

CLIMATE SMART DISASTER RISK MANAGEMENT



ACKNOWLEDGEMENTS

The Strengthening Climate Resilience (SCR) Programme, comprising the Institute of Development Studies (IDS), Plan International and Christian Aid, would like to thank all those who have contributed to this publication.

In particular, thanks go to the members of the expert group who met in the UK in February 2010 and who helped to shape the early iterations of the Climate Smart Disaster Risk Management Approach; to Maarten Van Aalst, Roger Few, Lars Otto Naess and Frauke Urban for their comments on parts of this document; and to Aditya Bahadur and Paula Silva Villaneuva for their support in the research process. Thank you also to those who helped with fieldwork in Sri Lanka, India and Cambodia, including Aziza Usoof, Daniel Vorbach, Mohan Reddy and Ashok Singha; and to Patricia Curmi for her work liaising with designers and proof readers. Thank you to Jack Campbell and Louise Daniel for copy editing the final report.

We would like to acknowledge the vital contributions from over 500 hundred researchers, policymakers and practitioners who have shared their experiences and feedback on the Climate Smart Disaster Risk Management Approach through ten national and three regional consultations in East Africa, South and South-East Asia. In particular, our gratitude goes to national focal points for all their hard work facilitating the national consultation process: Mohamed Osman Ali (Christian Aid, Sudan), Alphonse Katunzi (Christian Aid, Tanzania), John Kioli (Christian Aid, Kenya), Gehendra Gurung (Practical Action, Nepal), Arulappu Iruthayanathan (Christian Aid, Sri Lanka), Palash Kanti Das (Christian Aid, Bangladesh), Ram Kishan (Christian Aid, India), Baltz Tribunalo (Plan, Philippines), Vanda Lengkong (Plan, Indonesia) and Peuvchenda Bun (Cambodia, Plan).

The SCR Programme is funded by the UK Department for International Development (DFID). The views expressed in this document are those of the authors and do not necessarily reflect the views of DFID, IDS, Christian Aid or Plan International.

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Suggested Citation

Mitchell, T.; Ibrahim, M.; Harris, K.; Hedger, M.; Polack, E.; Ahmed, A.; Hall, N.; Hawrylyshyn, K.; Nightingale, K.; Onyango, M.; Adow, M., and Sajjad Mohammed, S. (2010), *Climate Smart Disaster Risk Management*, Strengthening Climate Resilience, Brighton: IDS

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Design: Giant Arc Design

Printers: Ashford Colour Press
Printed on a recycled paper containing 75% recycled waste



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EXECUTIVE SUMMARY

‘Adaptive capacity issues are at the centre of the Climate Smart Disaster Risk Management approach, in a way that isn’t captured by other frameworks’

—
Participant at South Asia Consultation



Current efforts to reduce the impact of disasters are falling short of the mark. The climate is changing and weather patterns are becoming increasingly extreme and unpredictable (IPCC, 2007). Coupled with other evolving threats to human development, rising disaster risks look set to outpace any progress achieved in promoting resilience under the Hyogo Framework for Action (HFA).

A cruel illustration of this point is the more than five million people who have been left homeless as a result of the unprecedented 2010 floods in Pakistan¹. This is a country that is fully signed up to the HFA and takes seriously its commitment to manage disaster risks better, particularly after the 2005 Kashmir earthquake.

This report presents a new approach to disaster risk management: 'climate smart disaster risk management' (CSDRM) approach (Figure 1). It is primarily for those working in disaster risk management and climate change adaptation. It will also be critical reading for those working more broadly on vulnerability and poverty reduction programmes within or outside government.

The CSDRM approach is the result of the expert input of over five hundred researchers, community leaders, non-government organisation (NGO) workers and government officials from ten disaster-prone countries. It responds to a clear call, from those working to build resilience to disasters, for a practical, evidence-based method of incorporating climate change considerations into existing DRM models.

Experience from across East Africa, South and South East Asia underpins 12 components of CSDRM, which are organised into three action-oriented pillars:

1. Tackle changing disaster risks and uncertainties.
2. Enhance adaptive capacity.
3. Address poverty and vulnerability and their structural causes.

Traditional strategies for DRM understandably cluster in pillar one. This approach invites the reader to take a step back and consider wider common objectives and opportunities for collaboration across all three pillars of CSDRM.

This report describes how, in Section 2.1, the regional Mekong River Commission already has elements of CSDRM embedded in its work in the Mekong Delta, undeterred by national boundaries and protecting millions of people from changing patterns of flood and drought. It is relatively easy to access climate science in the Mekong Delta; the challenge lies in interpreting the complexity of impacts across a vast area, in terms of geography and social demographics. The case study demonstrates the critical role that regional cooperation has to play in mediating and coordinating DRM efforts that require integrated action across an entire river basin.

In Section 2.2, the report describes two programmes in Orissa which contribute in different ways to the overall picture of DRM. Downscaled climate projections are not widely available or applied to DRM strategy in Orissa. Yet, the joint efforts of the Orissa State Disaster Management Authority and the Livelihoods and Water Resource Management Programme – which encapsulate the idea of 'Watershed

Plus' – offer a rich environment to map the potential of the CSDRM approach and learn lessons for collaboration. In particular, this case study highlights the fact that there is more than one way to achieve CSDRM and that the diversity and independence of those involved is crucial.

Innovative participatory approaches to housing reconstruction in Batticaloa district in Sri Lanka, described in Section 2.3, illustrate how environmental and climate risk considerations can be integrated into post-disaster reconstruction. Despite a lack of available downscaled climate data, this project shows how local knowledge and expertise have been captured to make 'climate-smart' judgements.

Further consultations were carried out in ten countries and three regions. Section 3 profiles three national projects and sets out what CSDRM looks like on the ground. The three projects illustrate the extensive consultation process that fed into and validated the new approach to DRM presented in this report.

In conclusion, the report finds that successful application of the CSDRM approach will require systematic investment in people skills, new partnerships, technical collaboration and innovation to achieve the shift needed. A favourable environment for CSDRM will only occur when access to climate science, information and decision-making is transparent and democratic. Donors and governments must encourage flexibility and innovation; they need to demonstrate a commitment to their collaborative approach to the changing and increasing threat to human development that disasters represent.

¹ BBC News, www.bbc.co.uk/news/world-south-asia-11095267, accessed 27 August 2010.

The Climate Smart Disaster Risk Management Approach

Strengthening Climate Resilience

The questions in the approach are suggestions only and there may well be others



1. Tackle changing disaster risks and uncertainties

1a

Strengthen collaboration and integration between diverse stakeholders working on disasters, climate and development

To what extent are climate change adaptation, disaster risk management and development integrated across sectors and scales? How are organisations working on disasters, climate change and development collaborating?

1b

Periodically assess the effects of climate change on current and future disaster risks and uncertainties

How is knowledge from meteorology, climatology, social science, and communities about hazards, vulnerabilities and uncertainties being collected, integrated and used at different scales?

1c

Integrate knowledge of changing risks and uncertainties into planning, policy and programme design to reduce the vulnerability and exposure of people's lives and livelihoods

How is knowledge about changing disaster risks being incorporated into and acted upon within interventions? How are measures to tackle uncertainty being considered in these processes? How are these processes strengthening partnerships between communities, governments and other stakeholders?

1d

Increase access of all stakeholders to information and support services concerning changing disaster risks, uncertainties and broader climate impacts

How are varied educational approaches, early warning systems, media and community-led public awareness programmes supporting increased access to information and related support services?

2. Enhance adaptive capacity

2a

Strengthen the ability of people, organisations and networks to experiment and innovate

How are the institutions, organisations and communities involved in tackling changing disaster risks and uncertainties creating and strengthening opportunities to innovate and experiment?

2b

Promote regular learning and reflection to improve the implementation of policies and practices

Have disaster risk management policies and practices been changed as a result of reflection and learning-by-doing? Is there a process in place for information and learning to flow from communities to organisations and vice versa?

2c

Ensure policies and practices to tackle changing disaster risk are flexible, integrated across sectors and scale and have regular feedback loops

What are the links between people and organisations working to reduce changing disaster risks and uncertainties at community, sub-national, national and international levels? How flexible, accountable and transparent are these people and organisations?

2d

Use tools and methods to plan for uncertainty and unexpected events

What processes are in place to support governments, communities and other stakeholders to effectively manage the uncertainties related to climate change? How are findings from scenario planning exercises and climate-sensitive vulnerability assessments being integrated into existing strategies?

3. Address poverty & vulnerability and their structural causes

3a

Promote more socially just and equitable economic systems

How are interventions challenging injustice and exclusion and providing equitable access to sustainable livelihood opportunities? Have climate change impacts been considered and integrated into these interventions?

3b

Forge partnerships to ensure the rights and entitlements of people to access basic services, productive assets and common property resources

What networks and alliance are in place to advocate for the rights and entitlements of people to access basic services, productive assets and common property resources?

3c

Empower communities and local authorities to influence the decisions of national governments, NGOs, international and private sector organisations and to promote accountability and transparency

To what extent are decision-making structures de-centralised, participatory and inclusive? How do communities, including women, children and other marginalised groups, influence decisions? How do they hold government and other organisations to account?

3d

Promote environmentally sensitive and climate smart development

How are environmental impact assessments including climate change? How are development interventions, including ecosystem-based approaches, protecting and restoring the environment and addressing poverty and vulnerability? To what extent are the mitigation of greenhouse gases and low emissions strategies being integrated within development plans?

Figure 1: The Climate Smart Disaster Risk Management Approach

About the 'Strengthening Climate Resilience' Programme

Acronyms

ADPC	Asian Disaster Preparedness Centre
CCAI	Climate Change Adaptation Initiative
CRED	Centre for Research on the Epidemiology of Disasters
CSDRM	Climate-Smart Disaster Risk Management
DESMiO	District Economic Social Mobilisation Organisation
DMC	Disaster Management Centre
DRM	Disaster Risk Management
DFID	Department for International Development
FMMP	Flood Mitigation and Management Programme
GEAG	Gorakhpur Environmental Action Group
GIS	Geographic Information System
GTZ	German Technical Cooperation Agency (Gesellschaft für Technische Zusammenarbeit)
HFA	Hyogo Framework for Action
IDS	Institute of Development Studies
IMD	Indian Meteorological Department
IFTZ	Inades Formation Tanzania
IPCC	Inter-governmental Panel on Climate Change
IWRM	Integrated Water Resources Management
LGU	Local Government Unit
MRC	Mekong River Commission
NGO	Non-Governmental Organisation
OSDMA	Orissa State Disaster Management Authority
SCR	Strengthening Climate Resilience
SLA	Sustainable Livelihoods Approach
WORLP	Western Orissa Rural Livelihoods Project

'Strengthening Climate Resilience (SCR) through Climate Smart Disaster Risk Management' is a UK Department for International Development-funded programme that aims to enhance the ability of developing country governments and civil society organisations to build the resilience of communities to disasters and climate change. It is coordinated by the Institute of Development Studies (UK), Plan International and Christian Aid, who are working with a variety of organisations across ten countries (Kenya, Tanzania and Sudan in East Africa; Nepal, India, Bangladesh and Sri Lanka in South Asia and Philippines, Indonesia and Cambodia in South-East Asia).

The programme included national consultations in each of the ten countries and three regional consultations on Climate Smart Disaster Risk Management (CSDRM). Reports, presentations and videos from each of these consultations can be found on the SCR website. The website also includes contact details for members of the SCR programme and highlights ways to become involved in the programme. If you would like to be involved in SCR meetings or work with the programme to trial the Climate Smart Disaster Risk Management Approach with your organisation, please either visit the SCR website: www.csdrm.org or send an email to info@csdrm.org



1. Introduction

TIME FOR CLIMATE SMART DISASTER RISK MANAGEMENT

'The DRM community hasn't been good at looking at long term timeframes or capacities to enhance people's ability to progress over longer terms - this approach encourages us to do this'

—
Participant at South Asia Consultation

1.1. Making the case

Since the world signed up in 2005 to a ten-year commitment to reduce the global impact of disasters – the Hyogo Framework for Action (HFA) – a significant shift has taken place in how we approach disaster management. Whilst the vital focus on rapid life-saving responses has not been lost, increasing resources are now rightly being spent on the proactive assessment and management of disaster risks. But it is becoming increasingly evident that these efforts are not enough.

As this report goes to press, Pakistan is facing the biggest humanitarian disaster of recent years caused by unprecedented floods that have submerged great swathes of the country, following unusually intense Monsoon rains. Over 20 million people have been affected, 5 million have lost their homes, and the disaster is not yet over. The cost of the response continues to shoot upwards. While Pakistan has made significant efforts to improve its own disaster management capacity in recent years under its HFA commitments, notably since the 2005 Kashmir earthquake, the scale of this disaster would humble any nation.

