Adapting development cooperation to climate change

Responding to the impact of climate variability and change on poverty, development organisations increasingly acknowledge that climate change poses a strategic risk to its core poverty reduction aims and the achievement of the Millennium Development Goals (MDGs) (ADB et al. 2003; DFID 2006; UNDP 2007). For development cooperation donor agencies, climate change also poses a fiduciary risk by potentially compromising the effectiveness of the investments of public funds in poverty reduction around the world. These risks include direct risks of damages from climate hazards to specific programme investments, the risk of underperformance of the investment due to climate change impacts (van Aalst 2006). In addition, there are risks that poverty reduction activities may in fact inadvertently lead to increases in vulnerability, known as ‘maladaptation’, for example by encouraging settlement in hazardous locations or altering natural protection afforded by ecosystems such as mangroves (Agrawala 2005; Adger et al. 2001).

A growing awareness of potential and existing climate risks to poverty reduction has underpinned a major drive for adaptation, and:

There is now also significant high-level policy endorsement within donor agencies and [International Finance Institutions] IFIs for the need to integrate adaptation into development co-operation activities. (Gigli and Agrawala 2007: 9)

A range of donor and international policy commitments are now underpinning a drive to address the negative impacts of climate change on poverty reduction (Table 1). While these aim to build

<table>
<thead>
<tr>
<th>Policy commitments</th>
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<tr>
<td>OECD: Ministerial Declaration on Integrating Climate Change Adaptation into Development Co-operation</td>
<td>OECD (2006)</td>
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the awareness and capacity of a wider range of development actors to factor climate change impacts into their operations, a key managerial response of development agencies has been to integrate, or mainstream, adaptation within their programmes as a risk management strategy.

In turn, these policy commitments have been influential in stimulating a burgeoning variety of tools and methods to improve decision-making to reduce risks and avail opportunities associated with climate variability and change. Tanner and Guenther (2007) provide a summary of some of the tools developed in the context of development assistance, and the OECD is currently preparing guidance material on integrating adaptation into development cooperation. A wider discussion and collation of vulnerability and adaptation tools and methods is also now a focus area under the Nairobi Work Programme under the UN Framework Convention on Climate Change (UNFCCC) (IISD 2008). Such tools range from climate data providers, through methodological guidance for entry points and steps in the adaptation process, to platforms for exchanging information resources, tools and reflection.

2 Climate risk screening of development portfolios and programmes

Drawing on much of this tool development, the screening of donor programme portfolios has emerged as one of the dominant methods to the integration of climate change adaptation into development cooperation (Klein et al. 2007). Such screening approaches build on lessons from the mainstreaming of other cross-cutting issues such as gender and HIV/AIDS into development activities, and particularly from environmental screening and strategic environment assessment processes. This article presents lessons from an example of portfolio-based climate risk screening to integrate adaptation and disaster risk reduction into poverty reduction programmes portfolio undertaken in partnership with the UK Department for International Development (DFID) (Tanner 2008).

Climate risk screening is defined in the context of pro-poor adaptation as:

The systematic evaluation of risks associated with climate variability and change to poverty reduction activities, and the development of effective, efficient and equitable adaptation options to reduce risks and harness opportunities for poverty reduction.

Using a risk management framework, such screening aims to examine the exposure of development investments to current and future climate risks, to assess the extent to which such investments already consider and manage such risks, and evaluate potential additional measures to address risks. While not undertaken comprehensively in the example shewn in this article, at a more advanced level, such risk screening could also examine the risks and opportunities from climate change mitigation response measures or adaptation constraints and opportunities from carbon markets and a move to low carbon energy pathways.

Representing a managerial response to a changing climate, the risk management framework is increasingly being used to frame development approaches to adaptation (Burton and van Aalst 2004; ADB 2005; van Aalst 2006; Hellmuth et al. 2007). Climate risk management frames adaptation as a learning process constituting a spectrum of activities, some related to broader vulnerability reduction and some to more climate-specific impacts (Tanner and Mitchell, this IDS Bulletin, ‘Entrenchment or Enhancement’; McGray et al. 2007). It is underpinned by an acknowledgement that the basis for adapting to the future climate lies in improving the ability to cope with existing climate variations, requiring integration with disaster risk reduction practices and institutions (Lemos and Tompkins, this IDS Bulletin).

