

**DISASTER RISK REDUCTION IN A CHANGING CLIMATE:
Challenges Faced by NGOs and Communities September 2008]**

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Introduction

This chapter draws upon the experience of a global network of environmental and humanitarian / development NGOs working with the local communities most exposed to climate-related and other natural hazard risks. As a consequence of the extremely vulnerable set of social, economic, physical and environmental conditions hindering people's resilience and ability to manage such exposure, these communities commonly experience disaster and face the greatest challenges to recover. The millions of people that this represents year after year, which can be tens of times greater than official statistics, are the 'front-line' in the fight against the impact of disaster and global warming. Therefore a failure at the local level has *direct* impacts upon countless people's lives and livelihoods. However, it also has *far reaching consequences*. These can be in terms of issues such as the economic burden of humanitarian aid responses, the loss in GDP, the disruption to private-sector supply chains, and displacement and migration as people search for a better set of circumstances by moving to other locations (which can, for example, fuel urbanisation and create new risks). Impacts such as these have demonstrated time and again that sustainable development is not feasible without the integration of risk reduction, and genuine risk reduction is not possible without an appropriate weighting given to the reduction in the underlying causes of vulnerability of the people most at risk.

The significance and effectiveness of national and international decision-making on policies and programming within negotiating processes such as under UNFCCC and towards implementation of the Hyogo Framework for Action¹ can only be truly measured at the grass-roots level. It is at this level that probing questions can have meaningful answers: For example, are policies and plans reducing the number and impact of disasters and building resilience? Without the inclusion of the lessons learned by the NGO community working alongside at-risk groups, solutions to remedy the global rise in disasters, economic losses and human insecurity, are in danger of being limited to the treatment of *symptoms* of risk and not its *causes*. Therefore conditions will keep re-occurring, clearly a more costly intervention in the longer-term² with ramifications for the accomplishment of sustainable development, but also with destabilising implications for society.

¹ United Nations International Strategy for Disaster Reduction. Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters. Available <http://www.unisdr.org/>.

² Several studies have demonstrated favourable cost-benefit ratios of investing in disaster risk reduction (for further information see www.proventionconsortium.org)

These views are valid based upon the *current and historical experience* of NGOs working on disasters and development. However, climate change is now adding *new and increased risks and challenges* on an unprecedented scale.

This chapter highlights three key challenges faced by NGOs and communities in relation to reducing the risk of disaster within a changing climate. These are, a) the increasing exposure and vulnerability of the poor, b) increasing social and climate injustice, and c) the weak voice of civil society in national and global decision-making. Importantly, however, the chapter concludes with an emphasis upon what is working. This points towards the urgent need for increased political will and budgetary support on an *implementation-orientated* basis to expand and replicate existing disaster risk reduction successes in response to the urgent and increasing needs of communities and nations.

Increasing Exposure and Vulnerability of the Poor

Almost all disaster-related deaths occur in developing countries and, with climate change negatively impacting the poor most, this trend is set to continue. This is mainly because of people's *vulnerability* to hazards and climate variability, rather than the *occurrence* of natural hazards and climate change itself. Flooding, for example, is a natural process that can be beneficial when, for example, it brings new nutrients to soils. Flood losses, on the other hand, mainly occur because human settlements and vulnerable infrastructure are located in flood-prone areas. Since similar logic can be applied to other types of 'natural' disaster, vulnerability reduction is of primary importance. This can take many different forms depending upon the context, for example through land-use planning, livelihood choices or education and awareness-raising on disaster risks built into long-term development programming.

Without disaster risk reduction targeting the most vulnerable, disaster events are inevitable. Experience has shown that the loss of life, livelihood, assets and sense of wellbeing can manifest themselves in different ways. This can happen *slowly* through the gradual accumulation of stresses, pressures and 'extensive risk'³ (e.g. through trends in environmental degradation, population expansion, the prevalence of HIV/AIDS, conflict and displacement, urbanisation, decreasing safe water supply or food insecurity), or *quickly* as a result of a sudden impact (like a cyclone)⁴. Disasters can be highly *localised* (e.g. a landslide or fire), or on a *macro-scale* (e.g. drought affecting an entire country or region). Whatever the process was that turned a natural phenomenon (e.g. a flood) into a natural disaster (e.g. the inundation of homes built on a floodplain), it managed to undermine capacities to anticipate, resist and recover from the negative implications of this process.

