International Strategy for Disaster Reduction

Briefing Note 03

Strengthening climate change adaptation through effective disaster risk reduction

Key Messages

Increasing disaster risk is primarily due to development processes. Increases in the intensity and frequency of extreme events are not the main driver of climate-related risk. Risk is increasing due to development processes that expose more people and assets to climate-related hazards faster than countries are able to reduce their vulnerabilities.

Disaster risk reduction and adaptation have the most leverage when placed at the centre of national development planning. Disaster risk reduction and adaptation policies will be more effective if they are the responsibility of central planning institutions. Adaptation funding should be used to strengthen the risk governance capacities of those countries most challenged to adapt, such as small island developing states and least developed countries.

The purpose of this Briefing Note is to show that climate change adaptation relies on the reduction and management of climate-related disaster risks and why both need to become central to development planning and investment.

The Briefing Note builds on empirical evidence that illustrates how climate risks are constructed and which risks can be reduced cost-effectively. It also builds upon ISDR's two previous Briefing Notes on Climate Change and Disaster Risk Reduction and the large volume of literature published prior to and following the Fifteenth Conference of the Parties to the UNFCCC in Copenhagen and the second session of the Global Platform for Disaster Risk Reduction, both in 2009.[1] It is informed by the initial findings of the 2011 Global Assessment Report on Disaster Risk Reduction, the outcome of an online discussion of the Hyogo Framework for Action Mid-Term Review,[2] and the large body of research being assessed in the forthcoming IPCC Special Report "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation" (SREX).[3]

1 For example: ECA (Economics of Climate Adaptation), 2009: Shaping Climate-Resilient Development: A framework for decision-making. A Report of the Economics of Climate Adaptation Working Group; CCD (Commission on Climate Change and Development), 2009: Closing the Gaps: Disaster risk reduction and adaptation to climate change in developing countries. Report of the Commission on Climate Change and Development; UNISDR, 2009a: Global Assessment Report on Disaster Risk Reduction: Risk and Poverty in a Changing Climate, United Nations, Geneva; World Bank, 2010a: Natural Hazards, Unnatural Disasters: Effective Prevention through an Economic Lens, The World Bank Group, Washington, DC; World Bank, 2010b: A Synthesis Report on the Economics of Adaptation to Climate Change (EACC). The World Bank Group, Washington, DC; World Bank, 2010 c: World Development Report 2010: Development and Climate Change, The International Bank for Reconstruction and Development / The World Bank, Washington, DC.

2 <http://www.preventionweb.net/english/hyogo/hfa-mtr/documents/Archive-Topic3.pdf>

3 <http://ipcc-wg2.gov/AR5/extremes-sr/index.html>

United Nations

Framing the discussion: climate change, disaster risk and development

Any discussion of how countries can adapt to climate change must be framed in the context of a number of now well-established considerations:

- Climate change leads to gradual changes in variables such as average temperature, sea level, and the timing and amount of precipitation. Climate change also contributes to more frequent, severe and unpredictable hazards such as cyclones, floods and heat waves—"extreme weather events."[4] Therefore, *climate change adaptation can be understood as: (a)* ***adapting development*** *to gradual changes in average temperature, sea level and precipitation; and (b)* ***reducing and managing the risks*** *associated with more frequent, severe and unpredictable extreme weather events.*

- *Adapting development to gradual changes in climate averages is a medium- to long-term process.* Regional economies and their urban centres are largely fixed in space through past decisions and investments that cannot be easily relocated—such as buildings, infrastructure networks, and production and distribution systems as well as by cultural attachments to place.[5] Adapting development therefore means that long-term planning of investments in strategic infrastructure should take into account changing climatic conditions. For example, new hydroelectric plants and urban drainage systems need to account for future changes in precipitation. Investments in both urban and agricultural development need to take into account reduced (or increased) water availability and sea-level rise. The countries most challenged to adapt development are those with the least development to adapt and with least capacity to invest in new infrastructure and technologies.

