

# A Stitch in Time

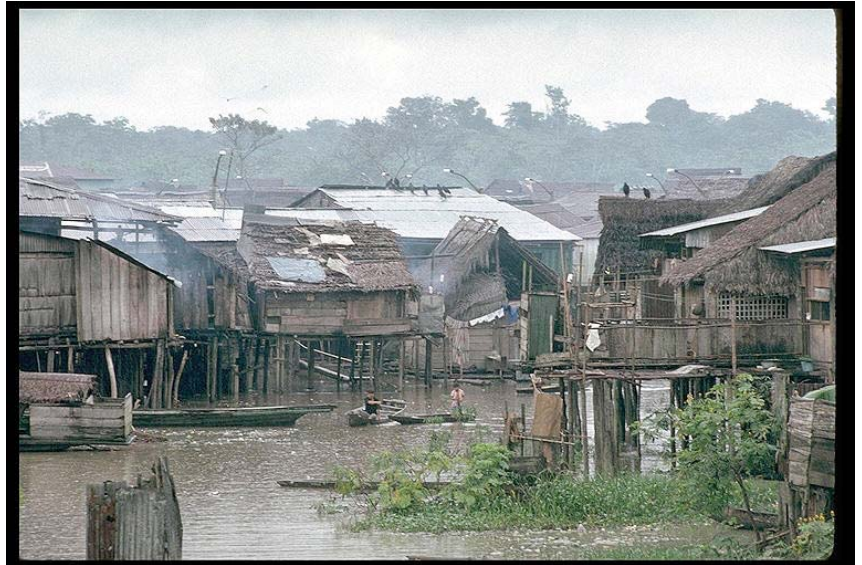
## Adapting to a Changing Climate

### Lessons:

1. Adapt now!
2. Adaptation is development.
3. Adaptation is for ourselves.
4. External help is necessary and justified.
5. Strengthen institutions.
6. Involve those at risk.
7. Use sector-based approach.
8. Expand information, awareness, and technical knowledge.
9. Adaptation is Place-based.



### A Summary of Lessons from AIACC



The changing climate is altering exposures to climate hazards and posing threats to the environment and human wellbeing. The community of nations is responding to these dangers with efforts to mitigate the human causes of climate change. But avoiding severe and dangerous impacts also demands adaptation.

Effective adaptation requires understanding the vulnerabilities and adaptation options that are specific to place and time. To advance understanding of these issues, twenty-four regional assessments were implemented in Africa, Asia, Latin America and small island states under the international project Assessments of Impacts and Adaptations to Climate Change (AIACC).

The assessments have yielded new insights and deepened others about

vulnerability and adaptation. These include the immediacy of climate risks, the heightened vulnerability of people who earn their livelihoods from already stressed and degraded resources, and the importance of social, economic, and governance factors to either amplify or dampen vulnerability. The assessments also illustrate the necessity for more and better adaptation and reveal both opportunities and obstacles to achieving it.

The lessons about vulnerability are synthesized in the AIACC paper *For Whom the Bell Tolls, Vulnerabilities in a Changing Climate*, while lessons for climate change adaptation are developed and presented in the forthcoming paper *A Stitch in Time, Adapting to a Changing Climate*. Nine of the adaptation lessons are summarized in this pamphlet.



## 1. ADAPT NOW!

The time-honoured proverb “a stitch in time saves nine” means that immediate action to repair the damage (to your clothing in the original context) can avoid the necessity to do much more later on, as much as nine times more! The expression captures one of the main findings of the AIACC Programme of Studies. It can be stated as the simple injunction to ADAPT NOW. From the farms of drought prone Kordofan in Western Sudan to grazing lands of the Mongolian Steppe, and from the rice paddies of the Lower Mekong to the maize and soybean

fields in the South American Pampas, the message is clear. The level and quality of adaptation is insufficient and falls short of that which is required to cope effectively with present day climate risks and to prevent further growth of vulnerability to the now inevitable and unavoidable changes in climate. In short there is an adaptation deficit. Failure to prosecute adaptation vigorously now will likely require many more than nine stitches in the future.

