

***Climate change and development:
Results from a 2005 consultation on key
researchable issues and priorities that have
evolved since***

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***Report contributing to the scoping exercise managed by IIED to help
develop a DFID research programme on
water ecosystems and poverty reduction under climate change***



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Introduction

From January to May 2005, the International Institute for Environment and Development Climate Change Group conducted a consultation for the UK Department for International Development (DFID). Its aim was to identify priority research and policy issues relating to climate change and development for the most vulnerable countries and communities in different regions in the South. Objectives were as follows:

- To establish what developing country stakeholders regard as the most urgent research needs in relation to climate change and its implications for poverty reduction and sustainable development.
- To identify what research other funders have supported, or are supporting, as well as where there are gaps.
- To provide a clear definition of the researchable problems.

This paper describes the results from this research consultation, with particular focus on the water sector. It then describes changes since 2005 reflecting both the direction that research and policy work in the climate change arena has taken, and an assessment by the author of where the current priorities lie.

Methodology for the consultation

Project partners included Regional and International Networking Group (RING) members in Kenya and Senegal, The Energy and Resources Institute in India and LEAD International. Main methodologies were:

- *Expert Advisory Inputs* – from an Expert Advisory Group of approximately 20 people, mainly from the South and the UK, which advised on the main issues and the consultation exercise itself.
- *Review of consultations to date and available literature*
- *Case Studies* – in three regions (South Asia, East and Central Africa, and West Africa) and three countries (India, Kenya and Senegal) to enable in-depth collection of information and assessments. Three national and three regional workshops were held to discuss and validate synthesized research priorities.
- *LEAD survey* - The information needs of potential user groups and communities in the South was elicited through a survey of the LEAD network.

Main consultation findings

The main findings of the consultation are as follows:¹

- Priority geographic areas in the regions studied in terms of likely climate change impacts are:
 - South Asia - semi-arid lands (India and Pakistan), coastal zones (Bangladesh, India and Sri Lanka), mountainous areas (Nepal, Bhutan and north Pakistan), the floodplains of major rivers (India and Bangladesh);
 - East Africa - semi-arid lands (Kenya, Sudan, Ethiopia, Eritrea and Tanzania), coastal zones (Kenya and Tanzania), floodplains (Kenya, Sudan and Uganda), mountainous areas (Kenya, Uganda and Tanzania); and,

¹ Full reports from the consultation can be downloaded from <http://www.iied.org/CC/projects/ccdevconsultation.html>

- West Africa - semi-arid lands in the Sahelian countries, coastal zones and floodplains (Senegal and Gambia).
- Climate change impacts and adaptation need to be ‘mainstreamed’ into development planning and practice at global, national and local levels. Critical research questions and knowledge gaps relate to information about how climate change impacts may hinder achievement of national development objectives and how adaptation may help achieve these objectives. Improvements in capacity and planning are needed in the agriculture and food, water, forests, coasts and health sectors. Links to other multilateral environmental agreements are also required. At the local level the connection between climate change and poverty/development relates more to the livelihoods and vulnerabilities of specific communities and groups.
- National Adaptation Programmes of Action (NAPAs),² Poverty Reduction Strategy Papers and other national strategies and plans provide potential policy ‘hooks’ on which to link research on climate change impacts and adaptation. They offer opportunities for debate and for planning and risk assessment.
- There is a case for enhancing capacity to use climate models at a regional scale in key regions of the developing world. In addition, the current generation of impact scenarios could be used to trigger research on adapting to shorter-term climate risks.
- The consultation process identified both key sectors and cross-sectoral issues in which climate change research is most urgently required:
 - Priorities for sectoral research vary between regions. However, agriculture and food security, water and human health are important in Africa and South Asia (although the consultation revealed many sub-themes in these sectors).
 - For cross-sectoral research, understanding vulnerability and exploring ways to enhance poor people’s adaptive capacities are the highest priority.
- The LEAD survey showed that respondents from Africa placed climate change impacts on specific sectors as the most important field of research, followed by monitoring, assessment and institutional capacity to manage climate change impacts. Respondents from Asia prioritised building capacities to adapt to climate change impacts followed by climate change impacts on specific sectors.