- *Extreme climate-related hazards are not necessarily synonymous with extreme risks.* Between and within countries, risk is determined not only by the severity of the hazard but also by the concentration of people and assets in hazard-prone areas and their vulnerability to the hazard. Countries with different levels of social and economic development experience radically different levels of risks, even when they are exposed to the same hazard.[6] Climate change will magnify the intensity of hazards and thus magnify the skewed and uneven distribution of risk. At the same time, future climate-related risk will be driven by increasing exposure of people and their assets to storms, floods, landslides, droughts and other climate-related hazards and by societies' capacity to reduce vulnerability.[7]

- *Societies with high climate-related risk also tend to have low levels of resilience and limited capacity to absorb disaster losses.* In particular, groups of countries with small and vulnerable economies, such as many Small Island Developing States (SIDS), Land Locked Developing Countries (LLDCs) and Least Developed Countries (LDCs), would appear to have particular difficulties to absorb and recover from disaster impacts.[8] SIDS, for example, often have higher relative disaster risk than larger countries because almost all their population and assets are exposed to hazards such as tropical cyclones, while their economies may be concentrated in a single vulnerable sector like tourism.[9] Similarly, economies which rely on primary resources and climate-

4 IPCC, 2007: Summary for Policymakers. In: Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 7-22.

5 In the case of many Small Island Developing States, being "fixed in space" is a matter of national survival.

6 UNISDR, 2009, ISDR 2009 Global Assessment Report on Disaster Risk Reduction: Risk and Poverty in a Changing Climate, United Nations, Geneva.

7 ECA (Economics of Climate Adaptation), 2009: Shaping Climate-Resilient Development: A framework for decision-making. A Report of the Economics of Climate Adaptation Working Group.

8 Noy, I., 2009: "The Macroeconomic Consequences of Disasters." Journal of Development Economics, 88(2), 221-231; Corrales, W. and Miquelena, T., 2008: "Disasters in Developing Countries' Sustainable Development: A conceptual framework for strategic action." <http://www.preventionweb.net/english/hyogo/gar/background-papers/documents/Chap2/Corralles-Disasters-and-Developing-Countries.doc>

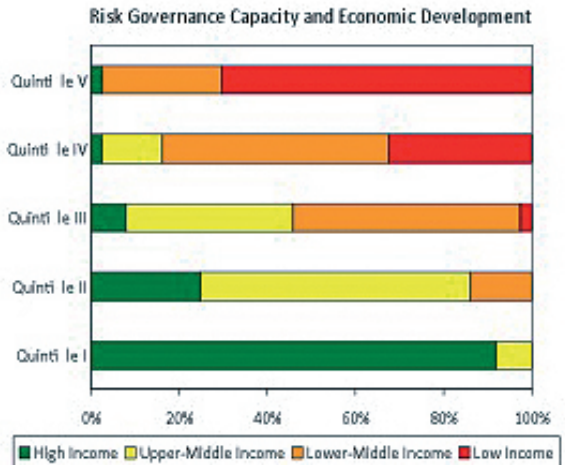
9 UNISDR, 2009a; Kelman, I., 2010: Policy Arena: Introduction to Climate, Disasters and International Development. Journal of International Development, 22, 208-217

sensitive sectors like agriculture are more vulnerable to greater climate variability and changes in average precipitation and temperature.[10] For example, warming of 2 degrees Celsius could result in a 4–5% permanent reduction in annual per capita income in Africa and South Asia compared with minimal losses (approximately 1%) in developed and larger developing countries.[11] These economies are ill prepared to absorb such decreases in income.

- *Many of the countries with high climate-related risks and low resilience also have very weak risk governance capacities.* Despite increased global awareness of disaster risk and climate change and greater political commitment (as reflected in regional Ministerial declarations in Africa[12] and Asia[13]), disaster risk reduction and management has only been timidly incorporated into development planning, and the institutional mechanisms required for such integration are even more incipient.[14] Additionally, many bilateral and multilateral Country Assistance strategies for countries facing well known risks are not planned with a risk-sensitive lens. The outcome is that the exposure of people and assets to climate-related hazards is increasing faster than many low-income countries are able to reduce their vulnerabilities. Such countries often have difficulties in addressing underlying risk drivers such as ecosystem decline, poverty and badly planned and managed urbanization. The outcome is a rapidly increasing number of and loss of assets in disasters.

