Asian Disaster Management News

January-April .2008

a newsletter of and for the community of disaster risk management practitioners and development workers

RE-ALIGNING

Disaster Risk Reduction & Climate Change Adaptation

ADPC assisted the Mongolian Government in developing its Climate Change Adaptation Targets, 2007-2008

CONTENTs

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Editor's note

Managing disaster risks from climatic hazards has focused on reducing exposure and vulnerability of socio-economic systems to cyclone, storm, storm surge, flood, drought, heat wave, cold wave, etc. through prevention, mitigation, and preparedness actions, with an aim to reduce loss of lives, shelter, infrastructure, and livelihoods. The climate change discourse, however, has focused on reducing human-induced impacts on climate, segregating anthropogenic causes from natural climate variability, hence the adoption in 1990s of policies on climate change mitigation. In late 1990s, adaptation was recognized as a necessary strategy to complement climate change mitigation efforts. Adaptation, however, needs to address all impacts regardless of causes, whether anthropogenic or natural. In the mid-2000s, the disaster risk management community promoted and adopted the framework that when institutions and communities are adapted to current climate variability, they are prepared to respond to climate change impacts, such as increase in severity and intensity of climate-related hazards and climate surprises.

The 13th COP in December 2007 called for enhanced action on adaptation, noting the fourth IPCC assessment report on evidence of a warming climate. Greater stakeholder participation in vulnerability assessments, prioritization of actions, capacity building, risk management, disaster risk reduction, and integration of adaptation into sectoral and national planning were encouraged, bringing convergence between climate change adaptation and disaster risk management. Actions need to be formulated within a risk management framework (climate risk management approach), such that uncertainty, which was pervasive in the earlier climate change adaptation approach, is managed by reducing uncertainties in predictions and communicating uncertainties through probabilistic methods, use of thresholds, etc. Stakeholder participation in evaluating policy options would result in non-prescriptive policy recommendations. As stakeholders own the results, integration of adaptation actions into existing or future sustainable development is more likely to succeed.

The success of the climate risk management approach, however, would depend, albeit heavily, upon the availability of climate information. Information on past extremes highlight society's institutional strengths and weaknesses in coping with or managing risks. Access to current and seasonal forecast information provide opportunities for more informed decision-making to reduce exposure to short-term climate risks. Knowledge of long-term trends associated with climate change provides opportunities to evaluate how decisions and investments made today can withstand future extremes.

We are grateful to all contributors to this issue, with articles on a variety of climate change issues, from societal vulnerability and risk reduction to adaptation deficits and targets, including integration of adaptation actions into the work of various organizations.

Special mention is due to the members of ADPC's Climate Risk Management team, led by Mr. A.R. Subbiah for their insights and inputs.

Mr. Aloysius J. Rego
Editor-in-chief

adpc *and* Climate Risk Management

Established in 1986, ADPC is the lead regional resource center dedicated to disaster reduction in Asia and the Pacific. ADPC works with governments, NGOs and communities of the Asia and Pacific region to strengthen their capacities in disaster preparedness, mitigation and response through professional training, technical assistance, regional program management and information and research.

ADPC has two decades of experience in disaster management, facilitating regional cooperation, and building capacities of disaster management institutions at all government levels, disaster management practitioners, and communities. In 1990, ADPC assisted the national meteorological services of 24 countries in the Asia-Pacific region build their capacities in tropical cyclone forecast generation, interpretation, and communication. In 1998, ADPC pioneered in the region the local application of scientific breakthroughs in seasonal climate forecasting through demonstration projects. The Extreme Climate Events Program (1998-2003) investigated long-term climate data to assess vulnerabilities of Indonesia, the Philippines, and Vietnam to El Niño and La Niña. Lessons were applied in the subsequent Climate Forecast Applications Program (2003-8), which is demonstrating how season-ahead climate forecast is used in reducing vulnerabilities of climate-dependent sectors, such as agriculture. The program on Climate Forecast Applications in Bangladesh (2000-3) generated three-tiered flood forecast products (with lead times 5-7 days, 20-25 days, and 1 month or more), which are useful in various risk reduction decision-making processes, such as in preserving livelihoods, logistics planning for flood management, and long-term agriculture and water management. The subsequent program on Flood Forecast Technology for Disaster Preparedness in Bangladesh (2006-9) would transfer the flood forecasting technology to Government of Bangladesh institutions, and demonstrate the application of flood forecasts of varying lead times to strengthen disaster risk management in the agriculture sector. This has allowed ADPC to draw experiences from these countries, to assist most needy countries in the region. Recently, three experienced climate scientists joined ADPC's team of forecast applications and disaster management experts to support the delivery of enhanced weather and climate forecast products to demonstrate their application in enhancing coastal community resilience to natural disasters in Cambodia and Vietnam (2005-8) and support the flood forecast technology transfer in Bangladesh (2006-9).

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Climate Change Adaptation *and* disaster risk management

by Mr. A. R. Subbiah

Uncertainties associated with physical climate modeling and socio-economic projections in the next 50 to 100 years prevent policy makers in developing countries from committing scarce resources to manage unknown risks at a distant future. It is possible, however, to convince them to undertake planned climate change adaptation strategies by addressing risks associated with present day societal vulnerability to observed climate variability and extremes. Noting that climate risks from a changed climate would mimic current climate variability patterns with higher amplitude variations (increased frequency and intensity), the risk pattern could be anticipated and human experiences dealing with these risks could be drawn to build resilience. This would include:

1. Analysis of coping mechanisms to recent extreme climate event analog, if these are able to withstand higher amplitude climate variability
2. Utilizing the lead time provided by seasonal climate forecasts to undertake pro-active coping strategies
3. Utilizing modeling results from climate change scenarios on warming and sea level rise, which give some degree of certainty, in evolving and operationalizing adaptation strategies

For most of the 1990s, the climate change debate centered on the stabilization of greenhouse gases (GHG) concentration in the atmosphere. Thus, mitigation has been advocated as a major policy intervention. In the late 1990s, however, the climate change debate recognized the inevitable consequences of human induced impacts on climate, regardless of achieving the target of stabilizing GHG emission. Adaptation was recognized as a necessary strategy to complement climate change mitigation efforts.

Various strategies and approaches have evolved to operationalize climate change adaptation strategies. However, the mainstreaming of climate change concerns into national policy framework and locally actionable programs to reduce community vulnerability to climate change poses serious challenges.

Challenges in mainstreaming climate change adaptation into development planning

Uncertainties associated with physical climate modeling and socio-economic projections in the next 50 to 100 year time horizon pose serious constraints in mainstreaming climate change adaptation into development planning. There is much uncertainty on how climate will respond to the emission scenario, as current climate models have not yet even captured the complexity of the climate system (for example, the effects of current climate system components and their interactions are not yet all known).

Uncertainties in population and economic change and technological development scenarios arise, not because of the various methods of estimation, but of the contested and political nature of the changes implied.

Hence, policy makers in developing countries experience practical difficulties in committing scarce resources for managing unknown risks at a distant future. Addressing present day development concerns takes priority.

Opportunities in operationalizing adaptation concepts

The shift in disaster management paradigm from reactive to proactive has greatly contributed to the reduction of deaths associated with forewarned natural hazards. The economic impact, however, in terms of damages and loss of livelihood opportunities still remains a major concern. Since the 1990s, efforts have been made to incorporate disaster mitigation into development planning to anticipate and reduce the impacts of climate-related hazards.

With policymakers' appreciation of the desirability of addressing risks associated with known and observed climate variability, it is therefore possible to convince them to undertake planned climate change adaptation strategies by addressing risks associated with societal vulnerability to observed climate variability and extremes. Addressing risks associated with present day climate variability would enhance capacity of vulnerable communities to withstand future climate change impacts.

These, coupled with the remarkable progress in the ability to monitor and predict weather/ climate events on the scale of seasons and beyond in the last decade, provide a unique opportunity for developing countries to reduce vulnerabilities to current climate variability and future climate change impacts.

Translating adaptation concepts into locally actionable practices

Climate change impacts would likely manifest from (i) the alteration of the mean state of climate; (ii) increased frequency and intensity of extreme climate events; (iii) combination of (i) and (ii) and; (iv) climate surprises, i.e. the emergence of historically unexpected and sudden climate change-induced patterns.

Climate risks pertaining to (i) till (iii) would likely mimic current climate variability patterns, with higher amplitude variations. The pattern of risks could be anticipated and human experiences dealing with these risks could be drawn to build resilience. With reference to (iv), while past climate pattern may not provide any clue, human experiences dealing with extreme climate events of rare severity may provide guidance for dealing with uncertainties associated with risks.

In dealing with both anticipated and unanticipated type of climate patterns, the relevance of experiences of human systems to deal with current climate variability and extremes could provide guidance to move forward to design climate change adaptation strategies. The issues to be addressed are (i) the limitation of existing human systems to address climate variability-associated risks; (ii) the kind of policy changes, institutional mechanisms, strategies and practices required to address gaps to make communities resilient to current climate variability; (iii) limitation of strengthened coping mechanisms to withstand high amplitude variability due to climate change; and (iv) priority actions/ measures that could be adopted to overcome identified limitations to manage risks associated with high amplitude climate change impacts.

Utilizing recent extreme climate event analogs to enhance adaptive capacity

Past climate fluctuations provide natural experiments to examine reactive (ex-post) responses of human systems to climate extremes. These are situations that permit direct observation of community and institutional behaviors in response to a dynamic climate. Such natural experiments potentially reveal important details about the sensitivities of human activities to climate variability. They can be used to identify and quantify bio-physical responses to climate fluctuations and the resilience of community coping mechanisms.