The complex interaction of factors that generate conditions of vulnerability emphasise the need for comprehensive risk management strategies. Furthermore disasters themselves, despite acting as catalysts for the implementation of plans and programmes aimed at preventing future losses, undermine capacities. For example, a vicious cycle of environmental degradation and human suffering and hardship exists

³ United Nations (2007) *Disaster Risk Reduction Global Review: 2007*. Geneva: UN/ISDR

⁴ Experience has demonstrated that technically speaking there is no such thing as a 'sudden onset disaster', as the vulnerability that undermines a community's or nations' resilience against such an event probably accumulates over years and years before being triggered by a natural hazard.

in many regions where the natural environment is over-exploited. A degraded ecosystem can increase the risk of disaster (e.g. deforestation can increase the risk of landslides on certain slopes); a disaster causes loss of life and livelihood, and combined with other effects can damage the environment itself (e.g. from rubble and toxic waste generated by the collapse of buildings in an earthquake); humanitarian aid in the aftermath of a disaster commonly focuses upon short-term life-saving goals and thus in the process can deplete, pollute or otherwise damage the environment (e.g. due to the poor location, design and management of camps for displaced persons). Due to weakened environmental and livelihood security, this in turn undermines recovery and longer-term resilience against future threats.

So despite the weakened capacity induced by the occurrence of a disaster, in the wake of such an event recovery to pre-disaster conditions is insufficient if people are not to be exposed to the same level of risk as before. Therefore the resilience of social, environmental, economic as well as physical aspects of a society must be ‘built back better’ if a future disaster is to be avoided. However, the debilitating and long lasting undermining affect of a disaster on local communities and nations makes it all the more difficult to attain development objectives. This is particularly true for lower income countries, where economic losses from disasters can have the highest proportional impact on GDP. In this way disasters pose a serious and recognised threat to prospects for achieving the Millennium Development Goals, for example halving extreme poverty by 2015.

Linking degraded ecosystems and disaster risk

Cyclone Favio ravaged coastal towns in Mozambique’s central Province Inhambane in May 2008, but communities are now rebuilding their houses with wood from mangrove forests, perhaps unaware that the consequences of this action will likely leave them far more vulnerable to future cyclones and storm surges. Speculation is also simmering over the removal of some 80 per cent of Burma’s mangroves from the Irrawaddy Delta since the 1930s: could an intact or better-managed mangrove ecosystem have reduced the storm surge from cyclone Nargis?

Lack of Progress Addressing Social and Climate Injustice

Support for disaster risk reduction encompassing an emphasis upon reducing social vulnerability can be highly politicised. This is the most significant reason why experiential lessons learned throughout the history of civilisation regarding the risks that lead to disaster and therefore the measures necessary so that disaster can be avoided or reduced, even with relatively small investments, are not systematically learned and applied. This resonates with the words used by Upton Sinclair to express the sentiments of the Al Gore film, *An Inconvenient Truth*, “It’s hard to get a man to understand something when his salary depends upon him not understanding it”. Despite it having the greatest responsibility for risk reduction, the politicised nature of vulnerability reduction may account for much of the historical emphasis by the State on ‘hard’ engineering (such as flood embankments) and technological solutions (such as the use of earth observation to predict hazard occurrence), as these largely avoid an analysis of the true underlying causes of people’s vulnerability.

Concern is increasing worldwide over the already observed and the predicted future impacts of climate change – how this will affect livelihoods, our food and personal security, biological diversity and ecosystem services, national and global economies – in fact, much of society as we know it. However, despite its global importance, climate change negotiations provide a unique insight into how justice and equity currently play minor roles in comparison with national interests.