- *Increasing climate-related disaster losses inhibit the achievement of the Millennium Development Goals (MDGs)* relating to schools, hospitals, water, sanitation and poverty reduction. Magnified risk manifests not only as more intensive catastrophes but as an increasing number of high-frequency, low-severity losses, almost all associated with climate-related hazards. In developing countries, these losses are generally not insured and imply a constant leakage of resources from development budgets to deal with relief and reconstruction as well

Figure 1: Risk governance capacity and economic development



Governance Capacity and World Bank Country Classification (Source: DARA and UNISDR, 2010)

The composite graph at left displays countries' capacities for disaster risk governance and their relative wealth, based upon the World Bank's country classifications. Approximately 90 percent of the countries with the greatest capacity to govern risk High Income countries (based on the World Bank's country classifications). On the other hand, Low and Lower-Middle Income countries account for more than 95 percent of the quintile that is least capable of managing disaster risk.

These rankings derive from an analysis of indicators that correlate to the primary disaster risk drivers identified in the 2009 Global Assessment Report: (poverty, weak urban and rural governance, ecosystem degradation, and government effectiveness and accountability). Each quintile is then subdivided based on the number of countries per World Bank category within it.

10 OECD, 2010: Development Co-operation Report 2010. OECD Publishing, Paris, 281 pp.
11 World Bank, 2010c.
12 Declaration of the Second African Ministerial Conference on Disaster Risk Reduction held in Nairobi, Kenya, from 14 to 16 April 2010. <http://www.unisdr.org/preventionweb/files/13655_MinisterialDeclarationinEnglishadop%5B1%5D.pdf>
13 Third Asian Ministerial Conference on Disaster Risk Reduction Kuala Lumpur, 2 – 4 December 2008. <http://www.amcdrrmalaysia.com.my/docs/KLDeclarationOnDRR%28Draft%2910112008.pdf>14 UNISDR, 2009, p134.
14 UNISDR, 2009, p134.

as steadily eroding livelihoods, rendering vulnerable countries more vulnerable. For example, annual average disaster losses in Mexico, in the built environment alone, have been estimated at USD 2.9 Billion per year.[15] The current analysis of MDG monitoring suggest that incremental international aid required is to the tune of USD 35 Billion annually from 2010 until 2015 to raise the standard of living of nearly 1 billion people who survive below USD 1.25 per-capita income and to achieve the other MDGs. Nearly USD 8 Billion is required to provide access to safe drinking water to those without access. At the same time as the financial crisis is constraining the abilities to increase aid flows, billions of USD of development funding every year are being redirected to restore development assets damaged or destroyed by disasters.

Reducing and managing climate-related risks

Climate change adaptation is fundamentally related to reducing and managing climate-related risks. Given that existing climate risk will determine future risk,[16] the identification, assessment and understanding of the full spectrum of risks faced in a country and of the underlying drivers that can increase or decrease these risks is a fundamental first step to the adoption of cost-effective adaptation strategies.

As *Table 1* highlights, a country's capacity to reduce the mortality risk associated with tropical cyclones generally improves as its GDP per capita increases. In other words, wealthier countries experience far less mortality than poorer countries when similar numbers of people are struck by cyclones of similar intensity. However, while strengthening capacities is effective in reducing the mortality risk associated with more frequently occurring Category 1 and 2 tropical cyclones, it is far less effective in the case of more infrequent and extreme Category 4 events. Whereas GDP per capita explains 91% of the variation in mortality between countries for Category 1 cyclones, it only explains 37% in the case of Category 4 cyclones. The more intense and infrequent the hazard, the more being exposed explains the risk.

In other words, not even highly developed countries with strong risk governance capacities are completely adapted to or have been able to totally eliminate very low-frequency and high-severity intensive risks. Nor would it necessarily make economic or political sense to do so, due to the high costs involved and the long periods before benefits are realized and due to the uncertainties about the location and timing of future hazards.[17] In contrast, many societies have successfully strengthened their capacities to adapt to and reduce frequently occurring, low-intensity extensive risks, associated with, for example, flooding, storms and recurrent droughts. This

Table 1: Disaster mortality risk and tropical cyclone intensity

Risk Factors	Correlation	Category 1	Category 2	Category 3	Category 4
Population exposure to TC	Positive	9.0%	46.4%	45.1%	62.9%
GDP per capita	Negative	91.0%	53.6%	46.3%	37.1%
Distance to city	Positive	-	-	8.6%	-
	Total:	100.0%	100.0%	100.0%	100.0%

Source: Pascal Peduzzi, 2011 (forthcoming), data prepared for the UN 2011 Global Assessment Report on Disaster Risk Reduction

15 Evaluacion de Riescos Naturales-America Latina (ERN-AL), 2010: "Probabilistic Modelling of Natural Risks at the Global Level" July 2010, background paper for the 2011 United Nations Global Assessment Report on Disaster Risk Reduction. In Mexico, for example, the fiscal cost of recurrent disaster losses, mainly associated with weather-related hazards, has been estimated at US$2.9 billion per year.