In light of uncertainty over future climate change, risk management responses need to be informed by advances in climate science, and remain robust so that they are able to cope with a range of future scenarios. This requires integration of best available climate science and impacts, including attention to short-term seasonal forecasting, medium-term decadal forecasting, and longer-term climate projections (Lulby 2007). At the same time, information on hydro-meteorological and ecosystem impacts of climate change are complemented by social vulnerability information to help identify vulnerability hotspots. This includes for example data on poverty and nutrition, or incidence of rain-fed agriculture.
3 Applying climate risk screening: the ORCHID methodology

The climate risk management process presented here employs a facilitated process to enable the development cooperation actors to assess current and future climate risks to programmes and to develop adaptation and disaster risk reduction options to manage these risks where necessary. Stressing the potential positive as well as negative impacts of climate change for poverty reduction, the methodology is called ORCHID (Opportunities and Risks of Climate Change and Disasters), and was developed from pilot climate risk screening exercises of the DFID development cooperation portfolios in Bangladesh and India (Tanner et al. 2007a,b).2

The steps of the ORCHID methodology are shown schematically in Figure 1. It seeks to establish climate change adaptation as an ongoing process of risk management (see box k) rather than a single discrete output, and emphasises the importance of raising awareness and disseminating knowledge (box a). To do so, it involves the active participation of programme managers and staff in determining risks, in evaluating current risk management and in developing and prioritising adaptation options. This process is guided by a resource person with a broad understanding of development, disaster management and climate change.

After initial awareness raising and sensitisation to climate change issues, the first step in the process compares a summary of climate trends, forecasts and impacts with the portfolio as a whole (see boxes b and c in Figure 1). At the portfolio level, dividing interventions by sector category produces a general picture of the extent to which development interventions are exposed to climate risks3 (Agrawala 2005). Low estimates include sectors in more commonly climate-sensitive activities, such as rural livelihoods or water and sanitation programmes through to high estimates including disaster relief and recovery and infectious disease-related health programmes. A snapshot of the DFID-India portfolio in early 2007 (Table 2) suggests that a significant proportion of the portfolio is potentially exposed to climate risks.
Discussions with programme staff around the sensitivity of activities and objectives within individual projects and programmes (hereby referred to as interventions) then determines a set of high priority interventions for which more detailed screening is undertaken (see box d in Figure 1). As well as potential climate risks, there may also be pragmatic reasons for giving particular interventions attention such as strong demand from partners, a past record of climate impacts, or clear opportunities for risk reduction and adaptation.

A more detailed set of technical inputs collated by a resource person is then used as the basis for identifying potential risks to programme objectives and activities. This includes historic climate trends and impacts, latest knowledge on future climate trends, including decadal forecasting techniques more suited to programme time-horizons (Wilby 2007), climate vulnerability assessments where available, and summaries of past economic impacts (see boxes e and f).

Identified risks are then assessed with programme staff against existing risk management practices and a wide range of potential adaptation options are identified for tackling unmanaged risks and exploiting opportunities for strengthening adaptive capacity (see boxes g and h in Figure 1). These potential options draw on existing experiences and emerging good practice from the disaster risk reduction and adaptation communities. Guided by a resource person, a multi-criteria analysis (MCA) of adaptation options was then performed by programme staff and partners. The MCA process involved choosing a range of decision-making criteria on which to prioritise the range of suggested adaptation options, including coherence with national adaptation priorities (see box i). While not intended as a clear-cut means for determining priorities for follow-up, this process stimulated an important process of discussion and deliberation over possible additional activities for integration into the programme objectives and activities, as well as how to integrate this process into the regular programme cycle (see boxes j and k).

An example of the results of ORCHID climate risk screening for some of the interventions examined in Bangladesh and India during the pilot exercises are shown in Table 3 (pages 92–3). The table illustrates the ‘additionality’ of the suggested adaptation options by identifying three scenarios: climate risks without the intervention, how the existing intervention already contributed to adaptation through risk management, and how adding suggested adaptation components enables the programme to address risks more comprehensively.