A suitable, preferably most recent, extreme climate event analog, and pro-active (ex-ante) societal and institutional responses to these events, can be identified. These coping mechanisms can then be evaluated if they are able to withstand higher amplitude climate variability. Ways and means to strengthen these coping mechanisms can then be explored to address gaps. This should lead to location-specific guidance and consolidated policy recommendations on how to further strengthen the role of community coping mechanisms through community-based organizations and local government authorities, including capacity building required to fulfill such role. The process would promote horizontal interaction of local governments with community-based organizations to encourage their active collaboration in the design and implementation of adaptation measures, as well as vertical interaction between different sectors for strengthening local community-based institutions to perform a role to support communities.

Key climate change and disaster risk reduction terms

The two disciplines, disaster risk reduction and climate change have evolved separately, so did the terminologies employed by each. Here are few terms that both communities use and that are particularly important to the conceptual framework of each discipline, as a means of understanding.

Risk assessment: A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend. The process of conducting a risk assessment is based on a review of both the technical features of hazards such as their location, intensity, frequency and probability; and also the analysis of the physical, social, economic and environmental dimensions of vulnerability and exposure, while taking particular account of the coping capabilities pertinent to the risk scenarios. (Source: ISDR)

Climate change impact assessment: The practice of identifying and evaluating the detrimental and beneficial consequences of climate change on natural and human systems. (Source: IPCC WG II)

Adaptation: Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished:

- Adaptation that takes place before impacts of climate change are observed. Also referred to as proactive adaptation.
- Adaptation that does not constitute a conscious response to climatic stimuli but is triggered by ecological changes in natural systems and by market or welfare changes in human systems. Also referred to as spontaneous adaptation.
- Adaptation that is the result of a deliberate policy decision, based on an awareness that conditions have changed or are about to change and that action is required to return to, maintain, or achieve a desired state.
- Adaptation that is initiated and implemented by individuals, households or private companies. Private adaptation is usually in the actor's rational self-interest.
- Adaptation that is initiated and implemented by governments at all levels. Public adaptation is usually directed at collective needs.
- Adaptation that takes place after impacts of climate change have been observed. (Source: IPCC)

Adaptive capacity: The ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences. (Source: IPCC)

Coping capacity: The means by which people or organizations use available resources and abilities to face adverse consequences that could lead to a disaster. In general, this involves managing resources, both in normal times as well as during crises or adverse conditions. The strengthening of coping capacities usually builds resilience to withstand the effects of natural and human-induced hazards. (Source: ISDR)

Source: *"On Better Terms: A Glance at Key Climate Change and Disaster Risk Reduction Concepts"*, United Nations 2006

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Disaster Risk Reduction and Climate Change Adaptation - avoiding the unmanageable, managing the unavoidable

by Mr. Jerry Velasquez

The changing face of risks

The Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC) states that "warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level." The report further states that man-made emissions of greenhouse gases can already be blamed for fewer cold days, hotter nights, killer heat waves, floods and heavy rains, devastating droughts, and an increase in hurricane and tropical storm strength.

"Climate change is expected to cause more severe and more frequent natural hazards. As our cities and coasts grow more vulnerable, these hazards can lead to disasters that are far worse than those we have seen to date. We have a moral, social and economic obligation to build resilience by 2015. Implementing the Hyogo Framework for Action will also help us reach the Millennium Development Goals."

Ban Ki-moon, Secretary-General United Nations, 2007

Disaster statistics provide us a glimpse of what is further to come. For example, compared to the average flooding data of the last seven years, 2007 had considerable increase in the number of flooding disasters, and Asia was the continent hit hardest by disasters, according to figures by the Belgian WHO collaborating Center for Research on Epidemiology of Disasters (CRED). In addition, the CRED report notes that eight out of the 10 countries with the highest disaster deaths of 2007 were in Asia, with 4,234 killed in Bangladesh by cyclone Sidr last November.

CRED further notes that these trends are "consistent with the predictions of the IPCC, in that Asia, and also West Africa, are already suffering from more severe and frequent floods." The changes are happening on top of the already increased threats of disasters worldwide. For example, the World Bank's Global Hotspots Study found that 25 million square km and 3.4 billion people are highly exposed to at least one natural hazard with 105 million people highly exposed to three or more hazards.

This combination is changing the face of disaster risks, with vulnerability to hazards increasing rapidly, and climate-change-specific impacts (sea-level & temperature rise, glacier melting) expected to aggravate existing vulnerabilities to disasters. In addition to changing vulnerabilities, hazards are changing as well – we are observing increased intensity and/or frequency of known hazards, and the distribution of existing hazards shifting, with some regions expected to face hazards that they have not experienced in the past.

These can severely threaten or even roll back development, with the Stern Review (on the economics of climate change) observing that the "costs of extreme weather alone could reach 0.5 - 1% of world GDP per annum by the middle of the century, and will keep rising if the world continues to warm." The review further observed that "Climate change is happening and measures to help people adapt to it are essential. And the less mitigation we do now, the greater the difficulty of continuing to adapt in future."

These highlight the need to implement joint risk reduction & climate change adaptation strategies and in addition, underline the need for action to urgently avoid further global warming.

Practical actions to adapt to climate change

There are a number of actions that can be taken to reduce vulnerability to natural hazards and adapt to climate change, which include the promotion of a culture of prevention and resilience, the development of institutions (policies, planning legislative, multi-stakeholder mechanisms, etc.) to actively contribute to these goals; identification of risks (risk mapping, hazard & vulnerability assessments); promotion of early warning systems, building hazard-resistant structures (in particular critical infrastructures, schools, and hospitals), protection and development of hazard buffers (natural ecosystems such as forests, reefs, and mangroves); and improving preparedness, response, and the development of pre-disaster recovery plans.

Fortunately, we already have a framework that guides us in doing the above - and it's called the Hyogo Framework for Action (HFA).

The formal process for climate action still needs to be within the framework of the UNFCCC and the Kyoto Protocol. These are essential in reducing climate change risks through climate change mitigation; through sharing and learning through the UNFCCC Nairobi Work Programme on Impacts, Vulnerability & Adaptation, and the development of the Bali Action Plan's disaster risk reduction mandate. On the other hand, the HFA is essential for climate change adaptation and in effectively reducing risk of extreme events - the HFA provides relevant guidance to reduce vulnerability and manage risks.

In this context, the challenge ahead of us is how to advance the linkages between DRR and climate change adaptation in the context of the Bali Action Plan.

Responding to Bali's DRR mandate

The Bali Action Plan (BAP) was agreed by UNFCCC COP-13, in Bali in December 2007, and will guide negotiations during 2008 – 2009 on the global climate regime to apply from 2012. The BAP recognizes the importance of risk reduction for adaptation, calls for risk management and risk reduction strategies, including risk sharing and transfer mechanisms such as insurance, disaster reduction strategies and means to address loss and damage.

To effectively respond to the disaster risk reduction mandate of the BAP, we now need to support CC negotiators & actors at national & local levels in the following areas:

Collaboration between climate change and DRR bodies and experts

This will include the encouragement of systematic dialogue and information exchange between national platform for DRR and climate change national communications teams; the promotion of joint development of disaster reduction and adaptation strategies and action plans; and the inclusion of disaster risk reduction experts in the national climate change adaptation policy team to support negotiations.

Accessible DRR information and tools for climate change adaptation negotiators and managers

This will include the mobilization and the collection and summary of national risk information, including socio-economic data concerning existing vulnerability and capacity; the review of national development strategies and sector plans to identify actual or potential interventions, and the provision of practical information and guidance on DRR and risk management (concepts, tools, measures, policies, etc., and sources of information).

At present, UN/ISDR is developing guidance for Governments on specific risk reduction measures to support the implementation of the Bali Action Plan.

Draft CC adaptation and DRR strategies and action plans, drawing on the HFA

This will include the convening of cross-sectoral teams to formulate integrated multi-sector adaptation & DRR strategies and plans and to inform and advise national adaptation negotiators; the development of adaptation plans (stimulate integrated policy) drawing on the approach and language of the Hyogo Framework and building on available DRR strategies and action plans; and the inclusion of adaptation action on all five of the Hyogo Framework's priority areas.

Again, UN/ISDR is presently developing guidance on elements required in an adaptation and DRR framework

A shared agenda

The Bali Action Plan is an important international recognition of the relevance of and linkages between disaster risk reduction and climate change adaptation. We have the next 18 months (the "road to Copenhagen") as our window of opportunity to make a difference, and we can do this by supporting climate change negotiators, building collaboration DRR-climate adaptation bodies at all levels, making DRR tools accessible, using the Hyogo Framework's approach and language, and planning to connect the post-Kyoto (first commitment period) and the post-Hyogo agendas more closely. We all need to work together in this regard.

the author

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Reducing SOCIETAL VULNERABILITY to Climate Change

by Dr. E. Lisa F. Schipper

Risk and society: What is vulnerability?

Climate change is one of the most important challenges for social development and human security of our time. Since the beginning of this decade the issue has risen to become one of the highest priorities on national political agendas worldwide. Global awareness of the risks posed by climate change is rising rapidly, with the help of educational campaigns and the media. Nearly all sectors of society – spanning from businesses to humanitarian aid organisations to schools – are now starting to understand the importance of integrating concerns of climate change into their daily operations as well as their programming and projects.

