

Linking climate change adaptation and disaster risk reduction



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Written by Paul Venton (lead author) and Sarah La Trobe

Front cover photos by Caroline Irby / Tearfund and Claire Kendall

Back cover photo by Marcus Perkins / Tearfund

Designed by Wingfinger

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Executive summary

Climate change adaptation and disaster risk reduction (DRR) have similar aims and mutual benefits. However, to date the climate change and disaster risk management communities¹ have operated largely in isolation from each other – for a number of reasons. This situation must change as a matter of urgency. Adaptation and DRR policy makers, experts and practitioners must communicate and collaborate with each other effectively to ensure a comprehensive risk management approach to development at local, national and international levels of government. This could result in the following benefits:

- 1 Reduction of climate-related losses through more widespread implementation of DRR measures linked with adaptation.
- 2 More efficient use of financial, human and natural resources.
- 3 Increased effectiveness and sustainability of both adaptation and DRR approaches.

Closer collaboration on these issues is particularly critical as governments negotiate on the adaptation pillar of the post-2012 framework under the United Nations Framework Convention on Climate Change (UNFCCC). DRR must be a key component of the post-2012 framework if an effective, sustainable approach to adaptation is to be achieved.

The recommendations within this report are focused on improving communication and collaboration between the climate change adaptation and disaster risk management communities. Some are relevant to both communities, while others are more specifically directed at one or the other.

Climate change adaptation community

- Use the guidance of the Hyogo Framework for Action (HFA) 2005–2015² agreed by 168 governments in Kobe, Hyogo, Japan in 2005, to facilitate a comprehensive, system-wide risk-reducing approach to climate change adaptation.³
- Ensure there is a strong focus on DRR within the adaptation pillar of the post-2012 climate change framework.
- Use existing DRR tools that have proven to be effective in dealing with weather-related events that will be exacerbated by climate change.
- Ensure adequate focus on the socio-economic and political dimensions of managing climate risks, in consultation with the disaster risk management community.
- Ensure that adaptation is informed by successful community-based experiences in vulnerability reduction.

1 i.e. policy makers, experts, academics and practitioners.

2 The HFA contains a set of goals, activity and policy measures related to DRR, which are to be achieved by 2015.

3 Recommended by the UN/ISDR in 'Disaster risk and climate change', March 2008.

Disaster risk management community

- Demonstrate and promote the role of DRR in climate change adaptation policies, strategies and programmes. Make DRR information and tools more accessible for climate change adaptation negotiators and managers.
- Ensure that all DRR policies, measures and tools account for new risks and the aggravation of existing risks posed by climate change.
- Actively engage in and seek to influence climate change policy at international, national and local levels.

Both communities

- Increase awareness and understanding of adaptation and DRR synergies and differences at all levels.
- Encourage systematic dialogue, information exchange and joint working between climate change and disaster reduction bodies, focal points and experts, in collaboration with development policy makers and practitioners.

Introduction

As global climate change escalates, the risk of floods, droughts and severe storms increases. In its 4th Assessment Report, the Inter-governmental Panel on Climate Change (IPCC) projects that rising global temperature will cause increasing drought in mid-latitudes and semi-arid latitudes, increased water stress in many parts of the world, increased damage from storms, and coastal flooding affecting millions more people each year.⁴ With 94 per cent of disaster-related deaths occurring in developing countries,⁵ the outlook for poor people is bleak.

Climate change increases disaster risk in a number of ways. It changes the *magnitude and frequency of extreme events*⁶ (meaning that coping and response mechanisms and economic planning for disasters based on past vulnerabilities may no longer suffice).⁷ It changes *average climatic conditions and climate variability*, affecting underlying risk factors, and it generates *new threats*, which a region may have no experience in dealing with.⁸ Clearly, the climate change and disaster management communities need to work together in addressing these issues. If climate change adaptation policies and measures are to be efficient and effective they must *build on and expand* existing DRR efforts. And if DRR approaches are to be sustainable they must account for the impact of climate change.

To date, the climate change and disaster management communities have operated largely in isolation from each other. This situation must change as a matter of urgency. Between 2008 and 2009, governments are negotiating under the UNFCCC on the second commitment period of the Kyoto Protocol, to begin in 2012 (referred to as the 'post-2012 framework'). Climate change adaptation is one of four pillars of this framework.⁹ DRR must be a key component of the adaptation pillar if an effective, sustainable approach to adaptation is to be achieved.

This paper is primarily aimed at climate change and disaster risk management policy/decision makers at local, national and international levels. Its purpose is to raise awareness of the similarities and differences between climate change adaptation and DRR, to highlight the benefits of a more integrated approach to these issues, and, ultimately, to increase the level of strategic co-ordination between the climate change and disaster risk management communities. This could result in the following benefits:

- 1 Reduction of climate-related losses, through more widespread implementation of DRR measures linked with adaptation.
- 2 Increased effectiveness and sustainability of both adaptation and DRR approaches.
- 3 More efficient use of financial, human and natural resources.

In section 1, we describe similarities and differences between adaptation and DRR. In section 2, we discuss the rationale for adopting a more integrated approach to adaptation and DRR. In section 3, we propose recommendations to improve co-ordination and collaboration between the climate change and disaster risk management communities at all levels.

