PROACT NETWORK

CLIMATE CHANGE ADAPTATION AND DISASTER RISK REDUCTION

POLICY PAPER

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Environmental management is a critical, yet under-used, form of disaster risk reduction and climate change adaptation. It is dynamic and has multiple benefits, including an ability to support the mitigation of global warming. Intact and well managed ecosystems also provide and ensure many essential services to communities worldwide

INTRODUCTION

This policy paper outlines the basis of ProAct's concern regarding the risk of disasters, the principles underpinning our approach to disaster risk reduction (DRR) and climate change adaptation (CCA), and the key areas of our work on these subjects.

Climate change and disaster management communities have mainly operated in isolation from each other in the past. ProAct believes that greater co-operation between them would increase the effectiveness of both in reducing people's vulnerability to rising insecurities. This policy paper responds to the urgent need to achieve this.

THE BASIS OF PROACT'S CONCERN REGARDNG DRR AND CCA

History of disasters and their rising global impact

In recognition of the rising impact of disasters worldwide and the need for concerted effort to enhance the resilience of nations and communities, in 2005, 168 governments endorsed the *Hyogo Framework for Action 2005-2015*. Although negotiations were underway beforehand, this declaration was agreed just weeks after the Indian Ocean tsunami claimed the lives of over 225,000 people in 11 countries. In the 20th century even larger-scale disasters occurred, for example through drought and flooding in China and cyclones and storm surges in Bangladesh. Besides such major catastrophes, more localised disasters – some of which build up more slowly – also add up to create extremely significant impacts. The scale of these local events has been known to exceed their recognition in official data by 10-fold or more. Furthermore, a steady deterioration in people's coping capacity over time, for instance on account of conflict and displacement, population growth, environmental degradation (e.g. desertification, coastal erosion, deforestation), or the spread of HIV/AIDS, particularly in Africa, has led millions of people to live under conditions of extreme vulnerability.

Weather-related disasters account for over two-thirds of all disaster events, and their significance is likely to increase with global warming. In its 4th Assessment Report, the Inter-governmental Panel on Climate Change (IPCC) projects that rising global temperature will cause

increasing drought in mid-latitudes and semi-arid areas, increased water stress in many parts of the world, increased damage from storms, and coastal flooding, affecting millions of people each year. These threats are considered real with just a 1-2°C rise in temperature, yet on current trends a rise of up to 5.8°C this century is possible, which would have catastrophic consequences.

A growing body of experience, however, is beginning to demonstrate that it is possible to reduce disaster risk and adapt to moderate climate change. International agreement - high profile disasters themselves - the increasingly better understood and agreed implications of climate change, and civil society advocacy have all inspired efforts to support local resilience, where the impacts of disaster are most acutely felt. Countries such as Bangladesh, Cuba, Vietnam and the Philippines, despite their relative lack of financial resources, are often cited for making headway in disaster risk reduction. Part of the reason for this is that the respective governments of these countries are now giving the subject a relatively high priority, combined with comprehensive risk management approaches.

The re-inforcing partnership between environmental degradation and disaster risk

A vicious cycle of environmental degradation and human suffering and hardship exists in many regions where the natural environment has been or is now being over-exploited.

- A degraded ecosystem can increase the risk of disaster. Deforestation, for example, can increase the risk of landslides and avalanches on certain slopes.
- A disaster causes loss of life and livelihood and – combined with other effects – can damage the environment through the sheer volumes of from rubble and toxic waste generated by the collapse of buildings in an earthquake, for instance.
- Humanitarian aid in the aftermath of a disaster commonly focuses upon short-term life-saving goals. This can, however, lead to a depletion of natural resources (e.g. cutting mangroves or extracting beach sand for reconstruction), pollution through improper waste management and disposal, over-extraction of groundwater reserves, or otherwise damage the environment (e.g. due to the poor location, design and management of camps for displaced persons).

Weakened environmental and livelihood security in turn undermines recovery and longer-term resilience against future threats, leaving both communities and the environment more vulnerable than before.

Protection of people against 'un-natural' disasters

Almost all disaster-related deaths occur in developing countries. This is mainly because of people's *vulnerability* to hazards, rather than the *occurrence* of natural hazards themselves. Flooding, for example, is a natural process that can be beneficial when 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.

Similar logic can be applied to other types of 'natural' disasters, making vulnerability reduction 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. However, support for such measures can be highly politicised. This probably accounts for the historical over-emphasis on 'hard' or structural engineering as these largely avoid an analysis of the true underlying causes of people's vulnerability. Technological solutions are also often sought, for example, in the aftermath of the Indian Ocean tsunami huge levels of funding and media attention were given to the development of a high-tech tsunami detection system for the Indian Ocean. While this may have certain clear benefits, little emphasis was given to the way in which information on tsunami probability – generated through sensors transmitting information via satellites – would be communicated to people exposed to the risk, or how such people might be provided with viable options to maintain the safety of their lives, livelihoods and homes.