Addressing climate change takes the form of two main responses: reducing greenhouse gas emissions that are responsible for changing the Earth's climate (mitigation), and adjusting to the experienced or expected changes (adaptation). The changes include more frequent and severe extreme climate events, such as floods, droughts, hurricanes, typhoons, heat waves, and other climate-dependent hazards such as pest and disease outbreaks. Adapting to climate change will require interventions that help society confront these natural hazards, as well as other changes that will be more gradual. Most of the impacts on humans will not be caused by climate change alone, but will be the result of a combination of factors, including numerous social, political, environmental and economic variables. Most importantly, the extent to which climate change will adversely affect societies is dependent on how vulnerable a given group of people is to these changes.

Consequently, responding to climate change impacts requires sector-wide concerted action that spans everything from public health and urban planning to agriculture and water management. However, adaptation measures are typically not designed with such a wide array of stakeholders, and are unable to address the factors that underlie society's vulnerability to climate change. Due to the complexity of both the problem and the required response, adaptation initiatives tend to focus almost exclusively on how to adjust only to the experienced or expected impacts of climate change, skirting the much more difficult question of how to address the factors that drive society's vulnerability to climate change, including poverty, gender and wealth inequality, and cultural and ethnic marginalisation and discrimination. This is because vulnerability is a complex, multi-faceted and situation-specific trait that can hardly be addressed adequately through top-down policies.

Defining vulnerability

In the 1990s, vulnerability emerged as a popular term to describe how people who are already 'down', i.e. as a result of poverty, are more likely to be more susceptible to being adversely affected by other hazards, such as natural hazards. The roots of vulnerability come from the Late Latin word *vulnerabilis,* which was the term used by the Romans in describing the state of a wounded soldier lying on the battlefield (Kelly and Adger, 2000). The concept is important because it explains why certain people are more likely to be adversely affected by natural hazards than others.

After driving home the point that vulnerability is not the same as poverty, many scholars attempted to pick apart the concept to understand its most prominent drivers. Although poverty remains one of the most important factors determining degree of vulnerability, it is certainly not the only factor and not always the primary one. Furthermore, vulnerability is a relative term, referring to specific hazards. For example, while a family can be vulnerable to floods because they live near a river, they may not be vulnerable to earthquakes occurring in the same location if their home is designed to withstand strong tremors. In addition, people who are vulnerable to natural hazards are normally aware of this, and tend to have a series of response strategies, that may or may not be viable in all situations. It would be false to think that people who are vulnerable to climate change are 'helpless victims', but often there are significant challenges that stand in the way of overcoming their vulnerability.

Reducing vulnerability

Vulnerability is sometimes described as the opposite of capacity to cope with hazards. To this end, strengthening coping capacity is promoted as a way to reduce vulnerability. To strengthen coping capacity, however, it is necessary to dig deeper than simply building storm shelters or setting up evacuation maps. Coping capacity is also dependent on factors such as social networks, alternative livelihood options and access to healthcare. But short-term coping solutions can have the adverse consequence of increased vulnerability in the long term. The typical example is selling off assets or borrowing money to cope with a drought, in order to manage for the

year. However, if the drought persists, no assets will remain to sell and no crops will be produced to generate income to pay back the loan, the families will be worse off than in the first instance. In other examples, measures that reduce vulnerability of one group might increase vulnerability of another group, for example by building a dam to address upstream water shortage during drought and thus depriving downstream users experiencing the same drought of a necessary resource. Thus, measures to reduce vulnerability must be carried out with awareness of their consequences in the long-term and on other potentially sensitive groups.

It is not surprising that vulnerability has gained such popularity; unlike any other concept, it addresses the social roots of risk. Because measures associated with reducing vulnerability are recognised as components of development, many international development organisations are carrying out activities to support vulnerability reduction, such as UNDP, Practical Action and CARE. But vulnerability reduction must also be driven by national and local governments, who have the power to influence how much control different groups in society have over their own circumstances by giving them voice, access to resources and say over their own assets.

The vulnerability discourse is indeed expanding, and finding its way into numerous new disciplines. Although vulnerability is a useful concept for reflecting how socio-economic factors influence risk, it must not overshadow that climate change will also result in more extreme natural hazards – the other component of risk. Nevertheless, vulnerability does provide a useful link between climate change policy and development policy, where failures in development become more evident and more detrimental when climate change is added. Addressing factors that determine vulnerability will ultimately therefore also facilitate the process of adapting to climate change, and ensure that responses to the changed climate are long term and equitable.

For further reading

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HARBIN Alliance

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A growing number of groups are now calling for harmonisation of climate change adaptation and disaster risk reduction to understand conceptual and practical linkages between the two. The Harbin Alliance is one such multistakeholder partnership of the UN and civil society organisations that focuses on promoting closer linkages between the two sectors.

The Harbin Alliance is a multistakeholder partnership of NGOs, UN, research organisations, and intergovernmental bodies that works to promote harmonisation between climate change adaptation and disaster risk reduction. The Harbin Alliance has ten members – UN/ISDR, Provention Consortium, Oxfam Hong Kong, Care International, Climate Action Network South East Asia, Climate Action Network South Asia, UNDP South South, International Disaster Reduction Conference, Asian Disaster Preparedness Centre and Asian Disaster Reduction Centre.

What do we mean by harmonisation of climate change adaptation and disaster risk reduction?

Harmonisation of climate change adaptation and disaster risk reduction is the process of integration of climate change adaptation and disaster risk reduction policies, structures and mechanisms. The Harbin Alliance calls for strengthened conceptual and practical linkages between CCA and DRR in order to ensure that lessons are exchanged and responses are sustainable. CCA and DRR respond to the same risks, but do so through different actors and with different time horizons in mind. It appears that a profound examination of the differences and similarities between CCA and DRR needs to be undertaken, in order to shape a new approach.

Mission statement

The Harbin Alliance promotes harmonisation of climate change adaptation and disaster risk reduction for sustainable development and poverty reduction.

Vision statement

Harmonisation of climate change adaptation and disaster risk reduction contributes to sustainable development and poverty alleviation despite unavoidable climate change and with the help of efforts to combat global warming.

Goal

Integrated risk management strategies provide enhanced [quality], efficient [cost and time effective] and sustainable [continued] solutions for development to poor and vulnerable women and men everywhere.

ADPC is a member of the Harbin Alliance.

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Climate Change Adaptation Targets

by Mr. Ian Tellam

At two with nature

Donor agencies are currently taking two main approaches to climate change adaptation.

On the one hand is so-called 'climate proofing'. This involves taking steps to reduce the risk that current and future overseas development assistance (ODA) investments will be negatively impacted by climate change. Specifically, this involves integrating climate change as a risk factor into already existing, or planned human development projects that are climate sensitive: usually coastal zone projects, water management projects, agriculture projects and human health projects.

On the other hand there is the 'stand-alone project' approach. This is at an early stage, and involves donor agencies gaining operational experience in pilot adaptation projects. An example of this approach are the so called National Adaptation Plans of Action, or NAPAs, which are intended to identify the most urgent and immediate steps that must be taken by the least developed countries to adapt to climate change. Further examples are stand alone adaptation projects supported under the Strategic Priority for Adaptation (SPA) under the Global Environmental Facility (GEF). The problem with this approach is that it is unclear how to define a particular initiative as an 'adaptation project' because any climate adaptation intervention that focuses on livelihoods is impossible to distinguish from a 'normal' human development project that is impacted by normal climate variability. This is making it difficult for donor agencies to proceed in a consistent manner so the approach in this area is tending to be adhoc.

> A goal without a plan is just a wish.
>
> Antoine de Saint-Exupery (1900 - 1944)

Both of these approaches are valuable, but neither offers a complete solution to the problem of adapting to climate change. Climate proofing ODA is worthwhile but only covers existing or planned ODA investments. Total ODA is US$100 billion per year while the World Bank estimates that the total costs of adapting infrastructure to climate change in developing countries will be between US$4-40 billion per year. This cost shortfall also means that the stand-alone adaptation approach is not a complete solution, because it relies on new sources of finance being found to cover the additional costs of new projects. New funds for adaptation are being developed under the UNFCCC but it seems unlikely that these will ever deliver the amounts that will be needed to fully address the problem.

Moreover, these approaches are inconsistent. Climate proofing ODA aims to avoid stand-alone projects, while the NAPAs and the SPA, for example, aim to promote them. This schism in the way climate change adaptation is being handled is recognized in recommendations to 'mainstream' climate change adaptation into countries' national development planning as a whole, at the highest level, and to focus particularly on changing the priorities of 'spending ministries', such as Finance and Planning.

This more structural interpretation of climate adaptation mainstreaming is probably the most effective way to deal with the problem and offers the largest hope of a long-term solution. But it is currently making very little progress.

Some of the reasons for this are political. Even though climate change is rising on the political agenda, there is still a great deal of apathy concerning the issue, even in countries that rely largely on economic sectors that are fragile in the face of normal climate variability. This is partly a result of a misunderstanding about the magnitude of the problem and partly because developing countries are in a constant state of crisis management in any case: climate change comes as just one more of many shocks to a system that is already struggling to cope. There is also a lack of incentive to invest in planning for climate change while it is not clear that sufficient funding will be available to implement such plans.

In addition, there are methodological issues. Measuring vulnerability can only be done when impacts are known. But measuring the impact of climate change at country level depends on the downscaling and calibration of global climate models, which is still an immature science. This means that very little is understood about what adapting to climate change actually means in terms of technologies, costs, and institutional and governance arrangements.

It's a goal!

Measurement is presently a hot topic in development circles, with the Millennium Development Goals providing the general direction. The Netherlands, for example, has already translated this approach into time-bound targets for improvements in water and energy services for 20 and 10 million people respectively: 20 million people access to water for sanitation by 2015; 10 million people access to modern energy services by 2015.

