrangements for DRM, shaped by political, economic and social processes in each country, and care should be taken in generalising from these experiences. There are nonetheless some interesting trends, which are described in the next section.

4.2 Drivers and obstacles to progress

Disaster risk governance is concerned with how institutions change or, conversely, are able to remain static for long periods – hence creating opportunities for or constraints on DRM policy reform. Although there is no well-defined body of literature on institutional or policy change in disaster studies, a review of the theoretical literature relating to institutional aspects of DRM reveals a number of hypotheses regarding the enabling factors, or drivers, of reform. These drivers are related to socio-ecological, political-institutional, social and global governance processes. They are difficult to disentangle, but analysis of the interactions between them across the eight case studies suggests that, despite the range of DRG regimes that exist, there are a number of enabling factors in common. Different combinations of almost all of these factors have generated improvements in DRM practices at national and sub-national levels in all eight countries, to varying degrees. However, the relative importance of each process in shaping DRM

reforms varies across the case studies. Interestingly too, *when* and *how* each of the processes has affected decisions about managing risk differs from one country to another.

4.2.1 Extreme socio-ecological events

Although the composite DRG index suggests that the overall level of disaster risk is not related to the quality of DRG at the national level, in the case study countries, high impact disasters and/or recurrent events have prompted legislative processes and more coherent organisational structures and plans to manage risk, such as in Pakistan. This catalytic role is independent of the country's level of development or governance characteristics, including its type of political system – democracies and hybrid systems both respond to disaster losses with new policies.



Herding livestock in Pakistan © Angelika Planitz/UNDP

South Africa is the only anomaly here, with major DRM legislation and policy reform being brought about not in response to disaster but rather as part of a broader reform process in the post-apartheid era (Pelling and Holloway, 2006). Elsewhere, in Mexico (Jakob 1989) and Nicaragua (GFDRR, 2010; Rocha and Christoplos, 2001) fragmented responses to high-impact events led to a one-off radical overhaul of the DRM system, which was then followed by sporadic, incremental changes; whereas in Japan (World Bank, 2012) and the US (Rubin *et al.* 2008) legislation and policies have been constantly updated in response to different events that have taught new lessons, although in Japan this successive development of new laws has also resulted in a very dense, fragmented and technical legal framework (OECD, 2009). In the Philippines, it was not so much one event but a series of floods and typhoons that drove DRM up the political agenda and led to the gradual development of more comprehensive legislation (Philippines, 2011).

Learning as a result of experiences in responding to disaster has occurred in all eight case studies, but in Japan lessons from both formal and informal responses to disaster have been institutionalised into ongoing DRM practices to improve coordination of DRM measures across the system (UNISDR, 2010; Yamamura, 2010). In addition, it is worth noting that negative learning loops can also occur when other priorities emerge, as occurred in the US after September 11, 2001, when DRM became subservient to counter-terrorism (Sylvester and Cumming 2004).

4.2.2 Nationally driven political and institutional processes

In both of the countries in the second quartile, Mexico and South Africa, democratisation and political reform have prompted some local governments to develop more autonomous strategies for dealing with disaster risk. In these countries, local government emergency preparedness and response efforts are better coordinated now than in 2005 and generally more effective, although capacities vary widely across sub-national units. However, the political will and capacity to invest in risk reduction activities that protect existing infrastructure and regulate land use are still limited. Progress that has been made in pushing through national legislative reform, as well as in encouraging innovative local practices, has often been championed by particular individuals. This is not well documented in other countries, so it is difficult to draw any strong conclusions concerning the relative importance of this agency factor vis-à-vis the institutional changes that are also occurring. That said, analysis of the Mexico (Wilkinson, 2012b) and South Africa (Pelling and Holloway, 2006) case studies suggests that political reforms that have redistributed power and resources, even if incomplete, have played a key role in opening up spaces for individuals to champion more progressive approaches to managing risk.