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- 4 IPCC (2007) *Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change Summary for Policymakers*.
 - 5 Mathur A et al. (2004) *An Adaptation Mosaic: A sample of the emerging World Bank work in climate change adaptation*. World Bank, Washington DC
 - 6 The IPCC projects increased frequency of heavy precipitation events (*very likely*), increased area affected by drought (*likely*), increased incidence of extreme high sea level (*likely*) and increased intensity of tropical cyclone activity (*likely*). There is no clear evidence for increased frequency of tropical cyclones.
 - 7 Sperling F and Szekely F (2005) *Disaster risk management in a changing climate*. VARG, Washington DC. In many countries, existing mechanisms are already insufficient for the current level of vulnerability.
 - 8 Ibid.
 - 9 See UNFCCC COP 13 Decision 1/CP.13, the *Bali Action Plan*.

1 Similarities and differences

1.1 Similarities

1.1.1 Similar aims

The IPCC defines climate change adaptation as: **'An adjustment in natural or human systems in response to actual or expected climate stimuli or their effects, which moderates harm or exploits benefit opportunities'**.

Disaster risk reduction can be defined as: **'The broad development and application of policies, strategies and practices to minimise vulnerabilities and disaster risks throughout society, through prevention, mitigation and preparedness'**.¹⁰

While their scope and specific interests may differ (see section 1.2), adaptation and DRR have very similar aims in terms of seeking to build resilience in the face of hazards. They both focus on reducing people's vulnerability to hazards by improving methods to anticipate, resist, cope with and recover from their impact. In so doing, climate change adaptation clearly focuses on *climate-related hazards*, such as floods, droughts and storms. The disaster risk management community has a long history of dealing with such events, and therefore a wealth of experience relevant to adaptation.

Importantly, both adaptation and DRR seek to build resilience to hazards in the context of sustainable development. Climate change adaptation requires the re-shaping and re-designing of development, social and economic practices to respond effectively to new or anticipated environmental changes. Likewise DRR seeks to influence development decision-making and protect development aspirations from environment-related risks. The effectiveness of both adaptation and DRR are limited if they are not viewed within the broader context of sustainable development.

The World Resources Institute (WRI) presents a model of adaptation which helps to illustrate how closely DRR is linked with adaptation.¹¹ The WRI frames adaptation as a 'continuum of responses to climate change', divided into four types of adaptation efforts, ranging from 'pure' development activities at one end of the continuum to very explicit adaptation measures at the other. The four types of adaptation are:

- 1 Addressing the drivers of vulnerability (i.e. factors making people vulnerable to harm).
- 2 Building response capacity (laying the foundation for more targeted actions).
- 3 Managing climate risk (reducing the effects of climate change on resources/livelihoods).
- 4 Confronting climate change (highly specialised activities, such as relocating communities in response to sea level rise).

While DRR measures typically fall under the middle two categories of building response capacity and managing climate risk, they can fit into *every category* of the adaptation continuum, addressing drivers of vulnerability (e.g. diversifying livelihood strategies in flood-prone areas) as well as confronting climate change (e.g. reducing the risk of glacial lake outburst floods).¹²

10 Twigg J (2004) *Good Practice Review 9. Disaster risk reduction: mitigation and preparedness in development and emergency programming*. Overseas Development Institute Humanitarian Practice Network, London

11 See WRI report (2007) *Weathering the Storm, Options for Framing Adaptation and Development*.

12 See Figure 7 in the above report, 'A Continuum of Adaptation Activities: from Development to Climate Change'.

1.1.2 Mutual benefits

In seeking to reduce vulnerability to hazards, the disaster risk management community implements a variety of measures which support adaptation in two ways: (1) through reducing climate-related disaster risk, and (2) in offsetting the long-term implications of climate change. For example, with regards to the latter point:

- reforestation (a key 'DRR' measure) will lessen the impact of a flood, but will also offset long-term soil degradation and help control local temperature and rainfall.
- improvements to the health sector in developing countries will help safeguard health in times of flood AND where there is lack of clean, safe drinking water and increased numbers of mosquitoes as a result of climate change.
- better management and conservation of water resources in a region of vulnerability will offset drought AND moderate longer-term water scarcity.

In the same way that *DRR supports adaptation*, measures more typically associated with adaptation to climate change such as addressing the impact of glacial retreat or salt water intrusion onto agricultural land, will *support DRR* through reducing long-term vulnerability and influencing development potential.

With similar aims and mutual benefits, the relevance of DRR to the design and implementation of adaptation policies and measures cannot be over-emphasised. As Sperling and Szekely state, '*To be effective, efforts to respond to the exceptional challenges posed by a changing climate must build on and expand the existing capability of disaster risk reduction, and should not be undertaken in isolation from this wider agenda.*'¹³ The disaster risk management community not only has transferable, practical experience in addressing hazards, it also has strong and well-established local and regional institutions which are currently lacking in the field of adaptation.