To date, climate adaptation has been linked to the MDGs mainly in a negative sense: as a problem that will make it more difficult for the MDGs to be achieved. This is correct, but it may also be possible to make a positive linkage. The strength of the MDGs is that they focus attention on measurable targets. Could this strength be applied to climate adaptation? Could national governments or other agencies set measurable targets that would aim for [number of people] by [date] being less at risk from climate change? And could these targets be incorporated into development plans?

> The strength of the MDGs is that they focus attention on measurable targets. Could this strength be applied to climate adaptations?

Such an approach would lead directly to the central issues: which technologies are needed; how should the process of adapting be organized; and what institutional arrangements would be effective. It would also help efforts to determine the economics of adaptation by detailing the costs of interventions in specific circumstances. In short, a targets approach could assist governing agencies to quickly agree on which adaptation measures to take and how best to allocate resources.

But a key question remains. Setting quantifiable targets implies the measurement of something specific. In the case of targets for water and energy this is relatively simple. Water can be measured in litres; energy can be measured in kilowatt hours or the calorific value of various fuels. Which quantifiable indicators could be used to measure reduction of vulnerability to climate change?

There is already a body of research in the area of vulnerability indicators, with vulnerability defined as a function of a range of biophysical and socioeconomic factors, of which climate change is only one. Also, a number of studies have been carried out on indicators of adaptive capacity, which is defined, for example by the IPCC, as a function of certain key factors, such as wealth, technology, education, skills, infrastructure, access to resources, stability, management capabilities, and trade.

But in relation to climate change adaptation, such indicators have been used primarily to construct vulnerability maps using geographic information systems (GIS) that give broad indications of vulnerability levels. Such maps help to identify likely vulnerability 'hotspots' and to produce broad general recommendations, but do not lead to an understanding of what specific steps must be taken to reduce vulnerability.

The measure of all things

Climate change adaptation overlaps thematically with the field of disaster risk management. Work in the area of disaster risk management has been ongoing for much longer than the relatively recent attention to climate change adaptation. Within the disaster risk management community, vulnerability is a key concept and vulnerability indicators have been in use for some time. In disaster risk reduction projects, vulnerability analyses are constructed, baseline studies are completed, and these are then used to determine specific actions needed to reduce risk. There are also lessons to be learned from other areas of development planning. This means that a methodological basis for a target approach to climate adaptation already exists. The challenge is to take this methodological basis and to overlay impacts to climate change and sensitivity to these impacts in a way that would be both scientifically robust and translatable into measurable policy targets.

It sounds plausible in theory, but could it work in practice? This is being investigated under the Netherlands Climate Assistance Programme (www.nlcap.net), and projects are underway, lead by local partners, to explore the applicability of climate adaptation targets in Bangladesh, Bolivia and Mongolia.

The article first appeared in Tiempo,
Issue 64, July 2007
www.tiempocyberclimate.org

the author

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Climate Risk Management and ODA: LINKING DRR and CCA through portfolio screening

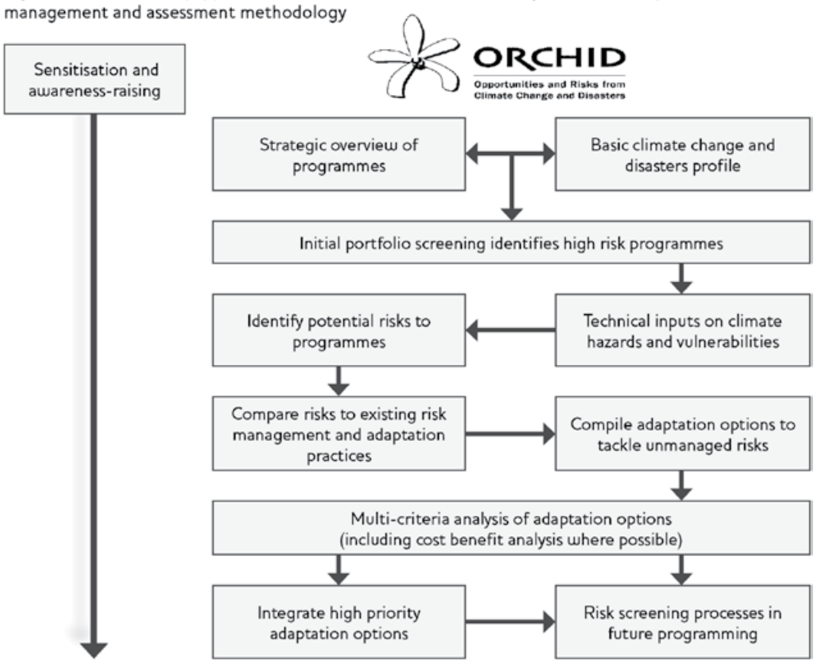
by Dr. Thomas Tanner

In a changing environment of climate development programmes, managing climate risks and opportunities to ensure aid effectiveness is a must. This article outlines a climate risk screening and management approach to help development organisations and their partners to mainstream disaster risk reduction and adaptation processes into their programmes.

Disaster and climate change risks threaten to derail efforts to enhance economic growth and reduce poverty if proactive action is not taken. These risks include:

- Direct threats: e.g. damages from extreme weather to infrastructure built by a project
- Indirect threats: e.g. climate impacts on health impacting a non-health sector project
- Underperformance of investments: e.g. agricultural projects that fail when rainfall decreases.

Figure 1: The ORCHID (Opportunities and Risks from Climate Change and Disasters) climate risk management and assessment methodology



Climate risk management – Screening development agency portfolios

Opportunities and Risks of Climate Change and Disasters (ORCHID) is a systematic climate risk management methodology, which assesses the relevance of climate change and disaster risks to an organisation's portfolio of development projects. ORCHID acknowledges that:

- Climate risks may not be the most important constraint on poverty reduction and so climate considerations need to be embedded in a process that considers all risks
- The basis for adapting to the future climate lies in improving the ability to cope with existing climate variations, especially extremes. Climate change projections inform this process to ensure that current coping strategies are consistent with future climate change
- Adaptation processes draw on approaches to disaster risk reduction, as well as tackling gradual changes and new hazards
- A range of development agencies have been trialling portfolio screening approaches in recent years. Figure 1 illustrates the different stages of just one of these, the ORCHID screening methodology.

Based on an initial profile of current and future climate impacts, the process identifies those programmes in regions and sectors that may be most at risk from climate impacts, or that present good opportunities for improving adaptive capacity. Drawing on technical assessments of hazards, impacts and vulnerability, potential risks to programme activities are identified, which are then assessed against existing risk management practices. A range of adaptation options are then identified for tackling unmanaged risks and exploiting opportunities for strengthening adaptive capacity.

A multi-criteria analysis is undertaken involving programme stakeholders, including beneficiaries, to determine high priority adaptation options that can be integrated into the programme objectives and activities. This analysis uses criteria developed by stakeholders, including coherence with national policy, flexibility across a range of possible future climate impacts, and cost effectiveness, which is informed, where feasible by an economic cost benefit analysis. The process as a whole also helps identify generic strategic lessons for programming and how to incorporate climate risk management into regular programme development.

Lessons from initial experiences

During the piloting of the ORCHID process in DFID Bangladesh and DFID India, a wide range of potential disaster risk reduction and adaptation measures were identified. Structural measures included improving the resilience of rural infrastructure and using rainwater harvesting techniques at schools. Non-structural measures included the integration of vulnerability assessment in local development plans, improving cross-agency disaster coordination, and incorporating climate change and disaster into education programmes. Knowledge generation and sharing were also prioritised as crucially important means of supporting the adaptation process.

Piloting the process has provided a means of systematic self-assessment and reflection, and an opportunity to highlight current gaps in knowledge and experience, including the limitations of climate change data over project -relevant timescales. Adaptation responses are therefore often based on existing climate variability, linking with disaster risk reduction while building greater flexibility to cope with a wider range of variation in the future. Although some development programmes do already consider climate risks, recent disaster events show that such risk management urgently needs to be accelerated. The impact of climate change on increasing the disaster burden strengthens the justification for undertaking this work.

The strength of the ORCHID screening process is that it enables programme staff and partners to think through and act on potential climate risks and opportunities. In doing so, it stimulates greater awareness of the linkages between climate variability and change with different aspects of poverty reduction programmes, including improving coherence with international frameworks and national disaster reduction and climate change adaptation policy.

This work also helps demonstrate how development programmes already contribute to vulnerability reduction and building of broader adaptive capacity, both as part of good development practice and targeted climate related efforts. This provides a basis for strengthening existing adaptation processes and for developing and selecting additional options to improve risk management and prepare for climate change.

Further details at *www.ids.ac.uk/climatechange/orchid*

the authors

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Climate Change Screening of Development Cooperation: Danida Experience in Kenya

by Dr. Michael Linddal & Mr. Stephen Ndore Mutimba

Why climate change screening?

Climate change is expected to alter the conditions for global economy and local livelihoods in the forthcoming decades. Developing countries are at particular risk due to exposure and vulnerability to climate change impacts. Adaptation to the realities of a changing climate has become a key issue in development planning. The purpose of Climate Change Screening (CCS) is to make the development programme portfolio relevant and prepared for a climate change scenario by addressing the risks of and vulnerability to adverse climate change effects.