Conversely, in countries where decentralisation is severely restricted, either by central government authorities maintaining control over resource allocation or by lack of local capacity to administer funds, DRM has suffered most heavily. Uganda and Pakistan most clearly exemplify this. In Uganda, decentralisation has been undermined in recent years and hence local government structures have remained weak and unable to implement even modest preparedness plans (Friis-Hansen *et al.*, 2013; Tumushabe, 2013). Public sector reform on DRM has also been limited and power maintained centrally because of conflict in some areas of the country. The same is true for Pakistan, where central government authorities are decentralising 'on paper' but are disinclined to decentralise control over resources for DRM to areas controlled by actors out of favour with central government (see Box 9).

Box 9: Driving DRM reform from the top down in Pakistan

In Pakistan, institutional reform driven from the top down has the potential to improve risk management, although the results in terms of delivering more effective policies have yet to materialise. Legislation introduced in 2010 marked the devolution of authority from federal government to provincial government – a bold decision, but one that takes time to put into practice. The National Disaster Management Authority (NDMA) is still adjusting to its new (post-devolution) role: it no longer reports directly to the Prime Minister's Secretary but to a newly created Climate Change Ministry, providing greater scope for coherence and coordination between DRM and CCA agendas. Some fear, however, that this may result in a reduction of its political influence (Murtaza *et al.*, 2012). Moreover, it is still unclear whether this will create greater commitment to resourcing DRM priorities at the local level (Ahmed, 2013). A major constraint to this happening is the failure to establish disaster management agencies at the district, union council and community levels (Ainuddin *et al.*, 2013).

4.2.3 Bottom-up social processes

The Philippines stands out above all countries as an example of how the constraints presented by limited resources and less favourable formal governance arrangements can be partially overcome through informal, bottom-up processes. Communities' participation in local DRM councils has ensured that their needs and concerns are represented in government-led preparedness and response planning, and where DRM councils do not exist CBOs, supported by NGOs, fill this gap (Polack et al., 2012). In Nicaragua too, local cooperative structures provide a level of social organisation for the government and NGOs to work with to implement DRM activities (see Box 10). These informal organisational structures and practices, bound together by social capital, help improve formal DRM practices everywhere – most notably in the Philippines, where the government has institutionalised a CBDRM approach. In the US, as elsewhere, local governments respond to elite interests, but there are also examples of local partnerships being formed around disaster concerns, producing collaborations that have reduced vulnerability and exposure to hazards (see Box 11).

Box 10: The need to link top-down and bottom-up processes in Nicaragua

The case of Nicaragua demonstrates significant progress in developing an integrated DRM system, but it also highlights significant challenges in linking national and local change processes. More needs to be done to implement the National Disaster Risk Management plan across government and down to the local level where capacities are very low, although high levels of social organisation will help drive this process. Community disaster prevention committees are more organised now thanks to the actions of NGOs working on DRM issues in Nicaragua, which far exceed formal national-level work. The presence and use of cooperatives and other state-promoted community and producer organisations in DRM projects have aided their implementation, and one of the principal characteristics of NGO projects and the key to the success of DRM activities in communities has been the promotion of cooperatives – and in particular women's cooperatives (Wilkinson, 2011).

Overall, however, these local-level initiatives have not been well integrated into the national system, as the organisations promoting local initiatives appear to prefer to be seen to be working separately from government (UNDP, 2005). NGOs need to do more to link up with the national DRM system in order to promote the replication of good practices and the systematisation of methodologies and techniques, particularly for risk reduction and control.

Box 11: Innovative local partnerships for DRM in the US

Relationships between state, civil society and private sector actors vary across the US, and a comparative study of two cities in Texas provides a useful example of this (Norris-Raynbird, 2005). Different social histories affected the distribution of economic and political power in each of the cities studied and this shaped their disaster management strategies. Corpus Christi is considered to be a progressive city and a success story in terms of adopting and implementing an effective flood mitigation programme. It has developed local governance characteristics that are not found in Galveston, including: a city council with a diversity of political interests and representation from diverse income sectors; a collective vision of what the city should look like; a partnership approach to financing projects (e.g. through limited joint-venture speculations with companies) and to bringing in external expertise; a proactive approach to federal and state policy change; and a focus on community – rather than elite group – benefits. This innovative partnership approach is reflected in the work of the Office of Emergency Management, which oversees an integrated multi-agency management system to organise hurricane evacuations. Other successes include reducing vulnerability to technological hazards by working with the petrochemical industry to improve air quality (Norris-Raynbird, 2005).