## 2. ADAPTATION IS DEVELOPMENT

Adaptation is part of the development process, for both developing and developed countries, and should not be pursued in isolation. This idea is often expressed in terms of the need to integrate adaptation into development or to mainstream adaptation. It is more accurate to say that adaptation is development. Or to put it another way, development that does not recognize and include consideration of climate change and climate risks is not good development practice. Indeed, neglect of

climate risk can lead to maladaptation, or the thoughtless, sometimes inadvertent creation or magnification of exposures and vulnerabilities to losses. The view that adaptation is development should not prejudge who should pay for adaptation or how. Climate change imposes additional burdens, particularly on the least developed countries and on the poor in all countries. How the burden is shared is a critical issue to be addressed.

## 3. ADAPTATION IS FOR OURSELVES

While adaptation to human-caused climate change is a new activity, adaptation to climate variability and extremes is not. We have always adapted to climate, attempting to exploit the benefits it can provide and protect ourselves from its hazards. Now, global climate change is raising the stakes. It is in our own self-interest to adapt as the benefits fall mainly to the people, communities, and countries who do so. Important knowledge and practices for adaptation are also ours, drawn from past experiences in

managing climate risks. Self-interest and possession of experience-based knowledge can promote proactive, self-reliant adaptation.



#### 4. INTERNATIONAL FINANCIAL HELP IS NECESSARY

It can be asked why insufficient adaptation occurs when the benefits fall mainly to those who adapt. A number of factors are responsible. One is the lack of priority given to adaptation, which itself may be due to lack of awareness of climate change impacts. Lack of financial resources, technical capacity, and institutional capacity are also factors that constrain adaptation responses. The constraints are most binding in

the poorest countries, where climate change threatens to impede and undermine development. In many of these countries, strengthening and expanding adaptation to the degree required is unlikely to take place without external assistance. International assistance, including but not limited to financial assistance, can help to overcome the constraints. Lessons 5 through 8 address some of the constraints.

#### 5. STRENGTHEN INSTITUTIONS

Effective adaptation requires a variety of institutional capacities. Institutions are needed with capacities to advance scientific knowledge of climate change vulnerabilities and adaptation options, to translate and communicate knowledge to users, to interpret and apply knowledge to manage climate risks within various contexts (e.g. agriculture, water supply, flood control, public health, finance), as well as to implement effective programs and projects that are climate smart.

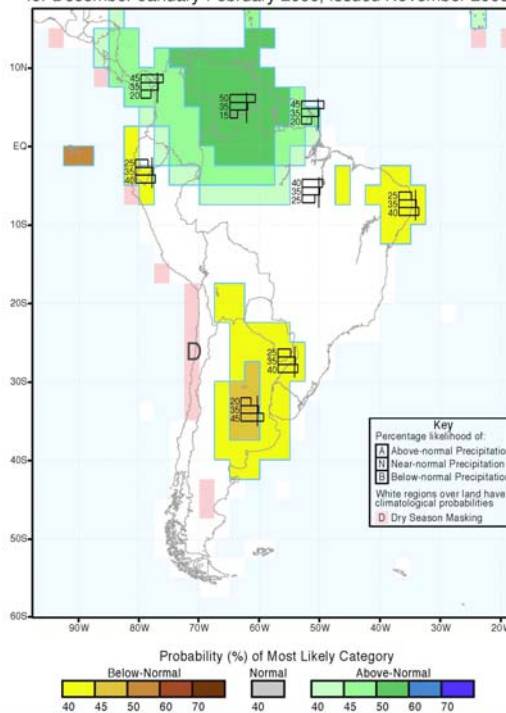
Capacities are needed in private sector, civil society and local government organizations to facilitate, promote and take actions that integrate climate change adaptation into local scale actions. A capacity that cuts across institutions, sectors and scales is also needed for strategic planning, coordination and oversight to manage climate risks, much as the environment ministries promote and coordinate the management of environmental risks.

