



International Strategy for Disaster Reduction

Applying Disaster Risk Reduction for Climate Change Adaptation: Country Practices and Lessons

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Many countries have recognized the threat of increased disasters posed by climate change and have begun to take first steps toward preparing themselves. This short note reports on recent experience from six countries where national and local governments, with civil society participation, have worked to reduce disaster risks as part of their adaptation efforts. Based on these examples and other countries' experience, four key lessons can be drawn.



Disaster risk reduction is part of adaptation

The scientific evidence is now clear: climate change is likely to increase the frequency and intensity of climate hazards, such as floods, cyclones and droughts. In addition, it will likely lead to other changes such as ecosystem degradation, reduced availability of water and food, and changes to livelihoods, that will increase the vulnerability of communities to natural hazards. Developing countries will be hardest hit by the increasing disaster risk, while they are the least accountable for historical greenhouse gas emissions.

For these reasons, climate change negotiators have highlighted vulnerability and disaster risk reduction in the Bali Action Plan as key elements of climate change adaptation.

As we move toward – and then beyond – the Copenhagen UNFCCC COP15 meeting, we need not wait to take practical action to identify and reduce the specific risks faced by countries and communities. The Hyogo Framework for Action: 2005–2015, adopted by 168 governments in 2005, provides the conceptual framework and priorities for disaster risk reduction; the task now is to make use of the available tools, practices and experience to support adaptation plans and initiatives.

India, Pune

A city government in a highly vulnerable flood-prone area develops a climate change plan with comprehensive disaster management measures.

The city of Pune in Maharashtra State, India has a population of nearly 5 million people and is located on the confluence of the three rivers, Mutha, Mula and Pavana. It has been affected by several severe floods over the last six decades, the most significant being the 1961 flood that involved a major dam failure. Anticipating an increased frequency of floods owing to climate change, and in order to reduce its carbon footprint, the city authorities have developed a comprehensive climate change adaptation and mitigation plan.

A systematic city-wide plan of practical action to reduce flooding was implemented. A first step was to assess the flood risks by analyzing hourly rainfall intensity and examining the likely changes in impacts in low lying areas and places where natural drainage was blocked by construction of houses or roads without adequate bridges. A detailed city drainage map was developed. The plan introduced structural and planning measures for restoring natural drainage, widening streams, extending bridges and applying natural soil infiltration methodologies. Watershed conservation techniques such as afforestation and building small earthen check dams were undertaken

in the hilly zone. Property tax incentives were provided to encourage households to recycle waste water or use rainwater harvesting by storing run off from their roofs for domestic use. These efforts were complemented by improvements in flood monitoring and warning systems and social protection for affected families. The initiative is jointly driven by the elected Municipal Government, the Municipal Commissioner and active citizen groups called Alert, and involved many different city departments. It demonstrates that local governments can prepare for climate change by reducing and managing the factors that lead to disasters.

Peru

Initiatives by national and regional governments and development partners support adaptation to water-related disaster risks in the Andean highlands.

The Andean highland regions of Peru, which have poverty rates above the national average, are likely to be among the most affected parts of the country by climate change, particularly in terms of the quality and quantity of their glacier-fed water resources. A collaborative effort involving Peruvian national and regional authorities, a consortium of NGOs led by Intercooperation, and the Swiss Agency for Development and Cooperation has undertaken a climate change adaptation programme in the Southern Andean regions of Apurimac and Cusco, in which disaster risk reduction is highlighted as a major component.

Interdisciplinary adaptation measures are built on risk reduction approaches. The programme, called Climate Change Adaptation Programme (Spanish acronym PACC), focuses on water resources, disaster prevention and food security, and combines local and scientific knowledge in an interdisciplinary fashion. Examples of suitable adjustment measures identified include increasing the number and size of water storage reserves, introducing crop varieties that are capable of enduring extreme weather conditions, and integrating specific disaster prevention measures in regional planning. The PACC works alongside regional institutions, such as the Peruvian Centre for Studies and Disaster Prevention which has supported the Cusco regional government to update its regional plan for disaster reduction.

