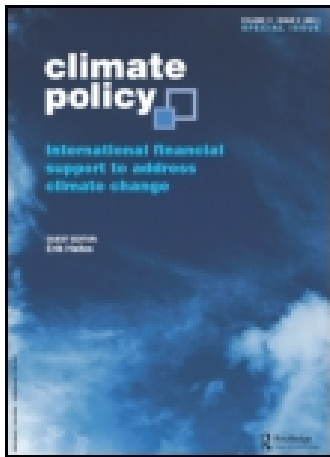


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Publisher: Taylor & Francis

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Climate Policy

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/tcpo20>

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Published online: 15 Jun 2011.

To cite this article: SHARDUL AGRAWALA & MAARTEN VAN AALST (2008) Adapting development cooperation to adapt to climate change, *Climate Policy*, 8:2, 183-193, DOI: [10.3763/cpol.2007.0435](https://doi.org/10.3763/cpol.2007.0435)

To link to this article: <http://dx.doi.org/10.3763/cpol.2007.0435>

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Adapting development cooperation to adapt to climate change¹

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Climate change can affect the efficiency with which development resources are invested and the eventual achievement of many development objectives. Drawing upon illustrative case studies in six developing countries: Bangladesh, Egypt, Tanzania, Uruguay, Nepal and Fiji, this article examines the synergies and trade-offs involved in integrating adaptation to climate change in development cooperation activities. Key barriers facing such integration are identified. An agenda is proposed for enhancing development efforts by mainstreaming climate risk management, organized around improving the usability of climate information, developing and testing climate risk screening tools, employing appropriate entry points for climate information, focusing more on implementation, and improving coordination and sharing of good practices.

Keywords: adaptation; climate change vulnerability; climate risk management; development; development assistance; poverty reduction; risk; sustainable development; synergy

Le changement climatique peut affecter l'efficacité par laquelle les ressources pour le développement sont investies et l'éventuel accomplissement de nombreux objectifs de développement. Sur la base d'études de cas illustratives dans six pays en développement: le Bangladesh, l'Égypte, la Tanzanie, l'Uruguay, le Népal et Fiji, cet article examine les synergies et concessions mutuelles impliquées dans l'intégration de l'adaptation au changement climatique aux activités de coopération pour le développement. Les obstacles fondamentaux à une telle intégration sont identifiés. Un agenda est proposé, visant à augmenter les efforts au développement en intégrant la gestion du risque climatique, par l'amélioration de la facilité d'emploi de l'information climatique, le développement et la mise à l'essai des filtres à risque climatique, l'utilisation de points d'accès adaptés pour l'information climatique, une concentration plus axée sur la mise en oeuvre, et l'amélioration de la coordination et du partage des bonnes pratiques.

Mots clés: adaptation; assistance au développement; développement; développement durable; gestion du risque climatique; réduction de la pauvreté; risque; synergie; vulnérabilité au changement climatique

1. Introduction

Climate change poses a serious challenge to social and economic development. Developing countries are particularly vulnerable because their economies are generally more dependent on climate-sensitive natural resources, and because they are less able to cope with the impacts of climate change. In principle, a range of activities oriented towards reducing poverty, improving nutrition, and promoting sustainable livelihood opportunities would also help reduce vulnerability to many climate-change impacts. A healthier, better-educated population with improved access to resources is likely to be in a better position to cope with climate change.

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In many cases, however, the risks posed by climate change can affect the efficiency with which development resources are invested and the eventual achievement of many development objectives (e.g. AfDB et al., 2003). Hence the need to integrate (or 'mainstream') adaptation to climate change within a range of development activities. This is particularly true for decisions today that may have a footprint over the medium to long term, when many climate-change impacts will manifest themselves. One reason is that it can be more cost-effective to implement adaptation measures early, particularly for long-lived infrastructure. Another reason is that current development activities may irreversibly affect future options for adaptation to the impacts of climate change. Examples include the destruction of coastal mangroves and the building of human settlements in areas that are likely to be particularly exposed to climate change. In such instances, even near-term policies may need to consider the long-term implications of climate change.