Elsewhere, similarly intense rainfall has triggered a series of deadly landslides across China and Russia is finally cooling down after a record-breaking heat wave².

The link between climate change and disasters is now widely recognised (see Box 1). Trends in economic and livelihoods-related disaster losses are on an upward curve, and the vast majority result from climate-related, hydro-meteorological hazards (IPCC 2007). Despite this reality, there is little collective understanding of how we can scale up DRM and adapt our disaster management practice to cope with changing needs and realities (GFDRR 2009). A focus on the short-term has prevented meaningful global investment in DRM – even when our expenditure on humanitarian response is spiralling out of control. And a difficult truth is emerging: the way we approach disaster risks today may not be good enough for tomorrow's challenges. 'Business-as-usual' DRM will fail without a significant shift in how risk calculation and intervention design incorporate climate modelling and associated uncertainty.

Box 1 What are the impacts of climate change on disaster risk?

Climate Change is ... Increasing the frequency and severity of some, but not all, hazards

The Intergovernmental Panel on Climate Change (IPCC, 2007) concluded that the frequency and severity of hot and cold extremes and heavy precipitation events is increasing and this trend will continue. At the moment no clear patterns are seen with tropical cyclones. Confidence in understanding or projecting changes in hazards and extreme events depends on the type of extreme event, as well as on the region and season.

Increasing people's vulnerability and exposure to regularly experienced shocks and stresses

Climate change is decreasing crop yields, increasing water scarcity, leading to a loss of biodiversity and natural assets provided by ecosystems, causing new patterns of disease and increasing respiratory illnesses, and possibly has become one of the triggers of migration and new patterns of conflict. These trends are projected to worsen (IPCC, 2007). This means vulnerability is increasing and disaster losses may worsen even without any discernable change to the severity or frequency of hazards.

Increasing uncertainty and unexpected events

The complexity of the physical and human system and their interactions dictate that scientific models about future climate change impacts remain uncertain. Accordingly, the inability to predict the exact magnitude or timing of extreme climate-related events means that people must be prepared for the unexpected, whether related to the type or severity of the hazard or in the way in which the human system responds to it.

² See World Meteorological Organization extreme weather sequence update, accessed on 31st August 2010, available online: www.wmo.int/pages/mediacentre/news/extremeweathersequence_en.html

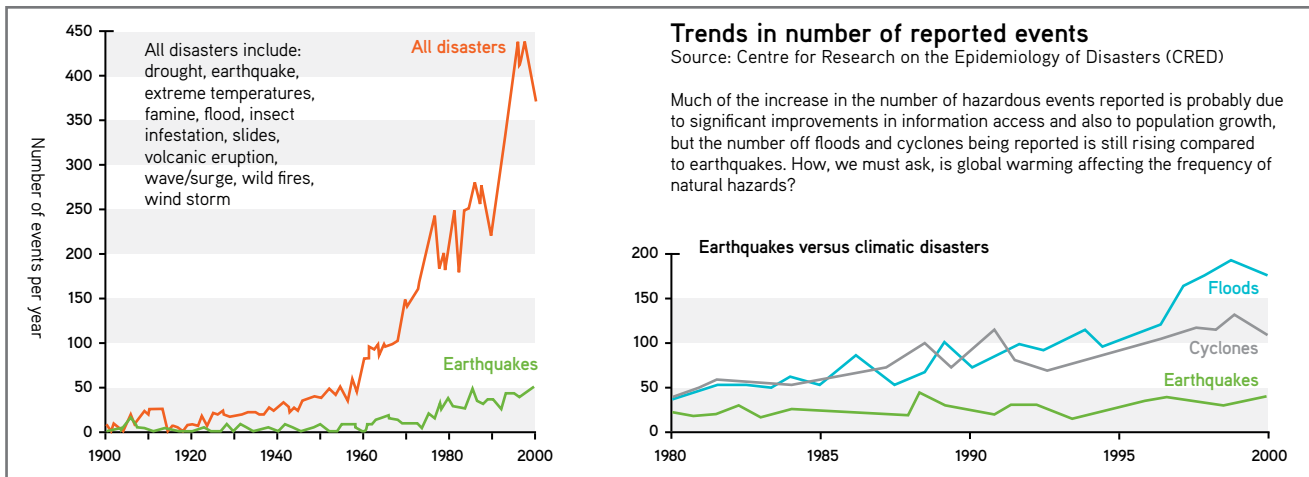


Figure 2: Trends in Disaster Risk³

As we pass the mid point of the HFA⁴, countries striving to meet these commitments are calling for a smarter, more integrated approach to DRM. The scale of the challenge is forcing the world to tackle changing disaster risks, to learn to adapt and address the causes of vulnerability in a more coherent and effective way. A climate-smart approach to disaster risk management presents considerable opportunities: it is a legitimate first step in adapting to climate change and climate variability. CSDRM offers policymakers and practitioners a practical way to consider the allocation of resources to reduce risk and adapt to new threats, at both a national and local scale. Governments and civil societies in many countries are already investing in their DRM capacity – a foundation for effective climate-smart development strategies.

The need for a holistic approach to improve DRM policy and practice in response to a changing climate was the subject of the 2009 Global Facility for Disaster Reduction and Recovery (GFDRR) ‘Stockholm Policy Forum on Climate Smart Disaster Risk Management’. The forum brought together global climate and disaster experts in Stockholm to tackle the challenge of getting ‘climate-smart’ in DRM efforts. They concluded that the world needs a more coherent, integrated approach to managing and adapting to disaster and climate risks. This can only be achieved through greater co-ordination and learning between sectors. Environmental management practice, for example, has much to contribute to DRM efforts. What is also lacking is more meaningful engagement with grassroots groups and networks, which, if harnessed and strengthened, will provide a front line defence against growing threats (GFDRR 2009).

In adopting the CSDRM approach, these challenges can be met head on. DRM professionals have significant experience of building grassroots resilience and influencing comprehensive policy change in line with the HFA. CSDRM builds on this expertise and also offers:

- A conceptual route towards increased coherence and complementarity with climate change adaptation goals.
- A call to refocus efforts on tackling poverty and other root causes of vulnerability (an area considered as lagging in the mid-term review of the Hyogo Framework for Action).
- Evidence of the benefits of promoting longer-term adaptive capacity that enables people to create their own sustainable solutions to changing threats.
- Lessons in forming innovative partnerships to better equip ourselves to manage uncertainty.

1.2 Developing the approach

The CSDRM approach has been developed through extensive consultation with more than 500 practitioners, policymakers, scientists and academics drawn from climate change, disasters and development communities in ‘at-risk’ countries in Africa and Asia. An initial conceptual framework for these consultations was developed at an experts’ workshop hosted in the UK in February 2010. Climate-smart DRM experience in ten countries was investigated through national consultations (Bangladesh, India, Nepal, Sri Lanka, Kenya, Tanzania, Sudan, Cambodia, Indonesia and the Philippines). Three regional consultations in Kenya, India and Thailand offered further opportunities to refine the approach with leading experts in South Asia, South East Asia and East Africa. Section 3 provides summaries of these consultations.

More intensive fieldwork was conducted in Cambodia, India and Sri Lanka to test the utility and applicability of the emerging approach at different levels and contexts (see Section 2).

³ There are explanations for this increased trend. It is more likely that the increase is linked to people living in areas exposed to natural hazards rather than to changes related to impacts of climate change. Whereas the economic losses and number of people affected by disasters is also rapidly increasing, it should be noted that overall disaster mortality is decreasing (UNISDR, 2009).

⁴ See, for example, the HFA mid-term review <http://www.preventionweb.net/english/hyogo/hfa-mtr>

The SCR Programme also commissioned studies (see box below) looking at (a) the applications of the concept of resilience to DRM and adaptation, (b) the convergence between DRM and adaptation in funding, policy and practice and (c) the extent to which environmental and low carbon considerations are included in DRM interventions.

**Box 2
Wider research commissioned by the SCR Programme**

- *The Resilience Renaissance? Unpacking of Resilience for Tackling Climate Change and Disasters.* Bahadur, A.; Ibrahim, M. and Tanner, T. (2010) Strengthening Climate Resilience Discussion Paper 1, Brighton: IDS
- *Assessing Progress on Integrating Disaster Risk Reduction and Climate Change Adaptation in Development Processes.* Mitchell, T., Van Aalst, M. and Silva Villanueva, P. (2010) Strengthening Climate Resilience Discussion Paper 2, Brighton: IDS
- *Greening Disaster Risk Management: Issues at the Interface of Disaster Risk Management and Low Carbon Development.* Urban, F., Mitchell, T. and Silva Villanueva, P (2010) Strengthening Climate Resilience Discussion Paper 3, Brighton: IDS
- *Integrating Climate Change into Regional Disaster Risk Management at the Mekong River Commission.* Polack, E. (2010) Strengthening Climate Resilience Discussion Paper 4, Brighton: IDS
- *Building Climate Resilience at State Level: DRM and Rural Livelihoods in Orissa.* Hedger, M., Singha, A. and Reddy, M. (2010) Strengthening Climate Resilience Discussion Paper 5, Brighton: IDS
- *Post-Disaster Housing Reconstruction in a Conflict-affected District, Batticaloa, Sri Lanka: Reflecting on the Climate Smart Disaster Risk Management Approach.* Ibrahim, M. (2010) Strengthening Climate Resilience Discussion Paper 6, Brighton: IDS

The report begins in Section 1 with the conceptual background to the CSDRM approach. Section 2 presents the case studies, which reflect on particular applications of the approach and how learning from these cases helped to shape its architecture. Section 3 reflects on the outcomes from national and regional consultations and provides examples of projects that reflect elements of CSDRM. These examples represent the first iteration of a comprehensive evidence base of CSDRM actions and activities, which will provide a rich repository of information for those looking to apply the CSDRM approach to their own work. Section 4 highlights challenges, conclusions and sets out next steps in developing and applying the approach.

1.3 The CSDRM Approach in a Nutshell

CSDRM is: an integrated social development and disaster risk management approach that aims simultaneously to tackle changing disaster risks, enhance adaptive capacity, address poverty, exposure, vulnerability and their structural causes and promote environmentally sustainable development in a changing climate.

CSDRM provides a guide to strategic planning, programme development and policymaking and should be used to assess the effectiveness of existing DRM policies, projects and programmes in the context of a changing climate. It is an approach to help cross-check DRM interventions for their responsiveness to current and future climate variability. The three pillars within the approach are founded on long standing concepts – mainly related to the progression of vulnerability from root causes to unsafe conditions (Wisner et al 2004) and to those associated with resilience, adaptive capacity and uncertainty (e.g. Holling 1973, Folke 2006). The three pillars of action include:

1. Tackle changing disaster risk and uncertainties.
2. Enhance adaptive capacity.
3. Address poverty, vulnerability and their structural causes.

Pillar one:

Tackle changing disaster risk and uncertainties

Pillar one supports the priority areas of the Hyogo Framework of Action (HFA), highlighting the importance of collaboration between multiple actors. It calls for integrating information on risks by conducting detailed risk assessments which recognise the value of multiple sources of knowledge. It highlights the importance of increasing access to information by all stakeholders through education, early warning and the media while highlighting measures to understand and address vulnerability and the conditions creating risks. The CSDRM approach treats climate change as a key consideration and attempts to insert climate change into the most critical, climate-sensitive elements of the HFA given that climate change did not feature so strongly in the original HFA agreement.

Pillar two:

Enhance adaptive capacity

Adaptive capacity refers to our ability to manage change sustainably by strengthening resilience⁵. Promoting adaptive capacity means that institutions and networks learn and use knowledge and experience and create flexibility in problem solving (Scheffer et al, 2000 and Berkes et al, 2003). The main characteristics which enhance adaptive capacity have been identified as: promoting diversity; creating flexible, effective institutions; accepting non-equilibrium;

⁵ The term 'resilience' is increasingly used in climate change and disaster discourses and in policies and programming related to these issues. It has become common to describe the intersection between these two fields and those of poverty and development as 'climate resilient development'. The SCR Programme recognises the difficulty in operationalising the concept of resilience and its multiple meanings and as such has chosen to focus on more tangible and practical dimensions of 'adaptive capacity'. Carpenter et al highlight that little attention has been paid to the operational indicators of resilience (2001).

adopting multi-level perspectives; integrating uncertainty; ensuring community involvement; promoting learning; advocating for equity; recognising the importance of social values and structures and working towards preparedness, planning and readiness⁶. Enhancing adaptive capacity is a key strategy for managing increasing uncertainty associated with a changing climate and allows people and organisations to respond to shocks and unexpected events more effectively. The CSDRM approach weaves together many of the characteristics of adaptive capacity highlighted above and attempts to present these in a practical way.

