

14. Enhancing the Capacity of Developing Countries to Adapt to Climate Change: A Policy Relevant Research Agenda

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1. Introduction

Background

Global climate is changing because of human activities and will continue to do so. Even the most drastic measures to reduce the emissions of greenhouse gases will not prevent the further occurrence of impacts on nature and society.

Even before the inevitability of climate change was firmly established, the United Nations Framework Convention on Climate Change (UNFCCC) defined two main strategies to address climate change: mitigation and adaptation. Mitigation comprises all human activities aimed at limiting climate change by reducing the emissions or enhancing the sinks of greenhouse gases such as carbon dioxide, methane and nitrous oxide. Adaptation refers to any adjustment in natural or human systems that moderates harm or exploits beneficial opportunities associated with observed or expected impacts of climate change.

Until recently adaptation played only a minor part in the international climate change negotiations. Most national and international climate policies mainly focused on mitigation. However, the situation is changing. In its recent Third Assessment Report (TAR; McCarthy et al., 2001) the Intergovernmental Panel on Climate Change (IPCC) concludes that adaptation is now a necessary strategy in the face of climate change, along with mitigation. The report concludes that mitigation efforts will at best slow down climate change. In addition, the earth's climate is already changing, largely as a result of human activities.

The IPCC TAR also notes that the success of adaptation in averting dangerous impacts depends greatly on the adaptive capacity of the sectors and systems affected. Adaptive capacity is the ability to plan, prepare for, facilitate and implement adaptation measures.

The IPCC concluded that the most vulnerable countries and communities are those that are highly exposed to hazardous impacts of climate change and have limited adaptive capacity. Given the inevitability of impacts, enhancement of adaptive capacity is then a necessary condition for reducing vulnerability. The IPCC suggests that activities required for the enhancement of adaptive capacity are essentially equivalent to those promoting sustainable development.

The prominence of adaptation in policy discussions has been increasing internationally. Recent Conferences of the Parties (COPs) to the UNFCCC created several funds to support the building of capacity in developing countries and countries with economies in transition to address adaptation. COP-7 endorsed the option for the least developed countries to prepare national adaptation programs of action (NAPAs) to communicate urgent adaptation needs. NAPAs are supposed to communicate to donors the developing countries' priorities relating to adaptation. COP-7 recognized that "the rationale for developing NAPAs rests on the low adaptive capacity of LDCs" (UNFCCC, 2001). COP-8 gave more prominence to adaptation, noting in the "Delhi Declaration" noted that "...urgent action is required to advance adaptation measures" and providing specific guidance on implementation of the adaptation funds (UNFCCC, 2002).

The decisions of the COPs and the findings of the IPCC reveal the urgent need to strengthen research efforts aimed at a better understanding of adaptive capacity, how it relates to vulnerability to climate change and sustainable development, and how it should be enhanced. Without a clearer understanding of these issues countries run the risk of making inappropriate,

inefficient, unproductive and even counter-productive adaptation investments that do not produce benefits as effectively or efficiently as intended.

As noted in Chapter 1, the workshop on "Enhancing the Capacity of Developing Countries to Adapt to Climate Change" was held to develop a research agenda to improve our understanding of adaptive capacity and how best to enhance it. The research agenda formulated by the workshop is synthesized in this chapter in six broad research areas. The research agenda reflects the importance of "mainstreaming" adaptation to climate change in sustainable development, which was widely acknowledged at the workshop.

This chapter reflects the consensus of discussions during the workshop. Where appropriate, we identify where participants had differing views on topics or where some views were expressed from a particular perspective.

2. Major Themes

The workshop identified a number of important themes that set the context for the research agenda:

- enabling environment, social capital and governance
- adaptive capacity
- natural hazards management and adaptation
- adaptation and developing country priorities.

These themes do not necessarily map into specific research topics, but are critical background for the topics.

Enabling Environment, Social Capital and Governance

The matter of "enabling environment" for adaptation is important for understanding the adaptive capacity of a society. The enabling environment includes all of the social structures that make it possible for a society to function, from the family unit to a government. An enabling environment is a prerequisite for adaptation to work effectively. Where there is a breakdown of civil order, such as in countries experiencing war, adaptation measures will be largely ineffective.

Social capital is "the norms and networks that enable people to act collectively." Social capital is different from economic capital in a number of ways. One is that it does not necessarily depreciate from time with use

but, like a muscle, can be strengthened with use. A second is that more social capital is not necessarily desirable. Criminal gangs have a large amount of social capital, but it may undermine the social capital of others. Implicitly, there are optimal amounts and types of social capital.