As activities by government and development cooperation agencies often have long-term horizons, they are especially relevant. Private investment, particularly foreign direct investment (FDI), has also become important for developing countries, particularly those in the upper-middle income category (Figure 1). However, for the least developed countries, as well as those in the low- and middle-income categories, official flows – grants and loans – are much more significant, and therefore a higher priority to integrating consideration of climate risks. It is these development cooperation activities which are the focus of this article, which draws upon insights drawn from in-depth case studies in six illustrative developing countries: Bangladesh, Egypt, Tanzania, Uruguay, Nepal and Fiji.²

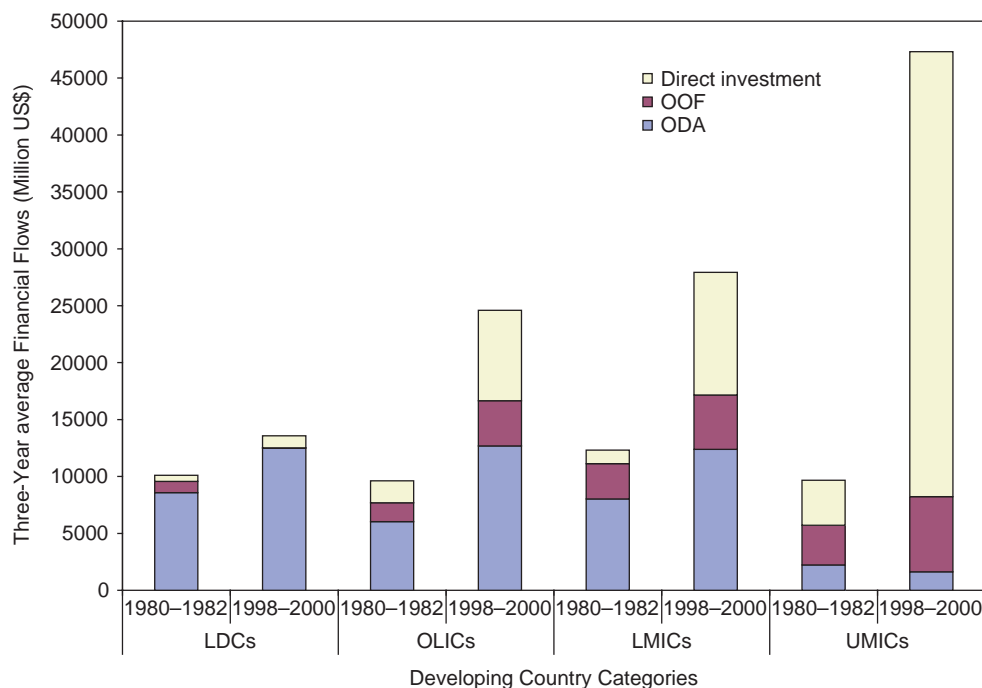


FIGURE 1 Official and private financial flows to developing countries*

*Classification according to the OECD Development Assistance Committee (DAC) categories: Least Developed Countries (LDCs); Other Low Income Countries (OLICs); Lower Middle Income Countries (LMICs); Upper Middle Income Countries (UMICs). ODA stands for official development assistance, OOF for other official flows (non-concessional and/or for non-developmental purposes).

2. How much aid goes to climate-sensitive activities?

Donor agencies are increasingly interested in incorporating climate change concerns in their core development activities. The World Bank, GTZ and Norad, to cite some prominent examples, have reported on the extent to which climate risks are factored into their ongoing development assistance activities (Burton and van Aalst, 1999, 2004; Klein, 2001; Eriksen and Næss, 2003). A comprehensive evaluation of the extent to which development activities are affected by climate change would require detailed assessments of all relevant projects and consideration of site-specific climate-change impacts, both of which are beyond the scope of this analysis. Instead, this article seeks to determine what proportion of total aid portfolios may be in sectors potentially affected by climate risk, where climate change concerns may thus need to be taken into account. This is accomplished through an analysis of the data from the OECD/World Bank Creditor Reporting System (CRS) database of official flows³ for the six developing countries (Bangladesh, Egypt, Tanzania, Uruguay, Nepal and Fiji) that were examined for this study.