4.2.4 Global governance pressures

The one case study where the HFA has most obviously shaped national DRM policy is Uganda (see Box 12). Elsewhere, improvements in DRG systems have taken place over the same time period but are not all directly or even partially attributable to the HFA. In Japan and the US, and to a certain extent South Africa and Mexico, it would seem less likely given that intergovernmental coordination structures to manage disaster risk were well established before 2005. In Japan and the US, multi-layered and multi-stakeholder DRM systems were already in place before 2005 but they did not – and still do not now – use the language of the HFA or focus on the recommended priority areas explicitly. The discourse of the HFA added little value to these more mature policies and systems. Incremental improvements since these structures were first established have been made since 2005, but these have responded more to lessons learned from experiences in dealing with disaster than to international mandates. In Mexico, the civil protection system was set up after a major disaster event, but progress since then on bringing the system into line with international recommendations has been slower.

Box 12: International pressure and local ownership of DRM and CCA in Uganda

Uganda provides perhaps the best example of international governance shaping DRM. The main imperatives for DRM and CCA policy reform appear to come from international and regional agreements that have been supported and promoted by international actors present in the country. However, these externally driven reforms have proved difficult to sustain over the long term, and questions remain over the sustainability of newly established frameworks. For further progress to be made, national and local actors need to claim ownership and drive implementation. Moreover, overcoming existing gaps between policy and practice will require strong political will, increases in technical and administrative capacity and financial resources. The development and implementation of effective DRM and CCA policies in Uganda are also conditional on the success of wider reforms aimed at improving generic governance characteristics including, critically, decentralisation and public financial management reform.

In the other case study countries where risk management systems pre-date the HFA, legislation has been updated since then or policies have been adopted overtaking outdated legislation. These reforms have often been supported by external actors with the aim of bringing policies in line with international frameworks.

5. DISASTER RISK GOVERNANCE IN PRACTICE

5.1 Governance regimes and local practices

The case study analysis supports the findings of the HFA Monitor and progress reports that point to substantial progress in developing more comprehensive DRM policies and organizations since 2005. Policies have been updated in line with HFA recommendations in many countries and organisational systems that are designed in such a way that they appear to include a broad range of interests. However, this progress on paper is not reflected in practice because of underlying governance constraints, such as lack of genuine decentralisation and weak local capacity in both government and civil society. Observations from the case study analysis in Section 4 appear to support findings from Section 3 suggesting that countries with more authoritarian governments, low levels of development and high levels of fragility are less likely to develop enabling institutional environments for DRM. The inverse also appears to be true for very high-income, stable, democratic countries. State capacity to develop and implement DRM policies in Japan and the US is clearly higher than in the other case study countries, and has permitted substantial and sustained investments in structural and non-structural measures to reduce risk. Institutional stability and maturity have enabled the development of intergovernmental systems that are reasonably effective in enforcing land use planning regulations and environmental protection measures that minimise risk. This stability also allows lessons to be institutionalised through formal review and legislative processes.

However, there does not appear to be a direct relationship between the formal enabling environment for DRM and the quality of DRM practices across all the case study countries. The performance of second- and third-quartile countries in terms of developing effective organisational structures and local-level DRM policies is mixed due to a variety of informal institutional factors, such as the existence of networks of actors, as well as the historical and social processes that shape the actual relationship that central governments have with local governments. These informal arrangements can play a more decisive role in determining the effectiveness of coordination mechanisms and quality of local DRM practices than formal, state-led arrangements. In the Philippines, the involvement of communities in DRM councils has helped to promote social learning at the local level so that improvements in DRM practices are sustained, even when there is short institutional memory in government.