A key factor in social capital is the role of the state, in particular, the role of the state in enhancing or impeding the development of social capital. There are interesting examples of communities developing social capital with or without support from the government. The examples range from the state playing a very small role to too large a role. In some cases social capital is developed at the community level, but many functions normally provided by a national government may not be taken care of. In other cases, the state sees social capital as a threat to its power and impedes its development. The latter case is an example of where adaptive capacity is diminished.

Such factors as level of development, social capital and specific adaptations are not separable. As noted above, specific adaptation measures will be unsuccessful if the enabling environment is inadequate. This could be for a number of reasons depending on the adaptation, such as specific projects being improperly designed, built or implemented or inadequately maintained. To be sure, simply having an appropriate enabling environment does not guarantee that it will be used effectively. Even an adequate enabling environment does not ensure that appropriate decisions will be made. So-called "maladaptations" may result.

Adaptive Capacity

It is the adaptive capacity of a society that essentially allows it to prepare for and cope with climate change. The main finding of the workshop was that specific actions such as protecting low-lying coastal areas against sea level rise or transferring technologies to enable developing countries to better adapt to climate change cannot be divorced from development or enhancement of an enabling environment for adaptation to climate change. In the absence of an enabling environment, specific adaptations will have limited effectiveness. Adaptive capacity is determined by a number of factors, including economic wealth, availability and access to technology, information and skills (information systems, training), institutions (e.g., inadequate institutions can limit adaptive capacity) and equity (e.g., access to resources) (Smit and Pilifosova, 2001). Possessing adaptive capacity does not ensure that it will be used well. As noted below, a key question is the

degree to which investments should be balanced between enhancing adaptive capacity and making specific adaptations.

Natural Hazards Management and Adaptation

We can learn much from society's experience with coping with natural hazards. Indeed, the stimuli are not that different. The hazards research community has been addressing this topic for over 50 years. Recent work has shifted attention away from symptoms and structural solutions toward human causes and approaches that are more compatible with maintaining environmental services, that are sustainable and that address equity (Mileti, 1999).

As with natural hazards management, adaptation to climate change will be location and context specific. Although specific adaptation approaches will be useful in many different applications, the notion that "one size fits all" needs to be avoided. There are differences not only in vulnerability to climate change at the local scale but also in adaptive capacity. Differences in per capita income, distribution of income, governments, private sector, culture and other factors mean that adaptations need to be tailored to different situations.

Natural hazards management emphasizes adaptation at the community and regional levels because these are the scales at which adaptations are generally implemented. What is appropriate will vary from place to place. Rather than have one adaptation or set of adaptations for all regions and localities, it is important to determine what is most appropriate and works best within each location.

Adaptation and Developing Country Priorities

The case studies in this volume demonstrate that climate change is not always high on the policy agendas for most developing countries.¹ Their concerns are mainly, if not exclusively, focused on current problems such as reducing poverty and risk to current natural hazards. Given this situation, it is therefore unlikely that adaptation measures will be adopted if they are not integrated with ongoing policies and practices addressing other environmental and development issues, such as disaster management, combating desertification and conserving biodiversity. For example, in the Philippines, integrated coastal management, a tool that can incorporate long-term risks to coastal regions such as sea level rise and changes in cyclone intensity, is now being used to address current concerns such as illegal

fishing and pollution. In addition, climate change can be integrated into central planning processes such as National Sustainable Development Plans.

Synergies can exist in developing an enabling environment for addressing developing country priorities along with reducing vulnerability to climate change. Other synergies may be created by strengthening monitoring and early warning systems, establishing sustainable and participatory resource use programs and implementing policies and measures aimed at reversing environmental degradation.

While developing countries generally do not see adaptation as a priority, some representatives of donor and multilateral organizations at the workshop expressed a need for developing better information to help the organizations set priorities. More specifically, they want to know which countries are most vulnerable to climate change and where adaptation can be the most effective. This is in the context of the UNFCCC and COP decisions that call for allocating funds on adaptation to the most vulnerable and least developed countries (two categories that are certainly not mutually exclusive). It was pointed out that where vulnerability is greatest may not necessarily be where adaptation will be most effective. Indeed adaptation may be most effective where adaptive capacity is greatest. This itself presents a conundrum with regard to directing resources, although the Convention language calls for supporting adaptation in the most vulnerable countries and regions.