To even out the variation in aid flows from year to year, the analysis uses a 3-year sample of aid commitments, for 1998–2000. The assessment of the proportion of aid flows that might be affected by climate change is accomplished through an analysis of aid commitments to specific activity areas, such as initiatives to promote agriculture in areas that might become more, or less, viable under climate change, to infrastructure investments that could be at risk from impacts such as permafrost melt, glacier retreat and sea-level rise. Also included are projects that affect the vulnerability of other natural or human systems to climate change. For instance, new roads might be weatherproof from an engineering standpoint, but might trigger human settlement in areas at high risk of particular impacts of climate change, such as coastal zones vulnerable to sea-level rise. Such considerations might therefore also need to be taken into account in project design and implementation. By contrast, development activities related to education, gender equality, and governance would be much less directly affected by climate change, and therefore aid flows directed at such activities are not considered to be affected by climate change.

The results presented in Figure 2 show that a significant proportion of this aid is directed at activities potentially affected by climate risks, including climate change. Estimates range from 50–65% of total national official flows, in Nepal, to 12–26% in Tanzania. In monetary terms, this represents half a billion US dollars of official aid flows in Bangladesh and Egypt, and about US\$200 million in Tanzania and Nepal. In Fiji, while the absolute amount may be low, it constitutes roughly one-third of all aid flows. Uruguay is the exception, because it receives very little ODA; as it is an upper-middle-income developing country, most of its official flows are loans, primarily in activities not directly exposed to climate risk. These findings are consistent with similar analyses of a subset of the World Bank's project portfolio (World Bank, 2006).

While there is a risk of oversimplification in any such classification, the analysis underscores the fact that that consideration of climate risk (including climate change) could be central to the achievement of general development goals as well as the success of individual investments and projects. The amount of official aid flows in activities potentially affected by climate risks is considerably higher than funding committed to financing climate change adaptation *per se* (through the global climate change funding mechanisms under the United Nations Convention on Climate Change and earmarked bilateral donor financing for adaptation). Thus, efforts to promote adaptation should focus not just on financing within the international climate change regime, but particularly on mainstreaming adaptation within core development activities. Another implication of the analysis relates to the question of the optimal use of limited global climate

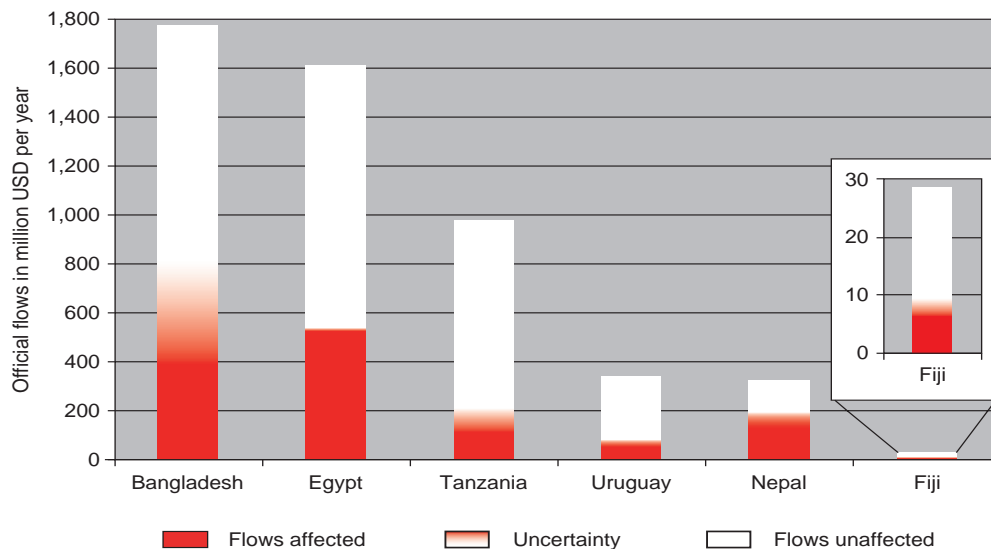


FIGURE 2 Annual official flows and share of activities potentially affected by climate change

change adaptation funds: one possibility might be to use them to trigger mainstreaming of adaptation, particularly in the context of regular development investments.