Children participating in DRR training in Sendai. ©UNISDR

The second-, third- and fourth-quartile countries reviewed in this study have adopted the framing and language of DRM, stressing societal vulnerability as a driver of disaster risk and a factor undermining development, and have produced legislation that reflects this, but in practice all have faced difficulties in implementing these policies. National DRM councils have been set up in all eight countries, but at the local level these decision-making bodies are often missing or do not function properly, as in Pakistan and Uganda. In Nicaragua, these councils exist but only function when there is an emergency. In Mexico, South Africa and the Philippines, local DRM decision-making bodies perform functions outside of crisis situations but are largely focused on preparedness and response planning, and the capacities of these units to assess and reduce disaster risk varies widely.

Overall there is a lack of genuine engagement with local stakeholders across all countries in this study. For second- and third-quartile countries this lack of engagement has created huge geographical diversity in DRM capacity, with poor rural municipalities facing severe restrictions in developing and implementing policies that do more than help to improve emergency response and limit loss of life. However, literature on DRM in the Yucatan Peninsula in Mexico and in Albay in the Philippines suggests that the prevailing DRG regimes in these countries are sufficiently enabling to allow local governments, even those with few resources, to innovate and access funds from higher levels of government and other external actors. This is an encouraging sign as it suggests,

once again, that informal institutions may hold the key to effective local DRM, particularly in countries where formal national-level institutions are less enabling in practice than they appear to be on paper. In both these countries local actors, and in particular local leaders, have played key roles. This contrasts sharply with the fourth-quartile countries, where capacity is limited everywhere and DRM measures are identified and carried out principally by external actors.

Overall, despite the obvious limitations of comparing countries with such different levels of human development and institutional capacity, the quantitative and qualitative analysis presented in this study demonstrates that there are a number of critical issues for DRM that cut across the divide. Horizontal and vertical relationships are at the heart of effective DRM and development processes, so despite the fact that in countries such as Pakistan and Uganda DRM has lower salience than elsewhere (because of the many immediate problems faced), action to promote greater integration and coherence across scales will have multiple benefits. Where these relationships have been strengthened, either through formal or informal processes, DRM has improved.

5.2 Transformation or incremental change?

Institutional learning is not linear but is rather a stepwise process, where actors experiment with innovation until they meet constraints and new boundaries (Pahl-Wostl, 2009). We can observe this at different scales of governance and through a series of learning 'loops,' which are differentiated by the degree to which the learning that takes place promotes transformational change in management strategies (IPCC, 2012). Single-loop learning refers to an incremental improvement of practices without questioning the underlying assumptions; double-loop learning entails a transition achieved through revisiting assumptions within the same normative framework; and triple-loop learning involves a reconsideration of underlying principles. Transformational change in the context of DRG might entail, for example, adopting a more participatory approach to reducing risk, bringing in those parties that contribute to the generation of risk from across cultural, institutional, national and other boundaries (Pahl-Wostl, 2009).

The case study analysis suggests that there has been a trend or convergence towards a particular type of DRG system over the past 10 years. This positive trend can be characterised as a transition towards more effective vertical and horizontal coordination of emergency preparedness and response, developed through formal and informal institutional relationships. Practices have improved and the underlying assumptions about how disaster risk can be effectively managed in all eight countries have been challenged. This trend towards developing multi-stakeholder disaster preparedness and response mechanisms appears to be unidirectional across these countries, although conflict in some parts of Pakistan and retrenchment in Uganda's decentralisation process have threatened its progress.

Recent high- and low-intensity climatic events underscore the importance, however, of investing in longer-term measures that can reduce exposure and vulnerability. The Category 5 Typhoon Haiyan in the Philippines and two Category 1 storms in Mexico in 2013

all took a heavy toll on human life and created widespread damage. In both countries there has been substantial progress in risk communication and preparedness planning and these measures have gone a long way towards reducing the loss, damage and social disruption associated with hazards. However, there is a risk that local and national authorities have become over-reliant on preparedness as a pre-emptive strategy. This is costly for governments and households, and despite careful organisation asset losses from major disasters are substantial. Risk communication, preparedness, evacuations and shelter management can therefore be seen as necessary, but not sufficient, measures to manage disaster risk. In order to implement more costly, far-reaching risk reduction and control measures, such as reducing exposure to hazards through resettlement and land use planning, municipalities of all sizes will require further external support.