National authorities have established a strong context for local initiatives. A recent study by the National Federal Reserve Bank of Peru estimated that climate change will cost USD 855 billion up to 2050, equivalent to about seven

times Peru's 2008 GDP. Since 2002, the environmental authority of Peru, now the Ministry of Environment, has developed programmes for strengthening national and local capacities to cope with climate change. These include climate change scenarios at national and local level, vulnerability and adaptation assessments, and frameworks for implementing climate change adaptation measures. A national consultation process is underway to develop a national climate change strategy that will have disaster risk reduction as a core element.

Samoa

A small island state prepares for disasters and climate change by integrating across sectors and stakeholders and by linking national and village level action.

Samoa is regularly exposed to tropical cyclones and in future will face the effects of sea level rise as well as increased severity and intensity of weather conditions. The Government approved the Samoa Disaster Emergency Act of 2007 and the National Disaster Management Plan as the framework for implementing disaster management. The Plan identifies the practical application of disaster risk reduction in a cross-sectoral manner, facilitating the coordination of the Government, private sector, Red Cross and other NGOs, financial institutions, academic institutions, religious-based organizations and local communities in line with their mandated roles. This clarity in roles at the national level has also enabled appropriate approaches at the community level. All 329 village communities, government and private schools have completed, or are in the process of completing, their own disaster management plans.

A cross-sectoral approach has facilitated harmonization of risk reduction and climate change adaptation. In its nation-wide disaster management planning, Samoa has strategically addressed risk reduction and adaptation as complementary issues that must be addressed together at both national and community levels. The Government has completed its National Adaptation Programme of Action (NAPA), which is a UNFCCC instrument for least developed countries to identify priority adaptation activities. Instead of starting from scratch, the Samoan NAPA shares implementation priorities and activities with the National Disaster Management Plan. The fact that responsibility for both policy areas - disaster risk management and climate change adaptation - reside in the same Ministry of Environment and Natural Resources, has materially assisted in this process. In addition, by involving the private sector, the approach explored the interdependencies between

the public and private sectors and how the sharing of resources and skills could improve the outcomes for all.

South Africa, Overstrand

A rapidly-growing municipality addresses the increasing risk of droughts by implementing a water resource management programme.

The Overstrand Municipality, located along the coast of the South Western Cape Province in South Africa, has been faced with rapid and seasonal population growth and projected shortage of water supply in its Hermanus district. In addition, there has been a decline in rainfall since 1997 and climate change threatens to bring more variable rainfall and more extreme temperatures in the Western Cape region. In response, the Municipality adopted a comprehensive water resource management and development programme, which draws on and locally underpins the national policy and legislative platform established in 2002 by the South African National Department of Water Affairs and Forestry.

The Municipality strived to implement a longer-term, multi-stakeholder programme with growing public recognition on drought risk. The programme employed two main strategies, firstly better water demand management and secondly finding additional, sustainable sources. The Municipality conducted comprehensive water demand management measures including clearing of invasive alien plants, a public awareness campaign and a programme of leak detection and repair. In order to find local water sources, groundwater drilling was initiated after careful analysis of various options. The permanent coordinating role of the local government has been critical in conducting such a longer-term, multi-stakeholder programme which involves national and provincial water agencies, a regional biodiversity conservation institute and a group of community-based organizations. Uncertainty and scepticism among stakeholders toward extracting groundwater were overcome by establishing a participatory monitoring committee and obtaining baseline data.

United Kingdom, London

The capital region is preparing a comprehensive adaptation strategy that addresses different disaster risks.

In a recent study by reinsurance firm Munich Re, London was ranked the ninth most vulnerable major city to the

impacts of climate change. Already in this decade, the capital endured floods in 2000, 2002, 2007 and 2008, droughts in 2006 and heat-waves in 2003 and 2006. The London Climate Change Adaptation Strategy was drafted by the Greater London Authority, the region-wide governing body for London, under the active leadership of the City's Mayor. The draft Strategy, published in 2008, and under consultation for finalization in early 2010, adopts a risk-based approach and focuses on three main likely impacts for London: flooding, drought and overheating. The Strategy provides a framework for collaboration among stakeholders within the city and seeks to identify the specific actions that the various parties are best placed to provide.