3. Do development activities take climate change adaptation into account?

The significance of climate change for core development activities, as illustrated above, highlights the need to assess the extent to which such concerns are being addressed in current development strategies and plans. National plans, donor country assistance strategies and project documents were examined for the six case study countries: Bangladesh, Egypt, Fiji, Nepal, Tanzania and Uruguay, to determine how much attention is currently being paid to climate risk, in general, and to climate change, in particular. For each case study country, the review covered the most important planning documents, assistance strategies for the principal donors to that country, and projects in sectors vulnerable to climate change.⁴ The assessment of the above-mentioned documents and activities for the six case study countries reveals a fairly nuanced picture in terms of the degree of attention to climate change concerns.

On the one hand, considerable progress has been made over the past decade or so with regard to activities specific to climate change, particularly including greenhouse gas emission inventories and policy options for greenhouse gas mitigation, but also impact and adaptation assessments. Institutional mechanisms to address climate change have been established, and certain countries (such as Tanzania) have developed climate change action plans. Donors have provided financial and technical support for many of these activities. In some cases – as in Bangladesh and Fiji – donors have also worked with the national government to better articulate the links between responses to climate change and priorities for development. However, many of these initiatives are at the level of assessments and plans, and discernible progress in terms of policy action has been limited.

On the other hand, many core development activities that relate to areas that could be affected by climate change, from national development plans and long-term perspectives to country

assistance strategies and poverty reduction strategy papers (PRSPs), generally pay little, if any, explicit attention to climate change. Some weather and climate considerations are routinely taken into account in a wide range of development activities, from crop selection to the design of highways and energy generation facilities. However, not all climate risks are being incorporated in decision making, even with regard to natural weather extremes. Moreover, practices that take into account historical climate are not necessarily suitable under climate change. Many planning decisions focus on shorter time-scales and tend to neglect the longer-term perspective. These findings are consistent with those of similar reviews for specific agencies, such as those of Burton and van Aalst (1999) for the World Bank, Klein (2001) for GTZ, and Eriksen and Naess (2003) for NORAD (for further details and comparisons of these analyses, see also Klein et al., 2007).

Of the six countries examined in this article, three – Tanzania, Nepal, and Bangladesh – have prepared PRSPs. Tanzania's PRSP recognizes that weather and climate hazards have a serious impact on development and on the poor, although the risks posed by climate change are not mentioned explicitly. However, a number of priorities highlighted in the PRSP, such as early warning systems, irrigation, improvements to food supply systems, and development of drought-resistant crops, would be synergistic with adaptation to climate change. Nepal, meanwhile, does not examine climate-related risks to poverty reduction and development, or the risks posed by climate change, in its tenth development plan, which is also the country's PRSP. These omissions are particularly significant because Nepal has already experienced significant climate-change impacts, including temperature increases in the high Himalayas, glacier retreat, and the expansion of glacial lakes, which have implications for development. A World Bank/IMF assessment of Nepal's PRSP (IDA/IMF, 2002) also does not mention the implications of current or future climate risks on Nepal's development prospects. Bangladesh's interim-PRSP recognizes the links between poverty and natural hazards, and mentions the likelihood that such hazards are likely to increase under climate change. Overall, however, climate change is given very limited consideration in the context of planning vulnerability reduction measures.

As in the case of PRSPs, donor country assistance strategies and projects seldom pay explicit attention to the risks posed by climate change, although some of the priorities reflected in such documents are synergistic with adaptation. One project that is perhaps most directly linked to climate change adaptation is the Tsho Rolpa risk reduction project in Nepal. The Tsho Rolpa is a high-altitude lake formed by the melting and retreat of a glacier as a result of rising temperatures. By 1998 it was the largest and the most dangerous glacial lake in Nepal, about 3.5 km long, 0.5 km wide, and containing about 90–100 million cubic metres of water. The expansion of the lake had considerably increased the risk of a catastrophic breach, with serious consequences for infrastructure and settlements over 100 km downstream, and threatening about 10,000 lives. Several international donors and the Government of Nepal therefore jointly initiated a project in 1998 to reduce the risk of a glacial lake outburst through a combination of measures, including partial drainage of the lake and the establishment of early warning systems downstream. While the phrase 'climate change' does not occur in the project documents, the project has clearly accomplished anticipatory adaptation to climate change by considerably reducing the risk of catastrophic flooding.