A man receives warning about the return of rains in the Somali Region of Ethiopia. ©Edwina Stevens/Small World Stories/UNISDR



Collectively, the case studies suggest that while major disasters can provide useful catalysts, they do not necessarily promote behavioural change, and in particular do not generate practices oriented towards risk reduction and control. More profound lessons as to the nature of risk, and the official structures and actions needed to effectively deal with it, are learned when disasters occur during a wider political and institutional reform process. Institutional reform, and in particular decentralisation of responsibilities and resources, can open up opportunities for dealing differently with socio-ecological problems. Political champions can also play a critical role in taking advantage of these policy spaces to push for DRM reform. In those countries where DRM policies have actually been implemented and have been most effective, however, these formal institutional reform processes have also been accompanied by local responses.

Two types of local responses are observed that are indicative of wider transformations in DRG: those occurring in response to disaster (self-organisation and networking) and those that take advantage of the opening up of political spaces (participation in decision-making). There are signs of transformational changes occurring in a few countries, but these examples need to be studied in more depth. In Japan the national DRG system has undergone a profound shift from one that was wholly state-run and over-reliant on structural measures, to a system today that recognises and incorporates non-state actors in planning and investment decisions at different scales to innovate and improve methods of controlling risk. This has involved substantial government commitment and resources to raise awareness that disaster risk is both a development problem and one that affects the whole of society. Elsewhere, examples are more sporadic (both temporally and spatially) but have potential for replication. Creating a culture of risk reduction is a long-term challenge and one that can be initiated at the national level but that ultimately can only be sustained with multiple stakeholder involvement at sub-national levels.

6. RECOMMENDATIONS FOR IMPROVING RISK GOVERNANCE

A number of recommendations can be drawn from the analysis presented in this paper that have relevance for future efforts to promote risk management but also to broader international development frameworks. This section highlights lessons that are specific to managing disaster risk and that also serve as principles to guide engagement with governments and communities on development problems more generally. The paper then closes with specific recommendations for the HFA2.

6.1 Creating the enabling environment

1. Acknowledge differences in governance contexts and trajectories

International frameworks set the broad parameters for effective DRM, but need to have embedded within them sufficient flexibility for objectives and targets to be met. Frameworks should acknowledge the different starting points and the nature of political and administrative histories and reform processes within a country or sub-national entity. For example, the nature of civil society participation in decision-making varies across countries and even within countries, and harnessing this to build awareness and bottom-up support for DRM and enhance social learning will require different strategies in different contexts.

In countries where weak governance is being addressed through other initiatives, DRM can be seen as a means to strengthen policy formulation processes, national fiscal and budgetary arrangements, and institutions such as the rule of law, in such a way as to promote more risk-informed decision-making. For vulnerable populations living in areas where state penetration is weak or non-existent, or where those in power are party to a conflict, international support should focus primarily on enhancing DRM through local action, as well as strengthening local governance arrangements and informal institutions.

2. Take advantage of policy windows

Time and time again, disasters prompt critiques of DRM models but there are rarely mechanisms in place to ensure that lessons are translated into improvements in future practices – for example, through a formal review of the enforcement of building codes. Procedures for engaging with stakeholders in post-disaster situations need to be developed before a disaster occurs to facilitate learning and sharing of lessons, and ultimately to initiate reform processes.

Positive examples of ‘building back better’ after disasters across a range of governance contexts have been well documented (Fan, 2014), and these reconstruction processes should also be used to catalyse DRM policy reform. Opening up policy spaces in post-disaster situations can provide opportunities for institutional as well as policy reform and good practices such as inclusive policy-making should be recognised and celebrated. In very specific circumstances where new structures and institutions are being created or negotiated, such as in post-conflict contexts, governance arrangements for DRM may become a fundamental part of what is considered a functioning and effective formal governance system (Harris et al., 2013). Managing disaster risk effectively and systematically requires the establishment of systems, processes and institutions that are formally part of state apparatus, and where there is a window of opportunity to establish these as part of a broader state-building process, this should be pursued.

