

# Adaptation to Climate Change by Reducing Disaster Risks: Country Practices and Lessons

With the threat of increased disasters from climate change, many countries are already taking steps to reduce their vulnerability to weather and climatic hazards, such as floods, cyclones, heatwaves and droughts. Adaptation to climate change is a relatively new concern, but it can call on a rich tradition spanning many decades of practices to reduce disaster risks. The present note reports on examples of recent experience in eight countries where national and local governments and civil society participants have worked to strengthen their disaster risk reduction and adaptation actions. These cases, along with similar experience in other countries, provide a number of useful insights and lessons for climate change negotiators and policymakers, development planners, and managers and practitioners at national and local levels.

Geneva, November 2009



United Nations

## 1. Climate change and disaster risks

### The scientific and policy foundations

An overview of the scientific and policy foundations for climate change and disaster risk was set out in the previous Briefing Note 1 "Climate Change and Disaster Risk Reduction"<sup>1</sup>. Briefly, the scientific evidence<sup>2</sup> shows that for disasters, climate change poses a double threat. Firstly, increases are expected in the frequency and intensity of weather and climatic hazards, such as floods, tropical cyclones, heatwaves and droughts (and in some places are already occurring). Secondly, there are likely to be other changes such as ecosystem degradation, reduced availability of water and food, and impacts on livelihoods, which together will reduce the capacities of communities to cope with natural hazards, especially in poor developing countries.

Aware of this, climate change policymakers identified the need for reductions in vulnerability and disaster risk in the UNFCCC Bali Action Plan<sup>3</sup>, as key elements for achieving adaptation and sustainable development.

Separately, world policy makers addressing the issue of disasters have noted the need to address climate change concerns within disaster risk reduction strategies, as part of the Hyogo Framework for Action: 2005-2015, which was adopted in Kobe, Japan, in 2005.<sup>4</sup>

Global disaster risk is increasing worldwide, threatening development gains, owing largely to a mix of unplanned urban development, vulnerable livelihoods and ecosystem degradation, and likely also climate change.<sup>5</sup> The aim of the Hyogo Framework is to reverse this trend by substantially

## Adaptation to Climate Change by Reducing Disaster Risks: Country Practices and Lessons

reducing disaster losses and by building the resilience of nations and communities to disasters.

The immediate task, as we move beyond the 2009 Climate Conference in Copenhagen, is to capitalise on the common concerns of adaptation and disaster risk reduction, both in policies and practical action, and to seek the triple win of lower disaster risks, adaptation to climate change, and sustainable development outcomes.

Furthermore, and as we shall see from the examples below, the initiatives and experiences of many countries show that it is not necessary to wait for international agreement on climate change before acting to identify and reduce existing disaster risks and to prepare for a changing future.

### Linkages between climate change adaptation and disaster risk reduction

The expressions “disaster risk reduction” and “climate change adaptation” represent policy goals, one concerned with an ongoing problem (disasters) and the other with an emerging issue (climate change). While these concerns have different origins, they overlap a great deal through the common factor of weather and climate and the similar tools used to monitor, analyse and address adverse consequences. It makes sense, therefore, to consider them and implement them in a systematic and integrated manner.

For example, risk assessments, flood management systems and building code enforcement contribute

to both policy goals. At the same time there are areas of non-overlap, such as in earthquake risk engineering for disaster risk reduction and agricultural or trade policy initiatives for adaptation. Figure 1 illustrates the relationship, with each pyramid representing the hierarchy from a distinctive top-level policy goal, down through institutions and mechanisms, to a base of concrete programme actions that increasingly overlap.

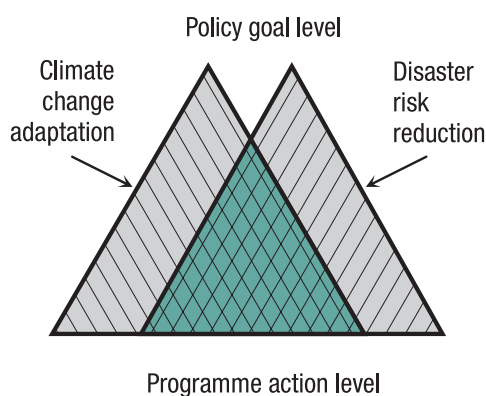
Climate change adaptation and disaster risk reduction share another common feature – they are not sectors in themselves but must be implemented through the policies of other sectors, in particular, those of agriculture, water resources, health, land use, environment, finance and planning. There are also linkages with other policies, most notably poverty eradication and planning for sustainable development, and education and science.