Examples of development cooperation projects such as the Tsho Rolpa, which are aimed at anticipatory adaptation to climate change, are rather rare. Somewhat more common are policies and projects addressing current vulnerabilities which may also be synergistic with adaptation to climate change. For example projects aimed at drainage rehabilitation and restoration of coastal embankments in Bangladesh, which will also be synergistic with adaptation to the risk of more severe flooding under climate change. In Egypt, meanwhile, projects aimed at facilitating

cooperation among the Nile riparian countries or at better demand-side management of water use would also be synergistic with responses that might be needed to address the impacts of climate change, such as increased evaporation losses as a result of rising temperatures as well as reduced precipitation in the Nile headwaters. At the same time, however, there are a number of examples of development activities which either overlook or might even exacerbate the risks posed by climate change. For example, policies to encourage tourism and build infrastructure in vulnerable coastal areas, or plans to encourage ecotourism in the fragile Sundarbans, may pose added risks to already fragile systems that are also projected to be critically affected by climate change. An analogous problem exists in Tanzania, whose Kilimanjaro ecosystem is vulnerable to forest fires as a result of warmer and drier conditions; development policies may therefore need to take such risks into account so as not to aggravate existing vulnerabilities.

Development cooperation agencies are increasingly recognizing climate change as a serious challenge to their core activities through high-level declarations (e.g. EC, 2004; OECD, 2006), awareness-raising activities (e.g. van Aalst et al., 2007); as well as policy frameworks and guidelines (e.g. Asian Development Bank, 2005; DANIDA, 2006; World Bank, 2006; USAID, 2007). Such initiatives, however, are often at the level of high-level declarations or pilot activities initiated by the climate specialists in these agencies (Gigli and Agrawala, 2007). Agency-wide adoption of such objectives and their translation into operational practices is still at an early stage.

4. What are the main barriers to mainstreaming adaptation?

Lack of awareness of climate change within the development community and limitations on resources for implementation are the most frequently cited reasons for difficulties in mainstreaming adaptation to climate change within development activity. These explanations may hold true in many situations, but there is also a more complex web of reasons underlying them, which are discussed in the following paragraphs.

4.1. Barriers within governments and donor agencies

Climate change is often viewed primarily as a top-down, multilateral negotiations issue. Expertise on this subject is often the domain of environment departments in governments and donor agencies, and such departments have limited leverage over 'line departments', such as those dealing with finance, transport and agriculture, whose policies and frameworks might need to be modified for effective integration of climate risks. Sectoral managers and country representatives may also face 'mainstreaming overload', with issues such as gender, governance and environment also vying for integration in development activities. Moreover, as many development projects are funded over 3–5 years, they may not seem to be the best vehicle for long-term climate risk reduction. Adaptation to climate change *ex ante* may also have more difficulty attracting resources than more visible *ex post* activities such as emergency response and post-disaster recovery. International donors also increasingly seek to respond to the needs and priorities expressed by recipient countries themselves, preferably through PRSPs and sectoral strategies. It might therefore be difficult for international donors to push adaptation to climate change if such concerns do not feature prominently among the national priorities of the host country. Some observers also suggest that documents such as PRSPs are already overburdened by too large a number of specific separate policy issues, often driven by donor preferences, and that adding more issues such as climate change would undermine their credibility and effectiveness.

4.2. Insufficient relevance of available climate information to development-related decisions

Development activities are sensitive to a broad range of climate variables, only some of which can be reliably projected by climate models. Temperature, for example, is typically easier to project than rainfall, which in turn might be easier to project than variables such as wind intensity. The integration of climate risks may therefore be difficult where the climate sensitivity of development-related decisions is to variables that cannot be reliably projected. Many development activities are especially sensitive to changes in climate extremes rather than simply to trends in average climate conditions. Agriculture and stability of food supplies, for example, are especially affected by rising risks of extended hot and dry spells, rather than just by gradual changes in average temperature and rainfall (e.g. Schmidhuber and Tubiello, 2007). Deviations or changes in extremes, however, are often more difficult to predict through climate models than mean trends, and have received relatively little attention in impact modelling. There is also a mismatch between the time and space scales of climate change projections and the information needs of development planners. For example, the primary sensitivity of development activities to climate is at a local scale (such as that of a watershed or a city), for which credible climate change projections are often lacking. In many cases, however, there is scope for 'no-regrets' modifications of investments that better address current variability and extremes, thereby reducing the risk of impacts of a changing climate, but relying less on precise future projections, and generating immediate benefits. Such an integrated approach, managing rising risks primarily by enhancing risk management in the face of current variability and extremes, proposed for instance by Bettencourt et al. (2006), in effect addresses the 'adaptation deficit' (Burton, 2004) in the current climate, mirrored in the lack of attention to current variability and extremes in many of the documents that were reviewed (and, equally, in various other reviews of development and natural hazards, e.g. IEG, 2006).