1.1.3 Non-structural measures

Non-structural measures refer to policies, knowledge development/awareness and methods and operating practices, including participatory mechanisms, which can reduce risk and related impacts.¹⁴ These non-structural measures are well placed to serve both a DRR and a climate change adaptation agenda. The dynamism associated with training and awareness-raising means that people and institutions can apply skills and knowledge in different circumstances as they emerge. For example, awareness-raising as a component of an early warning system to cope with current flood risks is well placed to form an effective basis under a different future flood scenario.¹⁵

1.1.4 Poverty reduction and underlying risk

Both climate change and disaster risk management communities recognise and accept that the poor are disproportionately affected by hazards. This is due to a lack of access to the means by which they can improve their resilience, whether this is in economic, social, physical, or environmental terms. So for both adaptation and DRR, poverty reduction and sustainable natural resource management are essential components of reducing vulnerability to hazards and climate change.¹⁶

13 Sperling F and Szekely F (2005) *Disaster risk management in a changing climate*. VARG, Washington DC

14 See www.unisdr.org/eng/library/lib-terminology-eng%20home.htm

15 This approach would be similar to building livelihood assets in each of the five areas of the sustainable livelihoods framework: human, natural, financial, social and physical capital.

16 Frank Thomalla, Tom Downing, Erika Spanger-Siegrfried, Guoyi Han, Johan Rockström (2006) 'Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation' *Disasters* 30 (1), 39–48

In seeking to increase poor people's resilience to climate change and disasters, enabling local communities¹⁷ to participate in adaptation and DRR decision-making is crucial. Such an approach has long underpinned community-based disaster risk management.¹⁸ This approach must also underpin adaptation efforts, if adaptation is to be effective at the local level where impacts are most acutely felt.

Addressing underlying risk factors is critical for effective poverty and vulnerability reduction.¹⁹ Underlying risk relates to the interaction of a range of factors including globalisation processes, demographic trends, economic development and trade patterns, urbanisation, discrimination and limited local and national government capacity, which have an impact on exposure and vulnerability to hazards. In this context, all local and global issues that change risk patterns and increase vulnerabilities are relevant to adaptation and DRR.²⁰

In principle, both adaptation and DRR aim to address such macro-level influences. However, in practice, perspectives on underlying risk do not yet go deep enough into the social, economic and political realms where risk is generated for the poor and most vulnerable. As such, a shared challenge for the climate change and disaster risk management communities is ensuring that adaptation and DRR commonly address root causes of risk, not merely symptoms.

1.1.5 Mainstreaming

It is increasingly recognised that adaptation and DRR must be integral components of development planning and implementation, to increase sustainability. In other words, these issues need to be 'mainstreamed' into national development plans, poverty reduction strategies, sectoral policies and other development tools and techniques. At the World Conference on Disaster Reduction in 2005, governments agreed to adopt a mainstreamed approach to DRR.²¹ To date there has been no such formal international-level agreement on mainstreaming adaptation. However, in 2005 the Commission for Africa made a significant recommendation that '*donors make climate variability and climate change risk factors an integral part of their project planning and assessment by 2008*'.²²

In seeking to mainstream adaptation and DRR, both communities are faced with mainstreaming-related dilemmas. For example, an emerging problem is 'mainstreaming fatigue'. Mitchell and Collender suggest that mainstreaming fatigue '*must ... be tackled by creating positive and recognisable goals, and avoiding replication with other parallel processes*'.²³

1.1.6 Converging political agendas

DRR is strongly associated with present day conditions. Since the 2001 Marrakesh Accords,²⁴ adaptation also acknowledges existing conditions as its starting point (although there is still a misconception

17 Including minority and disadvantaged groups.

18 Although concerns have been raised regarding the quality of participation.

19 Addressing underlying risk was adopted as one of the five 'Priorities for Action' of the Hyogo Framework for Action 2005-2015.

20 Sperling F and Szekely F (2005) *Disaster risk management in a changing climate*. VARG, Washington DC

21 See the Hyogo Framework for Action 2005-2015.

22 See Commission for Africa (2005) *Our Common Interest: Report of the Commission for Africa*.

23 Mitchell T and Collender G (2007) 'Mainstreaming Climate Change Adaptation in Developing Countries', IDS *In Focus* Issue 02.7 November.

24 The Marrakesh Accords is a set of agreements reached at the Conference of the Parties 7 (COP 7) meeting in 2001 on the rules of meeting the targets set out in the Kyoto Protocol.

regarding the relevance of adaptation to present day conditions). Tanner states, '*The basis for adapting to the future climate lies in improving the ability to cope with existing climate variations.*'²⁵ By improving the capacity of communities, governments or regions to deal with current climate vulnerabilities, for instance through existing DRR activities, their capacity to deal with future climatic changes is likely to improve (acknowledging that DRR measures can result in mal-adaptation if they do not account for climate change – see Section 2.3.3).

In the policy debate on climate change there has been growing recognition of the importance of adaptation, and within this, the need to improve the capacity of governments and communities to address *existing* vulnerabilities to current climate variability and climatic extremes. This development has taken place in parallel to the shift from disaster management to disaster *risk* management, which is adopting a more anticipatory and forward-looking approach.²⁶ Climate change adaptation and DRR, therefore, have merging remits and highly significant converging political agendas.

This was evident at the World Conference on Disaster Reduction (WCDR) held in Kobe, Japan in 2005 as well as more recently at the 13th session of the UNFCCC Conference of the Parties (COP 13) held in Bali in December 2007. At the WCDR, governments agreed that risk reduction associated with climate change should be incorporated into DRR and adaptation strategies.²⁷ At COP 13, governments formally recognised the importance of DRR for adaptation in the Bali Action Plan, agreeing that 'Enhanced action on adaptation' should include consideration of 'disaster reduction strategies'.²⁸

1.2 Differences

1.2.1 Hazard types

Climate-related, or 'hydro-meteorological' hazards only represent one type of hazard dealt with by the disaster management community. The full range of hazards that DRR can encompass includes natural (e.g. geological, hydro-meteorological and biological) or those induced by human processes (e.g. environmental degradation and technological hazards). Therefore, DRR expands beyond the remit of climate change adaptation (see Figure 1, page 8).