Attempts to enforce a system where the polluter generating greenhouse gases pays for the consequences of these actions in terms of supporting the building of adaptive capacity for those affected by climate change and variability, has commonly met with procrastination, resistance and disagreement. For instance, negotiations on support for adaptation to the impacts of climate change in the most vulnerable and poorest regions of the world (such as Least Developed Countries, the world's major river deltas, and Small Island Developing States threatened by total inundation on account of sea-level rise with major migration implications), is underpinned by a denial of proportionate responsibility. What is needed for effective risk reduction are incentives that would support a fundamental shift in political, economic and social systems that address deep rooted causes of vulnerability as well as addressing the more immediate, proximate causes. In this regard NGOs have a crucial advocacy role to play in tandem with the UNFCCC negotiations.

The Weak Voice of Civil Society in National and Global Decision-Making

Beneath the surface of any national level risk reduction achievements, and often despite a lack of them, lies a host of resilient local communities, coping with climate variability among other challenges. An approach to DRR that has therefore been gaining increasing attention in recent years is community-based disaster risk management. A community-based approach places DRR within the context of the people that are exposed and susceptible to the impact of hazards. It is therefore a strategy capable of ensuring that the subject of DRR is relevant to the lives and livelihoods of those that depend on it, and thus is effective in its application. Furthermore, indigenous skills and knowledge are also recognised (such as by the Inter-governmental Panel on Climate Change⁵) as being of major importance in light of the vagaries of weather and climate.

Regardless of the merits of this down-to-earth basis, and also in situations where stable communities do not exist, the valuable local perception of vulnerability and consequentially effective remedial options are not given as much attention in comparison with the external perceptions of the scientists, authorities and agencies assisting. Community-based approaches, largely encouraged and supported by NGOs, can therefore remain or become segregated from wider developmental issues and agendas and thus suffer from a lack of long-term resourcing. The grass-roots experiences and lessons, that have such important bearing on the effectiveness of disaster risk reduction strategies, are therefore normally limited to operate on a small

⁵ Parry, M. L. et al. (2007) 'Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change', Cambridge University Press, Cambridge, UK, 843-868

scale, over short time-frames, in isolated locations. Their full potential has not been captured.

Notwithstanding the above, top-down approaches to risk reduction are also important. This is because there are obvious limitations to what can be achieved by local communities alone – not least the inability to address the more deep rooted structural causes of poverty and vulnerability that often lie outside the sphere of influence of at-risk people. Furthermore, communities may not place sufficient emphasis on risks they have not experienced, and the resources that are needed in implementing certain physical mitigation measures or removing deep-seated factors influencing risk creation are likely to be too high. Similarly, high-level policy and planning alone is itself insufficient. For instance, the Hyogo Framework for Action, agreed by 168 countries, is not yet bringing about the required changes at the grass-roots level. This is despite its encouraging inclusion of the community-based ethos. In part this lack of local impact is related to poor implementation, weak accountability and inadequate monitoring architecture. In a similar vein, a major challenge will be turning future global adaptation funding into tangible action on the ground.

Bottom-up local realities and top-down policy and planning have a long way to go before they become better integrated as a matter of course. Democratic decentralisation and good governance committed to integrated risk management are of paramount importance in creating an appropriate enabling environment for this to occur.

What is Working?

Some countries, such as Bangladesh, Cuba, Vietnam and the Philippines, despite their relative lack of resources are often cited for making headway in disaster risk reduction. Part of the reason for this is that their respective governments are now giving the subject a relatively high priority, combined with comprehensive risk management approaches that encompass multi-sectoral and multi-level efforts by numerous government and non-government stakeholders.

Most progress in these countries, and elsewhere, though is focused on disaster preparedness and response⁶. Being prepared is one of the most effective ways to save lives, while requiring a less comprehensive analysis of social vulnerability. To be effective, early warning systems, for instance, do not have to be based upon state of the art technology. Indeed satellite images, remote sensing and computer modelling, are irrelevant if they are not ‘people-centred’⁷. An example of such a system was demonstrated in Bangladesh through the mobilisation of 40,000 Red Crescent volunteers who provided local warning ahead of Cyclone Sidr in November 2007. The level of casualties could have been in the hundreds of thousands given the wind speed and height of the storm surge. However, the impact was relatively small.

