

PROPOSAL FOR AN IPCC SPECIAL REPORT ON MANAGING THE RISK OF EXTREME EVENTS¹ TO ADVANCE CLIMATE CHANGE ADAPTATION

PROPOSED BY NORWAY
AND THE SECRETARIAT OF THE
INTERNATIONAL STRATEGY FOR DISASTER REDUCTION (ISDR) SYSTEM

There is increasing recognition of the linkages between disaster risk reduction and adaptation to climate change, as climate change alters not only physical hazards but also vulnerability. This recognition of the need to learn from long experience in managing and reducing the risk of extreme climate events—such as floods, droughts, storms and extreme temperatures—has not yet led to the type of comprehensive assessment required to guide UNFCCC Parties in their adaptation activities.

Parties to the UNFCCC acknowledged the relevance of disaster risk reduction to advance adaptation in the December 2007 Bali Action Plan, calling for enhanced action on risk management and risk reduction strategies, including risk transfer mechanisms such as insurance, and disaster reduction strategies to lessen the impact of disasters on developing countries². Moreover, at the UNFCCC Subsidiary Bodies meeting in Bonn in June 2008, in the context of the Nairobi Work Programme, Parties requested further information on the inclusion of disaster risk reduction strategies into national policies and programmes³.

Similarly the IPCC Fourth Assessment Report, in addition to identifying observed and projected change in extreme events⁴, recognised that “Reducing vulnerability to current climatic variability can effectively reduce vulnerability to increased hazard risk associated with climate change”⁵.

The case for a Special Report

The IPCC Fourth Assessment Report also identified the usefulness of taking a *risk perspective* in order to identify synergies to “promote sustainable development, reduce the risk of climate-related damages and take advantage of climate-related opportunities”⁶. To date, however, there has been no comprehensive assessment of the disaster risk reduction and management *policies and measures* that can inform climate change adaptation.

Governments planning adaptation action would benefit from a review of the guides, frameworks and tools used to: build the institutional basis for reducing vulnerability and risk; develop early warning systems, strengthen community capacity and social resilience, particularly among the most vulnerable; improve construction practices; and establish preparedness to respond to inevitable climate impacts, among others.

Similarly, there has not been a systematic assessment of Governments’ experience in risk reduction *practice* for climate change adaptation. Although the Fourth Assessment Report reviewed those practices that are specifically identified as adaptation efforts, it does not review the great range of efforts undertaken worldwide by Governments and communities labelled disaster risk reduction, sustainable development, and environmental risk management. An in-depth assessment that determined which practices are the most successful, with information on appropriate contexts, cost and constraints, would provide concrete guidance to Governments in planning and implementing adaptation activities. A systematic review would also enable Governments to identify those existing practices that should be strengthened because they provide important synergies.

The proposed Special Report is consistent with the IPCC framework and criteria for establishing priorities for IPCC reports⁷, in particular the aim to “strive to serve the policy community with relevant

information in a pro-active fashion.” It also meets the other priority guidelines: sufficient scientific literature exists; the primary audience is the UNFCCC and the target is the development of the post-2012 agreement and adaptation plans; the scientific community is available; and the topic is specific in scope.

Norway offered at the IPCC Twenty-Eighth Session to host a scoping workshop to assess whether a Special Report should be undertaken on the management of extreme events to advance adaptation. This offer was supported in plenary by Cuba, Denmark, Finland, Mexico, New Zealand, Peru, Spain and Sudan. Other Governments, including Switzerland, have also expressed support. To further assist the IPCC in its decision making, Norway has undertaken a study on the humanitarian consequences of climate change and compiled an associated detailed bibliography. Preliminary findings indicate that ample peer-reviewed literature is available for review.

For the reasons detailed above, Norway and the United Nations International Strategy for Disaster Reduction system⁸ propose that the IPCC undertake a Special Report to assess policies, measures, tools and practices for managing extreme events risk to advance effective adaptation.