Pillar three:

Address poverty, vulnerability and their structural causes

The third pillar is founded on the 'pressure and release' model (Wisner et al, 2004) and longstanding research that attributes the causes of disasters to failures in development (Bankoff et al, 2003). Wisner et al's model treats root causes, dynamic pressures, unsafe conditions and hazards as all contributing to disaster risk. Root causes underline the importance of access to power, structures and resources. A lack of skills and institutions (markets and press freedom)

coupled with macro forces, such as urbanisation and population growth, contribute to vulnerability.

The CSDRM approach recognises the complexities and interdependencies of any one intervention and thus promotes the interrelation of the three pillars. Guiding questions that supplement the actions depicted in Figure 1 are examples that are intended to stimulate discussion, planning and action in a specific context. The CSDRM approach needs to be tailored to local realities and specific challenges.

To ensure CSDRM, any project, programme or policy manager should seek to integrate actions from each of the pillars, rather than focus on just one. No single CSDRM intervention could possibly integrate every element or try to tackle all the drivers of poverty or vulnerability. Nonetheless, actions across the three pillars provide a way of reassuring those managing disaster risks that they are not accentuating poverty or vulnerability or creating new risks. Naturally, there are limits to what disaster risk managers can achieve alone, so the CSDRM approach highlights the importance of working in partnership with



⁶ For more details on the ten characteristics, see SCR Discussion Paper 1, *The Resilience Renaissance? Unpacking of Resilience for Tackling Climate Change and Disasters* by Aditya V. Bahadur, Maggie Ibrahim and Thomas Tanner

development and climate change stakeholders to ensure DRM and development outcomes are more robust to changing contexts.

How does CSDRM support and build on other frameworks and approaches?

The CSDRM approach builds on DRM, climate change adaptation and development concepts and approaches to accelerate progress on the Hyogo Framework for Action (HFA) and the Characteristics of a Disaster-Resilient Community (Twigg, 2007). The five priority areas of the HFA are embedded in the CSDRM approach. However, added emphasis is placed on strategies to manage uncertainty, particularly through enhancing adaptive capacity. This is a key element of climate resilience that does not strongly feature in either the HFA or community-based DRM approaches to date. CSDRM is a holistic approach that integrates uncertainty and highlights strategies for reducing poverty and vulnerability. Together these must become core priorities for reducing disaster risk.

Who is the CSDRM approach for?

The CSDRM approach is designed for those responsible for managing disaster risks at regional, national, sub-national or community levels. It has been developed through extensive consultation with policymakers and practitioners working at each of these scales. Feedback suggests that the CSDRM approach can be used for strategic planning and as part of programme and project design⁷. It can also be used to evaluate the effectiveness of existing initiatives as part of monitoring and evaluation processes. The approach has not been designed as a manual or a checklist against which to rate DRM interventions. Rather it is intended to prompt in-depth reviews and assessment to inform decision-making. The CSDRM can be linked to specialised guides on how to implement action points included in the approach such as the vulnerability and capacity assessments (CARE, 2008) or Climate Change Information for Effective Adaptation: a practitioner's manual (Postdam Institute for Climate Impact Research and GTZ, 2009).



⁷ Climate smart language may not appeal in particular cultural or organisational contexts, it is acceptable to replace 'smart' with 'savvy', 'compatible', 'integrated', 'resilient' or 'sensitive'; options that have been suggested at national and regional meetings.

2. Researching **THE CSDRM APPROACH IN COMPLEX ENVIRONMENTS**

'The CSDRM approach allows the climate change community to view DRM as part of the solution, and a viable option for adaptation [funding]'

—
Participant at South Asia Consultation



Research⁸ carried out in different complex environments in Cambodia, India and Sri Lanka tested the CSDRM approach at regional, sub-national and local levels and in trans-boundary and post-conflict settings. Cases were chosen because they reflected at least one of the three pillars of the CSDRM approach in contexts of multiple, changing hazards. First, in Cambodia, the climate-smart DRM efforts of the Mekong River Commission (see right) are investigated. Next, profiles of the Orissa State Disaster Management Authority and the Western Orissa Rural Livelihood Programme (WORLP) – ‘Watershed Plus’ – provide learning on different ways to tackle CSDRM at the state level. Finally, post-disaster housing reconstruction in the conflict-affected District of Batticaloa, Sri Lanka, provides inspiration on how it is possible to be ‘climate-smart’ despite a climate information vacuum.

2.1 Integrating climate change into regional disaster risk management at the Mekong River Commission⁹

In 2000, the Mekong Delta saw the worst floods in 40 years. 800 people died, 9 million were affected, and the costs of damages reached over USD 455 million¹⁰. Livelihoods in the Mekong Basin are dependent upon the flood ‘pulse’ of the Mekong River. This cycle of flooding makes the Tonle Sap – the largest lake in South East Asia – among the most productive freshwater ecosystems in the world. Yet large scale floods and flash flooding can have devastating consequences, particularly for agricultural livelihoods.

Box 3 Organisation profile

Mekong River Commission

The Mekong River Commission (MRC) was established as an inter-governmental management authority for the river basin under the 1995 *Mekong Agreement for the Cooperation for the Sustainable Development of the Mekong River Basin*. The Agreement was signed by the countries of the lower Mekong basin: Thailand, Lao PDR, Cambodia and Vietnam. China and Burma are ‘dialogue partners’.

Following the floods in 2000, the MRC established a permanent Flood Mitigation and Management Programme (FMMP) under its Technical Support Division. It was designed to prevent, mitigate and minimise economic losses and suffering, whilst preserving the benefits of floods.

The programme was established with five components of flood risk management to support the MRC:

- establish a regional flood management and mitigation centre
- structural measures and flood proofing
- enhance cooperation in trans-boundary flood issues
- strengthen flood emergency management
- land use management.

In addition, the MRC Climate Change Adaptation Initiative (CCAI) is responsible for:

- assessing vulnerability, future climate risks and adaptive capacity
- scoping an adaptation framework and formulating an adaptation plan.

The CCAI will implement demonstration sites in each country to develop tools and methods for enhancing adaptive capacity. The initiative will also establish a Mekong panel on climate change.

www.mrcmekong.org

⁸ Researchers from the Institute of Development Studies worked in partnership with DRM practitioners/programme implementers and local researchers in order to test the approach and identify lessons.

⁹ For the full case study see, *Integrating Climate Change into Regional Disaster Risk Management at the Mekong River Commission*. Polack, E. (2010) *Strengthening Climate Resilience Discussion Paper 4*, Brighton: IDS

¹⁰ Reliefweb. 2001. Southeast Asia: Mekong Floods 2001 Information Bulletin No. 1. 27 August 2001 <http://www2.reliefweb.int/rw/rwb.nsf/db900SID/OCHA-64BTCN?OpenDocument>

A range of initiatives have been implemented under the FMMP, including: flood forecasting capacities; best practice guidelines for integrated flood risk management; guidelines for integration of flood preparedness plans in district and provincial planning processes; flood probability mapping and land use zoning; and an annual Mekong flood forum. Different international donors such as the German Technical Cooperation Agency (GTZ), the Government of the Netherlands, the European Commission and the Asian Development Bank fund discreet activities under each component. The Programme is implemented in partnership with designated national Mekong committees and relevant line ministries and departments in each country. A number of regional and international organisations – the Asian Disaster Preparedness Centre for example – and international consulting firms lead implementation.

The projected impacts of climate change on the Mekong basin are varied and complex, and multiple scenarios and drivers of change are involved. However, climate change *could* increase the frequency and intensity of extreme floods in parts of the basin and the FMMP is seeking to take this into account in its planning:

‘We are at a critical time for learning on integrating climate change into disaster risk management. DRM is already designed to reduce vulnerability to different hazards, including the kind of risks and extremes that climate change is already bringing. However we know there are new trends. We need to consider what the surprises are likely to be and how to incorporate these additionalities’. Nicolaas Bakker, Chief Technical Advisor, FMMP

Whilst it is too early to identify climate-smart approaches within individual initiatives of the FMMP, the evolution of a parallel Climate Change Adaptation Initiative (CCAI) and its linkages with the FMMP, provides important lessons for the application of CSDRM in trans-boundary settings. Particularly evident are the benefits and trade-offs of separate initiatives versus integrated approaches. To date, the FMMP and CCAI teams have agreed to base vulnerability assessments upon the same set of downscaled climate models and projections and to pool expertise where relevant (for example, the CCAI’s social vulnerability and capacity analysis tools and the FMMP’s flood risk management approaches respectively).

CSDRM in Mekong flood risk management

The MRC has a basin-wide DRM mandate that reflects several elements of the CSDRM approach.

Tackle changing disaster risks and uncertainties

Consider climate change in basin-wide planning

The MRC facilitates scenario-based planning for local

and national authorities. The Commission contributes to assessments of the effects of climate change across different topographical zones and categories of livelihoods by integrating downscaled climate projections with hydrodynamic modelling. The MRC compiles an annual ‘State of the Basin’ report as part of the integration of new information into basin planning processes. As part of this process, climate change scenarios and potential impacts have been assessed and are already influencing regional and national planning. Local perceptions of change are presented in the State of the Basin report, but diverse local realities are not always reflected in hydrological modelling work. The FMMP’s 2009 Flood Report elaborated on the implications of climate change specifically for flood risk. The regional Flood Risk Management Centre is continually seeking to improve flood forecasting capacities across the region, backstopping national forecasting departments. A flash-flood guidance system is also under development.

Enhance adaptive capacity

Climate change was a key theme at the FMMP’s 2010 annual Mekong Flood Forum. The Annual Forum promotes learning across the Mekong basin. It provides a space for governments and others involved in the programme to gather data on changes in flow regimes and flood risks at different scales and to explore implications and responses by sharing experiences. For example, the Asian Disaster Preparedness Centre (ADPC) is providing lessons on integrating flood risk management at district and provincial scales across countries with decentralised disaster management systems facing similar challenges. At a national level ADPC’s participation in the Cambodia national DRR Forum, comprising national NGOs and the Government Disaster Management Committee, has been a source of learning on approaches to DRR for ADPC and MRC, and has acted as a channel for linking local level pilots to national DRM policy processes. The MRC also hosts many regional summits and exchange visits to promote information sharing and learning across the basin. Increasingly, the programme is promoting dialogue with civil society organisations and experts outside MRC. A Mekong panel on climate change is due to be established under the Climate Change Adaptation Initiative (CCAI) for continuous learning and reflection on climate change in the region.

Integrate climate information into the development of risk management standards

The development of flood risk management tools and guidelines, for example on integrating flood risk into sub-national development planning, relies first on implementing pilot projects, usually at least one in each country. Nationally-applicable flood risk management tools are being developed to improve targeting of vulnerable populations, planning for extremes and protection of infrastructure. The FMMP will begin to integrate climate information into risk

assessment tools for use at different scales across the region. Methodologies for flood risk and climate vulnerability and adaptation capacities will be exchanged between the FMMP and the CCAI.

Tackle specific trans-boundary flood risk contexts through mediation, dialogue and learning

The programme has organised regional and international exchange visits between officials responsible for trans-boundary flood risk management in border zones. Whilst not yet explicitly incorporating climate information, this collaborative effort and drive for cross-border planning will foster adaptive capacity in a context of changing risks.

There is both hope and scepticism around the MRC's current Integrated Water Resources Management (IWRM) approach and its potential to contribute to a democratisation of water governance and pro-poor development. 'Big is beautiful' is the prevailing mantra of energy generation and distribution, and agricultural and industrial development shape country development plans. National interests trump regional decision-making and frequently gloss over the potential for transfer of risk to marginalised and downstream populations. The MRC is accountable to member governments and this can pose challenges in ensuring that their operations are in the interests of the most vulnerable populations and their fragile livelihoods.

For CSDRM to be effective, national and regional mechanisms of integration and learning across government ministries and departments must be improved. This is challenging in bureaucratic settings where technical capacities are variable. One-off consultations, workshops or trainings in new tools and approaches may limit adaptive capacity where regular, ongoing and learning and reflection is needed. One climate change adaptation expert from an international development organisation commented 'we want to see the MRC succeed, but there needs to be a more process-oriented approach to learning about climate change adaptation. Then we would be happy to engage'.

The addition of climate science into regional debate and decision-making only serves to highlight the need for truly independent institutions and diverse partnerships. Equally important is the recognition of the interrelationship between multiple drivers of disaster risks and the political nature of the decisions required to address those risks.