Finally, the participants agreed that while it is important to address these research topics, it is also important that implementation of adaptation measures move ahead. There are many adaptations that have benefits under current climate and can be implemented effectively now.

3. The Research Agenda

Using the key themes discussed above as context, the following research topics are proposed. Research on these topics would help us better understand vulnerability to climate change and the process of adaptation so as to provide information necessary to assess the need for adaptation. In addition, the research topics address matters needed to help determine what adaptations can be most effective and how adaptation can be incorporated by developing countries. A substantial amount of research has already taken place on these topics. This list is not meant to imply that these are newly discovered questions, but that these are areas in need for further analysis so

as to support the policy process. Of the six topics, the last three address policy directly, and how adaptation could be carried out.

How Does Adaptation to Climate Change Occur?

It is critical to understand the adaptation process, what forms adaptation to climate change can take, what processes and actors are involved and how it can be analyzed. Autonomous adaptation (responses that we expect affected individuals and sectors to take on their own in response to climate change) tells us what we can expect to happen in a business-as-usual manner, while proactive adaptation (actions taken in anticipation of the impacts of climate change) tells us how effective policy intervention can be.

With regard to autonomous adaptation, we need to improve our understanding of how effective it can be in reducing adverse effects of climate change and in taking advantage of positive effects. We also need to understand its limits. As mentioned above, this is needed to be able to determine vulnerability. One option may be to conduct more evaluations of adaptations to extreme weather and changes in climate variability to assess how they were addressed and the effectiveness, limitations and costs of interventions.

- *Who adapts to climate change and what motivates their adaptation?* There are a number of questions regarding adaptation. First, who adapts to climate change? Is it individuals, organizations, governments or the private sector? Second, what motivates their adaptation? Are they reacting to climate change itself or to intermediate effects such as change in crop growth or price? Do they perceive that climate is changing? At what levels is change in climate being perceived? Ministers, planners, system operators, farmers? At what level does change in climate, as opposed to good practice on adapting to current climate variability, need to be perceived?
- *What information do different actors need to aid or encourage them to adapt?* Information on changes in climate and consequences of such changes may need to be tailored to different actors. For example, farmers will require different information than water managers. There will be differences in the variables that are requested, e.g., peak precipitation, frost days and seasonal versus hourly information.
- *How can expectations of adaptive behavior be improved to account for differences in adaptive capacity?* Modeling studies of adaptation have tended to use simple assumptions about adaptive behavior, e.g.,

assuming little or limited adaptation or assuming perfect information, foresight and profit or social welfare maximizing behavior. A key research question is whether we can improve our understanding and ability to estimate and model adaptive behavior by individuals, private sector, organizations and governments. How will this differ from community to community? Can these models better account for the determinants of adaptive capacity? Can empirical studies be done, perhaps examining adaptation to climate variability or to long-term changes in other important factors (e.g., population growth) to improve our ability to predict future human behavior?

- *Who are the relevant stakeholders and what is their proper role in assessing adaptation options?* Stakeholders can play a central role in the assessment of adaptation options. Assessing adaptation options involves many values that stakeholders would be best at expressing. What methods are best to involve stakeholders in such analysis?

What is Vulnerability to Climate Change and How Should it Be Determined so as to Identify Adaptation Requirements?

After IPCC (McCarthy et al., 2001), vulnerability is a function of a system's exposure and sensitivity to climate change and its capacity to adapt to adverse impacts. Assessing the vulnerability of countries and communities to climate change is of policy relevance. Information gained in these assessments can be used to determine the need for adaptation. Therefore, it is of great importance to be able to define and assess vulnerability in such a way that informed and justifiable policy decisions can be made.

There is widespread knowledge about vulnerability across sectors and countries. This work has most recently been assessed by the IPCC TAR (McCarthy et al., 2001). Nonetheless there are still important gaps. In particular research on climate change vulnerability of developing countries has not been as extensive and rigorous as research on vulnerability of developed countries. While the various Country Study programs have supported vulnerability assessments in more than 120 developing countries and countries with economies in transition, workshop participants noted that vulnerability to climate change has not been universally assessed, particularly in Africa.

However, lack of coverage of vulnerability studies or even inadequacies in the studies that have been done should not serve as an excuse for not taking action. A fundamental message from the workshop is that much of

what needs to be done to adapt to climate change was known well before climate change was considered. Many actions needed to reduce risk to current climate variability and to future climate change are already justified and can be implemented. Nonetheless it is important as these measures are taken to enhance our understanding of vulnerability so as to improve targeting of where further adaptation is most needed.