### Implementing disaster risk reduction as an adaptation strategy

In the past, the two policy fields have operated largely in isolation from each other. Environment authorities usually have responsibility for climate change adaptation, whereas authorities for disaster management, civil defence, and home affairs typically have responsibility for disaster risk reduction. Increasingly, however, countries are seeing the shortcomings of such “silo” approaches and are seeking to systematically link climate change adaptation and disaster risk reduction, often as an element of their development planning. In some cases governments have even combined the two into new national legislation or in a single ministerial responsibility. In other cases, it is local governments who are taking the significant initiatives to deal with the two issues in a coherent way.

The long historical experience in implementing disaster risk reduction can contribute greatly to adaptation, in terms of policy and institutional approaches as well as technical methods and tools. These include the Hyogo Framework, legislation development, multi-stakeholder national platforms, technical networks, and approaches to community

**Figure 1:**  
Relationship  
between climate  
change adaptation  
and disaster risk  
reduction



## Definitions

### Adaptation

The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Comment: This definition addresses the concerns of climate change and is sourced from the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC). The broader concept of adaptation also applies to non-climatic factors such as soil erosion or surface subsidence. Adaptation can occur in autonomous fashion, for example through market changes, or as a result of intentional adaptation policies and plans. Many disaster risk reduction measures can directly contribute to better adaptation.

### Disaster risk reduction

The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Comment: A comprehensive approach to reduce disaster risks is set out in the United Nations-endorsed Hyogo Framework for Action, adopted in 2005, whose expected outcome is “The substantial reduction of disaster losses, in lives and the social, economic and environmental assets of communities and countries.” The International Strategy for Disaster Reduction (ISDR) system provides a vehicle for cooperation among Governments, organizations and civil society actors to assist in the implementation of the Framework. Note that while the term “disaster reduction” is sometimes used, the term “disaster risk reduction” provides a better recognition of the ongoing nature of disaster risks and the ongoing potential to reduce these risks.

See UNSDR (2009b), UNISDR Terminology on Disaster Risk Reduction: <http://www.unisdr.org/eng/terminology/terminology-2009-eng.html>.

capacity building, along with hazard and vulnerability assessment, land use planning and environmental protection, construction of dams, dykes and seawalls, early warning systems, and community education and resilience programmes. It is vital for adaptation policy-makers and managers to use and build upon these existing capacities and resources rather than starting afresh.

Equally, many of the approaches being developed for adaptation, such as vulnerability assessments, sectoral and national planning, capacity-building and response strategies, are directly supportive of disaster risk reduction.

## 2. Case examples of country experience

The eight examples assembled and summarised here provide valuable insight into what can be done in practical ways to adapt to climate change and reduce disaster risks. For many countries, existing problems associated with unsustainable development practices and frequent floods, droughts, and tropical cyclones provide the natural starting point for adaptation initiatives. These typically involve strengthened disaster risk reduction action and the development of harmonised frameworks for adaptation and disaster risk reduction.

### 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 at 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,



India. Dredging of the River Mutha was one of a number of risk reduction measures included in the city of Pune's comprehensive climate change plan. Source: Pune Municipal Cooperation

## Adaptation to Climate Change by Reducing Disaster Risks: Country Practices and Lessons

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 analysing 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 by 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 wastewater 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 has been jointly driven by the elected municipal government, the Municipal Commissioner and active citizen groups called Alert, and involves many different city departments. It demonstrates that local governments can prepare for climate change by reducing and managing the local factors that lead to disasters.*

### **Maldives**

**An island country devastated by the Indian Ocean tsunami now prepares for future climate disaster risks by strategic action planning.**

The Maldives is among the small island states identified as one of the most vulnerable to climate change impacts. Since the aftermath of the Indian Ocean tsunami, reducing disaster risks has become an important cross-cutting development issue in the island state. Against this background, the government has recently initiated a process to develop a Strategic National Action Plan (SNAP) on disaster risk reduction and climate change adaptation. It aims to promote collaboration



Maldives. Increased coastal erosion from climate change and sea level rise will be a key concern for the Strategic National Action Plan on disaster risk reduction and adaptation being developed by the government. Source: UNISDR

among policy makers, experts and practitioners of disaster risk reduction and climate change adaptation throughout the country in order to develop a comprehensive risk management approach. Stocktaking of existing programmes and multi-sectoral consultations with local governments have been conducted to assess the gaps and challenges.