**Box 4
Mekong basin: challenges and learning for the development of CSDRM**

CSDRM in the Mekong region benefits from an availability of downscaled climate models and projections. The challenge lies in how these forecasts will impact dynamic systems in different parts of the basin; how the levels of uncertainty and variability can be considered alongside multiple drivers of environmental change; and how diverse local solutions are reflected and supported at different scales.

- A successful CSDRM approach is reliant upon the systematic inclusion of social vulnerability data in all analysis and methodological development of risk management approaches. Currently vulnerability assessment tools are based upon historical damage data on costs to housing, infrastructure and agriculture. In light of increased recognition of social dynamics of vulnerability, the FMMP will incorporate socio-economic data into its planning and collaborate with the CCAI on the development of tools for vulnerability and capacity assessments for adaptation.
- A number of projects are already using household level data when incorporating flood risk into local sectoral planning, but are still not oriented towards addressing underlying vulnerabilities. There is little analysis of how to support governments to target more vulnerable or marginalised populations. People-centred approaches to flood risk management are still marginalised in regional dialogues, which have tended to focus on modelling capacities.
- The space for recognising diversity, local knowledge and approaches to risk management and adaptation are still minimal. The FMMP team sees broader partnerships with the social development community as one approach to this and the CCAI also hopes to address this imbalance.
- Decision-making must be responsive to technical information, transparent and accountable.
- Regional CSDRM is reliant upon enhanced trans-boundary information flows and early warning systems – on tributaries as well – and mechanisms for mediation and compliance with the Mekong Agreement.
- Regional cooperation provides critical space for dialogue between actors where national space is limited. It is important that regional analysis, capacity building and national guidelines foster decision-making structures that empower commonly excluded voices.

2.2 Building climate resilience at the state level: DRM and rural livelihoods in Orissa¹¹

Orissa offers important experience for the development of CSDRM. Orissa is one of India's most innovative states in the fields of DRM, climate change and livelihoods programming. This section considers two separate programmes:

1. Orissa State Disaster Management Authority (OSDMA), with a focus on DRM and response to extreme weather events and rapid onset disasters.
2. Western Orissa Rural Livelihood Programme (WORLP) – 'Watershed Plus', with a focus on poverty reduction through livelihoods support, watershed management and response to slow onset disasters.

Each programme has a complex organisational structure linked to the state government, working through multiple partnerships and supported by external donors. Together they demonstrate how it is possible to construct a CSDRM approach at the state level by integrating different programmes, thereby reflecting components across all three pillars of CSDRM. This also helps highlight that there are still gaps to fill, particularly on the generation and use of climate risk information and major challenges in delivering an integrated, scaled up and robust system.

Box 5 Organisation profile

Orissa State Disaster Management Authority

OSDMA was born out of the tragedy of the 1999 cyclone which killed 15,000 people and caused US\$4.5 billion worth of damage. This galvanised action in to prevent such a disaster happening again. The OSDMA is an effective agency that now mobilises and leads action on a range of disasters, and runs awareness campaigns and preparatory activities on risks such as heat waves and flooding.

www.osdma.org

Western Orissa Rural Livelihoods Programme

WORLP, the originator of 'Watershed Plus', is one of around ten watershed management programmes implemented under the Orissa State Department of Agriculture. The programme started in 2000 in four of the poorest districts of Orissa, where human development indicators are comparable to those in sub-Saharan Africa. WORLP is unique in its cross-sectoral design and multi-disciplinary approach. 'Watershed Plus' refers to the additional focus on people's livelihoods. Tackling the roots of poverty in Orissa has included a range of physical water management and social development approaches.

www.worlp.com



¹¹ For the full case study see, Building Climate Resilience at State Level: DRM and Rural Livelihoods in Orissa. Hedger, M., Singha, A. and Reddy, M. (2010) Strengthening Climate Resilience Discussion Paper 5, Brighton: IDS

CSDRM in Orissa

OSDMA is at the centre of state policymaking and has an operational mandate to cover management of disaster relief and reconstruction. It coordinates with line departments involved in reconstruction, with bilateral and multi-lateral aid agencies, UN Agencies, international, national and state-level NGOs. Stated principles of disaster management policy in Orissa cover most tenets of the CSDRM approach, but make little direct reference to issues of poverty reduction and their structural causes. The stated policy focus is:

'Total risk management and vulnerability reduction by strengthening the physical infrastructure as well as the bio-physical, psychological, social and economic status of the people and increasing their disaster resilience'.

OSDMA coordinates disaster risk management activities centrally through a core full-time team of 65 professional and support staff, who in turn work through a network of district revenue departments and Rapid Action Forces which can be activated as needed. District administrations initiate disaster management mechanisms through committees at different levels.

Village level disaster management planning is carried out by Panchayat Disaster Management Committees. Village headmen are instructed to initiate the constitution of the village disaster management planning committees. Community members and NGO volunteers support the development of community contingency plans. This way local knowledge is integrated in to local planning, although indigenous knowledge about weather forecasting has not been systematically integrated into all planning processes. To date 16 district level disaster management planning committees have been established, which reach out to 155 block committees and 22,000 village committees.

OSDMA data and monitoring systems identify trends in disaster losses, for example, in deaths caused by lightning. For short-term early-warning information for cyclones and floods, ocean-based and space-based observational systems are linked in to international warning systems. Land-based systems are linked to the Indian Meteorological Department (IMD) and can give 48 hours early warning. These systems have yet to factor in additional risks from climate change for future planning. Having developed know-how and preparedness for cyclones across the state, OSDMA is developing preparedness and response strategies for other extreme events. Recently it has launched awareness campaigns on heat waves and flash flooding. OSDMA is constantly developing its knowledge base. In 2009 it conducted a hazard risk assessment and vulnerability analysis and produced a state-wide composite risk atlas to map forecasted disaster frequency by area. This was based on historic data and did not build in any factors of future climate variability.

WORLP focused on poverty reduction from the outset, selecting the poorest, rain-fed western districts – amongst the poorest in India – in which to work. The programme was founded upon a sustainable livelihood approach (SLA) integrated into traditional watershed and drought management, and 'Watershed Plus' was born. The Agriculture Department, under which the programme sits, coordinates with the IMD on monsoon forecasting and preparedness planning. Although it was not designed with climate change considerations in mind, the SLA of the programme is recognised as an important platform through which people can adapt to increased levels of climate-induced change and stress. In Orissa this is likely to manifest itself as increased drought, and as a slow-onset disaster this is outside the mandate of the OSDMA.

Enhance adaptive capacity

The creation of DRM institutions in India has drawn momentum from disaster events, starting after the Orissa cyclone and accelerating following the 2004 South Asian tsunami. A Disaster Management Bill was tabled in Parliament in 2005 and enacted structures at all levels – national, state, district and block level – to prepare for and reduce the effects of disasters. At the state level, OSDMA is an autonomous nodal agency and has played a key role in coordinating with various line ministries to integrate DRM into ongoing flagship programmes. That said, DRM is not yet mainstreamed into all development projects.

OSDMA also had the space to create stronger institutional coordination with NGOs, developing its own database on NGO initiatives and holding regular consultations. It has established emergency coordination among government departments, state headquarters and district administration, and with NGOs; it has ensured a quick and efficient response to floods. OSDMA has strengthened community disaster preparedness, through mock drills, training, contingency planning and the formation of village taskforces, all of which have enabled people to cope better with floods. Close collaboration with NGOs has enabled OSDMA to assess capacity and training needs, prepare action plans and help match government funding to NGO rehabilitation activities in cyclone-hit areas.

The institutional set-up of WORLP has allowed a high level of autonomy and flexibility. Activities focused on increasing people's ability to adapt to and cope with climate-related stress have been implemented in a quick, effective and participatory way, through a direct chain of command. WORLP has achieved meaningful programmatic links and training initiatives across natural resources management, livelihoods, micro-enterprise and other related developmental programmes. A pool of resource people has been established at the 'cluster level' – a group of around 15 watersheds. New cluster livelihoods resource centres have been set up that provide 20 thematic training kits and best-practice guides. A critical capacity-building team has been established in the district Project Director's office.

The four-member team specialises in livelihoods, micro-enterprise, natural resource management and monitoring and evaluation. A three-member livelihood support team comprising specialists from agriculture, microenterprise and social development sectors support the implementation and monitoring of 'watershed plus' activities on the front line, in conjunction with 'watershed development' teams of village volunteers. Through these interventions almost six thousand self-help groups have been trained to cultivate local action. Non-refundable grants, either for consumption or assets, have been provided to those households deemed by the community to be 'very poor', and a revolving fund provides loans for microenterprises.

Address poverty, vulnerability and their structural causes

OSDMA works indirectly to reduce poverty, helping to ensure that social protection payments due in time of disaster are paid out, and exploiting schemes such as the National Rural Employment Guarantee Scheme to push forward flood protection works. The performance of OSDMA is officially measured (in annual reports for example) against 'classic' DRM indicators: the number of reconstruction works undertaken (embankments, roads, water supply, schools rebuilt); the number of preparedness measures implemented (cyclone shelters); the improvement of early warning communications (radio, mobile phone); and the procurement of equipment and training provided to the rapid action forces. However capacity building activities are listed as another indication of progress and policy planning initiatives, for example, the creation of a Geographic Information System (GIS).

WORLP's goal is to reduce the number of people living below the official poverty line by 30 per cent by 2010. The project has targeted poor households both by defining poverty in terms of official poverty indicators and on well-being indicators as perceived by the target community. A recent impact assessment has calculated that using both of these indicator sets, the project has had a substantial impact on poverty, with a 28 per cent reduction in the number of poor households 'officially' and 30 per cent as defined locally. In real terms this means that around 72,000 households – or 360,000 people – have escaped poverty. Much of this can be attributed to enhanced levels of livelihood assets, resulting from programmes like WORLP. WORLP has been periodically reviewed and the evidence base for its outcomes in several areas is well-tested.

The adverse effects of climate variability may have been lessened through natural resource interventions that have increased groundwater tables, altered land use patterns, diversified crops and increased production. In the farm, off-farm and non-farm sectors, livelihoods have become increasingly diversified and thus more resilient. Crucially, much effort has gone into participatory planning and

capacity building, and into the establishment of increasing numbers of community organisations and federated self-help groups. The resulting increase in social capital has seemingly gone a long way to ensuring quicker and more appropriate responses to crisis situations.

Box 6 Orissa: Challenges and learning for the development of CSDRM

The experiences of the OSDMA and the WORLP programmes provide crucial lessons for adopting a CSDRM approach, which are relevant as Orissa moves to implement its state Climate Change Action Plan.

- *There is more than one route to CSDRM.* Both OSDMA and WORLP make important contributions but neither delivers everything that is needed. It makes sense to construct CSDRM out of a range of existing institutions and programmes, which many have taken years to develop. Comprehensive CSDRM will need time to establish outside of discreet funded projects. Such an approach will need to support the development of adaptive capacity and social resilience to address different and changing risks associated with climate change, as more knowledge becomes available.
- *Strong leadership will be essential.* Constraints associated with the sectoral and departmental organisation of policy will require bold and innovative leaders to challenge the status quo. Approaches to slow and rapid onset disasters are currently institutionalised separately, and this exacerbates the challenge. There is a proliferation of projects and pilots. Climate change could provide the driver for real scale-up of efforts and real collaboration across sectors, institutions and scales.
- *Institutional independence and mandate is key.* The emerging CSDRM in Orissa has flourished where protagonist organisations have been flexible and able to innovate, but have the legitimacy of official status within government to provide authority and access to resources.
- *Progress is limited by the lack of downscaling of climate scenarios outside national science institutes in India.* This has meant that state-level institutions, like universities, have their hands tied in applying models and researching scenarios regionally. Once access to the science improves, there are many ways that new knowledge and information can be disseminated to Panchayat level (for example through agricultural schools).
- *Climate change is increasingly a driver for development of cross-programme activities.* Orissa State is developing its Climate Change Action Plan, which will hopefully overcome its initial tendency towards fragmentation across sectors. A comprehensive CSDRM approach would undoubtedly drive improved integration across sectors.