The institutions that do or could play

these roles typically are poorly resourced and are overburdened with responsibilities. Often their technical capabilities for management of climate risks are low or thinly spread. Strengthening institutional capacities is necessary and is itself an important form of adaptation.



IRI Multi-Model Probability Forecast for Precipitation for December-January-February 2006. Issued November 2005



## 6. INVOLVE THOSE AT RISK

Lack of local acceptance and ownership can cause adaptation measures to fail. Involvement of those at risk can facilitate acceptance and ownership of adaptation measures and improve the likelihood of success.



There is no simple prescription for the involvement of those at risk. Local and national practices are different, and the traditions of a culture and the style of government all affect the manner in which public and stakeholder involvement can be organized. But the general lesson is broadly applicable: involving those at risk in decisions and implementation can increase the effectiveness of adaptation.

## 7. USE SECTOR-BASED APPROACHES

It has to be recognized that adaptation measures are very different from sector to sector. Adaptation measures in agriculture are quite different from those that can be used in public health or coastal zone management or biodiversity conservation. For this reason adaptation has to involve a heavy dose of sector-specific expertise. The locus of much of this expertise, including knowledge of practices and problems in managing present day climate risks, is in the line agencies that have responsibility for the different sectors. Expertise can also be found in private sector firms, trade groups and local organizations such as farmer associations. While sector-based approaches are not sufficient by themselves, mainstreaming adaptation will require that the government and stakeholder organizations with the relevant expertise, interests and authorities be engaged for each sector.



## 8. EXPAND INFORMATION, AWARENESS AND TECHNICAL KNOWLEDGE

The creation and sharing of information about climate change are major, ongoing tasks. Little useful is likely to be done in the absence of a good appreciation and awareness of the risks of climate change and the ways in which they are adding to the more familiar risks of climate variability. The need also extends to the field of technical knowledge, not only about the climate change itself,

but also about available and possible adaptation options. Adding to our knowledge base and sharing knowledge is another form of adaptation. As noted above, much of this knowledge is sector based and very specialized.

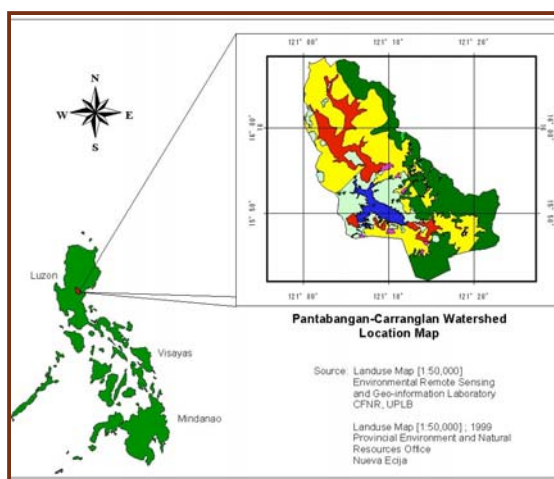


## 9. ADAPTATION IS PLACE-BASED

Finally adaptation is place-based and place-specific. This fact has long been recognized. Its importance in the context of the AIACC Programme is that to summarize and communicate the “adaptation message” in a set of concise general conclusions neglects the diversity of specific place-based findings. The ninth and last message therefore is that there are many messages. The general lessons presented above do not reveal the much richer content in the individual assessments.

The need to adapt now; to do this throughout the development process; to recognize that the adaptors themselves are the primary beneficiaries; that additional international financial assistance is needed; that institutions need to be strengthened; that those at risk must be involved in the decision process; that practical adaptation takes place by sectors; and that more information, awareness and technical knowledge are needed, are all important. But they do not adequately convey the rich diversity of the adaptation process.

To gain this appreciation it is necessary to delve deeply into case studies and examples. And that is what the AIACC Programme has been able to achieve. Scaling up the case evidence to generate broad and useful conclusions is like the appreciation of beauty. It depends upon the eye of the beholder. In formulating broad strategies and policies for adaptation at international and national levels it is important not to lose sight of the great diversity of place-based adaptation.