THE PRINCIPLES UNDERPINNING PROACT'S APPROACH

ProAct emphasises the synergies between disaster risk reduction and climate change adaptation for a win-win strategy (while recognising certain differences)

The linking of these subjects wherever and whenever feasible is often a 'win-win strategy' that will enhance the reduction of climate-related losses, lead to the more efficient use of resources, and increase the effectiveness and sustainability of both approaches. Indeed, in many areas climate change adaptation can already be considered a component of the existing and broader disaster risk reduction agenda.

SYNERGIES	Explanation
Purpose	Both aim to build resilience in the face of hazards
Influence of poverty and underlying causes of vulnerability	Conditions are heavily influenced by poverty and the underlying causes of peoples' vulnerability. To be effective both have to address these issues
Integration in development	Both must be integrated into relief, recovery and development plans and policies and therefore require multi-stakeholder participation
Local level importance	Measures to relieve risk and adapt to climate change must ultimately be effective at the local level
Emphasis on present day conditions	Increasingly both recognise that the starting point is in existing/current conditions of risk and climate variability
Appropriateness of environmental management measures	The dynamic benefits of environmental management measures aid both current and less well understood future risk reduction needs
Risk assessment basis	Both require a basis in risk analysis for remedial actions to be effective
Converging political agendas	Despite earlier segregation, the policy debate is now starting to merge

DIFFERENCES[1]		Signs of Convergence
Disaster risk reduction	Climate change adaptation	
Origin and culture in humanitarian assistance following a disaster event	Origin and culture in scientific theory	
Remedial action most concerned with the present	Remedial action most concerned with the future	• DRR increasingly forward-looking • Existing climate variability is an entry point for CCA
Historical perspective	Future perspective	As above
Community-based process stemming from experience	Community-based process stemming from policy agenda	
Incremental development	New and emerging agenda	
Temporary local and national importance	Long-term global importance	• DRR gaining higher international profile through the Hyogo Framework for Action • CCA gaining experience through practical local application
Practical application at local level	Theoretical application at local level	
Existing risks	New risks	• DRR increasingly forward-looking • Existing climate variability is an entry point for CCA
Relevance to all hazard types	Relevance to climate-related hazards	
Vulnerability reduction encompassing social, economic, physical and environmental conditions	Vulnerability reduction focused upon environmental conditions	
Remedial action based upon full range of disaster mitigation and preparedness measures	Remedial action based upon disaster preparedness through hazard forecasting and early warning systems	
Traditional/indigenous knowledge at community level is a basis for resilience	Traditional/indigenous knowledge at community level may be insufficient for resilience against types and scales of risk yet to be experienced	Selected examples where integration of scientific knowledge and traditional knowledge for DRR provides learning opportunities[2]
Full range of established and developing tools[3]	Limited range of tools under development	
Negative impacts alone are identified	Negative impacts and positive opportunities and benefits are identified	
Political and widespread recognition often quite weak	Political and widespread recognition increasingly strong	None, other than that climate-related disaster events are now more likely to be analysed and debated with reference to climate change[4]
Funding streams *ad hoc* and insufficient	Funding streams sizeable and increasing	DRR community engaging in CCA funding mechanisms
Structural measures designed for safety levels modelled on current and historical evidence[5]	Structural measures designed for safety levels modelled on current and historical evidence and predicted changes	• DRR increasingly forward-looking • Existing climate variability is an entry point for CCA

The local level is where ProAct believes indicators of success are measured

Community-based disaster risk reduction and climate change adaptation places the subject within the local context of the people that are exposed to the impact of hazards and a changing climate. It is therefore a strategy most capable of ensuring that approaches are relevant to the lives and livelihoods of those that depend on it, with clear benefits for long-term effectiveness and sustainability.

ProAct seeks to support local action. ProAct also recognises that community-based approaches have some limitations, for example, where stable communities do not exist due to displacement or insecurity, the small-scale of local action in comparison with the need, and through the necessity to address external influences upon local level risk. Despite such challenges, however, certain measures such as awareness raising and local leadership training are always important for risk reduction. Furthermore, so as to enhance the sustainability and scale of targeted local initiatives and to facilitate the alleviation of causes of risk, ProAct seeks to bridge the divide between the local, national and regional levels, learning lessons from each and seeing how these might be replicated and adapted for similar situations elsewhere. Advocacy in support of the improvement in local conditions is thus a core strategy.

ProAct is aware that comprehensive risk management requires the engagement of multiple stakeholders on multiple levels

ProAct believes that an important way to enhance sustainability and scale is through the development of multi-stakeholder partnerships to support and replicate locally effective initiatives. Such partnerships can and should involve many different stakeholders, including local people, private companies[6], local and national governments, academic institutions, non-governmental organisations and donor agencies.