2.3 Post-disaster housing reconstruction in Batticaloa, Sri Lanka¹²

Box 7 Organisation profile

Practical Action Sri Lanka

Sri Lanka has been the scene of waves of resettlement due to the conflict and the 2004 Tsunami. Practical Action Sri Lanka, in partnership with DESMiO, a local NGO, sought to facilitate the creation of a housing project with people with disabilities and other vulnerable people in Manmuniyapattu Division of Batticaloa. Manmuniyapattu Division was chosen as it faces numerous risks and hazards through violent conflict, increased temperatures, drought, rainfall and floods, and strong winds and cyclones.

www.practicalaction.org

The aim of the reconstruction project was to demonstrate how a housing intervention could promote beneficiary participation, disability access, cost effectiveness and sustainable housing designs. Sixteen houses were built between 2006 and 2007 alongside livelihoods support activities and awareness campaigns for the rights of people with disabilities. This project was administered in the context of a newly emerging DRM and climate change adaptation policy framework elaborated through Sri Lanka's Disaster Management Centre (DMC) and Climate Change Secretariat. This case study highlights the extent to which the intervention reflects a CSDRM approach and whether this has led to an opening of inclusive spaces and citizen engagement on DRM in a post-conflict setting.

CSDRM in Sri Lanka post-disaster housing reconstruction

Tackle changing disaster risks and uncertainties

The participatory nature of the housing project meant that beneficiaries were involved in hazard assessment, identifying design features and the construction process itself. The participatory housing design methodology sought beneficiary knowledge through: structured and semi-structured interviews; modified participatory and

vulnerability mapping and participatory rural appraisal; field observations; focus group discussions and the inclusion of building regulations, donor technical specifications and beneficiary specifications as well as hazard mapping of the individual sites.

The most common hazards identified were annual flooding, droughts, gales, cyclones and increased temperatures. Several design features were incorporated to protect beneficiaries from identified hazards. The plinth levels were raised on sites prone to flooding and fired clay bricks were used to withstand floods. The 2004 flood was the worst that beneficiaries had ever experienced and its levels acted as the baseline to which a further six inches were added to ensure flood waters would not enter their homes. This six-inch leeway was not based on predicted future rainfall patterns as these are not available through the Meteorological Department.

Despite the lack of climate science predicting rainfall, none of these houses have since been flooded despite intense flooding in December 2007 which displaced many people in the same district. Clay tiled roofs with required pitch and anchoring have withstood moderate gales during south west monsoon rains and the rat-trap bond technique¹³ has been used to keep houses cooler during hot drought months.

Community members did not pro-actively seek meteorological information regarding flood and temperature trends, with a view to the sustainability of the housing design. Under a new reconstruction project in Vavuniya through Practical Action Sri Lanka, climate trend information will be provided to the conflict-affected population to be re-housed.

Enhance adaptive capacity

The participatory housing design process allowed beneficiaries to learn the planning, design and construction process, and this learning has been shared across the community. Some design features have consequently been incorporated into private housing. Practical Action Sri Lanka also trained French Red Cross masons to use these new technologies.

The design features were highlighted in the Post-Tsunami Reconstruction Guidelines of the National Housing Development Authority, which recommended, for example, the use of tie beams and connectors for roof support to protect against strong seasonal winds and localised gales. Learning across projects has been possible through learning mechanisms of Practical Action Sri Lanka. There is also an exchange of knowledge across Practical Action country

¹² For the full case study see: Post-Disaster Housing Reconstruction in a Conflict-affected District, Batticaloa, Sri Lanka: Reflecting on the Climate Smart Disaster Risk Management Approach, Ibrahim, M. (2010) Strengthening Climate Resilience Discussion Paper 6, Brighton: IDS

¹³ The rat-trap bond technique is a cost effective housing technique which uses less cement and keeps structures cool. For more information on the technique see: http://practicalaction.org/south-asia/docs/region_south_asia/cost-effective%20housing%20for%20rehabilitation.pdf

offices and headquarters: Practical Action UK is collecting experience from country offices to build their 'Vulnerability to Resilience Framework' which seeks to integrate climate change into their vulnerability reduction work.

Address poverty and vulnerability and their structural causes

Practical Action's strength lies in its commitment to livelihoods promotion and vulnerability reduction. Supporting the livelihoods of beneficiaries was a core component of the participatory housing construction adopted by Practical Action Sri Lanka and DESMiO. A paper production plant was funded for part-time employment opportunities and masonry training meant beneficiaries could be part of housing construction. Environmentally sustainable practices, such as the rat-trap bond technique to keep houses cool, illustrates the conscious effort of Practical Action Sri Lanka to consider the environmental impact of the housing reconstruction project.



Box 8 Batticaloa: Challenges and learning for the development of CSDRM

Several challenges exist for the development of the CSDRM approach at the local level in a post-disaster and post-conflict setting.

- The lack of downscaled global climate scenarios for Sri Lanka means that NGOs like Practical Action are unable to share information with their beneficiaries and make informed decisions on housing designs.
- Current housing projects in Vavuniya are struggling to transfer learning from the demonstration project to scale because of a lack of capacity, skills and time pressures from donors. Time pressures mean that it is difficult to train local masons to incorporate these technologies and that homeowners may not be aware of the new technologies available. Post-disaster is not the ideal time to promote alternative technologies that require training and new knowledge. A holistic approach to housing requires a combination of skills and commitment, which comes through long-term engagement. The CSDRM approach is a process that may not be able to be implemented quickly and deliver immediate results, but requires a shift in practice through cumulative actions.
- Local participation and accountability is key. The divide between those who make and implement DRM policies and those living in marginalised and exposed areas is vast. The project failed to influence government DRM structures and policies. For example, some officials feel that priorities are not right when resources are being spent on cyclone and tsunami risk -mapping, rather than on floods and drought risk mapping – the more common and destructive local hazards. With better linkages between the DMC structures and other government structures, such as the divisional Secretariat and the local authority, there could be increased representation of local needs in budget allocation for DRM interventions.
- A lack of donor transparency, centralised government and a lack of policy enforcement create little incentive to focus efforts on advocacy for CSDRM.
- Simple practical tools are needed to help practitioners identify and integrate climate data and weather trends into project design. Practical Action's 'Vulnerability to Resilience Framework' is a step in the right direction at the conceptual level, but tools for the frontline on how to overlay local knowledge with climate and weather data and undertake scenario planning and missing links.
- Up-scaling an integrated approach to housing requires investment in capturing and sharing the process and lessons. In this way Practical Action Sri Lanka would have increased leverage to influence donor timeframes for post-disaster reconstruction projects with documented details of their approach and evidence of positive outcomes at hand.

2.4 Lessons from field research for CSDRM

Fieldwork in Cambodia, India and Sri Lanka demonstrates that, despite challenges, government and non-government actors are already making real efforts to manage disaster risks with a 'climate-smart' approach. The institutional basis is there. Making the final shift to CSDRM, it seems, is largely reliant on an increasingly collaborative and strategic approach to traditional DRM, both at an individual and institutional level. The case studies highlight the flexibility of CSDRM as an analytical and evaluative approach at different scales:

- Integrating climate scenarios, whether at the regional, sub-national or local level, requires access to climatological information and data. This can be fraught with challenges and can be highly political. Making connections with independent intermediaries – such as universities – that can process climate data and interpret findings at various levels is a way to overcome this challenge.
- There are numerous entry points for a CSDRM approach. Building on existing programmes and policies offers opportunities to identify champions for the approach and to create tools and procedures that are grounded in local realities.
- Promoting the integration of the three pillars of CSDRM into policy and practice requires pro-activity and a range of 'soft' skill-sets: connecting to others, being flexible, adopting new practices and fostering learning. This will require staff investment and must be understood in terms of building people's capabilities to create change.
- A certain level of independence is required to be flexible and innovate. Donors, governments and business should support independence and ensure accountability measures are in place and maintained.
- Dialogue and access to decision making are critical at all levels – from the regional to the local. Creating spaces for a range of stakeholders to access information and participate in decision making – from resource allocation to vulnerability mapping and policy/programme design – is critical if positive development outcomes are to be achieved in a changing climate. This requires partnership and confidence between stakeholders (government departments, business, advocacy networks, faith groups and regional initiatives).
- Climate change can be a driver for greater integration across sectors, institutions, policies and programmes.



3. Engaging **WITH DRM PRACTITIONERS & POLICYMAKERS IN AFRICA & ASIA**

'Disaster risk managers cannot be all things to all people, but we do need to make more concerted efforts to get back to our roots - of addressing vulnerabilities'

—
Participant at UK Consultation



3.1 Dialogue and exchange: co-constructing the CSDRM approach

The CSDRM approach presented in this report responds to the call from practitioners and policymakers to develop an integrated approach to managing and adapting to disaster risks, in a way that is meaningful and useful to their work. To achieve this was only possible with the pragmatic and technical input of those individuals and groups. This section sets out a series of national and regional consultations that gathered that input.

The consultations spearheaded by the SCR national focal points and in collaboration with partner organisations – the ‘friends of SCR’ – were careful to assess the current environment and appetite for integration of CSDRM in each of the ten focus counties. In Tanzania for example, the consultations supported the relatively new and emerging trend to bring together practitioners and policymakers from the disasters and climate change communities. In Cambodia, the consultations initiated a discussion on integration climate change in the DRR Forum Cambodia, convened by the National Committee on Disaster Management. In other countries, such as the Philippines, the consultations provided space to reflect on existing practice and contribute to ongoing dialogue on the challenge of integrating climate change into development and disasters work.

Through dialogue and exchange, the consultations were able to:

- a) Showcase the work of those at the forefront of thinking and acting on integrating disasters, climate change and development. Participants included practitioners, policymakers, donors, researchers, academics and scientists from a range of disciplinary backgrounds. In return, participants learnt from the work and experiences of others, particularly those not within their normal sphere of reference.

- b) Harness learning from existing work that seeks to integrate disasters, climate change and development, to enable participants to interrogate the three pillars of the CSDRM approach. By reflecting on the experiences shared through projects, programmes and policies that sought to achieve integrated practice, participants were able to co-construct the CSDRM approach – bringing the iterative process to life.
- c) Learn from the way practitioners and policymakers could apply the CSDRM approach to their work. By reflecting on empirical projects, programmes and policies that best demonstrate aspects of the CSDRM approach, participants provided empirical evidence that supports different elements of the approach. Examples from East Africa, South Asia and South-East Asia are explored further below.

Following the success of the national consultations, regional consultations were held to meet demand in East Africa, South Asia and South-East Asia. Projects, programmes and policies from the national consultations which best demonstrated integration were showcased and participants presented how their work aligned with different aspects of the CSDRM approach. The consultations provided opportunity for debate, enriching discussions and enabling reflection and learning across each region’s respective focus countries.

Perhaps most importantly, the regional consultations enabled participants the space to shape the CSDRM approach. Through a combination of ‘live-editing’ sessions and feedback mechanisms, participants’ reflections and comments were synthesised and integrated to create subsequent versions of the approach.

The CSDRM approach incorporates the opinions of more than 500 practitioners and policymakers from across a range of disciplines. The process of developing the approach has initiated – or in some cases reinforced – dialogue and connections that would not have occurred otherwise. This forms part of the continuum of learning and exchange that the SCR Programme has fostered and will continue to promote.

3.2 What does climate smart disaster risk management look like in Africa and Asia?

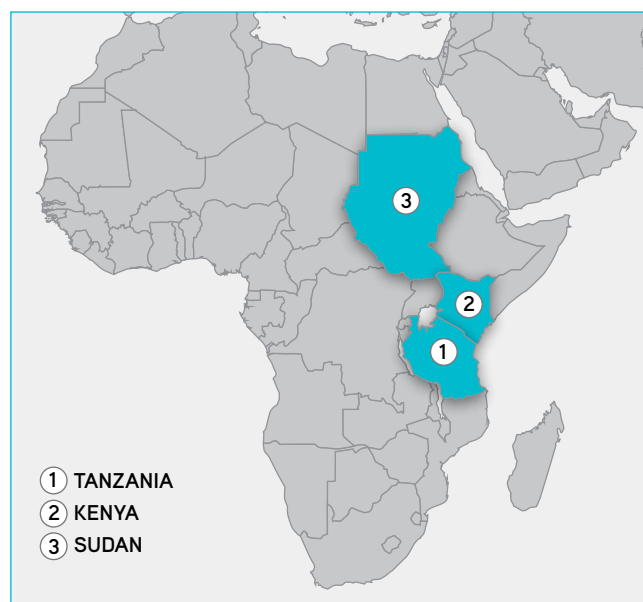
What follows is a snapshot of the debates, the excitement, the challenges and the interactivity that went into developing the CSDRM approach. The full selection of consultation reports, photos and audiovisual material is available at www.csdrm.org

Taking each region in turn, important highlights from each regional consultation are outlined below, together with an example of how one organisation from the consultation process in that region felt their programme best demonstrates aspects of the CSDRM approach.

East Africa: DRM and refocusing on addressing vulnerabilities

Geographical scope

National consultations took place in Sudan, Kenya and Tanzania; the regional consultation in Nairobi, Kenya.