Determining vulnerability requires knowing *who* and *where* the vulnerable groups are, *what* they are vulnerable to and *when* and *why* they are vulnerable. In addition, it is important to understand how vulnerability may change over time as a result of development and other processes such as globalization. Developing an understanding of the causes and spatial and temporal characteristics of vulnerability (and thereby of the opportunities to reduce it) requires research that goes beyond the conventional vulnerability assessments carried out to date. This may require an understanding of the various economic, political, social and cultural factors that reduce or increase vulnerability and how these may change over time.

Most of the studies of vulnerability to climate change summarized in the First, Second, and Third Assessment Reports of the IPCC (Tegart et al., 1990; Watson et al., 1996; McCarthy et al., 2001) rely on model driven approaches to examining climate change impacts. They rely heavily on use of scenarios derived from general circulation models and application of quantitative models to estimate climate change impacts. As such, these studies tend to make somewhat simple assumptions about adaptation in response to climate change.

Whereas the first generation of vulnerability studies were characterized by model and scenario-based analyses of potential impacts, a second generation of vulnerability studies has emerged to complement the impact analyses with detailed assessments of adaptation and adaptive capacity. Second-generation vulnerability studies will build on the knowledge generated in the earlier studies to link a system's exposure to future climatic conditions with the system's vulnerability to today's climate. Much information can be derived from understanding how weather extremes affect countries, communities and sectors today and how they trigger adaptive responses, although some new extremes may be experienced. In addition, many of the impacts of climate change are not the result of extreme events, for example, shifts in areas at risk to spread of infectious disease or melting of glaciers resulting from long-term climate warming.

To enable the identification of realistic adaptation measures and options to reduce vulnerability to climate change, future studies should involve those most affected by climate change and those in a position to change practices and policies. Engagement with these stakeholders can provide useful insights into how current climate vulnerability is experienced and addressed, as well as information on opportunities and constraints to enhancing adaptive capacity. In addition, it places climate change in the broader context of environmental change and development, which is necessary to ensure that adaptation measures are compatible with policies addressing nonclimate issues.

There are a number of specific research questions under this broad topic:

- *What causes vulnerability to climate change?* It is critical to identify exactly what leads to vulnerability. If vulnerability is from current climate or climate change, what is the nature of the change? Is it change in mean conditions, frequency of extremes or intensity of extremes? Impact assessments to date have generally focused on changes in mean conditions and assumed no change in variance. While this captures some potential changes in extreme events, e.g., hot days are assumed to be hotter, it does not capture what may happen if frequency and intensity of extreme events change. Is vulnerability caused by inadequate development, inadequate enabling environment or specific maladaptations (e.g., developing in flood prone areas), or by a combination of these? Vulnerability is not just a function of climate but also a function of lack of adaptive capacity, interaction with other stresses and other causes.
- *Who is vulnerable to climate change?* Vulnerability to climate change can be quite different at different political, geographic, income, class and other scales. Vulnerability differs across countries and within countries as well as at regional, community, social group and household levels. Thus the extent of vulnerability may be quite different depending on the scale being analyzed. Assessments of vulnerability (and adaptation) have tended to focus on national or regional scale and (with a number of notable exceptions) not on smaller scales such as the village level. Vulnerability assessments need to address these differences in scale. In addition, assessments need to consider interrelated aspects of vulnerability. For example, the vulnerabilities of mangroves and communities dependent on fisheries should not be considered in isolation.

- *How does vulnerability differ depending on the time scale of climate change events?* The temporal scale of vulnerability also differs. Short duration extreme events present one set of vulnerabilities, while gradual changes that eventually exceed thresholds or carrying capacity can present another set of vulnerabilities. We can identify many vulnerabilities by examining the vulnerability of societies to current extreme events. Such vulnerabilities could be exacerbated by climate change. Beyond this, gradual or underlying climate change may present some new vulnerabilities and even surprises.
- *How does vulnerability change as societies develop?* Socioeconomic conditions in many developing countries could change quite considerably over coming decades as populations grow and economies develop. This in turn will change exposure and adaptive capacity and hence vulnerability. Understanding how different development pathways will affect adaptive capacity and vulnerability will improve our knowledge of vulnerability. This suggests conducting comparative studies to assess how different baseline conditions can affect vulnerability.
- *What is the proper role for stakeholders in assessing vulnerability?* As noted above, more recent assessments of vulnerability and adaptation have put more emphasis on involving stakeholders. This has been done for a number of reasons, but primarily to ensure that studies assess topics that are relevant and useful to those affected by climate change. Who are these stakeholders? How should they be involved in the analysis of vulnerability? What is their proper role in setting objectives and in carrying out assessments? In addition, attention must be given to stakeholders' motivations and incentives. Indeed, stakeholders could be provided capacity to conduct their own assessments.