Both the existing risk management and additional activities reflect the conception of adaptation across a continuum, as introduced elsewhere in this IDS Bulletin (Tanner and Mitchell, this IDS Bulletin ‘Entrenchment or Enhancement’; McGray et al. 2007). This includes activities that reinforce vulnerability reduction by addressing its drivers; those building response capacity through planning, monitoring, research and assessment; managing climate risk through infrastructure strengthening, adapting livelihoods strategies, strengthening operations and maintenance activities, and improving disaster preparedness; and moves to tackle climate change impacts such as enhancing flood protection for infrastructure.

As adaptation is a relatively new and emerging area of work, it has been important to build the evidence base regarding the economic cost-effectiveness of adaptation options (Stern 2006). While not feasible for all adaptation options due to time and data requirements, two examples of cost–benefit analysis (CBA) of adaptation options were included in each of the pilot exercises. In Bangladesh, this informed the now more widespread programme of raising homesteads on earthen banks above the regular level.
flood-line, and offered an analysis of the cost-effectiveness of improving flood protection and drainage for roads and highways. In India, the analysis studied flood protection for urban slum sanitation facilities and rainwater harvesting schemes in schools in drought-prone areas.

The uncertainty ranges governing future climate change impacts, and therefore benefits stream through incremental impact reductions of proposed changes limited the cost–benefit analysis exercises to physical infrastructure-based adaptation options. Results of these analyses are presented elsewhere (Tanner et al. 2007a,b), but they are crucial in demonstrating the cost-effectiveness of adaptation options for a range of future climate, cost and benefit scenarios. Even under uncertain future climate scenarios, this analysis strengthens cost–benefit analysis exercises from the disaster risk reduction community suggesting that anticipatory investments to reduce risks can be an efficient use of scarce resources (Venton and Venton 2004; Stern 2006).

4 Lessons and challenges for pro-poor adaptation

As a guided stakeholder process, the climate risk screening enabled development agency staff and partners to think through and act on potential climate risks and opportunities. Evaluations revealed that this process enabled programme staff to highlight vulnerable sectors and regions, identify key risks over different timescales, and create opportunities to develop additional activities for strengthening adaptation and disaster risk reduction processes. Undertaking the process raised awareness of the impacts of climate variability and change, and linked adaptation and disaster risk reduction to the poverty reduction context rather than treating them as discrete issues. It also demonstrated existing deficiencies in climate risk management that warrant attention with or without the additioanal of climate change impacts. Quantified data on costs and benefits of adaptation options added weight to this argument and therefore to the growing evidence base around the allocation of resources to adaptation and disaster risk reduction.

The lessons and experience of the pilot screening, undertaken as a snapshot of development portfolio activity, also permit reflection on how to integrate such risk assessment processes into the regular programme cycle and ensure coherence with other development cooperation (Gigli and Agrawala 2007). Building climate risk into development assistance requires a more involved and iterative process of dialogue with development partners and embedding into prioritisation, implementation, monitoring and evaluation, and reflection. As developing countries develop their own increasingly advanced adaptation policies and plans, these initial analyses and priorities can inform the future risk management process. Supporting the ability of partner governments to undertake climate risk assessments will be especially crucial in the context of increasing budget support to government programmes and in enabling resource decisions for delivery of adaptation services by the private as well as public sector (Vernon, this IDS Bulletin).

The climate risk screening process outlined in this article also highlights the difficulty of providing adaptation guidance at the strategic level that includes input from stakeholders across scales, including programme beneficiaries. This is important given that adaptation is highly context and location specific (Smit et al. 2000), but also to ensure that they are not developed independently of other development and poverty reduction actions and processes. This implies that climate risk screening at programme level must be followed up in more detail by programme partners, such that climate risks are assessed in the context of the wider range of vulnerabilities and risks faced by poor people.

The greater availability of climate projection data over vulnerability information can lead strategic level exercises to conceptualise adaptation in terms of ‘predict and provide’, steering the process to technical solutions that deliver an adaptation outcome or product as a palliative managerial fix (Klein et al. 2007). The ORCHID screening pilots suggest that including the best available climate science remains an important driver for contextualising current climate variability. However, the generation of forecasts and impacts information needs greater orientation towards the variety of needs of both programming cycles and poor people (Wilby 2007; Challinor, and Suarez et al., this IDS Bulletin) and that this needs to be matched with far greater attention to vulnerability assessments.