The Strategy is built on existing frameworks and programmes on risk. The most prominent part of the draft Strategy is the chapter on flood risk. The Strategy's analyses and proposed actions against flooding were based on the groundwork done with the city's partners in the context of disaster risk reduction. For instance, the Strategy's long-term tidal flood planning is based on a flood management study, the Thames Estuary 2100 Project, undertaken by the Environment Agency. Moreover, the Strategy's flood response and recovery planning finds its policy basis in the London Resilience Partnership, a consortium of national, regional and local agencies for emergency response in the region, and its London Flood Response Strategic Plan.

Strong political leadership is the impetus of the Strategy.

London calls the Strategy one of the first comprehensive climate change adaptation strategies produced by any major city worldwide. The commitment of the Mayor to "position London as an international leader in tackling climate change" is a strong impetus behind the development and implementation of the Strategy.

Viet Nam

The Government is building bridges between the country's disaster risk reduction and climate change adaptation programmes.

As a coastal country with a long monsoon-affected coastline and a number of major river deltas, Viet Nam is one of the most disaster-prone countries in Asia and will be highly affected by the impact of climate change. Over the decade 1997-2006, disasters from weather-related hazards claimed as many as 7,500 lives (includes missing and killed) and caused asset damage equivalent to 1.5% of the GDP.

Acutely aware of this situation, the Vietnamese Government adopted in 2007 “the National Strategy for Natural Disaster Prevention, Response and Mitigation to 2020” and in 2008 “the National Target Program to Climate Change Response”. Following up on the two plans, the Government is now organizing a national forum to be held in October 2009 to enhance synergies between the two agendas.

The Forum aims to promote the use of accumulated disaster risk reduction experience. While the two documents are key policy milestones to deal with hazardous conditions in the country, there remain some differences in their language and concepts. The National Forum aims to identify areas of overlap and interface between disaster risk reduction and climate change adaptation, and to build bridges between government agencies responsible for both programmes as well as streamlining the financial channels for joint initiatives. The rationale is that the academic research, practical experience, and methods and tools for disaster risk reduction developed over the last three decades are directly relevant to the climate change domain. The Forum will also advance efforts to establish a National Platform for Disaster Risk Reduction, a multi-stakeholder coordinating body, in the context of responding to climate change.

High-level political leadership helps overcome institutional barriers. The National Forum will be hosted by the Deputy Prime Minister, whose leadership will stress national interest and collaboration between ministries. In Viet Nam, the Ministry of Natural Resources and the Environment is the lead agency for climate change coordination, while the Ministry of Agriculture and Rural Development maintains overall responsibility for rural development and disasters. Supporting international organizations, such as UNDP, the Australian Agency for International Development and UNISDR, also encourage cross-sectoral cooperation and synergy.

Main lessons

Based on these examples and other countries’ experience, three key lessons can be drawn:

1. **Measures to reduce vulnerability and disaster risk are proven and are readily available:**
Tools, capacities and supporting mechanisms for disaster risk reduction have been tested around the world and are available for wider use in climate change adaptation.
2. **Disaster risk reduction offers a triple win:**
Implementing disaster risk reduction policies and programmes can limit the impacts of climate-related hazards, help alleviate poverty and directly support adaptation to climate change.
3. **Reducing disaster risk requires - and provides opportunities for - political leadership:**
Political commitment at the highest level is essential to drive action across all sectors and to build institutional linkages between climate change adaptation and disaster risk reduction fields.
4. **Multi-stakeholder participation is increasingly seen as a key to durable results:**
Disasters and climate change affect all of society, and therefore disaster risk reduction and adaptation solutions must involve all sectors and civil society, including the private sector.

Background information

The International Strategy for Disaster Reduction brings together governments, NGOs, UN Agencies, universities and technical institutions, international financial institutions and the private sector to build capacities for reducing disaster risk and promote the implementation of the Hyogo Framework for Action. The information in this flyer has been gathered from many sources and the assistance of ISDR partners is greatly appreciated. For more information on the ISDR system and disaster risk reduction, see www.unisdr.org and www.preventionweb.net.

UNISDR (2007), Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters, Extract from the final report of the World Conference on Disaster Reduction (A/ CONF.206/6), Geneva.
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