## ABOUT AIACC

Assessments of Impacts and Adaptations to Climate Change (AIACC) enhances capabilities in the developing world for responding to climate change by building scientific and technical capacity, advancing scientific knowledge, and linking scientific and policy communities. These activities are supporting the work of the United Nations Framework Convention on Climate Change (UNFCCC) by adding to the knowledge and expertise that are needed for national communications of parties to the convention and for developing adaptation plans. AIACC also contributes to other international activities, for example the work of the Intergovernmental Panel on Climate Change and the Millennium Ecosystem Assessment.

Twenty-four regional assessments have been conducted under AIACC in Africa, Asia, Latin America and small island states. The regional assessments include investigations of climate change risks and adaptation options for agriculture, grazing lands, water resources, ecological systems, biodiversity conservation, coastal settlements, food security, livelihoods, and human health.

The regional assessments were executed over the period 2002-2005 by teams of developing country investigators. The teams, selected through merit review of submitted proposals, were supported by the AIACC project with funding, technical assistance, mentoring and training. More than 340 scientists, experts and students from 150 institutions in 50 developing

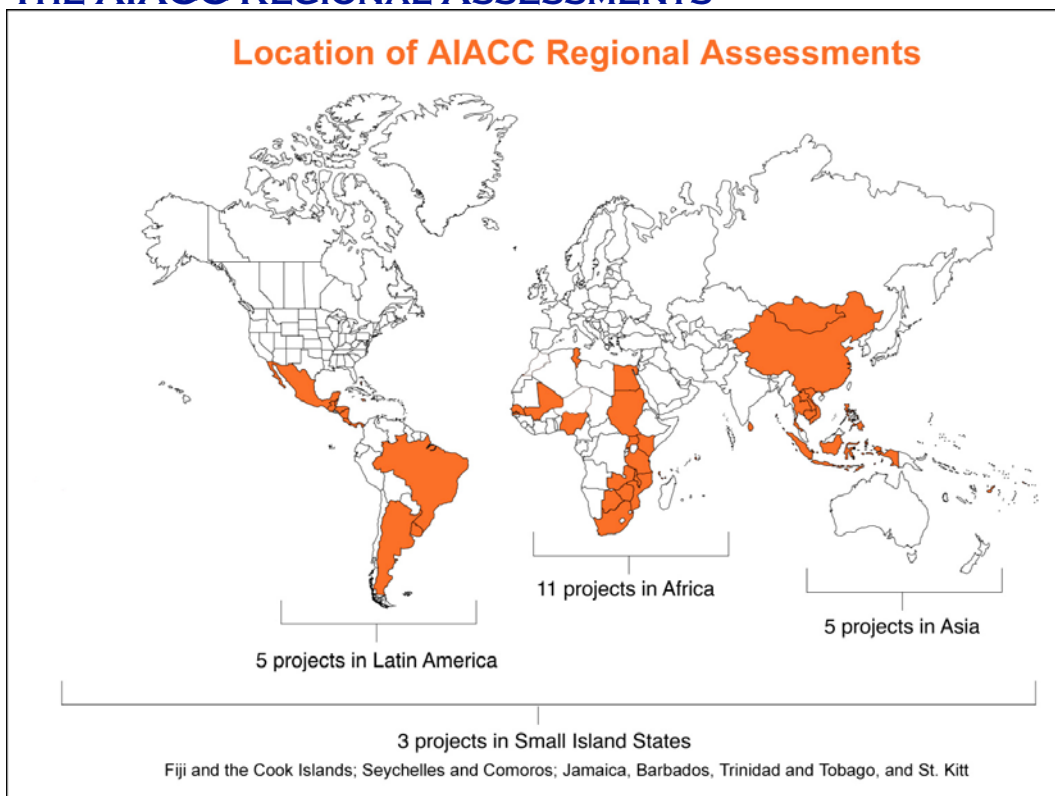
countries and 12 developed countries participated in the project.