A conventional approach to environmental risks in Official Development Assistance (ODA) is to screen and assess the impacts of projects and programmes on the environment. With a future scenario of climate change, it also has to be considered how the environment (through climate change impacts) might affect the implementation and outcome of ODA. The impacts of climate change may have influence on the effectiveness and ODA performance in different ways (van Alst, 2006):

- Direct risk to ODA programmes and deliverables, e.g. as a result of extreme weather events or other changes not properly factored into the programme design. An example could be undersized culverts in a road project that lead to road erosion and damage during excessive rains.
- Underperformance of ODA programme and the deliverables, e.g. the expected outcome of ODA investment are reduced (loss of effectiveness) due to external impacts like changes in rainfall patterns and health impacts, i.e. by altering the enabling conditions for economic growth and poverty reduction.
- Direct and indirect impacts on the target population for ODA due to their vulnerability to climate change, e.g. a rural population targeted in a social sector programme may have changed needs and priorities if their crops are at risk or they migrate longer distances with their livestock.

Infrastructure investment with a longer life-span should consider the future climate, e.g. options for water storage, design of culverts, bridges in road building and location of health clinics. Capacity for addressing extreme climate events today may be increasingly relevant for the future. Because of a changing climate, the outcome of development cooperation and investments in developing countries can be undermined. By taking climate change into consideration, development cooperation can be 'climate proofed'. This will help protect investment of scarce development resources and foster climate-friendly development. Therefore, integration of climate change concerns into planning and implementation of development cooperation is wise policy and will support developing countries in coping with climate change.

Climate change screening in Danida Development Cooperation in Kenya

As part of the Danida 'Climate and Development Action Programme launched in 2005, climate change screening (CCS) is being carried out in 17 countries with Danida programmes. One of these countries is Kenya.

The CCS is a first step in a process of identification and management of climate change risks for Danish development cooperation in Kenya, and the identification and implementation of climate change adaptation (CCA) and disaster risk reduction (DRR) opportunities. The purpose of the CCS of the Danida development cooperation with Kenya is a brief assessment of the current Danida programme portfolio regarding potential climate change risks and identification of potential adaptation options.

Box 1: Danida 'Climate and Development Action Programme'

The objective of the Danida 'Climate and Development Action Programme' is to 'climate proof' Danish development cooperation in order to effectively fight poverty and promote economic and social development for present and future generations.

The Danish 'Climate and Development Action Programme' is a response to the need to address climate change in the context of development. The Action Programme, inter alia, is a follow up to the 'EU Action Plan on Climate change in the Context of Development Cooperation', which was launched by the European Council of Ministers in November 2004. Through the 'Climate and Development Action Programme', climate change concerns will be integrated into Danish development cooperation where relevant.

Though a development cooperation programme may not be at particular risk from climate change, there may be options in the programme design and implementation to contribute to a reduction in the overall vulnerability within a sector to climate change.

A climate change screening note was developed as a tool to identify and communicate risks and opportunities. The combined process of climate risk management and adaptation is referred to as climate proofing of the development cooperation, i.e. a climate change 'due diligence', as shown in Box 2.

Box 2: A climate change 'due diligence'

Climate change screening, with subsequent climate proofing and reduction of disaster risks, aims at adaptation to the risks, aims impacts and vulnerability of climate change in programme design and implementation.

The development programme portfolio (current and planned)

Now = * Climate change screening *(identification of climate change risks and adaptation options)*

* Reducing risks of climate change *(risk management, e.g., location of infrastructure and building codes)*

Future = * Additional adaptation *(further reduction of vulnerability, e.g. water harvesting and farming systems)*

A 'climate proofed' development programme portfolio (improved aid effectiveness)

Box 3: A development approach to climate change adaptation

Risk analysis and vulnerability reduction of development cooperation is a development approach to climate change adaptation. It differs from a conventional approach where a development programme is complemented with climate change adaptation projects. The mainstreaming of climate change impacts into ODA may entail an efficient and effective use of financial and human resources compared with the design, implementation and managing climate change and adaptation projects separately from the development cooperation portfolio (Klein et al., 2007).

Adaptation to climate change and reduction of vulnerability to climate - related disasters is largely addressed in the objectives and outcomes of development cooperation programmes, e.g. the objective of Danish development cooperation is to reduce poverty and promote sustainable development. Adaptation to the impacts of climate change is thus addressed as part of the development cooperation programme, and not through separate climate change projects. It is not the purpose of the CCS to develop a climate change project portfolio of specific adaptation or mitigation projects. These may follow, but the main purpose of the CCS is to address climate change risks, impacts, vulnerability and adaptation within the development programme portfolio.

Mainstreaming climate change adaptation may become similar to a cross-cutting theme in development cooperation. On the up-side, this may enable the inclusion of 'climate change' in other sectors, but on the down-side 'climate change' may become yet another item on the checklist that may not be given the priority that the potential risks may require. Like other cross-cutting themes and thematic issues such as gender equality, governance and HIV/AIDS, climate change adaptations are addressed as part of the development planning and not as separate climate change topics.

Climate change screening approach

The outcome of climate proofing is improved effectiveness of the development cooperation programme by factoring-in risks and vulnerabilities are due to climate change and climate-related disasters. Climate change screening includes three key elements:

- **Climate Change Risk Assessment:** Assessment of climate change risks in achieving the outcomes of Danida development programmes, i.e. losses due to risks from climate related impacts currently not addressed. Risk management would ensure effective use of scarce development finance. CCS is also a screening for disaster risk reduction, especially in the case of Kenya where disasters are predominantly associated with droughts and floods. Danida has identified Kenya as one of the six pilot countries for DRR.
- **Climate Change Adaptation Options**: Identification of opportunities for adaptation measures, i.e. further adaptation to climate change issues into the existing Danish development cooperation portfolio to reduce ad-hoc and stand alone activities.
- **A Process Action Plan** for follow-up is identified during the CCS screening to achieve 'a climate proofing' of the Danish development programme, elaborated in Box 1.

Adaptation to climate change risks and related disasters is partially captured in the objectives and outcomes of ODA. In a climate-proofed development cooperation programme, the identified additional risks and impacts of climate change are addressed, and additional adaptation results in a reduction of vulnerability to climate related impacts. The approach is to integrate climate change risks and adaptation opportunities into the development programme rather than as stand-alone 'climate change adaptation projects', as shown in *Box 3.*

The overlapping agendas of Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) can be presented as below:

Examples	Probability	Impact	DRR	CCA
a) Large scale humanitarian disasters caused by refugees from war, epidemics and natural events like tsunamis, GLOFs and earthquakes. These may have been triggered or exacerbated by impacts of climate change on natural resources, e.g. conflicts over access to water resources or drought. Disaster management options include mainly response and relief. DRR can be through reducing the vulnerability, e.g. early warning systems and contingency plans for disaster preparedness.	Low	High	●	
b) Natural disasters caused by extreme weather events (e.g. droughts, storms, floods, and large land slides). These events are 'natural' occurrences, but their frequency and severity could be exacerbated by climate change. Disaster management options include preparedness and response to disasters, e.g. through early warning systems. The DRR and CCA aim at reducing the vulnerability of extreme weather events by addressing the risks in development planning, e.g. to reduce the risks of flooding and land slides or through appropriate water resource management and drought-resistant agricultural practices. DRR targets disaster prone areas.	Low to Medium	Medium to High	●	●
c) Incremental impacts of climate change and climate variability on agriculture, health and infra-structure that are gradual changes may not be identified as disasters, but may be part of CCA. The response is increased uncertainty related to climate variability, as well as opportunities to reduce vulnerability in development planning, e.g. though changes in cropping patterns in agriculture. The accumulated risks may increase vulnerability to hazards and thereby increase disaster impacts.	High	Low	○	●

● : Addressed in policies and institutions related to DRR / CCA
○ : Not directly addressed in DRR mandate but with indirect influence on the agenda

ADPC is part of a successful bid to Danida to prepare climate change screenings of the Danish development cooperation with Nepal (completed in March 2008), Bhutan and Cambodia (May 2008).

The **ADPC-facilitated End-to-End Multi-Hazard Early Warning System** in the Indian Ocean and Southeast Asia works to provide tsunami watch and hydro-meteorological disaster risk research support to participating countries; strengthen national capacities in early warning and emergency management; build local capacities in warning response and disaster risk reduction; facilitate exchange of information, best practices, and lessons learned; and undertake research in all aspects of the end-to-end early warning system.

End-to-end location-specific EARLY WARNING SYSTEM for hydro-meteorological hazards

Need for usable warning information

Long-lead location-specific disaster risk information would immensely help resource managers, disaster management practitioners, and the general public in taking pro-active response actions to an impending hazard. The ADPC-facilitated End-to-End Regional Early Warning System is collaborating with the World Meteorological Organization to build capacities of national hydro-meteorological services of participating countries in providing long-lead localized hydro-meteorological disaster risk information. These hazards include tropical cyclones, heavy rainfall leading to floods and landslides, storm surges leading to coastal inundation, etc. Frequency and intensity of these events are expected to increase in a changing climate. Already, observational studies point toward significant rising trends in the frequency and magnitude of rain events.

Generation of long-lead localized disaster risk information

With Danida support, a high-performance computing system (HPC) was established at the regional facility at ADPC to downscale global climate forecast products to make them applicable at the local level in participating countries. The HPC is an IBM system in Power 5 Architecture (P5-575), running in a UNIX platform. With 128 processors over 8 nodes, it is able to compute with a clock speed of one teraflop. Storage capacity is 10TB, supplemented by a TS3310 external tape drive, which can handle up to 30 tapes of 800GB capacity at any time. The Weather Research Forecasting (WRF) modeling system of the U.S. National Center for Atmospheric Research is installed and customized over the Asian region for the generation of location-specific hydro-meteorological hazard information, which is done by incorporating appropriate physical parameterization schemes and nesting techniques. Figure 1 shows the schematic diagram of the system.