A related set of questions address identifying relative vulnerability among or within countries so as to set priorities for adaptation. This was a controversial topic at the workshop and one that did not generate a consensus view. Nonetheless, some of the research topics relevant to this point are as follows:

- *What indicators could be developed or applied to identify need for adaptation and measure success of adaptation?* For mitigation, carbon is the common metric used to measure potential reductions in emissions and dollars per ton of carbon is the unit used to compare

cost-effectiveness of mitigation options. What metric or metrics are appropriate for use in determining need and measuring success of adaptations?

- *What role can valuation play in indices of vulnerability or adaptation?* Expressing the value of natural resources in monetary terms or in terms of services provided can be helpful in understanding their importance. On the other hand, many of the systems affected by climate change do not exist in markets where monetary (or other equivalent) values are established. Many ecosystems that could be affected by climate change are not traded in the market (and even if they were the market value may not reflect their total value to society). In addition, subsistence and many other activities sensitive to climate change do not exist within markets and thus do not have market valuations associated with them. Another consideration is whether monetary values would be seen as legitimate by those participating in the process to set priorities for adaptation.

What Lessons Can Natural Hazard Management Provide for Adaptation to Climate Change?

Society's experience of coping with climate variability offers many valuable lessons and insights into how best to enhance capacity to adapt to climate change.² Indeed many aspects of climate change adaptation will address risk management, such as how best to prepare for and recover from extreme weather events. The experience of coping with such risks, particularly in the context of changing social conditions such as increased population, conversion of land to agriculture and urban uses, and changes in income and societal preferences, can offer many important insights into how to adapt to climate change. Of particular importance to research are the lessons we can learn about coping with changes in climate variability that have already happened.

- *How has the natural hazards community addressed changes in stress?* A simple perception of the difference between coping with current natural hazards and coping with climate change is that coping with natural hazards addresses static risks whereas coping with climate change addresses risks that are changing over time. This view is not correct. Natural hazards management must address changes in risk from changes in such factors as population growth, wealth, behavior and technology. In addition, extreme events change as a result of such

forces as El Niño/Southern Oscillation (ENSO) or the Pacific Decadal Oscillation (PDO), which can alter the frequency and intensity of extreme events. How such changes have or have not been addressed can provide valuable lessons for how to adapt to climate change.

- *How has natural hazards management adapted to differences in circumstances around the world?* The workshop emphasized that adaptation is not a matter of one solution fitting all problems. Solutions need to be tailored to specific needs of communities at risk. There will be valuable lessons in examining how natural hazards management has been adapted to local circumstances. How much variation is there? What is the experience when common solutions are applied to different circumstances?

How Can the Enabling Environment for Adaptation Best Be Enhanced?

The importance of the enabling environment and such determinants as social capital is described above in the discussion on workshop themes.

- *How does enhancing the enabling environment contribute to enhancing adaptive capacity?* Adaptive capacity includes a well functioning enabling environment as well as wealth and access to technology and information. These are not mutually exclusive categories, and having an effective enabling environment may be a necessary but not sufficient condition for adaptation. An effective enabling environment can exist without such factors as wealth and access to technology and information. To what extent does enhancing the enabling environment contribute to enhancing adaptive capacity? If having an effective enabling environment is a necessary condition to be able to adapt to climate change, how much is necessary? More specifically, what attributes define an effective enabling environment? Are there declining benefits to even stronger enabling environments? Is having an effective enabling environment sufficient for being able to adapt to climate change?
- *What factors are important for enhancing the enabling environment?* As noted above, the enabling environment includes all of the social structures that make it possible for a society to function. Exactly what creates an effective or appropriate enabling environment needs to be clearly defined and done so in a manner that can allow for specific measures to enhance it.