16 ECA, 2009, p26.

17 World Bank, 2010c.

implies that climate change adaptation will have to adopt different strategies to address the different types and layers ("strata") of extensive and intensive risks.

National Governments have fiscal responsibility for their historical stock of risk-prone public assets, such as schools and infrastructure networks, and of the uninsured assets of low-income groups. When this historical stock of risk is assessed and measured using probabilistic approaches, it is possible to visualize and quantify the different layers of risk and to calculate the cost-effectiveness of different risk reduction and management strategies. These can be classified into four main categories:

- The most cost-effective way for a country to reduce climate-related risks in the medium term is through factoring risk reduction into development planning, land use, building and environmental management. In the short term, this will reduce extensive risks, while in the medium to long term it can reduce more intensive risks by directing development to less exposed areas, mitigating hazards and reducing vulnerability. Reducing risk in this way, however, has clear limitations. In some countries with very high climate-related risks, such as SIDS, the entire territory is exposed. In many others, the trade-offs involved in directing development to less exposed, but economically less attractive areas, may be unacceptable.

- Correcting existing risk levels, through actions such as retrofitting buildings, relocating settlements and restoring ecosystems is more expensive than avoiding the construction of these risks in the first place. Given the high level of recurrent losses, it is usually cost-effective to correct the more extensive risks but increasingly less so for intensive risks given the costs involved and long periods before benefits are potentially realised.[18] However, investments to protect critical facilities, such as schools and health facilities, against more extreme risks may be justified, for both economic and political reasons.[19]

- For certain intensive risks that cannot be reduced cost-effectively, risk transfer measures such as insurance and catastrophe risk pools/bonds can mitigate disaster impacts on physical assets and enhance Governments' ability to respond effectively.[20]

- Traditional disaster management, including effective early warning, preparedness and response is essential to strengthen resilience to and facilitate recovery from all manifestations of risk. Apart from traditional measures, strategies such as temporary employment programmes and conditional cash transfers are increasingly being applied to strengthen household and community resilience.

In most contexts, climate change adaptation should rely on a cost-effective mix of these strategies to manage and reduce climate-related risks. At the same time, being able to organize and implement adaptation depends on a country's risk governance capacities. As described above, many of the countries with the highest risks and the least resilience have the weakest risk-governance capacities. **The challenge of climate change adaptation, therefore, is fundamentally a challenge of strengthening the capacities for risk governance so that cost-effective strategies for risk reduction and management can be factored into development planning and public investment.**

---

18 The building codes in most developed countries provide protection against risks up to a certain severity. For example, most seismic building codes are designed to provide security against earthquakes of up to a 475 year return period but not against a catastrophic earthquake with a 1500 year return period.

19 While extensive, high-frequency low-severity losses and intensive low-frequency, high-severity losses are different manifestations of risk, action to reduce one will have effects on the other. In many contexts reducing extensive risks will have positive spill-over effects on intensive risks and co-benefits for development. For example, if a city government invests to relocate squatter settlements subject to recurrent flooding along a cyclone-prone coastline, this relocation programme will not only lead to a short-term reduction in high-frequency, low-severity losses associated with the floods but it would also reduce the periodic cyclone losses . In contrast, in other contexts, protecting an area against 100 year floods may encourage greater investment in the area, leading to increased losses in the event of a 500 year flood. Ultimately, all investments in risk reduction involve trade-offs between different social and economic objectives.

20 In September 2010, four leading insurance groups—ClimateWise, the Geneva Association, the Munich Climate Insurance Initiative (MCII) and leading insurance companies within the United Nations Environment Programme Finance Initiative (UNEP FI)–launched a declaration about how insurance industry expertise paired with government action can benefit adaptation by reducing climate-related disaster risk in developing countries.