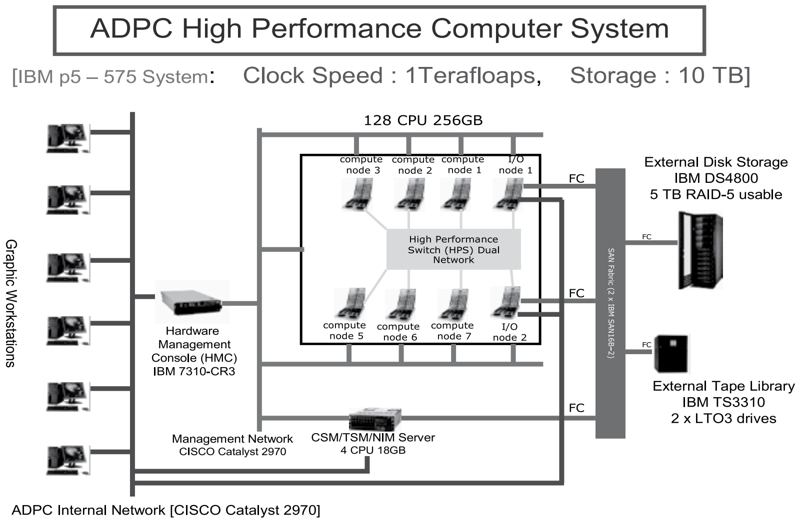
Initial simulation results

Simulations of 2007 severe tropical cyclones and typhoons over the Indian Ocean and South China Sea were undertaken to test the customized WRF model. U.S. National Center for Environmental Prediction's Global Forecasting System initial and boundary conditions and a horizontal resolution of 9km were used. Simulation results for Typhoon Lekima, which crossed the Vietnam coast at 12 UTC on 3 October 2007, were very close to observed conditions, in particular the typhoon track. Figure 2 shows a comparison between model simulation results (right panel) and the observed track (left panel).

Model performance to predict thunderstorms over Bangladesh and the northeast region of India is shown by Figure 3. During the pre-monsoon season in April and May, a number of squall lines are generated over this region, causing widespread flash-floods that lead to loss of lives and standing crops.

These simulations prove the capacity of ADPC's HPC in generating high-resolution disaster risk information.

Figure 1: Schematic diagram of ADPC high performance system



Simulations and results

To assess potential hazard risk parameters such as heavy rainfall, strong wind and coastal inundation associated with tropical disturbances, an attempt has been made to simulate the severe tropical cyclones and typhoons which occurred over the Indian seas and South China seas in 2007.

The state-of-the art Weather Research Forecasting model was customized at ADPC HPC system and integrated upto 72 hours. Those hazards events are simulated with a horizontal resolution of 9 km with NCEP-GFS initial and boundary conditions. All the results are very encouraging in terms of track and distribution of rainfall for the purpose of disaster mitigation. Fig 2 shows the observed track (left panel) and the model simulations (up to 72 hr) of mean sea level pressure of the typhoon Lekima, which crossed the Vietnam coast at 12 UTC, 3 October 2007. The simulation was very close to the observation in terms of tracking.

Figure 2: Observed track and model simulation of mean sea level pressure for Typhoon Lekima

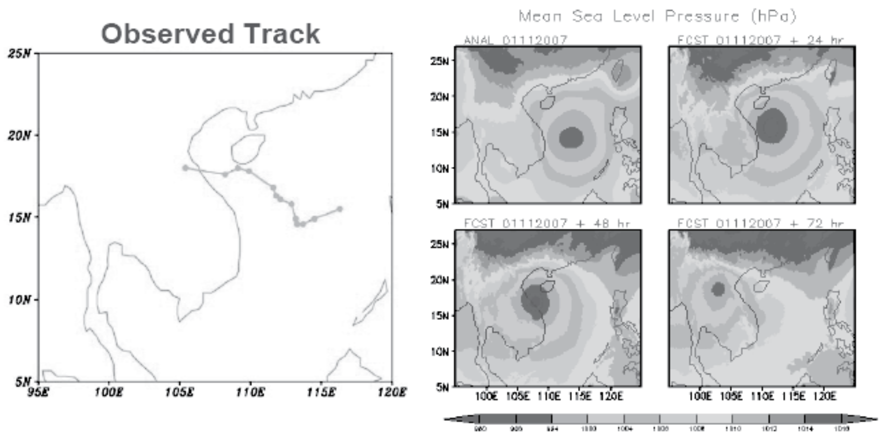
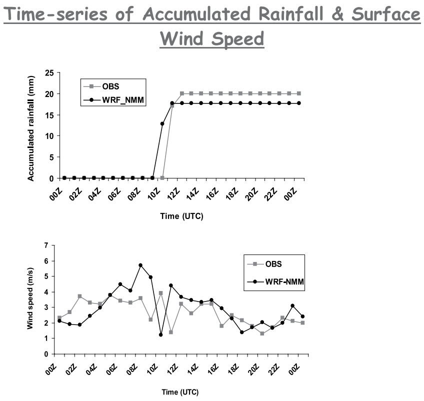


Figure 3 depicts the capacity of the WRF modeling system to predict the thunderstorm activities over the Bangladesh and N-E regions of India. During the pre-monsoon season of April and May, a number of such squall lines will be generated over the region, causing wide spread flash floods with loss of lives and standing crops.

Figure 3: Observed and model-simulated accumulated rainfall (top panel) and wind speed (bottom panel)



Ms. Fleur Monasso is a Program Officer at the Red Cross/ Red Crescent Climate Centre. She started working for the Centre in 2006 and is responsible for the support to National Red Cross and Red Crescent Societies participating in the 'preparedness for climate change program' across all regions. She studied international relations at the University of Amsterdam and graduated in 2003. She can be reached at FMonasso@redcross.nl.

REDCross/REDCrescent Climate Centre: Preparedness for Climate Change

by Ms. Fleur Monasso

Climate change is increasing the demand on humanitarian organizations. The Red Cross/Red Crescent recognized this threat several years ago, and has been building capacity for climate risk management among national Red Cross and Red Crescent Societies around the world.

Faced with growing demands on its humanitarian work, and with rising risks of weather-related disasters and diseases, the Red Cross/ Red Crescent in 2002 established a Climate Centre. The mission of the Red Cross/ Red Crescent Climate Centre is to support the International Federation of Red Cross and Red Crescent Societies (IFRC) and other interested parties to reduce people's vulnerability to climate risks.

In order to rapidly scale up capacity on climate risk management, even in times of high demand on humanitarian organizations, the Climate Centre developed the Preparedness for Climate Change program. Since 2006, 35 National Red Cross and Red Crescent Societies (RC Societies) are analyzing the impacts of climate change in their respective countries and integrating the increase of risks in their work: how will climate change affect current relief programs, and how should RC Societies adapt to climate change?

The Preparedness for Climate Change program is a basic introduction to climate change, aiming to help RC societies to map implications for their mandate and activities. It consists of four standard steps but is very flexible, in order to fit all national societies' needs and constraints (for instance, the program can be put on hold in case of major disasters that drain capacity among headquarters staff). Central in all four steps is the cooperation with knowledge institutes and partner organizations (both governmental and non-governmental) operating in this field. As a start, the RC Societies organize an internal climate change workshop, to raise awareness among staff and volunteers to learn more about climate change and to discuss what it means for their organization. In step 2, they analyze the impacts of climate change for their country, the most vulnerable groups, and implications for RC programs. In Step 3, they come together for a regional workshop (such as in the Pacific, South and Central America and the Caribbean). Here they share their experiences, and are connected to regional experts on climate change and risk reduction. In the last step they prepare an action plan for next steps.

During the program, different RC Societies have identified a wide range of activities to address climate change in their work. Some identify awareness raising as an important first step. Others are also taking up an advocacy role towards their government and other organizations, becoming an important (or even leading) national actor promoting the necessity of climate change adaptation to reduce vulnerability. Many are initiating activities at community level, to increase local resilience. Last but not least, some RC Societies are working closely together with knowledge institutes and Meteorological Offices to make use of early warning systems and relevant forecast information to improve their preparedness (and thus also their response) to weather extremes and disasters.

So far, the program has been very successful, helping the individual Red Cross and Red Crescent societies to take practical next steps, but also helping to put climate change onto the agenda of many RC societies, the IFRC and the wider disaster risk reduction community. Many of these lessons are documents in the Red Cross/Red Crescent Climate Guide (see website address below). By now, there is a waiting list of over 40 National RC Societies interested in starting up climate change related activities. This first round of Preparedness for Climate Change will end in December 2008 and support is currently being mobilized for all the action plans for climate risk reduction rolling out of this program. For more information and examples of Red Cross and Red Crescent climate risk reduction programs, please visit:
www.climatecentre.org or contact
climatecentre@redcross.nl.

the

four steps

of the preparedness for climate change program

1. Organizing an internal workshop on the risks of climate change

To start informing Red Cross and Red Crescent staff on the potential risks of climate change and how these might affect the country and the organization's humanitarian programmes, a workshop is to be held. Participants are paid staff or IFRC delegates working in-country or a wider region. External experts, for instance, from universities or the meteorological office, can be asked to give presentations. The Climate Centre helps find the right speakers.

2. Looking closer at nationwide risks and analysing their consequences for existing programmes

When National Societies first get a sense of what is at stake, they can obtain funding from the Climate Centre to temporarily take on an extra staff member. This person makes a further analysis of how ongoing Red Cross activities will be affected by climate change. When malaria rates rise because mosquitoes move to higher altitudes, for example, this impacts on National Societies' health programmes. To make the analysis, the staff member needs to gather in-depth information on the impact of climate change in the country. This way he or she also builds networks with scientists, government officials and civil-society organizations also addressing the issue. Findings will be included in a background document. From this recommendations follow on how to integrate climate risks into National Societies' programmes.