Similarly, climate change adaptation moves outside the realm of most DRR experience, to address longer-term impacts of climatic change such as loss of biodiversity, changes in ecosystem services and spread of climate-sensitive disease. These issues are typically positioned at the far end of the WRI's adaptation continuum (see Section 1.1.1), and are less likely to be addressed by the DRR community.

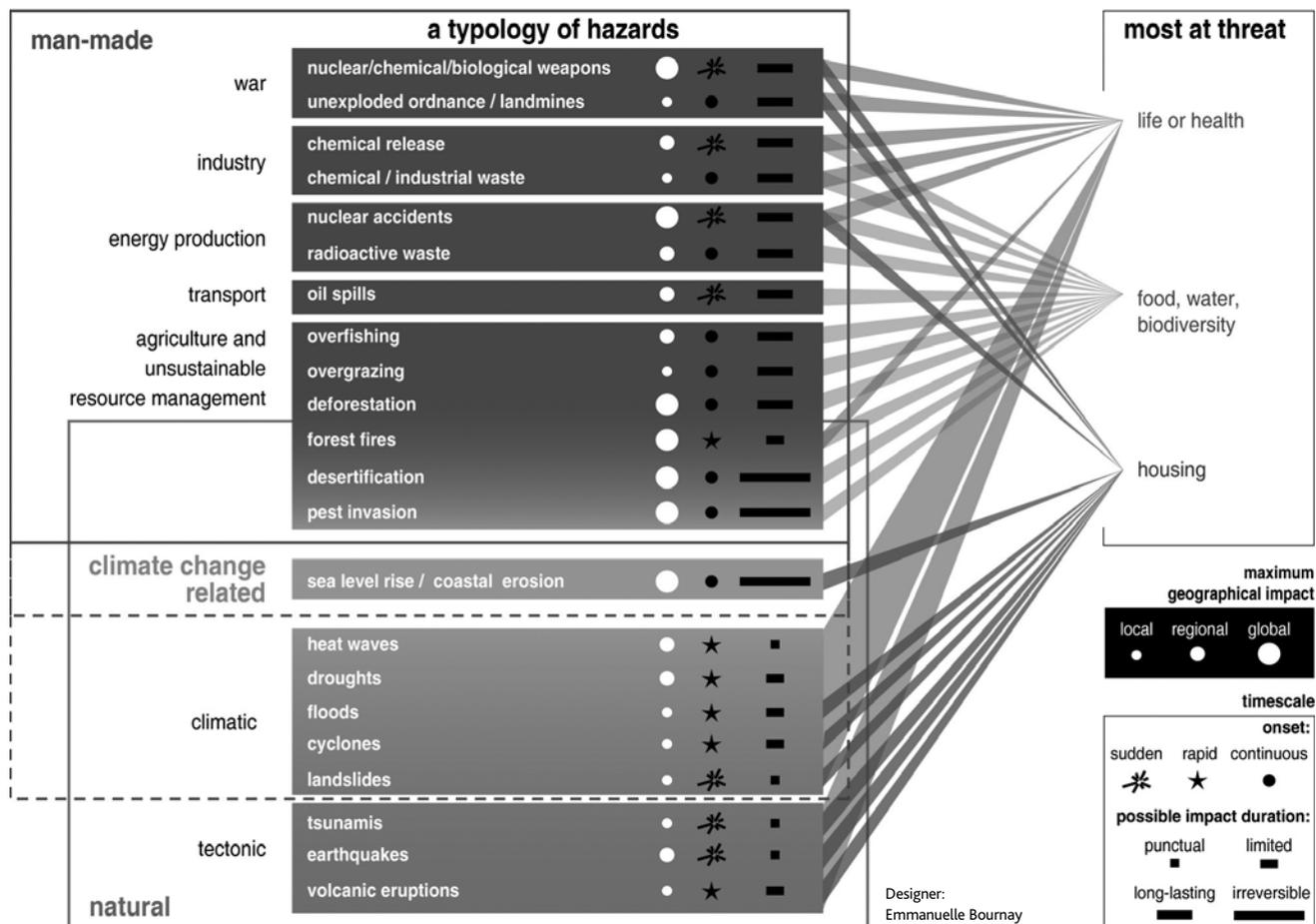
Both the climate change and disaster risk management communities must recognise that adaptation and DRR have these more exclusive elements, to avoid perpetuating the erroneous view that all adaptation and DRR is the same. However, recognition of exclusive elements should not detract from efforts to develop a more integrated approach, as the majority of adaptation and DRR measures have mutual benefits, offsetting both climate and disaster-related risks.