Policy linkages with risk reduction

Disaster risk reduction and adaptation to climate change share the same ultimate goal of reducing vulnerability to weather and climate hazards. Over the past 30 to 40 years, a large body of knowledge has been accumulated in the field of disaster risk reduction, especially regarding weather- and climate-related hazards, which are responsible for 76 percent of disasters worldwide⁹. Disaster risk reduction efforts are guided by *The Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters*, to which 168 Governments agreed in Hyogo, Kobe, Japan, in 2005¹⁰. The Hyogo Framework aims for “the substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries.” As part of its text, Governments agreed to integrate climate change adaptation and disaster risk reduction through:

- (i) The identification of climate-related disaster risks,
- (ii) The design of specific risk reduction measures, and
- (iii) The improved and routine use of climate risk information by planners, engineers and other decision makers.

Outline of the proposed assessment

The proposed IPCC Special Report¹¹ would build on the Fourth Assessment Report to provide more specialized and detailed information on the nexus between climate change adaptation, disaster risk reduction and sustainable development through the assessment of policies, measures, tools and practices to reduce disaster risk. An outline of the types of information to be assessed in the proposed Special Report is provided in Annex I.

The proposed assessment would, *inter alia*:

- Identify knowledge of the frequency and intensity of weather- and climate-related extreme events, societies’ exposure and vulnerability, and trends in disaster occurrence and losses.
- Identify information and reveal trends about socio-economic vulnerabilities and capacities from sources specializing in disaster risk assessment.
- Identify the main categories of tools and techniques for reducing vulnerability and managing the risk of extreme events.
- Assess, by sector, the success of current risk reduction practices to present-day climate risks, such as in food security, water management and the protection of critical infrastructure and energy investments.

- Examine and develop lessons learned from community-level risk reduction and inclusion of women and girls (good practices).
- Identify opportunities to build on existing adaptive successes.
- Provide an accurate baseline for worldwide adaptation efforts and identify needed adjustments for the increased hazard risk associated with climate change.
- Assess the costs and benefits of specific measures to reduce climate-related risks and the costs of disaster relief and recovery¹².
- Identify risk reduction efforts that have been “mainstreamed” into development and reveal opportunities to integrate adaptation, disaster risk reduction and sustainable development.

A case-study approach also may be helpful to illustrate local practice and provide a means to assess information that is nationally held but not published in scientific journals, as well as to integrate a wider spectrum of information held by Governments, civil society and private sector organizations. For example, case studies could illustrate the integration of disaster risk reduction and climate change adaptation strategies in a Small Island Developing State, a successful drought risk reduction effort that strengthened early warning in a Least Developed Country, or the use of risk transfer tools, such as insurance and micro-credit, in a hurricane-resilient community.

Contribution to international and national efforts

The proposed Special Report would contribute to the goals of the UNFCCC¹³ and to the work of its Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change. This assessment would inform the UNFCCC post-2012 negotiations with respect to adaptation to climate change by identifying practical measures to reduce risk. It would likewise assist the implementation of the Hyogo Framework.

The proposed assessment would also improve Governments’ understanding of the implications of climate-related risks for the Millennium Development Goals and the achievement of sustainable development. It would help Government officials frame the issues of climate change adaptation and disaster risk reduction in the context of national development efforts in particular sectors. The assessment would provide a tool to gain the support of policy makers and strategic partners to promote more effective and “climate resilient” investment, as well as international cooperation and assistance.

Ultimately, the knowledge generated by this assessment would enable Governments and communities to jump-start the implementation of adaptation activities and proceed confidently in a systematic and strategic fashion. It would also stimulate the strengthening of scientific and technical networks in many countries, which in turn would assist their Governments in the implementation of adaptation.

Proposed timeline

September 2008	Decision by IPCC plenary for a scoping meeting on the Special Report
Early 2009	Scoping workshop for the Special Report
2009	Approval of scoping paper by plenary
2009	Selection of authors by WGII
2010	First draft, expert review
2010	Expert and Government review
2010	Approval by plenary

Based on experience with earlier reports and the ready availability of the information, two years and a quarter would be sufficient between the scoping meeting and the publication of the Special Report. An outline of the possible agenda for the proposed scoping workshop is provided in Annex II.