Should DRM refocus on addressing vulnerabilities?

The disasters community from the East African countries were more attuned to dealing with slow onset disasters such as drought. However, as flooding in parts of Sudan in July 2010 demonstrated, disaster trends appear to be changing, and with this, recognition that the impacts of climate change on disasters are more varied than was perhaps anticipated. Whilst recognising the changes in the physical impacts of climate change, practitioners, policymakers, researchers and scientists highlighted that the challenging contexts in which individuals and communities live are affected by multiple factors beyond disasters and climate change. Understanding and differentiating between the multiple drivers of risk – changing root causes, dynamic pressures, unsafe conditions and hazards – that result in a changing environment (in the broadest sense) remains a challenge. This issue was echoed in other consultations, for example in the UK consultation a participant argued that, ‘Disaster risk managers cannot be all things to all people, but we do need to make more concerted efforts to get back to our roots - of addressing vulnerabilities’.

DRM in spite of a changing climate, is it enough?

One debate looked at the need to differentiate between DRM happening in the context of a changing climate, and DRM work that is proactively considering climate change in its analysis of risks, and thus demonstrating a CSDRM Approach. There are examples of the integration of local knowledge, climatological and meteorological information with social sciences. However, efforts to synthesise that knowledge to inform programming and policy in a proactive, systematic and structured manner remains a goal to be achieved. Practical limitations need to be addressed, such as the lack of local level or downscaled meteorological data or the fragmented nature of policy, which act as barriers to a coherent way forward.

How can DRM overcome barriers to change?

Many practitioners felt that, in the East African context, donors prefer, encourage and support short-term programming on emergency response. There are limited funds available for DRM practitioners to pursue an integrated approach and this is cited as one of the main barriers to a shift in approach. DRM practitioners are still trying to decipher how to overcome the predominantly sectoral focus of donors, who reinforce clear divides between development, emergency response, DRR and climate change. Moreover, gaining access to finances that can address all the three pillars of the CSDRM approach, without having to amalgamate different budgets, remains a very practical challenge.

INADES Formation TANZANIA

Enhancing risk management and adaptation to climate change and variability using local and scientific knowledge and appropriate farming technologies.

Project title:

Using local and scientific knowledge on seasonal climate forecasting for enhancing community adaptation to climate variability and change in drought-prone villages of Manyoni and Chamwino districts, Tanzania

Project period:

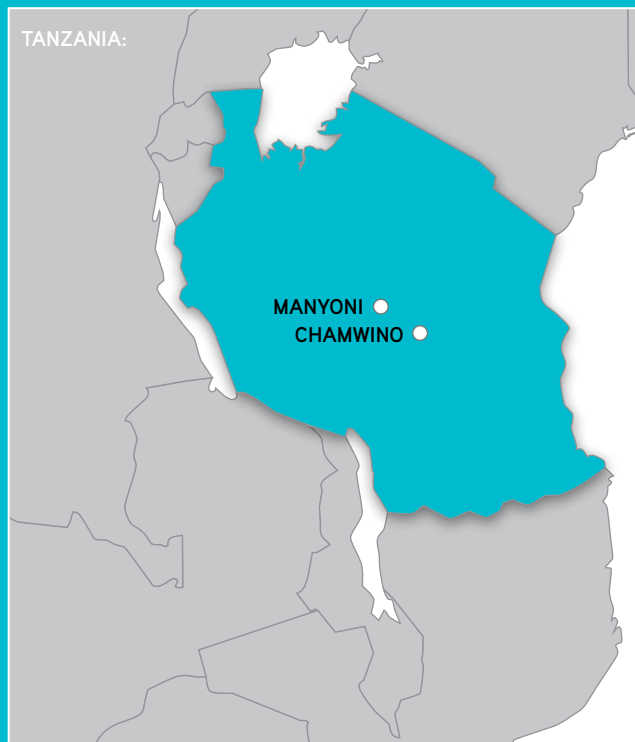
The project began in December 2008; second project cycle October 2009–April 2010

Illustrates pillars:

1b, 1c, 2d

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BACKGROUND TO THE PROJECT

Challenges it seeks to address

The unpredictability of rainfall resulting from a changing climate is upsetting farming cycles, making agriculture an increasingly risky undertaking. Rainfall shortages cause serious droughts and lead to crop loss, food shortages and famines, as well as competition and conflict over natural resources. The changing seasons make traditional farming calendars less reliable, calling for interventions to help farmers plan and prepare for the unexpected. This includes reliable weather forecasts for assessing when to sow and when to harvest, and seasonal forecasts on what to sow and how to manage the risks.

Recent observations, studies and research suggest that many semi-arid farmers have managed to cope with and even prepare for climate change. They have minimised crop failure through increased use of drought-tolerant local varieties, water harvesting, extensive planting, mixed cropping, agro-forestry, opportunistic weeding and a series of other traditional farming system techniques, including using local knowledge in weather and seasonal climate forecasting.

This project is responding to the call for more action-research on the use of indigenous technology as a key source of information

on adaptive capacity, particularly in relation to the inherent selective, experimental and resilient capabilities of semi-arid farmers in dealing with climate variability.

Activities

This project uses an action-research method and seeks to combine strategies for risk reduction with those for coping with the impacts of drought. Activities include: establishing demonstration plots and testing options for improving soil moisture retention capacity; innovative rain-water harvesting methods; encouraging the use of drought resistant crop varieties such as sorghum, sunflower and maize; alternative tillage practices (using tools such as the spring jembe, magoye ripper and ox-ridger) instead of local slash-and-burn practices; simple rain gauges and meteorological data to monitor rainfall and soil moisture and compare this with local forecasting knowledge.

Combining knowledge from different sources involved collecting and analysing meteorological information, identifying and conducting participatory assessments of local knowledge on climate and weather forecasting, as well as climate risk assessments of the likely impacts of climate change on agriculture.

Using this information, community-based adaptation strategies are implemented to address and respond to vulnerabilities created by the changing climate. This includes training to strengthen the capacity of communities and local institutions to respond to the future disaster scenarios and supporting vulnerable communities to influence and engage in decision-making processes on adaptation strategies.

Partners

In order to facilitate a joint-learning process the project brought together various actors including: Trainers from Inades Formation Tanzania (IFTZ); extension officers from Manyoni and Chamwino District Agriculture Departments; Dodoma meteorological station; regional meteorological staff and researchers from Hombolo Research Institute; and local communities from four target villages (with an estimated population of 12,000 people) and their governance structures. The villages are: Makoja and Ikowa in Chamwino district, Dodoma region and Kitopeni and Mbwasa villages in Manyino district, Singida region.

Funder

Christian Aid through DFID's Innovative Fund on Climate Change Adaptation.

KEY LESSONS

Improved seasonal climate forecasting, use of drought-resistant crops and moisture-retention agronomic practices are risk management options that can facilitate improved adaptation to climate change. If used effectively, such practices can enhance decision-making and ownership of adaptation strategies by the users. Other risk management options, particularly concerning livelihood diversification, such as casual labour or cereal purchase and selling, are critically important for reducing vulnerability during seasons of low productivity.

Farmers attach particular importance to the value of local knowledge for predicting seasonal trends and variation. However, understanding local perceptions of climate change requires a more in-depth, shared understanding of people's knowledge and perceptions of adaptation strategies.

The right balance needs to be struck between learning from other examples of effective risk reduction and adaptation and ensuring proper understanding of local livelihood systems in the target communities, to ensure viable and appropriate risk reduction and adaptation options are proposed and invested in.

Attention must be paid to the need to conserve traditional forests and other sources of local predictors for sustaining local knowledge on weather forecasting. These include forests used for traditional ceremonies and those with abundance of plants and trees species used for forecasting purposes.

Communicating information on disasters, risk and climate in a user-friendly way helps to increase awareness, understanding and

responsiveness of communities and other actors to make changes to deal with a changing and uncertain climate. Action research and learning processes, particularly when involving rural communities, requires experienced facilitators who have a desire to ensure a strong participatory learning process. Moreover, to ensure strong buy-in and increase the chances of success on the ground, the project must support the priorities identified by the communities through action learning.

Facilitating interaction between communities and other actors, particularly government departments, helps to ensure buy-in and scale-up of innovative ideas. Demonstration farms provided an opportunity to influence the government, which can adopt the lessons and replicate them on a larger scale.

Working across the pillars

The intervention is working across the three pillars but best demonstrates how to interlink aspects 1b, 1c and 2d.

1b Periodically assess the effects of climate change on current and future disaster risks and uncertainties

The project facilitated a process of analysing and assessing meteorological information, data and trends on climate forecasts relevant to the project's target villages, as well as devising an inventory and participatory assessment of local knowledge of climate and weather forecasting. This process involved gathering relevant scientific data from meteorological and research institutes, which were then interpreted and presented in plain local language understandable to community members. The process also involved community members measuring local indicators of weather patterns and establishing what type of information about rainfall and climate variability would be most useful to inform risk reduction and adaptation planning.

An example of the complementarity of data from different sources is shown in the prediction of rainfall patterns and the seasonal migration pattern of birds. The predictors of bird migration, known locally as Yobwa and Koronga, have been proved by meteorological scientists to be perfectly correlated with the Inter Tropical Convergence zone – the dominant cause of rainfall patterns in East Africa. This confirmed the reliability of local predictive methods and strengthened the case for communities to continue applying their local methods and indigenous knowledge for forecasting. However, more research is needed to ascertain the potential of other local predictors of weather and climate forecast in order to understand how local capacities for predicting can be supported by scientific sources.

1c Integrate knowledge of changing risks and uncertainties into planning, policy and programme design to reduce the vulnerability and exposure of people's lives and livelihoods

The process of information collation described above is a key component of participatory climate risk assessments undertaken by communities at risk of increased vulnerability. The project focuses on the agriculture sector and rural livelihoods and uses these climate risk assessments to guide the development of adaptation options for managing potential drought risk. The risk assessments then become the foundation on which participants develop community-led adaptation strategies that seek to reduce and mitigate the risks identified.

2d Use tools and methods to plan for uncertainty and unexpected events

Participatory tools and methods were used for climate risk assessment and forecasting. For example: open-ended interviews and focus group discussions with farmers, elders and local experts; checklists to access the knowledge bank of local communities; and tools such as timelines, seasonal calendars, Venn diagrammes and preference ranking. Checklists and interviews were also used to gather information on how seasonal forecasts are actually used. These were supported by fieldwork which employed ethnographic research methods to collect and assess local methods and indicators for climate forecasting used by farmers. Two guides were also used, with some tailoring and modifications: the Community Risk Assessment Guide; and the facilitators' training guide, *Climate Change and Variability: Adaptation to Drought* (Ramamasy and Baas, 2007).

The use of participatory tools helped to mobilise an exchange of ideas and decisions among different community members and others, and fostered a sense of mutual commitment to addressing identified risks.

Challenges faced

- Communicating scientific information and data on adaptation options in a user-friendly format is a challenge, but is vital to increasing the awareness, understanding and responsiveness of communities and other actors to the potential risks exacerbated by a changing climate. Overcoming this challenge requires significant time and attention to detail, to ensure the data is relevant for each particular local context.
- Using evidence gathered from the project to influence the development of government policies on climate change adaptation and disaster risk management continues to be a challenge. This is partly due to the length of time it takes to demonstrate impact and partly due to the need for dedicated expertise and skills in advocacy and communication in order to be able to use lessons learnt to effect change at this level.
- A significant constraint and on-going challenge for the implementation and monitoring of the project is a lack of available, accessible meteorological information during the rainy season. Timely availability of data, together with indigenous knowledge, helped farmers improve the planning of their agricultural activities. Weather stations are needed in each village to monitor temperature, evaporation and rainfall and their changing trends, due to increased localised variability of rainfall patterns, even between neighbouring villages.

South Asia: generating momentum around integrated approaches

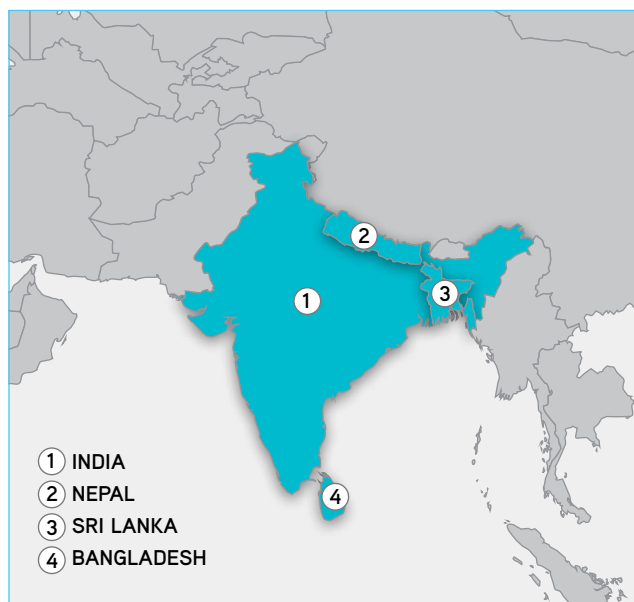
Geographical scope

National consultations took place in India, Nepal, Sri Lanka and Bangladesh, the regional consultation in Delhi, India.