*The leadership of the President guided the process. The process was initiated with an agreement made during the meeting of the President with a UN mission team in July 2009. In addition to supporting the development of the SNAP, the President has committed to conduct a partners' forum on translating the plan to action and to host a leaders' forum to place the issue of disaster risk reduction and climate change adaptation at the top of the global agenda.*

### **Peru, Andean Highlands**

**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 parts of the country most affected 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 and a consortium of non-governmental organizations

## Adaptation to Climate Change by Reducing Disaster Risks: Country Practices and Lessons

led by Intercooperation, and supported by a new climate change programme of the Swiss Agency for Development and Cooperation, has undertaken an 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 the 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 into regional planning. The programme engaged other institutions, such as the Peruvian Centre for Studies and Disaster Prevention (PREDES) 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 gross domestic product. 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 support for 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 update the 2003 national climate change strategy and to develop a National Plan for Adaptation that will have disaster risk reduction as a core element.

### Philippines

#### **New legislation in the Philippines places disaster risk reduction as the first line of defence against climate change risks.**

The Philippines is high among the most disaster-prone countries and is exposed to numerous powerful tropical cyclones or storms every year and also suffers from periodic droughts. In 2009, for instance, the tropical storms Ketsana and Parma caused hundreds of casualties and severe damage to housing and other property. In response to concern about increasing disaster risks arising from climate change, the Philippines Government enacted new legislation, called the Climate Change Act of 2009, which will integrate disaster risk reduction measures into climate change adaptation plans, development and poverty reduction programmes.

*Disaster risk reduction is embedded into the institutional framework for the national and local climate change policy.* Under the new Act, a Climate Change Commission headed by the President of the Philippines will be created as the sole governmental policy-making body on climate change. Its primary function is to "ensure the mainstreaming of climate change, in synergy with disaster risk reduction, into national, sectoral and local development plans and programmes". The Act also gives local governments the primary responsibility for planning and implementing local climate change action plans, which will be consistent with national frameworks.



Peru. Meetings of local communities in the Andean highlands were organised by a consortium of NGOs to discuss climate change and measures to address water shortages.  
Source: Intercooperation

**Samoa**

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

Samoa's coastal communities are regularly exposed to tropical cyclones, storm surges and tsunamis. The effects of climate change and sea level rise, combined with increasing coastal development and limited land use planning practices, increase these communities' disaster risks and their capacity to adapt to climate change. The Government approved the Samoa Disaster Emergency Act of 2007 and the National Disaster Management Plan 2006-2009 as the framework for implementing disaster management. The Plan promotes a cross-sectoral approach that facilitates the coordination of the government, private sector, Red Cross and other non-governmental organizations, financial institutions, academic institutions, religious-based organizations and local communities in line with their mandated roles. The clarity in roles at the national level has also helped achieve consistent approaches at the community level. All 329 village communities, government agencies and schools are required to complete disaster management plans. To date approximately 29 agency response plans have been endorsed and community planning has commenced in 27 districts. In addition, by involving the private sector, the approach explored the interdependencies