3. Sharing experience, learning

The third step of the programme entails a regional five-day workshop organized by the Climate Centre. It brings involved National Societies together to share their experiences so far, and puts them in touch with regional experts on climate change and risk reduction who are invited by the Climate Centre to shed light on the subject.

4. Integrating climate change into the work of the Red Cross and Red Crescent

All work is to result in the development of national and local programmes that recognize and reduce the risks posed by climate change. National Societies will continue the dialogue with climate experts and will formulate concrete plans for (adjusting) programmes to counter climate threats. The Climate Centre supports them in acquiring funds for implementing their risk reduction priorities. To enable them to draw up programme and funding proposals, it will give advice and again finance a temporary staff member.

National Red Cross and Red Crescent societies participating in the preparedness for climate change program

Africa
- Burkina Faso
- Gambia
- Kenya
- Malawi
- Madagascar
- Seychelles
- Tanzania
- Uganda
- Zimbabwe

Caribbean
- Antigua and Barbuda
- Bahamas
- Guyana
- Jamaica
- St Kitts and Nevis
- Trinidad and Tobago

Americas
- Argentina
- Bolivia
- Colombia
- Costa Rica
- El Salvador
- Guatemala
- Honduras
- Nicaragua

Pacific Islands
- Cook Islands
- Kiribati
- Solomon Islands
- Tonga

South East Asia
- Indonesia
- Laos
- Philippines
- Thailand

Central Asia/ Europe
- Bulgaria
- Uzbekistan
- Kyrgyzstan

ADPC in action

Jan-Apr 2008

Climate Change Screening, Nepal

ADPC took part in the climate change screening of DANIDA development cooperation portfolio in Nepal, where ADPC provided inputs on climate risks, vulnerabilities and changes. The screening identified recommendations for consideration by the Embassy of Denmark in Kathmandu.

Enhancing Coastal Community Resilience (CCR), Cambodia

Under the DANIDA-funded 'Enhancing Community Resilience to Natural Disasters in South East Asia' project, ADPC organized the national consultative meeting on CCR in collaboration with Department of Meteorology (DoM), Ministry of Water Resources and Meteorology (MoWRAM) and the National Committee for Disaster Management (NCDM). CCR tools were presented to 16 technical specialists/ experts. NCDM will further refine the terminologies used in the tool kit (Khmer version).

Scoping mission for CCR implementation, Myanmar

ADPC conducted CCR scoping for further assessments and implementation. The CCR initiative promotes tsunami and other hazard readiness with national and local emergency management agencies, coastal managers, training institutions, and local communities. It is part of the end-to-end approach-based broader program on establishing a multi-hazard early warning system for tsunami and hydro-meteorological hazards for the Indian Ocean and Southeast Asia, which is being facilitated by ADPC and funded by the Tsunami Regional Trust Fund through UNESCAP. A national consultation workshop was carried out in Myanmar and further consultation sessions are planned for Maldives and Sri Lanka.

Emergency management planning for schools, Sri Lanka

Following activities were undertaken, under the school based disaster risk management project with support from GTZ.

20-26 Jan: Mock drill and consultation meetings with Disaster Management Committee (DMC) officials and other stakeholders to discuss outcomes of pilot experiences and to assist schools in finalizing the school emergency plan for the Ministry of Education-Meepe.
1-4 Apr: Workshop on "Guidelines for school safety". The guidelines will be utilized as national guidelines for all schools in Sri Lanka.

ADPC implements new projects, Bangladesh

ADPC proudly announces the opening of an office in Dhaka, Bangladesh to coordinate activities for the Earthquake and Tsunami Preparedness Program. The office went under operation on 16 Feb 2008. The inaugural session was attended by Dr. Bhichit Rattakul, Executive Director, ADPC, Mr. Ian Rector, Chief Technical Advisor of Bangladesh Comprehensive Disaster Management Programme (CDMP), Mr. Saidur Rahman, Director of Bangladesh Disaster Preparedness Centre (BDPC), Mr. N.M.S.I. Arambepola, Director of Urban Disaster Risk Management (UDRM) and Mr. Aloysius J. Rego, Director of Disaster Management Systems (DMS), ADPC. ADPC will specifically carry out seismic hazard and vulnerability mapping of Dhaka, Chittagong and Sylhet city corporation area, contingency planning for earthquake hazard, training, advocacy and awareness raising. The program is funded under the Bangladesh Comprehensive Disaster Management Programme (CDMP).

Updates on the Program for Hydro-Meteorological Disaster Mitigation in Secondary Cities in Asia (PROMISE)

PROMISE has demonstration projects in Hyderabad (Pakistan), Kalutara (Sri Lanka), Chittagong (Bangladesh), Dagupan (Philippines) and Da Nang (Vietnam) with funding from the US Agency for International Development-Office of US Foreign Disaster Assistance (USAID-OFDA).

- PROMISE-Bangladesh conducted school simulation exercise to promote disaster preparedness initiatives. A Memorandum of Understanding (MOU) was signed with the National Institute of Local Government (NILG). Two school awareness sessions were held at Ananda Bazar Govt. primary school for 300 students, and at Halishahor Munshi Govt. primary school for 350 students and teachers. Presentations were made on hydro-meteorological hazard, vulnerabilities of school buildings during disasters, and measures for school disaster risk reduction. School disaster management committees were formed. ADPC and Bangladesh Red Crescent Society facilitated with BDPC, conducted community-based emergency response course (C-BERC) from 2-4 Mar at Kapashgola Road, Chowk Bazar, Chittagong. The training supported the emergency response structure at city level as well as promoted skill enhancement of 28 community volunteers.
- PROMISE-Indonesia-The newest country project became operational with a technical scoping/project orientation workshop on 15 Feb. The workshop was held at the Regional Planning Board (Bapeda) of the Jakarta Provincial Government-JPG (DKI).
- PROMISE-Pakistan organized a health and hygiene workshop, an advocacy and mobilization seminar, and an orientation program for school children of Government high school.
- PROMISE-Philippines organized climate change orientation program to make the city's mitigation and preparedness plans more sustainable. Dagupan City, the city demonstration site for PROMISE-Philippines hosted a study tour by Oxfam. In a turnover ceremony for the small-scale disaster mitigation projects, public awareness calendars, and first aid kits were distributed. The Technical Working Group and the Barangay Captains of the pilot communities made a study tour to Guagua and Minalin municipalities in Pampanga province. The Department of the Interior and Local Government-

Government of the Philippines (DILG) organized the 1st National conference on Mainstreaming DRR in Local Governance in Makati City from 4-6 Mar.

- Sri Lanka–Sarvodaya conducted a workshop on City Level Risk Reduction Plan Development at Panadura with the patronage of Hon. Minister Mahinda Samarasinghe, Minister of Disaster Management and Human Rights, City Mayor- Kalutara, Mr. Al-Haj Mubarak, and Deputy Mayor Mr. Jauffer. Participants developed outlines for risk reduction in their respective areas.
- PROMISE-Vietnam held training on construction monitoring techniques and a field visit for 18 members of four Community Development groups. These training classes were expanded to six wards of Cam Le district to include risk identification and assessment, development of disaster preparedness plan, and good building practices towards a safer community. A total of 570 grass root level people were trained on CBDRM and safer construction techniques.

Meeting of the Regional Steering Committee of the Multi-hazard Early Warning System for Tsunami and Hydro-meteorological Hazards in Indian Ocean and Southeast Asia, Thailand

The Regional Steering Committee of the 13-country cooperation on multi-hazard early warning system (EWS) met on 24-25 Jan to review the progress of the implementation of the EWS regional program, present status of national early warning system development in collaborating countries. The meeting established a Working Group consisting of Lao PDR, Maldives, Myanmar, Sri Lanka and Thailand, with Maldives as Secretariat, to prepare and implement a management and resource mobilization plan to ensure system sustainability.

Tsunami warning center operation assessment, Myanmar, Sri Lanka

ADPC undertook the activity to improve the Concept of Operations (CONOPS) of the tsunami early warning system in Myanmar & Sri Lanka. CONOPS assisted National Tsunami Warning Centers (NTWCs) in mapping the operational flow of hazard and non-hazard information between organizations, in defining the intra-department reporting relationships within the NTWC, and in developing a robust decision-making process for the generation of tsunami warnings.

Flood Emergency Management Strengthening (FEMS) activities

Under component 4 of the Mekong River Commission's Flood Management and Mitigation Program in the 4 Mekong countries of Cambodia, Vietnam, Lao PDR and Thailand, study tours were organized from 20- 26 Apr from Vietnam to Cambodia, that provided provincial and district authorities of both countries to learn and share their experiences, good practices and to enhance the existing cooperation on flood preparedness and mitigation activities.

School Flood Safety Program Workshop, 7 Mar, Cambodia

Workshop on School Flood Safety Program (SFSP) under the Flood Preparedness Programs at Provincial, District and Commune Levels in Lower Mekong Basin (Phase III) was held in Kratie Province, Cambodia.

National Flood Forum (NFF), Lao PDR, Cambodia, Vietnam

The forum, an important activity under Component 4 of Flood Management and Mitigation Programme, supported by European Commission Humanitarian Aid department (ECHO) and implemented by MRC and ADPC was held in Cambodia, Lao PDR and Vietnam. The NFF provided national and provincial agencies to discuss flood management and mitigation initiatives. It also provided opportunities to ensure contribution to the implementation of the National Strategy for Disaster Management as per commitment to the Hyogo Framework for Action (HFA).