AIACC, a project of the Global Environment Facility (GEF), is implemented by the United Nations Environment Programme (UNEP) and is managed by the Global Change System for Analysis, Research and Training (START) and the Academy of Sciences for the developing world (TWAS). The primary funding for the project is provided by a grant from the GEF. AIACC also receives funding from the Canadian International Development Agency, the U.S. Agency for International Development, the U.S. Environmental Protection Agency, and the Rockefeller Foundation. The developing country institutions that executed the regional assessments provide substantial in-kind support.

Final reports from each of the regional assessments will be available beginning in late 2005. Results from the regional assessments can also be found in *AIACC Working Papers*, a peer-reviewed on-line publication ([www.aiaccproject.org](http://www.aiaccproject.org)), as well as in numerous publications from the project participants, including 48 articles in peer-reviewed journals as of October 2005.



## THE AIACC REGIONAL ASSESSMENTS



The AIACC regional assessments are investigating climate change vulnerabilities and adaptation options in 45 developing countries. Information about the regional assessments, listed below, can be found at [www.aiaccproject.org](http://www.aiaccproject.org).

### Africa

- Conserving Southern African Biodiversity in a Changing Climate (AF04).
- Regional Climate Change Scenarios for Sub-Saharan Africa (AF07).
- Increasing Human Resilience to Drought and Climate Change in Sudan. Balgis Osman (AF14),
- Global and Regional Climate Change Scenarios for West Africa (AF20).
- Food Security and Climate Change in Sub-Saharan West Africa (AF23).
- Climate Change in the Miombo Region of Southern Africa (AF38).
- Climate Change in the Limpopo Basin, Botswana (AF42)
- Costs and Benefits of Adaptation, Case Studies in South Africa and The Gambia (AF47).
- Climate Change, Food Production and Water Needs in North Africa (AF90).
- Malaria, Cholera and Climate Change in the Lake Victoria Basin (AF91).
- Rural Households, Drought and Climate Change in the West African Sahel (AF92).

### Asia

- Climate Change, Grazing Lands and Pastoral Livelihoods in Mongolia (AS06).
- Climate Change, Water Resources and Rice Farming in the Lower Mekong River Basin (AS07).
- Plantation Production of Coconut and Tea in a Changing Climate (AS12).

*(List of regional assessments continued on next page).*





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*(List of regional assessments continued from previous page).*

- Climate Change Impacts and Community Responses in Selected Watersheds of the Philippines and Indonesia (AS21).
- Climate Change Vulnerability and Adaptation in the Heihe Basin of western China (AS25).

#### **Latin America**

- Water Sector Impacts and Adaptations in Central America (LA06).
- Climate Change and Sea Level Rise in the Rio de la Plata Basin (LA26).
- Mixed Crop and Livestock Production in the Argentinean, Brazilian and Uruguayan Pampas (LA27).
- Social Vulnerability and Adaptation to Climate Change Among Farmers in Mexico and Argentina (LA29).
- Climate Change and the Estuarine System of the Rio de la Plata (LA32).

#### **Small Island States**

- Climate Change and the Threat of Dengue Fever in the Caribbean (SIS06).
- Coastal Vulnerability and Adaptation to Climate Change in Pacific Island Countries (SIS09).
- Climate Change and Tourism in the Seychelles and Comoros (SIS90).

## **ABOUT OUR ORGANIZATIONS**



UNEP – The United Nations Environment Programme collaborates with partners throughout the UN system and beyond to provide information on the state of the planet’s natural resources and their contribution to sustainable development. UNEP is the implementing agency of the AIACC project.



START – START builds scientific capacity and promotes research in developing countries on regional aspects of global environmental change through fellowship programs, training activities, and collaborative research and assessment activities implemented through a network of regional centers in Africa, Asia and Oceania. START is an executing agency of the AIACC project.



TWAS -- TWAS, the academy of sciences for the developing world, promotes scientific capacity and excellence for sustainable development in the South through fellowships, small grants, support for scientific meetings, and prizes to recognize scientific excellence. TWAS is an executing agency of the AIACC project.



GEF -- The Global Environment Facility helps developing countries fund projects and programs that protect the global environment. GEF grants support projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. A GEF grant provides the majority of funding for the AIACC project.