3. Maintain a focus on linkages and relationships between and across scales of governance

The HFA has paid a lot of attention to national government policies, and reviews of the framework constantly raise concerns about what is happening at the local level, but little attention is paid to the linkages between scales of governance. These relationships shape what is possible at the local level and are therefore critical to DRM. In particular, intermediate levels in complex multi-scaled systems of government often act as gatekeepers and play a key role in distributing funds between local governments. Vertical governance arrangements need to be encouraged that do more than just ‘enable’. International and intergovernmental mandates for DRM should not be coercive, but they should be more than just cooperative or enabling: they need to create an *expectation* of municipal government to implement measures to protect lives and property. Informal inter-institutional arrangements such as personal ties need to be understood and used to influence local government DRM practices – these may be more effective than national disaster management legislation.

In addition, horizontal governance relationships need to be strengthened. Partnership approaches to DRM are fundamental and different modalities should be sought, depending on the political and administrative context. Partnerships do not require high

levels of funding but do require sustained, facilitated dialogue between partners. This is especially important in difficult governance contexts, such as those mired in conflict, fragility and/or insecurity. In countries where parts of the population or territories are marginalised – including in contexts where the government is party to a conflict – more concentrated efforts to support equitable disaster management are needed. This requires the successor to the HFA to ‘speak to’ states, but not to be state-centric. It requires recognition of differentiated governance structures, including those that are contested.

4. Encourage local innovation

Local governments need to have sufficient autonomy from higher levels of government to be able to define their own priorities and implement DRM measures without too much interference, and thus gain credibility and trust from their citizens. This kind of autonomous, inclusive style of governance is not the modus operandi of most local governments, but decentralisation and political reform may create new spaces for policy entrepreneurs to innovate and improve policies and practices to reduce disaster risk. These broader reform processes can be promoted by national parliaments, executive bodies and civil society organisations.

Local governments cannot act alone, but they play a critical role because of their unique, strategic position to coordinate and support community efforts and access necessary resources from external sources to reduce risk. DRM strategies take time to implement and in the early stages, when local governments are learning about how to coordinate disaster preparedness and response activities, institutional and geographical proximity to vulnerable groups is particularly important. Efforts to build resilience should therefore help to bridge these gaps.

Some annual municipal budgets may be sufficient to carry out preparedness functions, but local governments will need to access extraordinary funds for ‘upstream’ measures. The construction of protective infrastructure and other structural measures should not be downplayed but should be accompanied by technical support, for example to develop appropriate legal instruments for DRR, such as land use planning regulations (Wilkinson, 2012b). Where possible, mechanisms should be established that encourage local governments to generate ideas and actively seek this support, so that ownership over risk reduction and control projects remains local.

Encouraging local innovation also requires greater consideration of the differences in socio-cultural understandings of risk, and how different understandings affect priorities of risk, decision-making processes and the success of disaster management interventions. Well-intentioned external DRM programmes have often failed because they have not taken socio-cultural perspectives on risk seriously (Harris, 2012). The forthcoming *World Development Report 2015* on ‘mind and culture’,^{vi} for example, reminds the international community that supporting local action will require more concerted effort to understand local perceptions of risk.

6.2 Recommendations for a successor to the Hyogo Framework for Action

The HFA2 needs to account for the vast differences in the DRG contexts that exist between – and within – countries. As the case studies explored in this report demonstrate, the characteristics are wide ranging and there is no single blueprint or formula which can be applied to improve risk management across all contexts. What makes for effective DRG arrangements must suit the risks faced and other contextually-specific factors, such as the socio-political and economic conditions of a country. These different starting points and contextual factors should be taken into account in the HFA2. A number of specific recommendations can be drawn from the general principles outlined above:

- **HFA2 should articulate a set of principles or standards that states are expected to achieve**, although the specific institutional arrangements through which they achieve them should be defined by the existing governance context of that country. The HFA2 should also acknowledge and specify the differences in governance contexts and trajectories as well as the challenges, incentives and drivers of change (as outlined in this paper).