Current DRM practices in much of South Asia are influenced by the 2004 tsunami, which created a policy window by highlighting the lack of disaster preparedness. This dramatically reinforced calls for capacity building and preparedness to become part of policy, programming and institutional priorities. Efforts to make vulnerable communities more aware and better prepared for disaster events remains an important priority in South Asia; as does the need to more proactively integrate climate concerns into disaster policy and practice.

Participants were clear that compartmentalised, sectoral approaches are not effective in meeting the complexity of the realities and challenges on the ground. Integrated approaches are needed to incorporate different approaches to diverse drivers of vulnerability. Adopting an integrated approach requires a commitment to deal with new risks, to work in partnership, and recognise the importance of getting the governance right. As one participant from the South Asia consultation said, 'A major critique of other frameworks has been a failure to incorporate institutional processes effectively – we can use the CSDRM approach as an opportunity to open space for discussion'.

In order to foster long-term support for coping and adapting to the changing climate, local strategies must be linked to the priorities of government institutions. This demands the participation of local communities in decision-making alongside other stakeholders at all levels. For many, the CSDRM approach provides an entry point to move current humanitarian practice and policy forward in a way that reinforces development goals and principles. As a South Asia consultation participant said, 'Climate change gives us [disaster risk managers] the opportunity to see if we're getting our work right - we've lost our focus on the drivers and causes of vulnerability and what this means for disasters'.



Gorakhpur Environmental Action Group (GEAG) INDIA

Innovative adaptive livelihoods for small and marginal farmers in flood affected areas

Project title:

Enhancing adaptive capacities and livelihood resilience

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Project period:

Began 2005; second phase started 2008 and is ongoing

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Illustrates pillars:

1b, 1c

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BACKGROUND TO THE PROJECT

Challenges it seeks to address

Changes in climate-related hazards such as increases in rainfall intensity, shifts in monsoon and flooding patterns and droughts have adversely affected agricultural-based livelihoods upon which the State of Uttar Pradesh is dependent. Small and marginalised farmers constitute more than 90 per cent of the farming population, most of which is vulnerable to increasing costs and reduced returns resulting from climate variability. The vulnerability of landless and women farmers is particularly exacerbated by increased uncertainty.

Activities

The project sought to combine local and scientific knowledge on changing climate-related hazards to encourage adaptive agricultural practices, agricultural models and farm sub-systems better able to withstand the impacts of the changing hazards. These measures are supported by initiatives to enable farmers to better manage their land and crop cycle. The project also engages community institutions to facilitate and sustain

these adaptive practices and link with government programmes for integrated farming practices. Advocacy has sought to influence those with resources to support small farmers to adopt more resilient agricultural practices.

Partners

Community institutions such as self help groups, farmer field schools, agro-service centres and village resource centres. Self-help groups are the primary institutions helping farmers to unite around common interests. Farmer field schools provide a platform for sharing knowledge and information, with the help of resource farmers, scientists and other experts. Agro-service centres provide external agricultural inputs such as seeds, bio-fertilisers and bio pesticides at cost price and rent agricultural tools and equipment. Village Resource Centres at the village level provide early warnings, information and lead the management of village activities. They advise communities on how to engage with schemes to address climate variability, advice on adaptive livelihoods and access to government officials at various levels.

Funder

International Development Research Centre (Canada), Oxfam, Novib.

KEY LESSONS

- Processes that encourage participatory climate and disaster scenario planning that combine knowledge from farmers and meteorologists, create a more favourable environment for adopting adaptive agricultural practices and infrastructure. Combining farmer and meteorological information to create short to medium range forecasts can help to generate more accurate weather patterns, identify areas of technical support needs and gauge the suitability of specific crops.
- Directly involving communities and raising awareness of the changing and uncertain context provides more scope for local mobilisation and advocacy initiatives. Moreover, reaching beyond the community to the Panchayat (local government) and national government helps generate momentum for developing longer-term coping and adaptive measures.
- New agricultural practices of layering crops, varying the timing of planting and combining different crop types can all significantly reduce agricultural losses resulting from climate variability. New practices also provide opportunities to recover from any losses in the next cropping season.
- Enhancing the adaptive capacity of farmers requires the involvement of agricultural extension services and government support for farmers to adopt new methods at scale. Schemes must have linkages to a range of relevant government programmes and initiatives, allowing farmers to decide which programmes are most relevant for their local geo-climatic conditions.

Working across the pillars

The intervention is working across the three pillars but best demonstrates how to interlink aspects 1b and 1c.

1b Periodically assess the effects of climate change on current and future disaster risks and uncertainties

The project has facilitated the collection of weekly weather forecasts and advice and the dissemination of this information to farmer field schools, agro-service centres and trainers in each village through SMS messaging. Alongside their existing knowledge, farmers have used this information to develop coping and adaptive practices to better prepare for, and manage, the impacts of disasters and climate variability. Farmers and their households have also been able to judge the feasibility and environmental sensitivity of future developments more effectively, such as those that fail to conform to draining standards, which can exacerbate flood risk.

1c Integrate knowledge of changing risks and uncertainties into planning, policy and programme design to reduce the vulnerability and exposure of people's lives and livelihoods

Participatory scenario planning in the project focuses on reducing the physical exposure of farms, by strengthening infrastructure (roads, drainage, seed banks) and promoting adaptive agricultural practices. GEAG has developed innovative models of adaptive agriculture for small landholdings that experiment with seasonal and spatial combinations of crops grown in specific patterns and at different heights. These models are known as 'multi-layered spatial combinations of crops'. Multi-layered crops might combine a low layer of creeper plants such as bottle gourd, a middle layer of cereal (ground nut, for example) and climber crops such as banana, maize or lentil on the top layer.

A time management system has also been developed and widely adopted by small-holder farmers, which alters the timings of the conventional cropping cycles to ensure higher returns in the context of a hazard-prone and changing climate. Time management techniques include sowing early so that crops are harvested before flooding, to reduce the risk of loss from a specific hazard. Techniques also include water resistant crops, which can grow even if a field is inundated with flood waters, and sowing when water has receded from the field post-monsoon during rehabilitation and recovery.

Challenges faced

- Establishing an environment where adaptive agricultural practices can flourish, with the support of government and agricultural extension services is a major challenge.
- Access to the right information, guidance and inputs at the right time is a challenging task. Ensuring all inputs work coherently, to an effective timescale and with enough geographical reach is essential to developing and maintaining an efficient support system. Without such a system, scaling-up is virtually impossible.
- Supporting farmer-to-farmer sharing and learning around the use of locally appropriate agro-climatic and ecological crop varieties and practices is key to ensuring sustainability. Through supportive extension services, innovations in crop varieties can be shared (such as those through the Indian Agriculture Research Institute), up-scaled and used by a wider range of farmers. They can also help to mobilise and facilitate local learning networks, essential for sustaining innovation and adaptation in a changing environment.

South-East Asia: integration, convergence or merger of approaches?

Geographical scope

National consultations took place in Indonesia, the Philippines and Cambodia, the Regional Consultation in Thailand.

There is significant momentum in the region towards integrating climate, disaster and development work. The disasters arena has moved beyond a response focus, towards management of disaster risk. For many, this means improving the use of scientific and meteorological information in the development of policies, regulations and plans. Equally as exciting is the proliferation of initiatives focusing on climate risk management, notably in urban, coastal and small-island contexts.

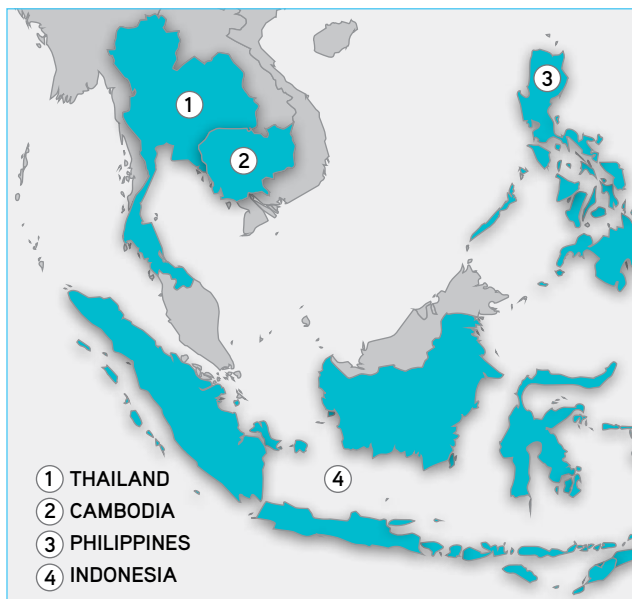
‘At the end of the day, it does not matter what words people use to describe integration, the important thing is that both disasters and climate work are successful at integrating into development processes and achieving effective change in order to reduce vulnerabilities’.

Consultation participant

In order to achieve a positive impact, it is necessary to improve alliances with a broader range of stakeholders - this requires practitioners to move beyond the comfort zone.

‘It is the role and responsibility of different actors to work together to create effective national systems. This means we need to think about the role of the scientific community, research and technology institutes, the private sector and the media’.

Consultation participant.



St. Bernard, Southern Leyte

PHILIPPINES

Proactive disaster risk management:
a role model for effective local
governance, St. Bernard, Philippines

Project title:

DRM Programme Strategy, Local Government Unit in
St. Bernard, Southern Leyte, Philippines

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Project period:

2006 to present

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Illustrates pillars:

1a, 1c, 1d, 3c

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PHILIPPINES:



BACKGROUND TO THE PROJECT

Challenges it seeks to address

Guinsaigon, in St. Bernard, Southern Leyte made headlines around the world on February 17, 2006. After two weeks of heavy rains, a portion of Mount Kan-abag collapsed, covering Guinsaigon village with hundreds of tons of rocks, mud and debris and burying alive over 1,000 people. Heavy rainfall and a minor earthquake of 2.6 Richter magnitude triggered the Guinsaigon landslide. Southern Leyte lies along the active Philippine fault line. In addition to landslides and earthquakes, geo-hazard maps produced by the READY Project¹⁴ also indicate that St. Bernard is vulnerable to climatic hazards like typhoons, flood, drought and storm surges. Faced with these multiple hazards, the Local Government Unit (LGU) of St. Bernard developed a comprehensive programme to build local resilience to climate and disaster risks and ensure the wellbeing of its citizens.

Activities

Given its risk and vulnerability profile, St. Bernard municipality has adopted a pro-active approach to disaster risk management, under the vision of a 'resilient St. Bernard'. Despite facing limited financial resources and tendency towards a disaster response mindset,

the LGU has ensured that disaster risk reduction and climate change adaptation programs, trainings and activities are incorporated in annual development planning and budgets. To address poor coordination between different interventions supporting St. Bernard's at-risk communities, the LGU has taken on a coordination role in which it fosters strengthened inter-agency partnerships, pilot climate-resilient livelihood and resettlement projects and responsive and accountable governance.

The LGU has developed contingency planning and standards, guidelines and protocols for emergency response. Regular evacuation drills are now rehearsed, supported by community-based early warning systems. This includes flood early warning, when rainfall and upstream water levels are monitored and abnormal levels are transmitted to an operations centre via radio, which in turn triggers alerts for those living in flood-prone areas.

The LGU has also facilitated the relocation of communities from danger zones along riverbanks and coastal areas prone to storm surge and tsunami. Small-scale mitigation projects are underway, including the construction of gabion (large wire

baskets, filled with rocks to stabilise shorelines or slopes) and dredging of the Lawigan River to mitigate flood risk and coconet – tough netting made of coconut husks to anchor soil on slopes – to mitigate landslide risk.

Partners

The LGU of St. Bernard worked in partnership with the Department of Environment and Natural Resources, the Municipal and Barangay Disaster Coordinating Councils, CARE Philippines (Accord Project), Plan Philippines, GTZ and the Philippines National Red Cross, among others.

Funder

LGU funds, GTZ, CARE Philippines, Plan Philippines.