Field of research	Ranking in Africa	Ranking in South Asia
Climate modelling and scenarios	8	8
Impacts of climate change on the natural environment	3	2
Impacts of climate change on specific sectors (for example, agriculture, public health)	1	4
Impacts of climate change on specific socio-economic groups (for example, women, youth)	7	6
Raising stakeholder awareness of climate change	4	4
Building capacities to adapt to the climate change impacts	4	1
Governance and decision making processes to manage impacts of climate change	6	3
Monitoring, assessment and institutional capacity to manage climate change impacts	2	6

- Capacity development to conduct and use climate change research is a priority. Multi-country regional institutions have a mandate to work on regional issues, often including environmental

² National Adaptation Programmes of Action (NAPAs) are being developed by Least Developed Countries (LDCs), supported by the Least Developed Countries Fund set up under the United Nations Framework Convention on Climate Change (UNFCCC). They will identify the ‘urgent and immediate’ adaptation needs of the LDCs. NAPAs completed to date can be downloaded from the UNFCCC website: http://unfccc.int/national_reports/napa/items/2719.php

issues, but most of them lack the resources to generate the information needed to guide policy-making at the regional level. National level policy-makers are largely unaware of potential climate change impacts. Local communities are the most vulnerable to climate change impacts but are also the most difficult to reach in terms of appropriate messages. Their knowledge about climate change impacts may be low, but their knowledge of how to cope with current climatic hazards and risks is high.

- Research organisation and management needs to address how best to:
 - a) Support existing developing country research groups to work on issues they want to prioritise;
 - b) Provide this support on a relatively long-term basis, at least for five years;
 - c) Promote South-South collaborative research, especially between Asia and Africa;
 - d) Link research to policy-making, with emphasis on getting research messages to appropriate target groups;
 - e) Link research to practice;
 - f) Link research to existing local knowledge of climate related hazards; and,
 - g) Link research to appropriate target institutions (government organizations as well as civil society) to ensure research uptake.
- Opportunities to collaborate with or support ongoing initiatives include:
 - a) Linking research with the Least Developed Countries (LDCs) using the NAPAs could encourage quick research uptake into national policy-making.
 - b) The Consultative Group on International Agricultural Research (CGIAR) has been looking at establishing a 'Climate Change Challenge Programme'.
 - c) The Assessment of Impacts and Adaptation to Climate Change in multiple regions and multiple sectors (AIACC) programme is currently seeking funding for a second phase.
 - d) The Sahara and Sahel Observatory has a work programme in arid, semi arid and sub-humid areas in North, West and East Africa, but it has limited capacity to integrate climate change issues into activities as little analytical work has been conducted in the region;
 - e) The IGAD Climate Prediction and Applications Centre (ICPAC) is a successful network of scientists from the meteorological services, and works with agricultural researchers and extension people in East Africa.
 - f) The New Partnership for Africa's Development (NEPAD) has developed an environmental strategy, which includes a climate change component.
 - g) The Network on Climate Change and Indian Agriculture (NETCCIA), comprising 14 agricultural research institutes in India, is conducting a study on climate change and agriculture. There is also a related study on vulnerability and adaptation supported by the World Bank and DFID in India.
 - h) RING partners are engaged in the Capacity Strengthening in LDCs on Adaptation to Climate Change (CLACC) programme, which focuses on vulnerability and adaptation and works through non-government organization partners in each country to build civil society capacity, particularly amongst the most vulnerable communities and groups.

Consultation findings on water resources

Water resources and their vulnerability to climate change impacts was the second most cited sector (after agriculture and food security) in most of the regional consultations. However, the amount of knowledge available and prior work conducted on specific impacts varied from region to region, with more in South Asia than in Africa. The relative need for research and information on climate change impacts in the water sector was highest in South Asia and West Africa.

It was noted that planners and managers of water resources (for example for irrigation, flood management and drinking water) in most of the regions have, or can access, technical capabilities that would allow them to include risk management regarding future climate change into their regular

practices. It would therefore be relatively straightforward to develop climate risk management tools and methodologies to use in large scale water sector planning and management. Opportunities for linking research to practice may therefore be greatest in the water sector where water managers are used to making relatively long-term planning decisions.

Recent changes in research priorities

In 2007 the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) came out. This is a comprehensive summary of climate change research to date. The Assessment reinforced the fact that the debate about whether or not human-induced climate change is occurring is over. Climate change is an accepted reality, and the Assessment stresses that dealing with it is more urgent than ever.

Since the consultation was conducted in 2005, research and policy work in the climate change arena has developed fast. The changes noted here reflect both the direction that these changes seem to be taking, and an assessment by the author of what priorities are emerging following changes in the last two years, with particular focus on the water sector.

Where are current priorities?