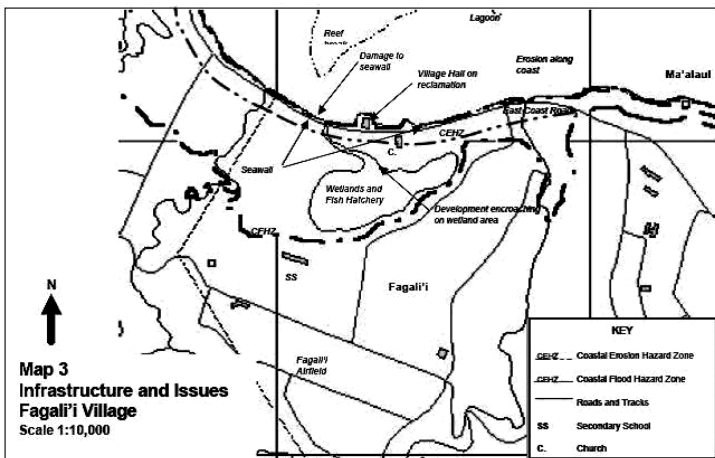
between the public and private sectors and how the sharing of resources and skills could improve the outcomes for all.

*A cross-sectoral approach has facilitated harmonisation of risk reduction and climate change adaptation.* In its nationwide 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) — the being a UNFCCC instrument for least developed countries to identify priority adaptation activities — and this shares the implementation priorities and activities of the National Disaster Management Plan. Several disaster risk reduction elements of the NAPA have been implemented with international climate change funding, including from the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF) managed by the Global Environment Facility. 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 the process to link the two.

**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 shortages 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 developed by the South African National Department of Water Affairs and Forestry.



Samoa. A map of coastal infrastructure and risk issues, for Fagali'i Village, provides information necessary for public asset management, risk reduction and adaptation. Source: World Bank

## Adaptation to Climate Change by Reducing Disaster Risks: Country Practices and Lessons

*The municipality strived to implement a longer-term, multi-stakeholder programme with growing public recognition of drought risk. The programme employed two main strategies, firstly better water demand management, and secondly finding additional, sustainable sources of water. 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 vital 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 was overcome by establishing a participatory monitoring committee and preparing relevant sets of baseline data.*

### United Kingdom, London

**The Capital region is preparing a comprehensive adaptation strategy that stresses parallel risk management efforts to “prevent, prepare, respond and recover”.**

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 work on



South Africa. Clearing invasive alien plants from waterways is part of Overstrand Municipality's comprehensive water management strategy, and has provided jobs and training to thousands of people. Source: Overstrand Municipality

the London Climate Change Adaptation Strategy was led 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 finalisation 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. It stresses proactive prevention and preparedness measures, such as improved standards of protection and removal of flood-sensitive development from flood plains, but also includes reactive response and recovery measures, such as increased hazard prediction and public awareness-raising.

*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.



United Kingdom. The Thames Barrier, built in 1983, is a key element of the Thames tidal defence system and will play an important role in the London Climate Change Adaptation Strategy. Source: Environment Agency

## Adaptation to Climate Change by Reducing Disaster Risks: Country Practices and Lessons

*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 linkages 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 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 gross domestic product. 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 plans, the Government organised a National Forum in October 2009 to raise awareness and commitment and to enhance the synergies between the two agendas.

*The Forum aimed to promote the use of accumulated disaster risk reduction experience.* While the two



Philippines. Landmark legislation on climate change and disaster risk reduction was signed into law on 23 October 2009 by President Gloria Macapagal Arroyo, witnessed by Senator Loren B. Legarda, its author and sponsor, and Senate President Juan Ponce Enrile, Rizal Hall, Malacanang Palace.  
Source: Joseph Vidal

documents are key policy milestones in dealing with hazardous conditions in the country, there remain some differences in their language and concepts. The National Forum aimed to identify areas of overlap and interface between disaster risk reduction and climate change adaptation, and to improve linkages between government agencies responsible for both programmes as well as streamlining the financial channels for joint initiatives. The rationale was 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 also advanced 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 was hosted by the Deputy Prime Minister, whose leadership stressed 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. A number of international organizations, such as the Australian Agency for International Development, UNDP, UNISDR, and the World Bank’s Global Facility for Disaster Reduction and Recovery played a role in supporting the Forum and assisting in the development of strengthened cross-sectoral cooperation and synergy.