Available climate vulnerability data remains predominantly focused on the nature of hazards and the receiving ecosystems. In contrast, the ability to
cope with and respond to climate shocks depends on a wide range of factors in relation not only to the nature of shocks but also the characteristics of a population and assets people possess, and the dynamic processes governing exposure, sensitivity and responses to climate impacts (Chambers 1989; O’Brien et al. 2004). There remains an urgent requirement for improved assessments of such social vulnerability to climate shocks and stresses, undertaken in parallel with historic and projected impacts data to permit cross-comparison of datasets and the development of dynamic vulnerability baselines to evaluate progress (Adger 2006; Stephen and Downing 2001; Thomalla et al. 2006; Hedger et al., this IDS Bulletin).

Understanding vulnerability in the context of poverty and existing risk management approaches is more likely to highlight and tackle the underlying causes of vulnerability and build the resilience and adaptive capacity that people need. Multidimensional livelihood strategies and adaptation needs of poor people at the centre of these efforts will be crucial to sustaining poverty reduction in a changing climate. Methodological debates around adaptation practice in a development context are likely to continue as experience evolves, particularly through development and sharing of adaptation tools and approaches among the development community (OECD 2006; Tanner and Guenther 2007; ISD 2008; Placing the Understanding vulnerability in the context of poverty and existing risk management approaches is more likely to highlight and tackle the underlying causes of vulnerability and build the resilience and adaptive capacity that people need. Multidimensional livelihood strategies and adaptation needs of poor people at the centre of these efforts will be crucial to sustaining poverty reduction in a changing climate. Methodological debates around adaptation practice in a development context are likely to continue as experience evolves, particularly through development and sharing of adaptation tools and approaches among the development community (OECD 2006; Tanner and Guenther 2007; ISD 2008; Placing the

Table 3: Strengthening adaptation through risk management: Examples of DFID interventions in India and Bangladesh

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Key Climate Risks</th>
<th>Existing Risk Management and Interventions</th>
<th>Additional Adaptation Options as Prioritized by MCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kolkata Urban</td>
<td>Urban flooding</td>
<td>In-situ slum upgrading, Urban services for the poor</td>
<td>Strengthen operation and maintenance activities, periodic monitoring, and training of local bodies to detect and respond to flooding</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>Water quality</td>
<td>Operation and maintenance of existing water systems, Operation and maintenance of existing water systems, and In-situ upgrading of urban local bodies</td>
<td>Strengthen operation and maintenance activities, periodic monitoring, and training of local bodies to detect and respond to flooding</td>
</tr>
<tr>
<td>Karachi</td>
<td>Health risks</td>
<td>Disease management, Urban sanitation</td>
<td>Strengthen operation and maintenance activities, periodic monitoring, and training of local bodies to detect and respond to flooding</td>
</tr>
</tbody>
</table>

For further information, please refer to the references cited in the text.
Notes
1 Fiduciary risk refers to risks where funds are not used for the intended purposes, do not achieve value for money, or are not properly accounted for (DFID 2004).

2 More information and links to reports on ORCHID climate risk screening pilots are available at www.ids.ac.uk/climatechange/orchid. Hybrid versions of the methodology have been tailored for similar climate risk screening exercises in Kenya and China (Tanner et al. 2008). Many thanks to Yvan Biot for support and constructive comments on the ORCHID pilots that have been incorporated in this article.

3 This approach follows an OECD methodology and operates on the premise that development activities in sectors relating to water resources, infectious diseases, or natural resources are more likely to be affected by present day climate variability and weather extremes, and consequently also by changing climatic conditions. Those relating to financial reform, civil society capacity building, gender equality, human rights or governance reform for example, are much less likely to be directly affected by climatic circumstances (Agrawala 2005).

References


IISD (2008) Summary of the UNFCCC Expert Group Meeting on Methods and Tools and on Data and Observations under the Nairobi Work Programme, Mexico City, 4–7 March, Earth Negotiations Bulletin 12:355, 10 March,