25 Tanner T (2007) 'Screening climate risks to Development Cooperation', *IDS In Focus* Issue 02.5 November.

26 Thomalla F et al. (2006) 'Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation'. *Disasters* 30(1), 39–48

27 Hyogo Framework for Action, paragraph 19 (c) and 30 (g).

28 See Section 1(c) in the Bali Action Plan (COP 13 Decision 1/CP.13).

FIGURE 1 A typology of hazards (UNEP-GRID Arendal)²⁹Adapted from Pascal Peduzzi,
UNEP/GRID-Europe, 2004

1.2.2 Time scale

Thomalla observes that much of the difference between adaptation and DRR relates to a different perception of the nature and timescale of the threat:

*Disasters caused by extreme environmental conditions tend to be fairly distinct in time and space (except for slow-onset or creeping disasters like desertification) and present a situation where the immediate impacts tend to overwhelm the capabilities of the affected population and rapid responses are required. For many hazards there exists considerable knowledge and certainty about the event characteristics ... as well as exposure characteristics ... based on historical experiences. Most impacts of climate change, meanwhile, are much more difficult to perceive and measure, since the changes in average climatic conditions and climatic variability occur over a longer period ...*³⁰

²⁹ See http://maps.grida.no/go/graphic/typology_of_hazards

³⁰ Thomalla F et al. (2006) 'Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation' *Disasters* 30(1), 39–48

DRR focuses on reducing foreseeable risks based on previous experience, whereas adaptation originates with environmental science predicting how climate change will be manifested in a particular region over a longer time period. Consequently DRR is more likely to struggle to integrate risks that have *yet to be experienced*,³¹ whereas this is a core component of an adaptation strategy with its focus on shifting environmental conditions.³² However, according to Sperling et al, DRR is increasingly incorporating scientific advances and consequently is gaining a longer-term perspective.³³ Indeed it must, if DRR measures are to be sustainable in the face of climate change.

1.2.3 Level of significance placed on existing capacities

Building resilience is a basis for both DRR and climate change adaptation. However, for DRR the emphasis is on determining *existing* capacity so as to anticipate, resist, cope with and recover from the impact of hazards. 'Traditional knowledge' on such matters is therefore an important starting point for developing DRR strategies. However, 'traditional knowledge' may be limited in its effectiveness at dealing with an exacerbation of existing problems, or with 'non-traditional problems', such as those to be experienced for the first time through climate change. A blend between traditional knowledge and an understanding of the projected impacts of climate must be sought.

1.2.4 Design limits for structural measures

Structural measures refer to any physical construction to reduce or avoid negative impacts of hazards, including engineering measures and construction of hazard-resistant and protective structures and infrastructure.³⁴ Under a DRR initiative based upon present and historical experiences, there is a greater likelihood that design limits for structural measures, such as flood embankments, will not be adequate in the face of climate change. Similar issues could be faced when considering changes in the frequency and severity of storms, drought, and other climate-related phenomena, including sea-level rise. Initiatives focused on climate change adaptation are more likely to design structural measures with consideration for new, predicted impacts.

1.2.5 Comprehensiveness of measures to reduce vulnerability

The environmental science basis, from which climate change adaptation is emerging, means that adaptation largely focuses on shifting environmental conditions. Without such a strong environmental perspective and background, DRR is more likely to also consider and address social, physical and economic factors. Furthermore, through its inter-disciplinary analysis of conditions across all these categories, the disaster risk management community is more capable of recognising the wider constraints that determine vulnerability. This may account for why the adaptation community tends to place strong emphasis on developing hazard forecasting and early warning systems,³⁵ whereas DRR, by its nature, extends beyond disaster preparedness measures alone.

31 For example, it is not uncommon for housing damaged in a flood to be rebuilt disregarding risks associated with its location in a seismically active zone, unless an earthquake has been experienced in recent history.

32 Few R et al. (2006) *Linking Climate Change Adaptation and Disaster Risk Management for Sustainable Poverty Reduction: Synthesis Report. A study carried out for the Vulnerability and Adaptation Resource Group*, VARG, Washington DC

33 Sperling F and Szekely F (2005) *Disaster risk management in a changing climate*, VARG, Washington DC

34 See www.unisdr.org/eng/library/lib-terminology-eng%20home.htm

35 Thomalla F et al. (2006) 'Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation' *Disasters* 30(1), 39–48

The following table highlights the key differences between DRR and climate change adaptation measures and approaches (some inevitable generalisations are made). The table also indicates where there are signs of convergence between the two disciplines.

TABLE 1
Summary of
differences between
adaptation and DRR

DIFFERENCES		SIGNS OF CONVERGENCE
DRR	Climate change adaptation	
Relevant to all hazard types	Relevant to climate-related hazards	n/a
Origin and culture in humanitarian assistance following a disaster event	Origin and culture in scientific theory	Climate change adaptation specialists now being recruited from engineering, watsan, agriculture, health and DRR sectors
Most concerned with the present – i.e. addressing existing risks	Most concerned with the future – i.e. addressing uncertainty/new risks	DRR increasingly forward-looking Existing climate variability is an entry point for climate change adaptation
Historical perspective	Future perspective	As above
Traditional/indigenous knowledge at community level is a basis for resilience	Traditional/indigenous knowledge at community level may be insufficient for resilience against types and scales of risk yet to be experienced	Examples where integration of scientific knowledge and traditional knowledge for DRR provides learning opportunities ³⁶
Structural measures designed for safety levels modelled on current and historical evidence ³⁷	Structural measures designed for safety levels modelled on current and historical evidence and predicted changes	DRR increasingly forward-looking
Traditional focus on vulnerability reduction	Traditional focus on physical exposure	n/a
Community-based process stemming from experience	Community-based process stemming from policy agenda	n/a
Practical application at local level	Theoretical application at local level	Climate change adaptation gaining experience through practical local application
Full range of established and developing tools ³⁸	Limited range of tools under development	None, except increasing recognition that more adaptation tools are needed
Incremental development	New and emerging agenda	n/a
Political and widespread recognition often quite weak	Political and widespread recognition increasingly strong	None, except that climate-related disaster events are now more likely to be analysed and debated with reference to climate change ³⁹
Funding streams ad hoc and insufficient	Funding streams sizeable and increasing	DRR community engaging in climate change adaptation funding mechanisms