4.3. Trade-offs with other priorities

While, in many cases, adaptation is synergistic with other development needs, in certain cases, there are direct trade-offs between development priorities and the actions required to deal with climate change. Governments and donors confronting immediate challenges, such as poverty and inadequate infrastructure, have few incentives to divert resources to investments that are seen as not paying off until climate-change impacts are full-blown. Putting a real value on natural resources and deciding when not to develop coastal areas or hillsides may be seen as hampering development. At the project level, mainstreaming of adaptation may be perceived as complicating operating procedures or raising costs. In addition, short-term economic benefits that often accrue to only a few in the community can crowd out longer-term considerations such as climate change. Shrimp farming, mangrove conversion, and infrastructure development, for example, provide employment and boost incomes, but they may also reduce the future ability to adapt to the impact of climate change and increase the vulnerability of critical coastal ecosystems.

5. How can adaptation be better integrated in development?

Several opportunities exist for the more effective integration of climate change adaptation within development activities. These include making climate change information more useful and easier to use, focusing more on implementing climate change and development strategies, and increasing coordination between development and climate change policies.

5.1. Making climate information more accessible, relevant and usable

Development practitioners and climate change specialists should join forces to make climate information more *accessible*, relevant and usable. Development practitioners need access to credible, context-specific climate information as a basis for decisions. This includes information on the cost and effectiveness of integrating adaptation measures within development planning. Perhaps even more fundamental is information on the likely impact of climate change and variability on particular development activities. While it would be naïve to call for a significant reduction in scientific uncertainty in climate model projections, more can be done to bridge the gap between producers of scientific information and development practitioners, assisting them to interpret the information, including the uncertainties, in the context of their operational responsibilities. Analysis of the costs and distributional aspects of adaptation could also assist sectoral decision makers in determining the degree to which they should integrate such responses within their core activities.

5.2. Developing and applying climate risk screening tools

The development community should develop tools and approaches to assess the potential exposure of a broad range of development activities to climate risks and to prioritize responses. One element that is needed are screening tools at the project level, which can warn project developers that their project may face potential climate risks early in the project development cycle (e.g. Burton and van Aalst, 2004). Risks to be assessed include direct physical risks, risks to project outcomes, or risks of triggering maladaptation. Should the screening tool raise a red flag, further project development would include a more substantial climate risk assessment and options analysis. Field-testing such screening tools and applying them in a wide range of project settings could greatly advance the integration of climate risks in development activities. In particular, more in-depth follow-up work on high-risk projects would also trigger further action beyond the specific investment, such as changes in government policies or engagement of local stakeholders in climate risk management efforts, and would help create capacity to interpret and apply climate risk information.

5.3. Using appropriate ‘entry points’ for climate information

Within donor agencies and governments alike, a number of entry points can be utilized to introduce climate change adaptation into development activities, such as land-use planning, disaster management strategies and infrastructure design. Attention should be given not only to investment plans but also to policies and legislation (including enforcement). While environmental impact assessments could be another entry point, guidelines for such assessments would need to be broadened to include climate-change impacts. Current guidelines consider only the impact of a project or activity on the environment, not the impact of the environment on the project. Climate risk management also requires attention in planning and budget allocations. Such processes are best managed by a sufficiently influential central coordinating department, such as the Ministry of Finance, the Office of the President, and Central Planning Units in key line agencies.