- *What are appropriate roles for government, private sector and nongovernmental organizations in developing and enhancing an enabling environment?* To what degree should government, the private sector and nongovernmental organizations attempt to build or enhance social networks or allow local or regional networks to be established on their own? The degree to which individual or community initiative is encouraged or discouraged is key (i.e., weak versus strong government). It is also critical to look at the degree to which a state can enhance or impede development of social capital. A weak state may not provide necessary services to facilitate development of social capital and hence adaptive capacity. A totalitarian state can block development of social capital because it is seen as a threat, also reducing adaptive capacity, yet it can provide some services not provided in a freer state. What is the proper balance of state involvement?

How Can Adaptation to Climate Change Be Integrated into Sustainable Development and How Can Synergies with Other Policy Objectives Be Created?

Climate change does not exist in a vacuum. It is not as if we have solved all the world's problems and can focus our undivided attention on climate change. Indeed, in the midst of coping with global change, climate variability and other existing issues or problems, adapting to climate change in the developing (and developed) world is, as noted above, something that garners very little if any attention.

Sustainable development is a major guiding force. In 2002 the World Summit on Sustainable Development was held in Johannesburg, South Africa. At a previous meeting in Rio de Janeiro, Brazil in 1992, the United Nations Conference on Environment and Sustainable Development, the UNFCCC was signed.

The relevant research questions are as follows:

- *To what extent should sustainable development goals be modified to address climate change?* Will sustainable development in its current conception sufficiently enhance capacity to adapt to climate change? Do changes or modifications need to be made? For example, does sustainable development sufficiently account for such climate change impacts as inundation of low-lying coastal areas, changes in storm

frequency and intensity, relocation of ecosystems and the need to change the character or location of economic systems such as agriculture, forestry or fisheries?

- *What sustainable development goals are justified even more by consideration of climate change?* Is the consideration of climate change an even stronger argument for certain sustainable development goals? Does consideration of climate change provide more justification for these goals (i.e., increase the benefits) or suggest that more resources should be invested in these goals?
- *How does equity affect sustainable development and adaptive capacity?* The issue of equity is an important consideration for both sustainable development and adaptation. Significant disparity in income distribution could be a barrier to effective adaptation. How distribution of resources and equity affects the capacity to adapt to climate change has received limited attention in the literature.

How Can Priorities for Adaptation to Climate Change Be Set?

Adaptation funding needs could well exceed available resources. At COP-7, the European Union, Canada, New Zealand, Iceland, Norway and Switzerland committed US\$410 million for the adaptation funds created at COP-6bis.³ With additional resources, it is expected that funding will be less than US\$1 billion.⁴ This is likely to be insufficient to meet all of the potential funding needs. Given limited resources, how should or can priorities for investing in adaptation be set?

With the recognition that available funding is unlikely to be adequate to meet all needs, there are somewhat different views about the breadth of what should be considered to be eligible for funding from the adaptation funds. One view is that adaptation to climate change should not be separated from other broader but quite related considerations such as encouraging sustainable development, reducing natural hazards and creating an enabling environment suitable to support implementation of adaptation measures. The basic argument is that since adaptation requires management of natural resources that are already subject to climate stresses, adaptation to climate change is not all that different from adaptation to current climate variability.

Another view is that the UNFCCC and Kyoto Protocol would not support merging of adaptation to climate change into these broad categories and that consideration of climate change adaptation could get lost if it was defined as, for example, being part of sustainable development. The merging

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Appendix—Workshop Agenda and List of Participants

Potsdam, Germany, 30 September-2 October 2001

Workshop Convenors

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Workshop Sponsors

Canadian International Development Agency
Climate Change Unit, Environment Division, World Bank
Electric Power Research Institute, USA
Federal Ministry for Economic Co-operation and Development/
Gesellschaft für Technische Zusammenarbeit, Germany
United Nations Development Programme

Workshop Co-Sponsors

Adaptation and Impacts Research Group, Environment Canada
Netherlands Climate Change Studies Assistance Programme
United Nations Environment Programme

Workshop Rationale and Introduction

This workshop will develop an agenda for research on how best to enhance the capacity of developing countries to adapt to climate change (and related current climate stresses, although the emphasis will be on climate change). This research agenda should be relevant for governments and institutions that wish to support developing countries to adapt to climate change.

One approach to adaptation to climate change is to enhance “macro” scale adaptive capacity, such as increasing wealth and improving education, income distribution, institutions and health care so as to enhance countries’ ability to cope with climate change and other stresses. A second approach is to improve the capacity to adapt at “micro” or sector-specific scale, such as