36 For example: Cronin SJ et al. (2004) 'Participatory Methods of Incorporating Scientific with Traditional Knowledge for Volcanic Hazard Management on Ambae Island, Vanuatu'. *Bulletin of Volcanology*, 66: 652–668.

37 Plus a determination on the 'level of acceptable risk': for the Netherlands the impact of flooding is enormous, and therefore flood defences are engineered to withstand very unlikely conditions, whereas for another region the cost of such measures may be considered out of proportion with the additional safety level achieved.

38 For example: early warning systems; seasonal climate forecasts and outlooks; insurance and related financial risk management; building design codes and standards; land use planning and management; water management including regional flood management, drainage facilities, flood prevention and flood-resistant agricultural practices; and environmental management, such as beach nourishment, mangrove and wetland protection, and forest management. (See *Climate and disaster risk reduction* UN/ISDR 2003).

39 For example: Hurricane Katrina in the USA in 2005 or flooding/heat wave in Europe in 2002 and 2003 respectively.

2 The rationale for closer collaboration

2.1 Political context: lack of co-ordination on adaptation and DRR

Climate change adaptation and DRR have similar aims and mutual benefits, and there is a very strong rationale for adopting a more integrated approach to these issues. However, a number of recent key studies have observed a lack of co-ordination and communication between the adaptation and disaster risk management communities. These observations include:

- The institutional frameworks, political processes, funding mechanisms, information exchange fora and practitioner communities have developed independently and *remain largely separate to date*.⁴⁰
- There is no evidence of a *systematic integration* of disaster risk management and climate change adaptation in terms of concrete project activities.⁴¹
- Climate change is often housed in environmental or meteorology departments of governments. Government departments responsible for poverty and DRR are in some cases aware of vulnerability to extreme climate events, but have no means of co-ordination. This leads to the *development of parallel efforts* in all three areas.⁴²

This lack of co-ordination has also been evident in some international policy processes on climate change and DRR, in particular discussions and negotiations under the UNFCCC. Despite the relevance and importance of DRR to adaptation agreements, strategies and approaches, the incorporation of DRR into UNFCCC decision texts on adaptation has been, on the whole, ad hoc and piecemeal. Part of the reason for this is that key donor governments and institutions are still struggling to ensure good communication and collaboration between their own disaster management and climate change departments and units, affecting their ability to influence UNFCCC processes.

2.2 Reasons for lack of co-ordination

Building upon the similarities identified earlier and the signs of convergence in areas of current difference, in the words of Sperling et al:

*It seems obvious to integrate climate change adaptation and disaster risk management efforts. Some successful initiatives have happened, but there is still considerable fragmentation. Why is this so? And what can be done to overcome it?*⁴³

We propose the following reasons for this fragmentation.

2.2.1 Confusion over similarities and differences

Whilst there are many similarities between the two subjects, there are also several differences as highlighted in Section 1.2. Some of these differences are quite straightforward (e.g. earthquake-focused DRR is not

40 Thomalla F et al. (2006) 'Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation' *Disasters* 30(1), 39–48

41 Few R et al. (2006) *Linking Climate Change Adaptation and Disaster Risk Management for Sustainable Poverty Reduction*, VARG, Washington DC

42 Mitchell T and Collender G (2007) 'Mainstreaming Climate Change Adaptation in Developing Countries', *IDS In Focus* Issue 02.7 November.

43 Sperling F and Szekely F (2005) *Disaster risk management in a changing climate*. VARG, Washington DC

related to climate change), while others are more subtle. The climate change and disaster risk management communities have not always well understood these differences, and there has been general confusion over where synergies start and stop. Confusion and erroneous assumptions about the synergies between adaptation and DRR may have, in part, hindered the climate change community from embracing the DRR agenda, and prevented the disaster risk management community from becoming more engaged in climate change policy and processes at all levels.

2.2.2 Concern over different approaches

As highlighted in Table 1, the climate change and disaster risk management communities have different origins, approaches to, and methods for, addressing adaptation and DRR. These different origins and approaches (as well as institutions) have acted as a barrier to closer collaboration. For example, adaptation has been treated to date as a predominantly *top-down* process, augmented by international policy responses through the UNFCCC. As such, '*considerable work is still to be done in the identification, development and evaluation of practical actions for adaptation*'.⁴⁴ In contrast, the disaster risk management community has long established the need for a community-based emphasis.⁴⁵ The current 'top-down' approach to adaptation can be an issue of concern to DRR policy makers and practitioners.

Another significant difference in approach relates to perspectives on vulnerability. As discussed in Section 1, the disaster risk management community is more likely to consider and address social, physical and economic factors contributing to poor people's vulnerability. The disaster risk management community has expressed concern that if adaptation and DRR agendas are brought together, focus on comprehensive vulnerability and poverty reduction will be lost.⁴⁶ Whether or not such concerns are justified, there is some evidence that they have – in part – hindered DRR policy makers from being more actively involved in the climate change agenda in recent years.