5.4. Shifting emphasis to implementation rather than developing new plans

In many instances, rather than requiring radically new responses, adaptation to climate change only reinforces the need to implement measures that already are, or should be, environmental or development priorities. Examples include water or energy conservation, forest protection and afforestation, flood control, building coastal embankments, dredging to improve river flow, and protection of mangroves. Often such measures have already been called for in national and sectoral

planning documents but have not been successfully implemented. Reiterating these measures in elaborate climate change plans is unlikely to have much real effect unless barriers to effective implementation of the existing sectoral and development plans are confronted. Putting the spotlight on implementation, therefore, could put the focus on greater accountability in action on the ground.

5.5. Encouraging meaningful coordination and the sharing of good practices

Mainstreaming of adaptation to climate change is occurring already in a limited fashion as part of the regular risk management activities of national and sectoral planners. In addition, mechanisms related to the international climate change regime, especially the adaptation-related reporting and financing under the UNFCCC, also provide a trigger for action on adaptation, which could be used to jumpstart strengthening of climate risk management in national development planning. Efforts initiated from the latter perspective clearly need to be closely coordinated with the former, so that the two are mutually reinforcing. This requires special attention in the design of institutional mechanisms for coordination and exchange of good practice, particularly within countries (where the actors dealing with the UNFCCC may not be aware of climate risk management efforts in line agencies) but also between sectoral units in donor agencies (where adaptation may be perceived as an issue to be handled by the agency's environment unit).

5.6. Involving non-governmental partners

Another area that requires the special attention of donor agencies and governments alike is engagement of the private sector and local communities in mainstreaming climate risk management. Such non-governmental actors account for the lion's share of economic and development activities, and adaptation by such actors can either be supported or frustrated by government policies. Targeted awareness-raising and provision of appropriate information can help involve such actors in the development and climate dialogues that should be happening among various actors in the country (including donor agencies).

5.7. Transboundary and regional coordination

Another priority that has not received sufficient attention is transboundary and regional coordination. Most climate change action and adaptation plans are at the national level, although many of the impacts of climate change cut across national boundaries. Meaningful integration of a range of climate risks, from flood control to dry season flows to glacial lake hazards, would require greater coordination on data collection, monitoring and policies at the regional level. Finally, operational guidance on comprehensive climate risk management in development is needed to facilitate policy coherence, allow for joint building of experience, and promote the sharing of tools and experiences within and among governments and development cooperation agencies.

6. Conclusions

The analyses presented in this article show that there is ample opportunity to enhance development efforts by better integration of climate risk management. However, the climate change adaptation and development communities are not monolithic blocks that can be linked by a simple handshake. Rather, mainstreaming of climate risk management requires a meshing at multiple levels between the diverse range of actors and institutions. While considerable progress has been made in recent years in this direction, there is still a need for much greater coordination.

One element that would facilitate this process is clear guidance on comprehensive climate risk management in development assistance. Such guidance should not be telling professionals how to do the work they have always done, but rather provide entry points and checklists that might facilitate policy coherence among various agencies that are now all starting to integrate climate risk management into their investments, and promote the sharing of tools and experiences across and between governments and development agencies. In the coming years, the key test for such guidance will then be whether it truly fosters learning-by-doing by practitioners in climate-sensitive development activities. A large number of such hands-on applications will then contribute both to the local operational capacity to access and apply relevant climate risk information and, based on rigorous monitoring and evaluation, to the global body of knowledge on how such interactions should be shaped and standardized.

Notes

1. This paper draws upon sections of Agrawala, S. (ed.), 2005, *Bridge over Troubled Waters: Linking Climate Change and Development*, Organisation for Economic Cooperation and Development (OECD), Paris, © OECD 2005. The views expressed in this paper are the authors' own and not necessarily those of the OECD or its member countries.
2. The case studies are discussed in further detail in Agrawala (2005).
3. Including official development assistance (ODA) and other official flows (OOF).
4. The documents examined include: national development plans, poverty reduction strategy papers (PRSPs), sectoral development strategies, national strategies for sustainable development, national communications under the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCBD), country assistance strategies, country strategy papers, sectoral development strategies, project design documents, project evaluations, and environmental impact assessments.