Viet Nam. Deputy Prime Minister Hoang Trung Hai opens the National Forum on Disaster Risk Reduction and Climate Change Adaptation, 7 October 2009, lending his support to efforts to deal with both issues jointly.  
Source: UNISDR



### 3. Lessons for implementation

The following six implementation tasks are offered as recommendations, drawing on the lessons of the country examples and on experience elsewhere. Further information on how to implement practical tasks such as these can be found in the guide to implementing the Hyogo Framework “Words into Action”.<sup>6</sup>

#### 1. Map the institutions, policies and mechanisms already in place for reducing disaster risk and dealing with climate change adaptation.

A mapping exercise is an essential starting point, to identify which organizations need to be involved and what synergies, overlaps and gaps may exist. Ideally, it should be done jointly by colleagues from both the climate and disaster fields. It should also consider other relevant sectors, different levels of government, and the role of non-governmental organizations.

In Viet Nam, a detailed study of existing institutional mechanisms and capacities for both disaster risk reduction and adaptation was conducted in preparation for the national policy forum. In the Maldives, a stocktaking of existing programmes and multi-sectoral consultations with local governments were conducted to assess the gaps and challenges, prior to formulating the strategic national action plan. The London, United Kingdom strategy is built on existing frameworks and programmes on risk.

#### 2. Take stock of the available information on hazards, exposure, vulnerabilities and risk assessments.

Historical weather and climate data and analyses of extreme conditions are usually available from meteorological agencies, and experts can be consulted on the availability of climate change projections that are “downscaled” for national use. Information on the exposure and vulnerability of communities is often harder to locate, but may be obtainable from standard national statistics or from surrogate data such as land cover, population, and income levels. Risk studies and assessments may be available for specific situations.

In India, the flood-prone municipality of Pune undertook a city-wide assessment of flood risks, using detailed city drainage maps, as a basis for their systematic climate change plan. Similarly, in the United Kingdom, London used a flood management study done by a national government agency as the basis for analyses and planned actions. Overstrand, in South Africa, made projections of future water needs based of historical data and current trends.

#### 3. Convene multi-stakeholder discussions to review information and identify opportunities to harmonise policy and address capacity gaps

In all of the country examples, some sort of multi-stakeholder process was undertaken to engage the diverse technical expertise and political interests concerned with adaptation and disaster risk. Multi-stakeholder and multi-sectoral processes are also important to build common understanding and mutual assistance and commitment.

In the India, Pune case, the authorities directly involved citizen groups alongside city department officials. In the Peru example, a consortium of non-governmental groups cooperated with national and local authorities. Multi-sectoral consultations were conducted in the Maldives and Samoa.

#### 4. Initiate capacity development activities to build or strengthen coherent approaches to climate change adaptation and disaster risk reduction

One ingredient for success is that those responsible for disaster risk reduction and climate change adaptation understand the needs and capacities of the other and jointly develop their technical and leadership capacities. This can be achieved by the responsible government focal point offices engaging in systematic dialogue and undertaking mutual capacity development, including joint training, on such things as knowledge of mandates and operational programmes, common technical skills (e.g. collecting risk information, developing design standards for schools), and linking processes for developing programmes and related budget submissions. To achieve durable outcomes,

the dialogue and cooperation should also involve senior officials.

Dialogue and mutual capacity development were natural features of many of the country examples, but there is clearly potential to systematise and strengthen these processes in order to accelerate planning and programme development. Lessons could be learned, for example, from the Maldives, Philippines, Samoa and Viet Nam cases, where the linking of national planning on disaster risk reduction and climate change adaptation has promoted collaboration and mutual learning among policy makers, experts and practitioners from the two communities.

#### **5. Design joint project initiatives that address both climate change adaptation and disaster risk reduction.**

Joint initiatives to address immediate practical problems are a good way to make progress and learn how to integrate the concerns of climate change and disaster risk reduction. These may be new projects or the revision and strengthening of existing programmes. Adaptation programmes can be quickly developed on the basis of existing disaster risk reduction efforts, while disaster risk reduction can be expanded through the increased capacity and resources becoming available for climate change adaptation.

In South Africa, the Overstrand municipality's comprehensive water resource management programme involved practical measures such as clearing of invasive alien plants, a public awareness campaign, a programme of leak detection and repair, and ground water drilling. In India, the Pune municipality developed a cross-cutting plan involving an emissions reduction programme along with watershed conservation, flood management and water recycling. In Peru, an adaptation programme for the mountain regions was developed and implemented in cooperation with a regional disaster prevention institute and was funded by a bilateral climate change aid programme. Samoa's disaster risk reduction programmes under the National Adaptation Programme of

Action are partly funded by multilateral climate change funds.

