

Climate Change and Disastersⁱ

John Morton

Natural Resources Institute

University of Greenwich

j.f.morton@gre.ac.uk

The horrific scale of death and destitution due to Cyclone Nargis has once more focussed attention on linkages between climate change and disasters, but even more so on another set of linkages: between disasters, vulnerability, governance and environment.

Media coverage of Cyclone Nargis, though less so than that of Hurricane Katrina, has re-opened (probably sterile) discussion on whether a single such climate disaster can be attributed to global climate change, as well as reminding us that climate disasters in general will be the most visible effects of climate change over the short- to medium- term.

The IPCC Fourth Assessment Report can be taken as supporting this view, but mention of disasters is dispersed across its structure of sectoral and regional chapters. Disasters are generally subsumed in a broader category of “extreme events” with statistical anomalies whose human impacts, if any, may be subtler. Nevertheless, the IPCC clearly states with high confidence that:

- Drought-affected areas will increase, and increased frequency of droughts will affect agricultural production in the tropics
- Coastal areas will see an intensification of cyclones, larger extreme waves and storm surges; coastal floods associated with rising sea-levels will affect millions of people
- Urban areas will be affected by increased heavy rainfall, floods and slides
- The poor, and the citizens of developing countries generally, having the most limited adaptive capacities, will be most vulnerable to the impact of such disasters.ⁱⁱ

Cyclone Nargis has also raised this last question: of why some people are more vulnerable to climate disasters than others, both in terms of suffering the impact of extreme weather events more, and of being less likely to receive effective emergency relief and rehabilitation afterwards. Comparisons have been made with neighbouring Bangladesh, where cyclones of similar magnitude in recent years have caused far fewer deaths. This discussion has taken in bad governance and the unresponsiveness of the Burmese junta to people’s needs for disaster management. It has also taken in the destruction of Burma’s mangrove forests,ⁱⁱⁱ which might otherwise have buffered the worst effects of the storm surge. We are reminded of Amartya Sen’s contention that famine cannot occur in a country with a free press^{iv}: while clearly tropical storms can assail countries with a variety of political systems and human rights records, it is not

Policy Forum: International Development in the face of Climate Change: Beyond Mainstreaming

much of a leap to suggest that a free press would have fostered better governance of the environment, at least some discussion on effective early warning and flood defence, and a disaster response that was not chillingly unresponsive.

This nexus of issues around disasters, climate change, vulnerability and governance prompts questions around (at least) two themes: integrating climate change adaptation and disaster risk reduction (DRR), and dealing with the limits of DRR.

Integrating climate change adaptation and disaster risk reduction

There is growing experience within development agencies of “disaster risk reduction”, though much work remains to be done. Schippers and Pelling (2006) contend that DRR has yet to be integrated *either* with national development policy and progress towards the MDGs, *or* with research and practice on climate change adaptation, despite there being clear intellectual and practical reasons for doing so. They attribute this mainly to the three practices being served by different institutions and working under different policy frameworks, but also to differences in language and method. Are the various communities of practice using key concepts, such as “adaptation”, to mean the same things?

Within DRR there is a move to *community-based* disaster risk reduction and methods of participatory community risk assessments. Van Aalst *et al.* (2008) see much scope for these methods, currently focussed on existing disaster risk and therefore on existing climate variability, more explicitly to incorporate considerations of climate change. However, they also see major challenges for this approach. Firstly that community assessments may bring to the fore either daily survival issues that seem unrelated to disaster risk, still less to climate change. Secondly, risks highlighted by communities may be outside the power of communities (or NGOs who typically perform this sort of assessment) to address – which brings us back to the issues of bad governance, including bad environmental governance, highlighted by Cyclone Nargis. How can disaster risk reduction approaches ensure that the real issues of governance and power are adequately addressed?

Thirdly, using these assessments to identify additional risks stemming from climate change requires careful analyses of information from informants (for example to screen out excessive emphasis on recent events) and equally careful introduction of outside knowledge into the process. Van Aalst *et al.* rightly note that there have been fewer attempts to inform the “grassroots” about climate change compared to other major development issues, and that when these attempts are made they will have to be carefully judged so as not to promote confusion and anxiety.

Policy Forum: International Development in the face of Climate Change: Beyond Mainstreaming

Recent studies on the potential use of (mainly seasonal) weather forecasts by small farmers and pastoralists have tended to take a pessimistic view on whether farmers can receive, understand and trust forecasts, and crucially whether they have freedom of action amidst their other constraints to *act* on forecasts. But we must continue work on how the new information resources available through remote sensing and climate modelling can be communicated to farmers and also to the local officials, services and NGOs who act or claim to act on their behalf.

Finally, amidst all the discussion of DRR and climate change, there is a question on whether we should beware of subsuming all action on climate change adaptation for the poor of developing countries under the heading of DRR. Some of the public pronouncements of NGOs, and some media coverage, appear to take this tack. But there will be other sorts of impact. UNEP's projections of the drastically shrinking area available for cultivation of robusta coffee in Uganda^v are a particularly graphic and well-known example of how shifts in means, and in climate variability outside of what are commonly understood as "disasters", will have profound negative impacts on rural people in developing countries.^{vi} These impacts are unlikely to be felt as "disasters", more as a long struggle to grow the crop profitably, to which the only adaptation can be the irrevocable and very "lumpy" decision to grub up and use the land for something else.

How can disaster risk reduction approaches be better incorporated into climate change adaptation?