KEY LESSONS

- Promoting multi-sectoral participation works. To achieve local commitment to adaptive capacity initiatives, the LGU solicited the active participation of the community during the formulation of the Barangay development and land-use plans. This included compulsory representation in meetings of farmers, business people, women and children's groups, seniors and faith-based groups.
- Consider incentives for accountability and transparency in local governance. St. Bernard has been recognised at national level for successfully incorporating disaster risk reduction and climate change adaptation into its Executive-Legislative

agenda. Two years after the Guinsaigon tragedy, in 2008, St. Bernard received the prestigious Gawad Kalasag Award, an annual Presidential Award for the most exemplary disaster coordinating council, contingency plan and DRM programme in the country. This incentive to the LGU has spurred neighbouring LGUs to replicate this success.

- Overcome funding limitations through enabling legislation. To ensure harmony between the Executive and Legislative departments in the municipality, an enabling policy environment is fundamental for Mayors to engage in partnerships with CSOs on integrated

disaster and climate risk reduction activities. St. Bernard faced the common constraint of having limited funds yet was able to institutionalise disaster risk reduction and climate change adaptation into the local development planning with the support of appropriate legislation.

¹⁴ The READY Project is a hazard mapping and assessment for effective community-based Disaster Risk Management project.

Working across the pillars

The intervention is working across the three pillars but best demonstrates how to interlink aspects 1b and 1c.

1a Strengthen collaboration and integration between diverse stakeholders working on disasters, climate and development

The LGU oversaw a comprehensive programme of CSDRM through reinvigorating a number of dormant decision-making bodies and fostering collaboration between agencies. This included the St. Bernard Emergency Response Unit and the Municipal and Baranguay Disaster Coordinating councils. Efforts were also made to link with national bodies, such as the Philippines Institute of Volcanology and Seismology, Philippine Atmospheric, Geophysical and Astronomical Administration, Mines and Geosciences Bureau and the National Mapping and Resource Information Authority and the Office of Civil Defence. These new collaborations informed multi-hazard mapping, participatory risk assessments and the training of LGUs and community leaders on community-based DRM.

In addition, measures have been taken to integrate DRM in the development and implementation of the Executive and Legislative Agenda, thereby disaster-proofing its development priorities. For example, within the Annual Investment Plan, the LGU has innovatively used local resources such as the Calamity Fund and Economic Development Fund to support disaster preparedness, mitigation, and climate change adaptation projects.

3c Empower communities and local authorities to influence the decisions of national governments, NGOs, international and private sector organisations, and to promote accountability and transparency

With the premise that local people are best-placed to inform decisions taken to address risks to local wellbeing and livelihoods, active participation from across the community has been sought for the formulation of Barangay Development Plans.

1c Integrate knowledge of changing risks and uncertainties into planning, policy and programme design to reduce the vulnerability and exposure of people's lives and livelihoods

The LGU has initiated a 'ridge to reef' approach to protecting and conserving natural resources, especially for the Hinabian-Lawigan watershed. In upland areas the municipality is running a programme for ecosystem restoration and conservation, including reforestation and agro-forestry. This includes promoting alternative livelihoods such as fruit-trees and similar crops and encouraging bamboo plantations as a measure against soil erosion along riverbanks. This reduces the impact of strong water currents and soil erosion during flooding, which traditionally causes major damage to farmlands within the riparian zone. In addition, the LGU has established a mangrove greenbelt and is promoting the rehabilitation of mangrove areas to mitigate typhoon surges.

1d Increase access of all stakeholders to information and support services concerning changing disaster risks, uncertainties and broader climate impacts

Since it reactivated its Municipal Disaster Coordinating Council, St. Bernard, in partnership with several NGOs, has conducted training on CSDRM for municipal officials, community leaders and others. Topics covered included disaster preparedness, mitigation and emergency response. Drills on floods, tsunamis, landslides and earthquakes are now regularly conducted in villages and schools. The LGU has focussed particularly on educating young people on climate change and increase awareness of its impact on local vulnerability. Since 2006, over 800 children and youth leaders from Southern Leyte have participated in climate change and disaster preparedness camps held in the province. Children have proven to be effective risk communicators and have used of creative means to promote action at household and community level to avert climate risks and minimise global warming. These include child-led campaigns for mangrove and forest protection and monitoring of early-warning systems.

Challenges faced

- The Mayor and municipal officials had to demonstrate commitment and political will to implement and integrate DRM and climate change adaptation activities. One challenge that arose, and continues, is in the promotion of an integrated CSDRM approach that manages to avoid political bias and affiliations along socio-economic divisions.
- Restrictions in the use of municipal funds acted as a barrier. This includes stipulations that restrict use to disaster response and recovery only. Here, the persuasive evidence of the costs and benefits of pro-active adaptive activities had to be demonstrated.
- Relocation away from risk-prone areas, as an adaptive strategy, is problematic where land use and traditional livelihoods are closely interdependent.



4. *Common challenges,* **CONCLUSIONS & NEXT STEPS**

‘When I first saw the CSDRM approach I thought it was a bit scary as it demands multi-institutional approach to implement it - but I want to understand it further as it has made me rethink the way we work’

—
Participant at East Africa Consultation

4.1 Common challenges across Africa and South Asia and initial conclusions

The extensive consultation outlined in this report leaves no doubt that there is substantial appetite for a new, climate-smart disaster risk management approach. As one participant concluded, the real added value of this approach is its potential to break down the artificial thematic boundaries that are impeding current efforts to better understand and manage disaster risks: 'It is exciting to have an approach that could be owned by all communities of practice'.

The CSDRM approach will help make meaningful links between humanitarian policy and practice and areas of development which are seeking to deal with underlying vulnerabilities and exposure to hazards: 'Adaptive capacity issues are at the centre of the CSDRM Approach, in a way that isn't captured by other [disasters] frameworks'. (South Asia consultation participant)

DRM is not a new pursuit. People through generations have developed coping strategies in the face of local hazards. As one participant from the South Asia Consultation commented, 'The people we're calling vulnerable may be best suited to coping and most adaptable'. Local experiences and lessons should be recognised, adopted and integrated into ongoing and future initiatives: 'Disasters and development organisations must see themselves as learning agents, not change agents; our role is facilitation'. (East Africa consultation participant)

The consultation process has highlighted challenges in all three regions, from which the DRM, climate and development community can all learn. For humanitarian action to truly target the most vulnerable, DRM must address the challenges set out.

From the initial testing and investigation of the CSDRM approach set out in this report, a series of key challenges are evident, from which we can draw initial conclusions, as follows.

- The integration of climate, disasters and development interventions is occurring on an ad hoc basis. Guidance is needed to aid practitioners to overcome institutional constraints and foster collaboration.
- Adaptive capacity is central to improving ways of working and will require systematic investment in skills and innovation.
- Rights and access to services provide the foundation on which DRM can be promoted.
- Dealing with changing risk and uncertainty requires new knowledge that can be blended and brokered in a way that aids effective implementation.
- Assessing and integrating new knowledge is a challenge that requires partnerships, new technical skills, tools and procedures and the inclusion of skilled intermediaries in decision-making processes.
- Climate-smart DRM will bring benefits. Greater awareness is needed around the potential for environmental harm caused by DRM interventions and the choice of climate-smart alternatives.
- Donors and governments must support flexibility and innovation, and demonstrate their own commitment to a joined-up, strategic, collaborative approach to CSDRM.

Box 9 Final thought

'The DRM community hasn't been good at looking at long term timeframes or capacities to enhance people's ability to progress over longer terms; this approach encourages us to do this. The CSDRM approach challenges us to have a forward thinking analysis'.

—
East Africa consultation participant

4.2 Next steps: the future of CSDRM

The reality of climate change challenges the DRM community to meet new challenges and plan in different ways. CSDRM integrates key pillars of action and provides guiding questions to identify gaps and opportunities for new collaboration.

Climate change is a driver for the change and innovation in the DRM sector. The SCR programme recognises this opportunity and will focus on deepening the evidence base for a CSDRM approach and advocating for its uptake by practitioners, policymakers and academics. Future outputs include:

- a) Guidance on implementing the 12 actions of the CSDRM approach, drawing on the rich existing guidance already available.
- b) A multi-media evidence base of CSDRM in policy and practice, drawn from across the ten SCR focus countries.
- c) Reflections from organisations and policy departments about their experiences of applying CSDRM in their own work.

The above outputs will be achieved by working closely with approximately one hundred organisations that have already been involved in the consultation process. This 'friends of SCR' network will also help to influence other key initiatives that are attempting to integrate DRM, climate change responses and development and encourage them to explore the benefits of adopting the CSDRM approach.

The SCR web platform will be a valuable source of resources on the convergence of disasters, climate change and development – through sharing field cases that best demonstrate aspects of the CSDRM approach, information about the latest and forthcoming evidence, videos, audio material and presentations from SCR consultations and spaces where the challenges and ways of applying CSDRM in different contexts are discussed.



REFERENCES

- Bankoff, G., Frerks, G., Hilhorst, D. (eds.) (2003) *Mapping Vulnerability: Disasters, Development and People*, Earthscan: London
- Berkes, F., Colding, J. and Folke, C. (2003) Introduction in *Navigating Social-Ecological Systems—Building Resilience for Complexity and Change*, Berkes, F., Colding, J., and Folke, C. (eds.) Cambridge University Press: Cambridge, UK, pp1–29
- CARE International (2008) *Climate Vulnerability and Capacity Analysis Handbook*, CARE International
- Carpenter, S. R., Walker, B., Anderies, J. M. et al (2001) 'From Metaphor to Measurement: Resilience of What to What?' *Ecosystems* 4, pp765-781
- Folke, C. (2006) 'Resilience: The Emergence of a Perspective for Social-Ecological Systems Analyses,' *Global Environmental Change* Volume 16, 253–267.
- GFDRR (2009) *Stockholm Policy Forum on Climate Smart Disaster Risk Reduction*, Summary Report, Global Facility for Disaster Reduction and Recovery online at <http://gfdrr.org/gfdrr/sites/gfdrr.org/files/documents/Stockholm%20Policy%20Forum%20summary%20final.pdf> (accessed August 3, 2010)
- Hedger, M., Singha, A., Reddy, M. (2010) *Building Climate Resilience at State Level: Disaster Risk Management and Rural Livelihoods in Orissa*, Strengthening Climate Resilience Discussion Paper 5, Institute of Development Studies: Brighton, UK
- Holling, C.S. (1973) 'Resilience and Stability of Ecological Systems', *Annual Review of Ecology and Systematics*, Volume 4, 1-23
- Ibrahim, M. (2010) *Post-Disaster Housing Reconstruction in a Conflict-affected District, Batticaloa, Sri Lanka: Reflecting on the Climate Smart Disaster Risk Management Approach*, Strengthening Climate Resilience Discussion Paper 6, Institute of Development Studies: Brighton, UK
- IPCC (2007) *Climate Change 2007: The Physical Science Basis*, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., Qin, D., Manning, M., Chen, Z., Marquis, M., Averyt, K.B., Tignor, M. and Miller, H.L. (eds.)]. Cambridge University Press: Cambridge, UK and New York, NY, USA, 996pp
- Lind, J., Ibrahim, M., Harris, K. (2010) *Climate Change and Conflict: Moving Beyond the Impasse*, Infocus Policy Briefing, Institute of Development Studies: Brighton, UK
- Polack, E. (2010) *Integrating Climate Change into Regional Disaster Risk Management at the Mekong River Commission*, Strengthening Climate Resilience Discussion Paper 4, Institute of Development Studies: Brighton, UK
- Potsdam Institute for *Climate Impact Research and GTZ (2009) Climate Change Information for Effective Adaptation*, A Practitioner's Manual (2009)
- Ramamasy, S. and Baas, S. (2007) *Climate Change and Variability: Adaptation to Drought in Bangladesh*, A Resource Book and Training Guide, Case study
- Scheffer, M., W.A. Brock and F. Westley, 'Mechanisms Preventing Optimum Use of Ecosystem Services: An Interdisciplinary Theoretical Analysis', *Ecosystems* 3 (2000), pp451–471
- Twigg, J. (2007) *Characteristics of a Disaster-resilient Community: A Guidance Note*, DFID: London, DRR Interagency Coordination Group
- UNISDR (2009) *Risk and Poverty in a Changing Climate, Invest Today for a Safer Tomorrow*, Global Assessment Report on Disaster Risk Reduction, UNISDR online at: www.preventionweb.net/english/hyogo/gar/report/index.php?id=9413 (accessed August 3, 2010)
- Wisner, B., Blaikie, P., Cannon, T. and Davis, I. (2004) *At Risk: Natural Hazards, People's Vulnerability and Disasters*. 2nd edition. Routledge: London

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