Reducing and managing climate-related disaster risks: progress and challenges

The relevance of reducing and managing climate-related risks to climate change adaptation has been increasingly recognized in both policy and practice. For example, the 2007 UNFCCC Bali Action Plan called for enhanced adaptation efforts and specifically highlighted "risk management and risk reduction strategies."[21] The negotiating text for the post-2012 agreement is more specific, inviting UNFCCC Parties to support an Adaptation Framework by:

> "Enhancing climate change related disaster risk reduction strategies, considering *the Hyogo Framework for Action* where appropriate; early warning systems; risk assessment, and management and sharing and transfer mechanisms such as insurance . . . at local, national, sub-regional and regional levels, as appropriate, to address loss and damage associated with climate change impacts in those developing countries that are particularly vulnerable to the adverse effects of climate change."[22]

The UNFCCC Parties have recognized the importance of disaster risk reduction through other convention mechanisms as well. In 2006, they agreed to a global framework for adaptation, the Nairobi Work Programme, one of whose nine priority areas ("climate-related risks and extreme events") aims to improve the "assessment and management of current and future climate-related risks and impacts, including those related to extreme events."[23] In addition, many of the least developed country Parties' National Adaptation Programmes of Action (NAPAs) have identified measures that are intended to reduce climate-related risks, and these projects have in turn fed in to the UNFCCC-related financing instruments. As of October 2010, the Kyoto Protocol's Adaptation Fund had approved two projects and endorsed six more—all of which are fundamentally disaster risk reduction initiatives whose components overlap with the *Hyogo Framework for Action* priorities.[24]

Some national Governments have already begun to merge mechanisms for disaster risk reduction and adaptation through legislative processes and national forums. For example, the Government of Viet Nam organized a National Forum in 2009 to build synergies between its "National Strategy for Natural Disaster Prevention, Response, and Mitigation to 2020" and its "National Target Program to Climate Change Response."[25] Also in 2009, the Philippines replaced 30-year-old disaster management legislation and passed Climate Change Act 9729, which "Ensure[s] the mainstreaming of climate change, in synergy with disaster risk reduction, into the national, sectoral and local development plans and programs."[26] Since 2006 and 2007, the governments of Colombia and South Africa have been involved in similar reforms as well.[27]

The Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report indicates that, in practice, most adaptation has focused—either proactively or retroactively—on reducing climate risks (see Table 2 below). Subsequently, the IPCC has undertaken a Special Report to examine how decades of disaster risk reduction experience and research can be used to guide adaptation planning.[28] The findings from this report will also inform the IPCC Fifth Assessment Report, due out in 2014.[29]

---

21 UNFCCC, 2007: Decision 1/CP.13, Paragraph 1(c)ii-iii. <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf>

22 UNFCCC, 2010: "Ad Hoc Working Group on Long-term Cooperative Action under the Convention: Negotiating text," 13 August 2010. FCCC/AWGLCA/2010/14. <http://unfccc.int/resource/docs/2010/awglca12/eng/14.pdf>

23 UNFCCC, 2006: "Report of the Subsidiary Body for Scientific and Technological Advice on its twenty-fifth session, held at Nairobi from 6 to 14 November 2006." FCCC/SBSTA/2006/11. <http://unfccc.int/resource/docs/2006/sbsta/eng/11.pdf>

24 Adaptation Fund, 2010: "The Adaptation Fund Board Approves Financing for Projects, Operationalizes the Direct Access Modality." <http://adaptation-fund.org/node/794>

25 ISDR, 2009b: "Adaptation to Climate Change by Reducing Disaster Risks: Country Practices and Lessons" Briefing Note 02. <http://unisdr.org/preventionweb/files/11775_UNISDRBriefingAdaptationtoClimateCh.pdf>

26 Philippines, Fourteenth Congress of, 2009: Climate Change Act of 2009. Republic Act 9729, Sec 9(a). <http://www.congress.gov.ph/download/ra_14/RA09729.pdf>

27 Cardona, O.D., and Yamin, L.E., 2007: "Información para la gestión de riesgo de desastres. Estudio de caso de cinco países: Colombia." United Nations and Inter-American Development Bank; Pelling, M., and Holloway, A., 2006: Legislation for Mainstreaming Disaster Risk Reduction. Tearfund.

28 IPCC, 2011 (forthcoming): "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX)." <http://ipcc-wg2.gov/AR5/extremes-sr/index.html>

29 IPCC, 2014 (forthcoming): Outline of the Working Group II Contribution to the IPCC Fifth Assessment Report. Climate Change 2014: Impacts, Adaptation, and Vulnerability. <http://ipcc-wg2.gov/AR5/ar5-outline.html>

Proactive adaptation	Crop and livelihood diversification, seasonal climate forecasting, community-based disaster risk reduction, famine early warning systems, insurance, water storage, supplementary irrigation
Reactive adaptation	Emergency response, disaster recovery, migration

Despite these examples, however, progress in coordinating disaster risk reduction and climate change adaptation remains slow and the integration of both into national development planning and investment elusive.

The Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters (HFA) through its five Priority Areas for Action,[30] points to a range of strategies that need to be combined to strengthen capacities for risk governance. Countries have made significant progress on disaster management and in some cases investments are being made in risk reduction and in insurance.[31] The 2009 assessment of progress against the HFA showed, however, that significant capacity gaps remain, especially in low-income countries. In particular, capacities to address risks through development planning and public investment remain weak, despite evidence that risk reduction measures can produce net savings.[32]

Management and reduction of climate-related risks have yet to be recognized as a central function of planning and finance ministries. Cases where climate-related risk considerations are systematically factored into public investment decisions are rarer still. Unless these barriers to integration are addressed in a concerted manner, adaptation and disaster risk reduction efforts will remain peripheral to mainstream development and climate-related disaster risks will continue to increase.[33]

One institutional obstacle is the separation of responsibilities for cross-cutting issues like climate change adaptation and disaster management across Government ministries. Climate change adaptation is often the responsibility of environment, agriculture or energy ministries whereas disaster risk reduction typically resides within civil defense and disaster management agencies.[34]

This division of responsibilities has contributed to two important misconceptions. The first is that climate change adaptation is primarily an environmental issue rather than a central development concern; the second is that disaster risk reduction is primarily about early warning, preparedness, emergency response and insurance.[35] Additionally, disaster risk reduction often fails to recognize that future climate risks may not mirror those of the past.[36] For its part, adaptation planning often fails to recognize the contribution of existing risk patterns and trends in explaining future climate-related risks.

As a consequence, key opportunities to inform development planning and investment are missed. Many existing and proposed adaptation mechanisms emphasize insuring against "extreme events" rather than using a comprehensive and cost-effective range of risk reduction and management mechanisms to address extensive as well as intensive risks.[37]

---

30 1. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation; 2. Identify, assess and monitor disaster risks and enhance early warning; 3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels; 4. Reduce the underlying risk factors; and 5. Strengthen disaster preparedness for effective response at all levels.

31 Schipper, E.L.F., 2009: "Meeting at the Crossroads?: Exploring the linkages between climate change adaptation and disaster risk reduction." Climate and Development 1:1, 16-30; UNISDR, 2009.

32 World Bank, 2010c.

33 ECA, 2009.

34 Prabhakar et al., 2009.

35 CCD, 2009; ECA, 2009; World Bank, 2010c; Mercer, J., 2010: Disaster Risk Reduction or climate change adaptation: Are we reinventing the wheel? Journal of International Development 22:2, 247-264.

36 Prabhakar, S.V.R.K., A. Srinivasan, and R. Shaw, 2009: Climate change and local level disaster risk reduction planning: Need, opportunities and challenges. Mitigation and Adaptation Strategies for Global Change, 1(14), 7-33.

37 E.g., see World Bank, 2010b.

A second obstacle is the slow progress in implementing adaptation through established international mechanisms. The UNFCCC is a Party-driven process, and the scale and scope of adaptation measures is therefore determined by the Parties. While local and sometimes national Governments and NGOs have begun implementing pilot projects, these rarely achieve the critical mass necessary to upscale.

A third obstacle is that funding for climate change adaptation has lagged and continues to be insufficient. The World Bank recently estimated that the adaptation needs of developing countries alone are USD 70-100 Billion per year between 2010 and 2050.[38] By comparison, the December 2009 Copenhagen Accord would provide roughly USD 15 Billion per year from 2010 to 2012 and potentially USD 50 Billion per year between 2013 and 2020 if the Accord enters into force.[39]

When it comes to adaptation financing that has actually been monetized for implementation, the UNFCCC/Kyoto Protocol's Adaptation Fund approved two projects in 2010 that together amount to USD 14 Million—a miniscule proportion of the World Bank estimate and Copenhagen Accord pledge above.