#### **6. Conduct adaptation planning with a multi-sectoral, development-based approach and centralised oversight responsibility**

Several of the country examples focus on developing a foundation of national planning and oversight, as a means to achieve policy coordination and mainstreaming across sectors and institutions, and as part of national and local development planning. The process covers such things as strategy, principles, applicable law, institutional responsibilities, investment priorities, and accountability mechanisms. Typically a multi-stakeholder engagement process is used, and in some cases this has been taken to the community level. High level political leadership to drive the agenda forward is an important factor. The plans also may become important instruments in future for developing countries to use for accessing international adaptation funds. International frameworks, particularly the Hyogo Framework and the adaptation frameworks used by UNDP, UNFCCC and IPCC, and their associated toolkits, offer useful starting points on this task.

The Philippines has enacted new national legislation on climate change which has a special focus on disaster risk reduction and has established a commission led by the President to take responsibility for ensuring the mainstreaming of climate change and disaster risk reduction, into national, sectoral and local development plans and programmes. In Samoa, the Government considers disaster risk reduction and climate change adaptation as complementary issues. A national disaster management plan has been completed, villages and schools are developing local counterpart plans, and the National Adaptation Programme of Action is linked to the national plan. The Greater London Authority, in the United Kingdom, has developed a comprehensive adaptation plan under the leadership of the Mayor. In Viet Nam, the national forum led by the Deputy Prime Minister resulted in the establishment of a national platform for disaster risk reduction, as a standing coordination body among the government ministries.

## 4. Conclusions and key messages

The examples summarised here show that good progress is being made in a number of countries to integrate climate change adaptation and disaster risk reduction, both at national policy level and through on-the-ground action. Some common themes and lessons are emerging. While drawing on international expertise and support, most initiatives are targeted at local needs and problems and predominantly make use of national and local capacities. Water-related issues – shortages and excesses – are prominent as starting points. The expertise and networks of disaster risk reduction and disaster risk management are playing a key role in adaptation. Local governments as well as national governments are taking a lead and both are investing in adaptation and risk reduction. The measures being undertaken appear to be relatively inexpensive and cost-effective. Most initiatives are proceeding without waiting on the outcomes of international deliberations under the UNFCCC.

Nevertheless, several key issues remain outstanding. The data needed to support long-term risk

management under a changing climate is often very limited. There is no standard internationally-agreed guidance on how to integrate climate change adaptation and disaster risk reduction, and the frameworks being developed by countries are diverse and largely untested. The formal mechanisms for linking the policies and institutions concerned with adaptation, disaster risk reduction and development, and for engaging community actors, are often rudimentary. The level of funding being applied is still small and generally the programmes have not attained comprehensive national implementation. Some developing countries have drawn on currently available international climate change funds but there is still great uncertainty about how the large adaptation funds that are projected for the future will be accessed and applied.

While much remains to be done, it is also clear that there is now a significant basis of ideas, information and capacities to quickly advance climate change adaptation through the application of disaster risk reduction methods. The following four key messages aim to capitalise on this timely opportunity for progress and to promote effective action.

- 1 Measures to reduce vulnerability and disaster risk are proven and are already being applied to adaptation:** 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, directly support adaptation to climate change, and help alleviate poverty.
- 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 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, and community engagement.