To achieve more synergy between adaptation and DRR, the two communities need to focus on a shared agenda of poverty reduction, increasing funding flows to the poorest people and working together on challenges.

2.2.3 Lack of clarity regarding how integration is achieved

Although co-ordination and collaboration on the linked issues of climate change adaptation and DRR seems like an obvious and fruitful step forward, it is important to understand *when*, at *what level*, and to *what extent* co-ordination is required, as well as who should take the lead. This has not yet been clearly established. One reason for this is that collaborative work must involve scientists, practitioners, and policy makers from communities that are in many ways very distinct and with different cultures, all drawing on different types of information, knowledge and experiences.⁴⁸

44 Ibid.

45 See the Hyogo Framework for Action 2005–2015.

46 See Tearfund (2003) *Natural Disaster Risk Reduction: the policy and practice of selected institutional donors*. Tearfund UK

47 Few R et al. (2006) *Linking Climate Change Adaptation and Disaster Risk Management for Sustainable Poverty Reduction*, VARG, Washington DC

48 Thomalla F et al. (2006) 'Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation' *Disasters* 30(1), 39–48

2.3 Consequences of lack of co-ordination

2.3.1 Continued growth in disaster risks

As stated in the introduction, climate change is expected to have serious implications for billions of people around the world. However, risks associated with a changing climate are *additional* to an already fragile condition of disaster risk that has accumulated over many years, and continues to do so. Despite international plans of action (such as the Hyogo Framework for Action), and high-level political statements of support for DRR over many years, global DRR measures are insufficient to address the scale of need. Evidence for this is presented in the form of major disasters such as the Indian Ocean tsunami in December 2004, Hurricane Katrina in August 2005, the Pakistan earthquake in October 2005, and numerous floods and droughts affecting millions of people annually (see Table 2). Besides these major disasters, there are localised events in countless communities that do not necessarily make media headlines. In Guatemala, for instance, the scale of such 'adverse local impact events' outstripped official data on disasters by nearly 80 times.⁴⁹

TABLE 2
The impact of recent major disasters
Source: EM-DAT Emergency Events Database (<http://www.emdat.be>)

Disaster	Number killed	Economic damage costs
Indian Ocean tsunami	227,000	\$9.9 billion
Hurricane Katrina, USA	1,833	\$125 billion
Pakistan earthquake	73,338	\$5.2 billion

Disasters have devastating consequences on people's lives and livelihoods, as well as national resources that would otherwise contribute to development. Climate change will cause continued growth in disaster risks, combined with increased stresses on natural resources such as water and land, which is likely to increase conflict and insecurity.⁵⁰ As people's vulnerability increases, adaptive capacity is undermined. Therefore it is crucial to view adaptation and DRR as mutually reinforcing agendas and undertake/scale-up joint action wherever possible.

2.3.2 Lack of effectiveness

A lack of co-ordination between the climate change adaptation and disaster risk management communities can increase administration burdens, prevent efficient use of financial, human and natural resources, and decrease the overall effectiveness of efforts to reduce risk. The practical task of reducing risk is challenging enough without the further burden of unnecessary administrative inefficiencies.

One particular concern relates to the development of parallel efforts. For example, the adaptation community may assume that emerging climate variability issues are predominantly rectifiable through *new* mechanisms to build resilience. However, there are many existing DRR tools effective in dealing with the weather-related events that will be exacerbated by climate change – which can be used in adaptation approaches. Other inefficiencies include competing rather than complementary agendas; complicated policy frameworks; missed opportunities for sharing tools, methodologies and approaches and missed opportunities for funding DRR in the context of the UNFCCC adaptation funds. Such inefficiencies should be addressed as an urgent priority in order to achieve maximum levels of risk reduction on a comprehensive basis.

49 IFRC (2006) *World Disasters Report: Focus on Neglected Crises*.

50 Venton C (2007) *Climate Change and Water Resources*. ERM, London

The following examples from around the world show how some organisations are adopting a more integrated approach to adaptation and DRR:

- The Red Cross / Red Crescent Centre on Climate Change and Disaster Preparedness was set up in 2002 as a reference point for its societies. In 2007 it held a conference in the Hague on 'the humanitarian consequences of climate change', which brought together disaster managers from the regions of the world most affected by climate change.
- In Malawi, a consortium of NGOs working on DRR are involved in a task force working on Malawi's National Adaptation Programme of Action (NAPA). The Consortium also meets with government departments and stakeholders to discuss climate change and DRR linkages.
- The UN has established a working group on climate change and disaster risk reduction, providing an opportunity for the disaster reduction and climate change communities to share information.
- A component of the Government of India – UNDP Disaster Risk Management Programme on School Awareness and Safety has led to an increase in community awareness about linkages between environmental protection, climate change and DRR.