- **HFA2 could demonstrate a variety of DRG characteristics that exist across a range of contexts and that have helped promote more effective risk management.** This would show the breadth of possibility of what makes for effective DRG. From here, national stakeholders can undertake an informed decision-making processes to determine the trajectory of their DRM institutions and policies, informed by experiences in countries they consider to have similar governance and development characteristics.
- **Plans of action should be devised that accommodate a range of different futures** and plans that can take advantage of policy windows when they arise. In some countries, planning processes may be well defined; in others, these may require more flexibility to account for 'unknowns' in future governance challenges.
- **Process-based indicators should be embedded into the HFA Monitor** to acknowledge and support different starting points for building DRM institutions and policy. Processes needed to encourage greater vertical and horizontal integration across scales should be outlined in accordance with the historical trajectories of each country. Inclusion of the concept of 'disaster risk governance' in the HFA2 (recognising that the language may need to be more accessible) will help to recognise the different needs and trajectories of countries in the fourth quartile, where governance is a development challenge, often constraining other development goals.
- **Greater monitoring and accountability at the sub-national level is required,** to capture differentiated levels of progress within a country. This should support efforts to focus on linkages and relationships between and across scales of governance. Furthermore, disaggregated data that seeks to understand the effectiveness of actions that link scales of governance is required. This will help inform national and international knowledge and understanding of why particular regions lag behind and those that require more concentrated support.
- **Greater flexibility is needed to give credit to and promote solutions that take into account different risk perceptions.** The HFA2 should begin with a clear statement about risk being perceived differently by different groups and hence risk management being a process of articulating those perceptions and perspectives, and of negotiation around priorities for action.
- **Recommendations are needed to help non-state actors play a more active role in DRM.** HFA2 should for example encourage action on the less visible activities which can support risk reduction, including roles for civil society groups to convene multi-stakeholder meetings, advocate and provide support to government. Recommendations should aim to create better political incentives for DRM.
- **The institutions which take forward the HFA2 should seek to support more innovative means to promoting DRM.** This may require changes to the types of stakeholders traditionally engaged, or the processes through which decisions are made about DRM priorities. Overall, greater nuance is required to ensure that learning from looking at risk governance informs future practice. For example, it may be more effective to offer support to - and organise learning events between - countries that fall within the same quartile of the DRG composite index, rather than in accordance with their risk/hazard profiles. This would provide an innovative way of supporting peer-to-peer learning on DRM in practice.

ⁱ A governance system comprises of a state's economic, political and administrative authority. Economic governance includes decision-making processes that affect a country's economic activities and its relationships with other economies. It has major implications for equity, poverty and quality of life. Political governance is the process of decision-making to formulate policy. Administrative governance is the system of policy implementation.

ⁱⁱ https://portoncv.gov.cv/dhub/porton.por_global.open_file?p_doc_id=1034

ⁱⁱⁱ http://www.un.ba/upload/HDR2013_Report_English.pdf

^{iv} <http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8633.pdf>

^v Focus group discussion with DRM stakeholders, DARA Risk Reduction Index in Central America, Managua, 18 June 2010.

^{vi} <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTWDRS/EXTNWDR2013/0,,contentMDK:23488479~pagePK:8261309~piPK:8258028~theSitePK:8258025,00.html>

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ABBREVIATIONS

CARRI	Community and Regional Resilience Institute
CAT DDO	Catastrophe Deferred Drawdown Option
CBDRM	Community-based disaster risk management
CBO	Community-based organisation
CCA	Climate change adaptation
CSO	Civil society organisation
DRG	Disaster risk governance
DRM	Disaster risk management
DRR	Disaster risk reduction
EIU	Economist Intelligence Unit
FFP	Fund for Peace
GAIN	Global Adaptation Index
GFDRR	Global Facility for Disaster Reduction and Recovery
HDI	Human Development Index
HFA	Hyogo Framework for Action
IDB	Inter-American Development Bank
IFRC	International Federation of the Red Cross
LDC	Least developed country
NDMA	National Disaster Management Authority (Pakistan)
NGO	Non-governmental organisation
ODI	Overseas Development Institute
RMI	Risk Management Index
SIDS	Small island developing states
SINAPROC	National Civil Protection System (Mexico)
UNDP	United Nations Development Programme
UNISDR	United Nations Office for Disaster Risk Reduction
WRR	World Risk Report