Endnotes

¹ IPCC, *Climate Change 2007: Synthesis Report*, Annex II Glossary defines an extreme weather event as: "An event that is rare at a particular place and time of year. Definitions of "rare" vary, but an extreme weather event would normally be as rare as or rarer than the 10th or 90th *percentile* of the observed probability density function. By definition, the characteristics of what is called *extreme weather* may vary from place to place in an absolute sense. Single extreme events cannot be simply and directly attributed to *anthropogenic climate change*, as there is always a finite chance the event in question might have occurred naturally. When a pattern of extreme weather persists for some time, such as a season, it may be classed as an *extreme climate event*, especially if it yields an average or total that is itself extreme (e.g., *drought* or heavy rainfall over a season)." While this definition distinguishes between events at a specific time and events that persist over some time such as a season (e.g. floods and droughts), respectively called extreme weather events and extreme climatic events, the IPCC WGII 2007 report provides a definition where both types of events are called extreme weather events. The proposed Special Report is meant to cover both these aspects of climate change.

² UNFCCC Decision 1/CP.13; Bali Action Plan. See FCC/CP/2007/6/Add.1, paragraph 1(c) (ii and iii).

³ UNFCCC SBSTA twenty-eighth session; Nairobi work programme on impacts, vulnerability and adaptation to climate change. See FCCC/SBSTA/2008/ö-13/Rev.1, paragraphs 47 and 48.

⁴ IPCC, *Climate Change 2007: The Physical Science Basis, Frequently Asked Question 3.3*: "Since 1950, the number of heat waves has increased and widespread increases have occurred in the numbers of warm nights. The extent of regions affected by droughts has also increased as precipitation over land has marginally decreased while evaporation has increased due to warmer conditions. Generally, numbers of heavy daily precipitation events that lead to flooding have increased, but not everywhere. Tropical storm and hurricane frequencies vary considerably from year to year, but evidence suggests substantial increases in intensity and duration since the 1970s. In the extratropics, variations in tracks and intensity of storms reflect variations in major features of the atmospheric circulation, such as the North Atlantic Oscillation."

⁵ IPCC, *Climate Change 2007: Impacts, Adaptation and Vulnerability*, Chapter 20.5 pg 821.

⁶ IPCC, *Climate Change 2007: Impacts, Adaptation and Vulnerability*, Chapter 20.9 pg 837.

⁷ IPCC, Intergovernmental Panel Twentieth Session, 2003. "Framework and Set of Criteria for Establishing Priorities for Special Reports, Technical Papers and Reports on Methodological Issues."

⁸ The ISDR is a system made up of governments, inter-governmental and non-governmental organizations, international financial institutions and technical bodies and networks as well as civil society and the private sector—all of which have essential roles to play in disaster risk reduction at global, regional, national and local levels. See www.unisdr.org

⁹ EM-DAT: The OFDA/CRED International Disaster Database. See <http://www.emdat.be/Documents/Publications/Annual%20Disaster%20Statistical%20Review%202007.pdf>

¹⁰ Referred to in IPCC, *Climate Change 2007: Impacts, Adaptation and Vulnerability*, Chapter 20.8 p. 832.

¹¹ From the Chair's Summary of the ISDR system's first session of the Global Platform: "The Intergovernmental Panel on Climate Change and ISDR system should collaborate on the preparation of a special report on adaptation, disaster risk reduction and sustainable development." See ISDR/GP/2007/6 at http://www.preventionweb.net/globalplatform/first-session/docs/session_docs/ISDR_GP_2007_6.pdf

¹² The United Nations (through the ISDR system) and the World Bank are jointly undertaking a study of the economics of disaster risk reduction, to be completed in 2009. The World Bank is also undertaking a related major study on the economics of adaptation.

¹³ See UNFCCC Articles 2 and 4.8.

Annex I

Overview of Types of Scientific Information Available on the Management of Extreme Events to Advance Climate Change Adaptation

I. **Extreme events and disaster risk information and trends:**

Disaster trends: information is published by CRED, MunichRe, SwissRe, International Federation of Red Cross and Red Crescent Societies and others, compiled for the ISDR system Global Assessment Report on Disaster Risk Reduction and also published by organizations such as World Bank Disaster Risk Management, UN Office for the Coordination of Humanitarian Affairs, United Nations Development Programme.

Hazard information: is available from World Climate Data Center, Asheville, and other meteorological and hydrological sources.

Vulnerability and drivers of risk: articles are published in peer-reviewed journals and by academic institutions, such as the Benfield Hazard Research Centre's Working Papers in Disaster Studies and Management, Institute of Development Studies, Overseas Development Institute, and United Nations University Press, as well as books by authors such as Bendimerad, Benson, Bhatt, Burton, Cannon, Cardona, Davis, Dixit, Enarson, Lavell, Moench, Pelling, Shaw, Vogel, Wisner, and many others.