The IPCC's Fourth Assessment recognises Africa as a whole to be "one of the most vulnerable continents to climate variability and change because of multiple stresses and low adaptive capacity." It states that in Africa, "By 2020, between 75 and 250 million people are projected to be exposed to an increase in water stress due to climate change." In Asia, "Coastal areas, especially heavily-populated mega-delta regions in South, East and Southeast Asia, will be at greatest risk due to increased flooding from the sea and, in some mega-deltas, flooding from the rivers." The IPCC also states that "Small islands, whether located in the tropics or higher latitudes, have characteristics which make them especially vulnerable to the effects of climate change, sea level rise and extreme events."³ The UNFCCC and the IPCC Third Assessment Report had previously acknowledged the vulnerability of Africa, the small island states, and the Least Developed Countries to climate change, but the focus on the Asian mega-deltas is relatively recent.

What are current priorities?

The 2005 consultation stated that opportunities for linking research to practice may be greatest in the water sector where water managers are used to making relatively long-term planning decisions. The last two years have reinforced this view and seen an increasing amount of attention paid to water infrastructure and planning projects that incorporate climate change issues, both in developed and developing countries. Water engineers are increasingly conducting 'climate change screening' activities. Large scale water projects already incorporate risks to current climate hazards and they have sufficiently long time horizons to make it relatively easy for climate change issues to be considered. Research to facilitate this process is needed.

Urban centres in low- and middle-income nations already have three quarters of the world's urban population; India and Africa both have larger urban populations than North America. They will house most of the growth in the world's population over the next ten to 20 years, and they have a large and growing proportion of the world's population most at risk from storms, floods and other climate change related impacts.⁴ It is the duty of city governments to provide their citizens with water and protect them

³ IPCC (2007) *Climate Change 2007: Impacts, Adaptation and Vulnerability. Summary for Policymakers*. Working Group II Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report.

⁴ Satterthwaite, D. (2006) *Climate Change and Cities*. Sustainable Development Opinion Paper. International Institute for Environment and Development, London.

from disasters such as floods, but this is increasingly difficult with the water shortages, variable water availability and excesses expected with climate change. Some NAPAs identify urban water issues as a key adaptation needs,⁵ but much more research regarding and recognition of the importance of climate change impacts for the livelihoods of poor urban communities is needed.

Research also needs to continue focusing on how to mainstream climate change issues into other sectors such as health, coastal area management, biodiversity and ecosystems management, land use planning, disaster risk reduction and agriculture.

How should research be conducted?

The relatively recent focus on the Asian mega-deltas in the IPCC Fourth Assessment Report highlights the need for regional cross-border collaboration to resolve issues that affect whole water basins. Such research should be conducted in close communication with existing regional institutions so that it can feed into existing structures and processes to resolve conflict over diminishing water resources and facilitate the development of coordinated regional disaster risk reduction strategies.

Current approaches taken by donor agencies to climate change adaptation include 'climate proofing' existing development projects and programmes, and 'stand-alone projects'. Given the scale of adaptation required, however, neither of these approaches can completely solve adaptation problems. More effort to mainstream climate change considerations into development planning is therefore required.⁶ Continuing work with national water sector planners and managers to help them plan for climate change is needed, and any research conducted should feed into national water sector policy and planning processes.

Adverse climate change impacts will fall disproportionately on poor people, so adaptation at the local level is essential. Local communities have a wealth of knowledge and experience on how to deal with climate variability, and many lessons can be learned from this on how best to adapt to climate change. For example, pastoralists in the Sahel have used herd mobility to cope with droughts for decades. The recent and relatively new body of research looking at community-based adaptation⁷ needs expanding, placing particular focus on feeding lessons into policy making and planning processes. Likewise, further analysis of what makes a community vulnerable to climate change is needed.

Any new research needs to prioritise knowledge sharing. Information sharing between communities and nations in the South is particularly important, because lessons on adaptation from industrialised countries will be of little benefit to poor people. Sharing information between disciplines is also important. Development organizations have a wealth of knowledge on how to cope with water shortages and disaster events, which could provide valuable lessons on how to cope with climate change. There are also large bodies of research on vulnerability and disaster risk reduction and relief which need 'translating' so they can be fed into climate change research thus avoiding the dangers of 'reinventing the wheel'.

⁵ For example one Samoan NAPA project is the 'Zoning and Strategic Management Planning Project' in Apia, its capital. Problems in Apia include flooding caused by building on flood prone and poorly drained lands, septic tank effluent flowing into the groundwater and coastal ecosystems and impacts of urban areas on water quality.

⁶ Tellam, I. (2007) 'Adaptation targets' in *Tiempo* 64 (forthcoming).

⁷ See reports from the second international workshop on Community Based Adaptation (CBA) to climate change, held in Dhaka, Bangladesh 24-28 February 2007 <http://www.bcas.net/2nd-cba/index.html>