### References

- UNISDR (2008), Climate Change and Disaster Risk Reduction, Briefing Note 1: <http://www.unisdr.org/eng/risk-reduction/climate-change/docs/Climate-Change-DRR.pdf>.
- See IPCC (2007), Fourth Assessment Synthesis Report: [http://195.70.10.65/pdf/assessment-report/ar4/syr/ar4\\_syr.pdf](http://195.70.10.65/pdf/assessment-report/ar4/syr/ar4_syr.pdf) and UNISDR (2008), and reference above.
- UNFCCC (2007), Bali Action Plan (1/Cp.13), report of the Conference of the Parties (COP 13): <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf>.
- UNISDR (2005), 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): <http://www.unisdr.org/eng/hfa/hfa.htm>.
- UNISDR (2009a), Global Assessment Report on Disaster Risk Reduction: Risk and Poverty in a Changing Climate: <http://www.preventionweb.net/english/hyogo/gar-report/>.
- See UNISDR (2007), Words into Action: A Guide for Implementing the Hyogo Framework: <http://www.unisdr.org/eng/hfa/docs/Words-into-action/Words-Into-Action.pdf>. This guide aims to provide practical advice for hands-on action through 22 suggested tasks, for example “Establish an initiative for countrywide risk assessments”. For each task it provides an explanation of the task, how to carry it out, who to involve, examples of experience from different countries, and background reading.
- Information on the organizations involved in the ISDR and their activities may be found at <http://www.preventionweb.net/english/hyogo/isdr/>. A summary of the roles, mandates and areas of work of relevant UN entities may be found at <http://www.preventionweb.net/english/professional/publications/v.php?id=9866>. Information on the ISDR secretariat (UNISDR) may be found at [www.unisdr.org](http://www.unisdr.org).

The International Strategy for Disaster Reduction (ISDR) is a UN-endorsed strategy that brings together governments, non-governmental organizations, UN Agencies, universities and technical institutions, international financial institutions and the private sector to help build capacities for reducing disaster risk and to promote and monitor the implementation of the Hyogo Framework for Action. Many ISDR system partners, too numerous to name, are very actively involved in supporting countries to reduce disaster risks and adapt to climate change<sup>7</sup>. The information in this Briefing Note has been gathered from many sources and the assistance of the national experts and ISDR partners involved in the country examples showcased here is greatly appreciated.

For more information on the ISDR system and disaster risk reduction, see [www.unisdr.org](http://www.unisdr.org) and [www.preventionweb.net](http://www.preventionweb.net).

## The Hyogo Framework for Action

“The Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters”<sup>4</sup> is an internationally agreed policy framework for disaster risk reduction, which was adopted at the World Conference on Disaster Reduction, Kobe, Hyogo, Japan 18-22 January 2005. It provides a strategic and comprehensive global approach to reducing vulnerabilities to natural hazards, and represents a significant reorientation of attention toward the root causes of disaster risks, as an essential part of sustainable development, rather than on disaster response alone. The Framework sets out five priorities for action as follows:

1. Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation, including dedication of adequate resources and the establishment of coordination mechanisms such as a national platform for disaster risk reduction.
2. Identify, assess and monitor disaster risks and enhance early warning, including hazard and vulnerability analysis and early warning systems with outreach to communities.
3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels, through awareness-raising, school education, scientific research and information exchange.
4. Reduce the underlying risk factors, in such areas as natural resource management, socio-economic development, physical planning and construction.
5. Strengthen disaster preparedness for effective response at all levels, including preparedness planning and strengthening of disaster response capacities.



United Nations  
International Strategy for Disaster Reduction

### UNISDR

Tel. :+41 22 917 8908/8907

[isdr@un.org](mailto:isdr@un.org)

[www.unisdr.org](http://www.unisdr.org)

### UNISDR Liaison Office, New York

[palm@un.org](mailto:palm@un.org)

### UNISDR Regional Office Africa

[isdr-africa@unep.org](mailto:isdr-africa@unep.org)

[www.unisdr.org/africa](http://www.unisdr.org/africa)

### UNISDR Regional Office Asia and the Pacific

[isdr-bkk@un.org](mailto:isdr-bkk@un.org)

[www.unisdr.org/asiapacific](http://www.unisdr.org/asiapacific)

### UNISDR Regional Office The Americas

[eird@eird.org](mailto:eird@eird.org)

[www.eird.org](http://www.eird.org)

### UNISDR Regional Office Europe and Central Asia

[isdr-europe@un.org](mailto:isdr-europe@un.org)

[www.unisdr.org/europe](http://www.unisdr.org/europe)

### UNISDR Regional Office Arab States

[isdr-arabstates@un.org](mailto:isdr-arabstates@un.org)

[www.unisdr.org/arabstates](http://www.unisdr.org/arabstates)

*Invest*  
Today  
for a  
*Safer*  
Tomorrow