The negotiations over adaptation financing have resulted in the misapplication of the "additionality principle," which requires adaptation measures to deal with additional impacts of climate change. Developing countries have contributed least to climate change and face disproportionately high risks. The application of the "additionality principle" is counterproductive because it treats two intimately related issues—adaptation and development—as separate problems. Unless development investment becomes climate risk sensitive, it may increase risks and mal-adaptation. And the "additional" adaptation funding is too small to redress the balance. The fact that many mechanisms for adaptation funding, such as the Adaptation Fund,[40] still rely on a project approach highlights this disconnect further still and shows that there is a fundamental misunderstanding about what constitutes climate change adaptation.

Major additional resources for climate change adaptation are certainly needed and it is the responsibility of developed countries to provide them. However, these resources should be used to strengthen the risk governance capacities of developing countries to ensure that adaptation and disaster risk reduction efforts are coordinated and that climate-related risk considerations are factored into development planning and public investment decisions.[41]

At the same time, substantial additional development resources are required if the most high-risk countries are to achieve the MDGs and to overcome the development deficit that underlies patterns of climate-related disaster risk. Unless the major additional development funds pledged to achieve the MDGs—more than USD 63 Billion in total[42]—come on stream, there will be no development to mainstream adaptation into.

Immediate opportunities to integrate disaster risk reduction, climate change adaptation and development more effectively

Rather than creating new adaptation institutions that may increase the disconnect between risk reduction and management on the one hand and development planning and public investment on the other, the key question remains how to fold climate-related risk management and reduction into existing development institutions and processes. The question to bear in mind is: "How can we reach our development targets while accounting for current and future risks?"

Climate change scenarios (such as those presented in the IPCC's Fourth Assessment Report) provide indicative information for

38 World Bank, 2010b. <http://siteresources.worldbank.org/EXTCC/Resources/EACC_FinalSynthesisReport0803_2010.pdf>
39 UNFCCC, 2009: Draft decision -/CP.15 "Copenhagen Accord," Paragraph 8. FCCC/CP/2009/L.7. <http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf>
40 UNFCCC, 2001: Decision 10/CP.7, "Funding under the Kyoto Protocol." "An adaptation fund shall be established to finance concrete adaptation projects and programmes in developing country Parties that are Parties to the Protocol, as well as activities identified in paragraph 8 of decision 5/CP.7"FCCC/CP/2001/13/Add.1 <http://adaptation-fund.org/system/files/10-CP_7.pdf>
41 CCD, 2009; ECA, 2009; World Bank, 2010c; Mercer, J., 2010: Disaster Risk Reduction or climate change adaptation: Are we reinventing the wheel? Journal of International Development 22:2, 247-264..
42 UN, 2010: "UN Summit concludes with adoption of global action plan to achieve development goals by 2015." <http://www.un.org/millenniumgoals/pdf/Closing%20press%20release%20FINAL-FINAL%20Rev2.pdf>

managing and reducing climate-related disaster risks, but this information is not always sufficient for planning and decision making. This problem is related to the trade-off between accuracy and precision: when climate models are "downscaled" to resolutions that are useful to national decision makers, the consequent increase in uncertainty of many models make them less useful for decision-makers. In addition, climate modeling at a regional and national scale is made more difficult due to gaps in observational data in many of the countries and areas where disaster risk is most concentrated.[43]

Recommendation: Given that climate change will magnify existing risk levels, the assessment of existing risks has to be the starting point for reducing and managing future risks. Accurate probabilistic assessments of climate-related risks should be used to assess the cost-effectiveness different risk reduction and management strategies in order to optimize public investments and development planning. This can help countries clearly identify which risks can be reduced and what need to be managed through insurance, improved preparedness and other mechanisms. To be able to accurately assess countries' existing risks, additional effort will be required to systematically report and analyse disaster loss data at all scales.

Reducing and managing climate risks is an issue of decision making in development planning and public investment. The resources required to reduce and manage climate-related risks are fundamentally mainstream development resources (i.e., the same resources countries require to achieve the Millennium Development Goals). Climate change adaptation and disaster risk reduction are not effective when implemented as add on projects in either the environment or civil defense sectors that are divorced from mainstream development. Evidence has shown that public, private, and civil society organizations do not become sustainable if they are created solely to implement a project—and that stand-alone projects have little discernable impact on capacity development.[44]

Recommendation: Institutionally, responsibility for climate change adaptation and disaster risk reduction should be brought into in the central ministries of planning or finance. Otherwise development processes will continue to add to countries' stock of risk. This integration includes medium- and long-term planning and investments that take account of changes in climate averages as well as planning and investment to address risks associated with present and future climate extremes. Resources earmarked for climate change adaptation or disaster risk reduction should be used to strengthen risk governance capacities and focus on developing the institutional and legislative frameworks, risk assessments and institutional capacities required to organize the above.