2.3.3 Unsustainable DRR resulting in mal-adaptation⁵¹

Disaster risk reduction based upon past and current experiences is likely to fail in its aim of building people's resilience to future risks if it does not account for, and address, the consequences of climate change. Indeed, despite its intention to *reduce* risk, DRR could contribute to risk *generation*. For example, a flood defence designed to withstand 'inappropriate' probabilities of flooding (i.e. without adequate consideration of climate change) could lull communities into a false sense of security in the ability of the defence to provide protection. DFID cites an example of a mal-adaptive DRR project in Bangladesh: '*... poorly maintained flood defences that were designed for a certain level of floods became counter-productive, trapping floodwaters and prolonging floods during the 1999 disaster*'.⁵² Closer collaboration between the disaster risk management and adaptation community would increase DRR policy makers' access to relevant climate information, and assist with its interpretation and application in DRR strategies and measures.

51 Mal-adaptation refers to situations in which vulnerability to climate change is increased through current development paths. It is commonly caused by a lack of information, or awareness ... combined with political decision making which focuses on short-term goals rather than long-term planning. (Venton C (2007) *Climate Change and Water Resources*. ERM, London)

52 DFID (2004) 'Adaptation to climate change: Making development disaster-proof.' *Climate Change and Poverty Key Sheet 6*.

3 Recommendations

Climate change adaptation and DRR policy makers, experts and practitioners must communicate and collaborate with each other effectively to ensure a comprehensive risk management approach to development at local, national and international levels of government. Closer collaboration is particularly critical over the next two years as governments negotiate on the adaptation pillar of the post-2012 framework. Urgent action is required to support national climate change actors develop the DRR aspects of the Bali Action Plan.⁵³

Closer collaboration between the two communities is likely to result in three key benefits:

- 1 Reduction of climate-related losses, through more widespread implementation of DRR measures linked with adaptation.
- 2 More efficient use of financial, human and natural resources.
- 3 Increased effectiveness and sustainability of both adaptation and DRR approaches.

The following recommendations focus on improving communication and collaboration between the climate change adaptation and disaster risk management communities. Some are relevant to both communities, whilst others are more specifically directed at one or the other. The UN/ISDR is currently promoting several of these recommendations.

Climate change adaptation community

- Use the guidance of the Hyogo Framework for Action 2005–2015 agreed by 168 governments in Kobe, Hyogo, Japan in 2005, to facilitate a comprehensive, system-wide risk-reducing approach to climate change adaptation.⁵⁴
- Ensure there is a strong focus on DRR within the adaptation pillar of the post-2012 climate change framework.
- Scale-up the use of existing DRR tools that have proven to be effective in dealing with the weather-related events that will be exacerbated by climate change. These include vulnerability and risk assessments, early warning systems, land-use planning and building code regulation, and institutional and legal capacities.⁵⁵
- Ensure adequate focus on the socio-economic and political dimensions of managing climate risks, in consultation with the disaster risk management community.
- Ensure that adaptation is informed by successful community-based experiences in vulnerability reduction. A first step may be to examine ongoing projects in the fields of natural resource management, DRR and poverty reduction to identify those with adaptation potential.⁵⁶

53 UN/ISDR (2008) 'ISDR strategy to support the Bali Action Plan process' (Draft 26 February).

54 Recommended by the UN/ISDR in 'Disaster risk and climate change', March 2008.

55 Ibid.

56 Tearfund (2006) *Overcoming the Barriers, Mainstreaming climate change adaptation in developing countries*. Tearfund UK

Disaster risk management community

- Demonstrate and promote the role of DRR in climate change adaptation policies, strategies and programmes. Make DRR information and tools more accessible for adaptation negotiators and managers.
- Ensure that all DRR policies, measures and tools account for new risks and the aggravation of existing risks posed by climate change. Past and current approaches to DRR should form the basis of new and improved measures aimed at enabling communities and nations to increase their resilience to climate change. This may require developing new partnerships with scientific institutes and bodies working on climate change.
- Actively engage in and seek to influence climate change policy at international, national and local levels. Increase engagement with the national climate change policy team negotiating on the Bali Action Plan as a matter of urgency, to secure a strong role for DRR in the post-2012 framework.

Both communities

- Increase awareness and understanding of adaptation and DRR synergies and differences. Develop and widely disseminate simple, shared conceptual frameworks, briefing papers, guidance notes and case studies; share experience and knowledge; host multi-stakeholder seminars and workshops and engage in staff training.
- Encourage systematic dialogue, information exchange and joint working between climate change and disaster reduction bodies, focal points and experts,⁵⁷ in collaboration with development policy makers and practitioners. This should include:
 - Joint development of DRR plans and adaptation strategies,⁵⁸ as well as implementation policies and mechanisms for mainstreaming adaptation and DRR into development planning.
 - Establishment of inter-ministerial committees at national government level to ensure inter-sectoral, multi-stakeholder co-ordination.⁵⁹
 - Inclusion of adaptation policy makers and practitioners in National Platforms for DRR, and formal cross-linking of these platforms and national climate change teams.⁶⁰
 - Inclusion of DRR policy makers and experts in the national climate change adaptation policy team/ climate change committee.⁶¹

57 UN/ISDR (2008) 'ISDR strategy to support the Bali Action Plan process' (Draft 26 February).

58 Including incorporation of DRR considerations in the design of National Adaptation Programmes of Action (NAPAs).

59 Recommended by the UN/ISDR in 'Disaster risk and climate change', March 2008.

60 UN/ISDR (2008) 'ISDR strategy to support the Bali Action Plan process' (Draft 26 February).

61 Ibid.



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www.tearfund.org

100 Church Road, Teddington, TW11 8QE, United Kingdom

Tel: +44 (0)20 8977 9144

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