II. **Management of hydrometeorological extremes:** specialized, peer-reviewed, scientific literature is available from disaster management journals, such as *Disaster Prevention and Management*, *Disasters*, *Meteorological Applications*, *Journal of Coastal Research*, *Australian Journal of Emergency Management*, *Geophysical Research Abstracts*, etc.

Such journals feature articles on the management of the following hydrometeorological hazards:

- Floods, debris and mudflows
- Tropical cyclones, storm surges, wind, rain and other severe storms, blizzards, lightning
- Drought, desertification, wildland fires, temperature extremes, sand or dust storms
- Permafrost, snow avalanches

III. **Policy:** publications by disaster risk academic and research organizations, such as Benfield Hazard Research Centre, Institute of Development Studies and the Flood Hazard Research Centre; international organizations, such as International Federation of Red Cross and Red Crescent Societies, UNDP, UN/ISDR, World Bank; and nongovernmental humanitarian organizations such as ActionAid, Care, Oxfam, Provention Consortium, Save the Children, Tearfund, among others.

IV. **Tools:** early warning systems and community-based risk assessment, among other practices, are reviewed in compendia of tools published by nongovernmental organizations and undergo peer review, such as Provention Consortium, or international organizations such as International Federation of Red Cross and Red Crescent Societies.

V. **Practice:** reports are published by nongovernmental and research organizations, such as Provention Consortium, Institute of Development Studies and Institute for Social and Environmental Transition; international organizations such as African Development Bank, International Federation of Red Cross and Red Crescent Societies, International Research Institute for Climate and Society, and World Bank.

Government sources assess lessons learned from particular disaster events such as Hurricane Katrina and the United Kingdom 2007 floods. Governments report on their initiatives to implement various international agreements, such as the Hyogo Framework for Action and UNFCCC. A number of development and environment journals are also relevant: *Natural Resources Journal*, *Geophysical Research Abstracts*, *World Development*, *Environment and Urbanisation*, *Global Environmental Change*, *Phil. Trans.R. Soc.*

Annex II

Suggested Agenda for Scoping Meeting on Management of Extreme Events to Advance Climate Change Adaptation

The scoping meeting will present results and ongoing activities and aim to develop a proposed outline for the Special Report. The meeting will combine presentations in plenary by invited experts and scientists, work on the outline of the Report in parallel groups, and plenary discussion of the group results. Topics that might form the basis of the scoping meeting's agenda include:

1. **Overview of current knowledge:** Climate-related extreme events and expected future trends.
2. **State of risk:** Extreme event and disaster trends: losses, damages, humanitarian crises, complex emergencies. (Present CRED and Global Assessment Report on Disaster Risk Reduction.)
3. **Drivers of increasing risk:** Socio-economic information and trends (information for and from risk assessments) and societal dimension of risk (vulnerability of women and men, perception of risk and drivers of behavioural change).
4. **Policies and approaches** to reduce and manage extreme events, vulnerability and disaster risk (information from Government sources, cross-sectorial coordination, gender-sensitive policies and community-based approaches).
5. **Tools and practices** for managing extreme events and reducing disaster risk across hazards and sectors, including experience in managing new and changing risks and adaptive practices (e.g., Sahel in 1970s experience as surrogate for adaptation).
6. **Policies, data, tools and practices** to reduce and manage disaster risk
 - Food scarcity: drought
 - Water risk: floods, landslides
 - Land-use change and ecosystems: exacerbation of extremes and loss of function
 - Settlements and infrastructure: storms, heat waves
 - Coastal risks: winds, storm surges, inundations
 - Health risks: all extremes

Identification of:

 - Sources of information
 - Existing capacities and technologies
 - Assessment of implementation practice
 - Cost of options
 - Dissemination and scale-up potential
7. **Regional focus** on IPCC-identified most vulnerable areas (Africa, Asian megadeltas, small islands): existing capacities and needs for women and men, including technology transfer.
8. **Institutional mechanisms and issues:**
 - Institutions for management of extreme events
 - Financing: current structures and opportunities for joint financing
 - Inter-sectorial collaboration
 - Public information and understanding
 - Policy barriers and opportunities
 - Links with mitigation