Peoples' vulnerability is driven by a range of stresses not only by climate change, and current development investments too often create new risk rather than diminishing it. A holistic approach that considers the multiple drivers of risk requires a development-based view to adaptation funding that ensures that current Overseas Development Assistance (ODA) addresses disaster risk systematically.[45] The countries with the greatest challenges to adapt are those with high existing risks, low socio-economic resilience and weak capacity to manage disaster risk. This includes many SIDS, LLDCs and LDCs.

Recommendation: Given that their existing capacities for risk governance tend to be low LLDCs, LDCs and SIDS require a special focus in the adaptation funding mechanisms. This should include how to better prioritize and sequence adaptation strategies in a financially constrained environment[46] and how to ensure that planning for adaptation looks comprehensively at reducing risk to natural hazards as part of national poverty reduction strategies.[47]

43 CCD, 2009.
44 ECA, 2009.
45 Focus should go to pubic investment, land use planning, critical infrastructure such as schools and hospitals, and ecosystem protection, and therefore avoid the accumulation of new conditions of risk.
46 World Bank, 2010b; CCD, 2009.
47 Kelman, 2010; Mercer, J., 2010: Disaster Risk Reduction or climate change adaptation: Are we reinventing the wheel? Journal of International Development 22:2, 247-264.

Opportunities to address risk reduction for climate change negotiators

This document provides a set of recommendations for climate change negotiators for the most recent draft AWG-LCA text on adaptation, which will be taken up at COP 16 in Cancun. The recommendations are informed by the understanding of disaster risk reduction, climate change and development as outlined in UNISDR Policy Note 3 on climate change and disaster risk reduction.

The following actions will strengthen adaptation:
Chapter I, "A Shared Vision for long-term cooperative action"
Paragraph 5:
Scale-up adaptation financing to help developing country Parties address the negative impacts of climate change, but do not require that "developed country parties . . . meet the full cost of adverse effects of climate change in developing country Parties", which may increase disaster risk by creating perverse incentives.

Paragraph 6:
Incorporate expertise and research on disaster risk reduction into the "best available science" used to guide enhanced action on adaptation.

Chapter II, "Enhanced action on adaptation"
Paragraph 4(c)
Strengthen institutional capacities and enabling environments for adaptation by drawing upon existing capacities for disaster risk reduction

Paragraph 4(e):
Enhance climate change related disaster risk reduction and consider the Hyogo Framework for Action as a relevant guide to action on adaptation.

Paragraph 6:
Integrate scaled-up funding for adaptation, especially in the medium- and long-term, into development plans and across sectors at the subnational, national, subregional and regional levels.

Paragraph 7:
Build upon existing institutional structures such, as the Nairobi work programme, and enhance developing country Parties' capacities to integrate adaptation actions into sectoral and national planning and risk management strategies and other ways to enable climate-resilient development.

Paragraph 8:
Consider how risk management, insurance, and compensation can be used in coordination with disaster risk reduction to address potential losses associated with climate change impacts.

United Nations
International Strategy for Disaster Reduction

UNISDR
Tel. :+41 22 917 8908/8907
isdr@un.org
www.unisdr.org

UNISDR Liaison Office, New York
palm@un.org

UNISDR Regional Office Africa
isdr-africa@unep.org
www.unisdr.org/africa

UNISDR Regional Office
Asia and the Pacific
isdr-bkk@un.org
www.unisdr.org/asiapacific

UNISDR Regional Office The Americas
eird@eird.org
www.eird.org

UNISDR Regional Office Europe and Central Asia
isdr-europe@un.org
www.unisdr.org/europe

UNISDR Regional Office Arab States
isdr-arabstates@un.org
www.unisdr.org/arabstates

Save the date for the third session of the Global Platform for Disaster Risk Reduction: 8-13 May 2011
Centre Internationale de Conferences (CICG), Geneva

The Global Platform for Disaster Risk Reduction (GP), which takes place every two years, is the global forum for accelerating world-wide momentum on disaster risk reduction. As the primary gathering for the world's disaster risk community, it brings together Governments, UN, international regional organizations and institutions, NGOs, scientific/academic institutions and the private sector.