Regional workshop on Flood Preparedness, Thailand

Experiences and lessons learned from flood preparedness and emergency management in the lower Mekong Delta were presented on the 29 Apr. Country presentations, panel discussions, way forward strategy sessions on "Sustaining Flood Preparedness Program activities in the lower Mekong basin" were the highlights.

Curriculum development, China

ADPC provided support to Shanghai Fisheries University on curriculum development in integrated coastal resource management.

Climate forecast applications extends to Timor-Leste

With support from USAID's Office of Foreign Disaster Assistance (OFDA), the program on Climate Forecast Applications for Disaster Mitigation has been extended to Timor-Leste. Implementation is in collaboration with the Department of Meteorology and Geophysics, Ministry of Agriculture, Forestry and Fisheries, Department of Hydrology, National Disaster Management Agency, WFP, FAO and CARE. The National Working Group met in February and firmed-up a work plan for the delivery of seasonal climate forecast, capacity building of the Department of Meteorology and Hydrology in providing severe weather and climate forecasts for early warning of hydro-meteorological hazards, initiation of Climate Field Schools, and demonstration of the application of seasonal climate forecast to mitigate impacts in the agriculture sector.

Training and Learning
Jan-Apr 2008

Landslide inventory, hazard and risk mapping workshop, India
A training course cum expert workshop on landslide inventory, hazard and risk mapping was jointly organized from 3-18 Jan in Dehradun by the Geological Survey of India (GSI), the National Remote Sensing Agency (NRSA), IIRS and ITC-The Netherlands, NGI and ADPC, under the Asian Program for Regional Capacity Enhancement for Landslide Impact Mitigation (RECLAIM), funded by the Royal Norwegian Embassy.

Advocacy and pilot implementation project activities in Education sector
15–18 Jan, Philippines: Orientation sessions and pilot testing the DRR module in schools at Basilan province, Mindanao, Philippines were conducted for teachers from both public and private schools. An evaluation on teaching the DRR module in class rooms was facilitated at Basilan province.
16–17 Jan, Laos: A Project Working Group meeting was held with the National Disaster Management Office (NDMO) and National Research Institute for Educational Science (NRIES) to discuss advocacy workshop preparation and work assignments.
17– 19 Jan, Cambodia: Training of Trainers (TOT) for 50 teachers from Kratie, Prey Veng and Kandal province were held at Pedagogical Research Dept, MoEYS, Phnom Penh. An evaluation on teaching methodologies was done as part of school safety day activities in pilot schools. Activities involved quizz, hazard hunts and poster painting to evaluate the students' learning.

Training on Disaster Risk Communication (DRC), Indonesia
ADPC conducted DRC training at Medan, North Sumatra, Indonesia for volunteers and staff of Palang Merah Indonesia (PMI) from 21-24 Jan. The training was funded and supported by Canadian Red Cross (CRC), Aceh. The training provided a comprehensive, balanced approach blending theory, concepts, definitions through exercises, debates, poster making, video, simulation and presentations.

ADPC conducts Cross-Border Exercise Management Workshop, Thailand
The Cross-Border Exercise Management workshop, held from 18-22 Feb, strengthened the capacities of Thailand, Cambodia, Laos and Vietnam to manage influenza outbreaks in humans in international border provinces to a group of 35 health professionals.

Regional workshop on approaches to coastal community resilience (CCR) and ICG-IOTWS working group 6 meeting, Seychelles
ADPC participated in the regional workshop in Mahe, Seychelles from 27-29 Feb that was successful in bringing various approaches to CCR and their role in developing an integrated disaster risk management in the coastal communities around the Indian Ocean. The ongoing ADPC initiatives of CCR program was presented and was widely appreciated by the participants. The CCR initiative has already been included in the ICG-IOTWS working group 6 work-plan. The workshop was followed by the working group 6 meeting, hosted by the Department of Risk and Disaster Management (DRDM), Seychelles.

Expert meeting on Climate Change and Disaster Risk Management, Italy
ADPC attended the expert meeting on 28 & 29 Feb in Rome to support a high-level conference on World Food Security and the Challenges of Climate Change and Bio-energy to be held in Rome in June 2008. The expert meeting was hosted by Food and Agriculture Organization (FAO).

Regional Community-based Avian-Human Influenza (AHI) management practitioner's workshop, Bangkok
The Regional workshop, from 10-13 Mar showcased case studies, activities in community-based management of AHI in Asia from the ADB-funded project, 'Strengthening Community Based Management of AHI in Asia'. The case studies highlighted community engagement and participatory processes. The case studies and the lessons identified will be collated to become a toolkit for community-based management of AHI in Asia.

ADPC's 37th Regional course on Disaster Management (DMC-37), Bangkok
The 37th ADPC Regional course on Disaster Management from 17 Mar-4 Apr was successfully conducted with 32 participants from 15 countries from Asia, Australia, Europe and North America.

Workshop on Development of Contingency Plan, Bangladesh
Workshop on development of contingency plan for major cities in Bangladesh was held at Dhaka on the 17 Mar. The workshop, under the Comprehensive Disaster Management Programme (CDMP) had representatives from 12 different organizations, providing technical inputs regarding the present situation in hazard management.

National Advocacy Workshop, Vietnam, Philippines
A National Advocacy Workshop on the role of local authorities in CBDRM was organized in collaboration with Central Committee for Flood and Storm Control (CCFSC), UNESCAP and ADPC, with support from DIPECHO. Held in Dhong Thap Province, 40 participants were introduced to the handbook on flood & storm preparedness and natural disaster mitigation. National Advocacy Workshop, called DRR Dialogue was held in the Philippines together with other DRR activities. The workshop was organized by National Disaster Coordinating Council (NDCC).

5th Disaster Management Practitioners (DMP) workshop for South East Asia
The 5th DMP workshop from 2-4 Apr focused on "Sustaining Partnerships: Meeting the Challenges of Scaling-Up CBDRM Programs", attended by more than 150 participants from the region.

Training on Urban Disaster Mitigation, Thailand
ADPC developed a training project for Habitat for Humanity International (HFHI) on Urban Disaster Mitigation from 21-25 Apr, benefitting 35 technical staff that were involved in post-disaster housing repair and reconstruction in South Asia and Southeast Asia.

ADPC Training Schedule for 2008

Vulnerability assessment training, Bangladesh

Under the "Flood Forecast Technology for Disaster Preparedness in Bangladesh" project, ADPC conducted training from 28-30 Apr on vulnerability assessment for local institutions in five different locations. The training was conducted in partnership with Center for Environmental & Geographic Information Services (CEGIS) and Bangladesh Water Development Board.

Community Based Disaster Risk Reduction
21 Jul-1 Aug, Bangkok
Fee: 2000 US$

Public Health in Complex Emergencies
11-23 Aug, Bangkok
Fee: 2400 US$

Mainstreaming Disaster Risk Reduction in Local Governance
1-5 Sep, Manila, Philippines
Fee: 1500 US$

End-to-End Multi-Hazard Early Warning Systems for Disaster Risk Reduction
15-26 Sep, Bangkok
Fee: 2500 US$

Flood Disaster Risk Management
6-17 Oct, Bangkok
Fee: 2000 US$

Public Health in Emergency Management in Asia and the Pacific
6-17 Oct, Bangkok
Fee: 2500 US$

Hospital Emergency Preparedness and Response
20-24 Oct, Bangkok
Fee: 1500 US$

Disaster Management Course
10-28 Nov, Bangkok
Fee: 2500 US$

Climate Risk Management: Science, Institutions & Society
17-28 Nov, Bangkok
Fee: 2000 US$

Earthquake Vulnerability Reduction Course
26 Jan-6 Feb 2009, Bangkok
Fee: 2000 US$

Pictorial

contributed by Ms. Kareff M. Rafisura

ADPC offers the second regional climate risk management training course

For the past two decades, the Asian Disaster Preparedness Center (ADPC), in collaboration with its partners, has developed and field tested various climate risk management approaches, tools, and strategies that link climate science, institutions, and society. To share the lessons learned from these efforts, ADPC developed a regional training course on "Climate Risk Management: Science, Institutions, and Society." The training course aims to strengthen institutional and societal capacities to manage climate risks by building the capacities of professionals in development, disaster management, and other related communities of practice, to skillfully integrate climate information into critical decision making processes. The training course was conducted from 21 April to 2 May 2008, the first ever of its kind to be held in the region with 27 participants from 14 different countries. The second course is scheduled from 17-28 November 2008.

Participants visited various government agencies in Thailand to learn how weather and climate forecasts are used for planning and operations. Shown in the photo are participants from China and Philippines who visited the Royal Irrigation Department.

In one of the practical exercises, participants had a chance to generate real-time weather forecasts for their own hometown using ADPC's supercomputing facilities and with data from the US National Center for Environmental Prediction (NCEP).

The course attracted professionals who are working at various levels – county to global.

We have **moved....**

Asian Disaster Preparedness Center has moved its main office from the current premises on the Asian Institute of Technology (AIT) in Pathumthani to Sanam Pao in the Bangkok Metropolitan Area.

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ADPC email addresses will not be changed.

The ADPC facilitated Regional Multi-Hazard Early Warning Center will continue to operate from the current office location at AIT.

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Asian Disaster Management News

January-April 2008, Vol.14 No.1

The Asian Disaster Management News is published by the Asian Disaster Preparedness Center (ADPC) to serve as a channel of communication and source of information for disaster risk management practitioners and development workers in Asia and the Pacific. Online versions are available at: http://www.adpc.net.

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Design & Layout: Mr. Danate Donparadorn