References

- ADB (Asian Development Bank), 2005, *Climate Proofing: A Risk-Based Approach to Adaptation*, Pacific Studies Series, ADB, Manila, The Philippines.
- AfDB (African Development Bank), ADB (Asian Development Bank), DFID (UK Department for International Development), et al., 2003, *Poverty and Climate Change: Reducing the Vulnerability of the Poor through Adaptation*, World Bank, Washington, DC.
- Agrawala, S. (ed.), 2005, *Bridge Over Troubled Waters: Linking Climate Change and Development*, Organisation for Economic Cooperation and Development (OECD), Paris.
- Bettencourt, S., Croad, R., Freeman, P., Hay, J., Jones, R., King, P., Lal, P., Mearns, A., Miller, G., Pswarayi-Riddihough, I., Simpson, A., Teuatabo, N., Trotz, U., van Aalst, M., 2006, *Not If, but When: Adapting to Natural Hazards in the Pacific Islands Region*, Policy Note, World Bank, Washington, DC.
- Burton, I., 2004, 'The adaptation deficit', in: A. Fenech, D. MacIver, H. Auld, R. Bing Rong, Y. Yin (eds), *Building the Adaptive Capacity*, Environment Canada, Toronto, 25–33.
- Burton, I., van Aalst, M., 1999, *Come Hell or High Water: Integrating Climate Change Vulnerability and Adaptation into Bank Work*, World Bank Environment Department Paper 72, World Bank, Washington, DC.
- Burton, I., van Aalst, M., 2004, *Look before You Leap: A Risk Management Approach for Integrating Climate Change Adaptation into World Bank Operations*, World Bank Environment Department Paper 100, World Bank, Washington, DC.
- DANIDA, 2006, *Danish Climate and Development Action Programme: A Tool Kit for Climate Proofing Danish Development Cooperation*, DANIDA, Copenhagen, Denmark.
- EC, 2004, *Climate Change in the Context of Development Cooperation (Including EU Action Plan on Climate Change and Development)*, Communication from the European Commission, Brussels, Belgium.
- Eriksen, S., Næss, L.O., 2003, *Pro-Poor Climate Adaptation: Norwegian Development Cooperation and Climate Change Adaptation: An Assessment of Issues, Strategies and Potential Entry Points*, Report 2003:02, CICERO, Oslo, Norway.
- Gigli, S., Agrawala, S., 2007, *Stocktaking of Progress on Integrating Adaptation to Climate Change Into development Cooperation Activities*, Com/ENV/EPOC/DCD/DAC(2007)1, OECD, Paris.

- IDA/IMF (International Development Association/International Monetary Fund), 2002, *Nepal Joint Staff Assessment of the Poverty Reduction Strategy Paper*, World Bank, Washington, DC.
- Klein, R.T.J., 2001, *Adaptation to Climate Change in German Development Assistance: An Inventory of Activities and Opportunities, with a Special Focus on Africa*, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Eschborn, Germany.
- Klein, R.J.T., Eriksen, S.E.H., Næss, L.O., Hammill, A., Tanner, T.M., Robledo, C., O'Brien, K.L., 2007, *Portfolio Screening to Support the Mainstreaming of Adaptation to Climate Change into Development Assistance*, Tyndall Working Paper 102, Tyndall Centre for Climate Change Research, Norwich, UK.
- OECD (Organisation for Economic Cooperation and Development), 2006, *Declaration on Integrating Climate Change Adaptation into Development Cooperation*, OECD, Paris.
- Schmidhuber, J., Tubiello, F.N., 2007, 'Global food security under climate change', *Proceedings of the National Academy of Sciences* 104, 19703–19708, doi:10.1073/pnas.0701976104.
- USAID, 2007, *Adapting to Climate Variability and Change: A Guidance Manual for Development Planning*, USAID, Washington, DC.
- van Aalst, M., Hirsch, D., Tellam, I., 2007, *Poverty Reduction at Risk: Managing the Impacts of Climate Change on Poverty Alleviation Activities*, prepared for the Netherlands Ministry of Foreign Affairs/DGIS, Netherlands Climate Assistance Program, Leusden, The Netherlands.
- World Bank, 2006, *Clean Energy and Development: Towards an Investment Framework*, prepared for Meeting of the World Bank–International Monetary Fund Development Committee, April 23, World Bank, Washington, DC.
- World Bank, IEG (Independent Evaluation Group), 2006, *Hazards of Nature, Risks to Development: An IEG Evaluation of World Bank Assistance for Natural Disasters*, World Bank, Washington, DC.