⁶ Among the Priorities for Action under the Hyogo Framework, most progress is reported in this area - UN (2007) Disaster Risk Reduction Global Review: 2007. Geneva: UN/ISDR

⁷ The four elements of a ‘people-centred’ early warning system are risk knowledge, monitoring and warning, dissemination and communication, and response capability (Source: UN/ISDR Platform for the Promotion of Early Warning, <http://www.unisdr.org/ppew>)

Another factor that had bearing on the scale of Cyclone Sidr's impact was the function of the Sunderbans Reserve mangrove forest in acting as a buffer, absorbing some of the storm's energy before impacting populated areas. This contrasts with the affects of the lesser magnitude (a storm surge half the height of Cyclone Sidr's) but much more damaging Cyclone Nargis that swept across the exposed Irawaddy Delta in May 2008. The Irawaddy Delta had been depleted of much of its natural mangrove forest to make way for agriculture. A growing body of evidence shows that climate change impacts on poor people through changes to eco-systems. The wise management of the environment and specific habitats and ecosystems such as floodplains, alpine forests and salt marshes, as well as mangrove forests, are cost-effective and have additional dynamic environmental and social benefits over hard engineered defences. Man-made defences require significant amounts of maintenance and are also capable of catastrophic failure, ironically affecting people that inhabited and worked in areas that would otherwise have been considered unsafe. With these lessons learned and with increasing challenges due to climate change, many countries and states in Europe and North America are now deliberately dismantling large-scale infrastructure that served as flood protection, preferring instead to restore the area to a more natural environment, with a view to disaster risk prevention and reduction. Furthermore, besides the capacity to provide local benefits, such measures absorb greenhouse gases.

Ecosystem restoration, as well as any other natural defence mechanisms should, however, by no means stand alone in the prevention of natural disasters. Community awareness, the presence of contingency plans, early warning systems and communication are very important tools for avoiding casualties in case of major events. Furthermore, the reduction in the causes of people's lack of ability to resist, cope with and recover from hazard impacts all play a critical role in disaster risk reduction.

Besides successes in disaster preparedness related to frequently occurring, high priority hazards, in countries with a history of disaster events, there are also examples of countries making headway in terms of proactive risk reduction based on the establishment of appropriate institutional and regulatory frameworks. For example, Bhutan and Nepal are cases where strategic advocacy has institutionalised legislation, road maps and integrated plans to address glacial lake outburst floods and climate change related phenomenon. This is more in the way of future-oriented risk reduction that offers insights into the application of integrated measures.

Where Do We Go From Here?

Progress in reducing disaster risk has been accomplished, particularly in terms of disaster preparedness and response. Community-based approaches to the reduction in risk have also gained momentum. Comprehensive risk management strategies based upon the integration of the subject within development programming across multiple sectors and at all levels is established as an appropriate concept. Also, the rise in application of environmental management as a dynamic approach to reduce risk with multiple benefits is another important development. But the global reduction in risk of disaster, particularly among Least Developed Countries, is currently totally insufficient, which accounts for the disaster impacts experienced in recent years and highlights major inadequacies to deal with additional threats in the future.

Within this context, the disaster risk reduction challenges in a changing climate that NGOs and communities and the international development community as a whole have to tackle, have been identified as:

- *The increasing exposure and vulnerability of the poor*
- *The lack of progress addressing social and climate injustice*
- *The weak voice of civil society in national and global decision-making*

To overcome these key challenges, the disaster risk reduction progress that has been made must be scaled-up and replicated. For this to occur a fundamental shift is required in the degree of significance placed upon the experience of the local communities most in danger and the root causes of their vulnerability to risks, that are largely generated elsewhere. Developing the necessary incentives to support these processes will be a critical issue facing both policy makers and practitioners, and one in which climate change can be considered both as a series threat to global human security and a major opportunity for global reform.