- How can institutional relationships between actors in DRR and climate change adaptation be improved?
- Do we need to clarify the way terminology and concepts are employed in the two communities?
- Does disaster risk reduction need more directly to address governance and power?
- How can we harness new exogenous information sources on climate risk for communities and those who serve them?
- Can an emphasis on disaster management be a distraction from other sorts of impact on the poor of developing countries?

The limits of DRR in the face of climate change

At the same time we discuss better integration of DRR with research and practice on climate change adaptation, we must also ask what the limits to such an approach will be, and how we will deal with them. Disaster risk can only ever be reduced, not eliminate, both for technical reasons to do with design of risk management, and because, as noted earlier, risk reduction will come up against realities of governance and power. This will be even more true in a future of climate change. Quick-onset disasters, such as storms and floods, will become

Policy Forum: International Development in the face of Climate Change: Beyond Mainstreaming

more frequent and more severe. Droughts, the archetypal slow-onset disaster, will also become more frequent and more severe, till drought conditions (assuming that we define drought by negative impacts on people and their livelihoods, not by a statistical measure of departure from a mean) characterise majority of years, which will mean that conditions for many communities will begin to approximate to “permanent drought”. We can already see this happening in some parts of the Horn of Africa, for example: while aid agencies talk about one or two year droughts, some pastoralists see themselves as already in drought phases lasting five years or more (Morton 2006).

If disasters become more frequent, and the limits of DRR mean that relief remains necessary in at least some of these disasters, how will this change the nature of disaster relief and humanitarian work? Permanent drought raises the spectre of permanent drought relief. We know that, under certain political or economic conditions, drought relief can become routine. This can occur in large low-income countries like India, in middle-income countries like Morocco (between 1980 and 2001, some distribution of drought relief occurred in all but a handful of years, and between a third and a half of the country’s provinces benefited in an average year - Morton and Sear 2001), and in areas where international donors find themselves committed to relief year after year. In the latter case, attempts are being made to shift from constant ad-hoc reliance on emergency appeals to a more programmed “safety net approach”. However, whether international donors are involved or not, there is a danger of such long-term support becoming enmeshed in networks of patronage. Do we accept the widening of such a politics of destitution and dole to larger areas of the world and larger numbers of people?

We also need to ask whether such a widening of current disaster relief will indeed be possible under changed world food prices and food availability, themselves driven in complex ways by climate change and trends in biofuel production as well as population, technology and the functioning of world markets? Will “permanent drought” become a reason or an excuse for governments to encourage in various ways the depopulation of drylands, as existing livelihoods become “unsustainable”? Are there other ways, perhaps as “social protection” or “global social policy”, of framing the transfers of resources necessary to maintain people in dryland areas and in broadly traditional livelihoods?

What will be the limits of a disaster risk reduction approach in the face of climate change?

- How will climate change transform the nature of disaster relief?
- Do we risk moving in some areas towards “permanent disaster” and the normalisation of disaster relief, and if so how can this best be framed and managed?
- What will be the impacts of trends in global food prices on disaster relief
- the routinisation of relief?

References and Further Reading

- Burton I and M van Aalst (2004) “Look Before You Leap: A Risk Management Approach for Incorporating Climate Change Adaptation into World Bank Operations”. The World Bank, Washington, D.C.
<http://inweb18.worldbank.org/ESSD/envext.nsf/46ByDocName/LookBeforeYouLeap> (open access)
- Morton J and C Sear (2001) “Challenges for Drought Management in West Asia and North Africa” Paper presented to Ministerial Meeting on Opportunities for Sustainable Investment in the Rainfed Areas of West Asia and North Africa, Rabat, Morocco
- Morton J (2006) “The 2006 Drought and Pastoral Communities of Southern Ethiopia: Report on a study in Borena Zone and adjoining areas of Somali Region”. NRI Report for Save the Children USA
- Morton J (2007) “The Impact of Climate Change on Smallholder and Subsistence Agriculture”. *PNAS* 104: 19680-19685
<http://www.pnas.org/cgi/reprint/104/50/19680> (open access)
- Schipper L and M Pelling (2006) “Disaster Risk, Climate Change and International Development: scope for, and challenges to, integration” *Disasters* 30(1): 19-38
<http://www.blackwell-synergy.com/doi/pdf/10.1111/j.1467-9523.2006.00304.x> (open access)
- Sen, A “Development: Which Way Now?” *Economic Journal* 93 (December 1983)
- Van Aalst M, T Cannon and I Burton (2008) “Community Level Adaptation to Climate Change: the potential role of participatory community risk assessment” *Global Environmental Change* 18: 165-179.
- B Wisner, P Blaikie, T Cannon and I Davis (2004) *At Risk: natural hazards, people's vulnerability and disasters* 2nd edition. Routledge. First three chapters available for free download at UN ISDR virtual library, second item: <http://www.unisdr.org/eng/library/lib-select-literature.htm>

Policy Forum: International Development in the face of Climate Change: Beyond Mainstreaming

ⁱ Thanks are due to Terry Cannon for suggesting key questions and key readings. Responsibility for views expressed is mine alone.

ⁱⁱ Primarily drawn from the Report of Working Group 2: Summary for Policy Makers; Chapter 5; Chapter 6; Chapter 7.

ⁱⁱⁱ <http://news.bbc.co.uk/1/hi/sci/tech/7385315.stm> reporting comments by ASEAN's Secretary-General and FAO.

^{iv} In "Development: Which Way Now?" *Economic Journal* 93 (December 1983) and many subsequent works

^v http://www.unep.org/download_file.multilingual.asp?FileID=75

^{vi} see also Morton 2007 for more exploration of impacts of trends in means, variabilities and extremes.