Soft engineering, with multiple benefits, is encouraged

Traditional approaches to protecting people and key infrastructure from disasters have commonly involved 'hard' engineering solutions, such as the canalisation of rivers and construction of sea walls. These have proved to be very expensive in terms of construction and maintenance and have not always worked as well as expected. Furthermore, they can have unforeseen negative consequences and can create a false sense of security or an over-reliance on structures that may fail catastrophically.

Recognising that in some circumstances 'hard' engineering can be appropriate, ProAct believes in emphasising ways to achieve risk reduction in a more cost-effective and sustainable way, and with fewer environmental drawbacks. ProAct therefore focuses on using knowledge of ecosystems and their functions in promoting environmental security as natural dynamic barriers against hazard impacts. Our emphasis, for example, encompasses the stabilisation of steep slopes, reduction of soil erosion in flood-prone coastal and fluvial areas, and the formation through sedimentation of natural protective storm beaches, barrier islands, artificial reefs and higher land. Furthermore, ProAct emphasises the synergies between a healthy natural environment and livelihood security, which in turn has benefits in terms of aiding peoples' resilience.

ProAct is keen to establish AdMit and MitAd projects[7]

This approach is an investment partnership between adaptation projects in an area vulnerable to climate change impacts and consumers eager to reduce the damage caused by ongoing, unavoidable emissions. The rationale is that beyond acting as natural barriers that protect vulnerable people and property, ecosystems can also absorb and store greenhouse gases. Adaptation based on ecosystem management can therefore also help alleviate climate change effects. Likewise, mitigation initiatives that use carbon storage and restore or protect the natural environment (such as through reforestation) can aid local adaptation to changes that are underway or anticipated. While adaptation funding mechanisms are still small in relation to the scale of need, in principle the larger mitigation funds could themselves, through a MitAd approach, provide opportunities to advance disaster resilience more rapidly.

KEY AREAS OF PROACT'S WORK IN SUPPORT OF DISASTER RISK REDUCTION AND CLIMATE CHANGE ADAPTATION

- **Technical advice and research** on possible disaster impacts and the subsequent integration of disaster risk reduction and climate change adaptation into relief, rehabilitation and development programming, strategy and policy.
- **Capacity strengthening** of local institutions in support of effective and sustainable community-based resilience to natural hazards and climate variability through practical hands-on support at the field level.
- **Protection and re-establishment of ecosystems and ecosystem services** for environmental and livelihood security in development programming and in post-disaster activities.
- **Engagement in the Nairobi Work Programme and UNFCCC negotiations** to support practical adaptation and the integration of environmental management based disaster risk reduction knowledge and experience in the adaptation pillar of the 'post 2012 framework'.
- **Engagement in stakeholder progress towards implementing the Hyogo Framework for Action 2005-2015** in particular to support the integration of risks associated with climate change (and the need for adaptation), and the effectiveness of the Framework in leading to a reduction in the underlying causes of vulnerability, recognised by improved resilience at the local level.
- **Innovative approaches to risk reduction** such as through the development of AdMit and MitAd funding opportunities.
- **Knowledge gathering and sharing** of ecosystem values in disaster risk reduction and climate change adaptation based on research and documentation

1. Modified from: Venton, P. and La Trobe, S. (2008). Linking Climate Change Adaptation and Disaster Risk Reduction. Tearfund.
2. For example 'Participatory Methods of Incorporating Scientific with Traditional Knowledge for Volcanic Hazard Management on Ambae Island, Vanuatu' (Cronin et al., 2004).
3. For example: early warning systems; seasonal climate forecasts and outlooks; insurance and related financial risk management; building design codes and standards; land use planning and management; water management including regional flood management, drainage facilities, flood prevention and flood-resistant agricultural practices; and environmental management, such as beach nourishment, mangrove and wetland protection, and forest management (UN/ISDR, 2003 p.4).
4. For example, Hurricane Katrina in the USA in 2005 or flooding and heat waves in Europe in 2002 and 2003, respectively.
5. Plus a determination on the 'level of acceptable risk'. The impact of flooding for the Netherlands is enormous, so flood defences are engineered to withstand very unlikely conditions. In other countries, the cost of such measures may be considered out of proportion with the additional safety level achieved.
6. The private sector is recognised as an increasingly important and yet under-represented stakeholder in disaster risk reduction and climate change adaptation. ProAct actively seeks to find ways to facilitate the engagement of the private sector.
7. AdMit refers to adaptation with a mitigation component, and MitAd refers to mitigation with an adaptation component.

For further information

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ProAct network | environmental security and climate solutions for civil society