



South Asian Network for Development and Environmental Economics,

Linking Climate Science and Policy: Research Outcomes

Asian Institute of Technology Conference Centre
Bangkok, Thailand

January 12-13, 2008

Introduction

SANDEE organized a two-day workshop in January 2008 that brought together climate scientists and economists from the South Asia region. The objectives of the workshop were two-fold: a) to enable SANDEE researchers and advisors to understand key climate predictions for South Asia and their implications for different sectors, regions and activities; b) to examine opportunities for undertaking multi-disciplinary research on climate change and its impacts in the region. The two day workshop was structured such that the first day involved presentations from climate and other natural scientists and the second day had economists discussing various themes which would be of policy interest. A copy of the program is attached.

The research on climate change suggests two certainties – an increase in temperatures and precipitation for South Asia. However, predictions on extent and variability differ. Differences across the region, i.e. in sub-regions, are difficult to predict. There is greater certainty about increases in average temperatures and the variability of precipitation than there is about the increase in average rainfall. There is a lot less known about how aerosols such as black carbon affect regional climate.

Even though South Asia's current contribution to climate change may be relatively small, this will no doubt grow. Mitigation and adaptation will have to take place both globally and locally. The difficulty, however, is that uncertainties abound both in scientific predictions and our understanding of human responses about the future. At this stage, research on climate change in South Asia will need to broadly cover three themes: understanding impacts, mitigation and adaptation options. While the research possibilities are immense, the workshop was able to identify a set of options for SANDEE.

Research Options

- a) Examining the benefits, costs and distributional impacts of adaptation or mitigation policies. Climate change mitigation will require new technical and social re-organisation in, for example, energy generation, urban construction or municipal waste management. It would be useful to examine the economic rationale for any proposed changes and to look at distributional effects on different stakeholders. Bio-energy, for example, is becoming a much discussed response to climate change. What are the implications, for example for South Asia's food security?
- b) Understanding economy wide impacts of climate change policies. Different climate change related instruments may have a variety of sectoral and regional effects. If climate change is to be mainstreamed into development policies, it would be useful to examine these broader impacts. Such models may identify policy prescriptions that are different from those that emerge from partial equilibrium analyses. Computable General Equilibrium or other variants of macro models that test the efficacy of carbon taxes or examine the effects of increased agricultural shocks taking into account farmer responses would be examples.
- c) Analyzing incentives related to international instruments and climate negotiations. The Clean Development Mechanism was created to finance climate mitigation in developing countries through corporate support. There has been considerable growth in CDM but mostly in certain sectors and regions of the world – thus, numerous opportunities for implementing CDM remain. Carbon trading is another option to examine within South Asia. Forest conservation to sequester carbon, crop changes to reduce methane, or biogas technologies to reduce energy consumption all need economic analyses. Another area of interest would be to understand incentives that South Asian countries face to mitigate climate change given that the price of carbon is likely to continue to increase.
- d) Understanding the links between local environmental solutions and regional climate change. Haze and black carbon reduction and technologies to reduce air pollution can contribute to local and regional climate change mitigation. Economic analysis of local and regional climate related problems is particularly promising because it can be undertaken outside the context of global negotiations. Any solutions are also likely to have robust short term benefits in terms of health outcomes and improvements in natural capital, which would make costs of mitigation and adaptation more palatable.
- e) Responses to increases in extreme events. South Asia is likely to see an increase in floods and drought with implications for food security, health, biodiversity and migration. Areas that are currently less prone to these problems are likely to become more vulnerable in the future. There can be many forms of responses to climate driven

disasters: increasing natural barriers that offer storm protection services in coastal areas, flood and other forms of ‘disaster’ insurance, changes in agricultural cropping patterns, communitarian rapid response systems, increased government intervention in the aftermath of disasters etc. All of these adaptation ‘instruments’ would require careful economic scrutiny.

Operational strategies

Climate change research may require changes in current research modalities and possibly a scaling up of SANDEE research projects – from the micro to the macro, from cross-sectional data to time series data and from economic analyses to multi-disciplinary projects and teams. We would need economists to work with agronomists, climate specialists and engineers.

SANDEE would continue with its small grants programme, but in addition, a large grants programme maybe appropriate – either for macro studies or regionally coordinated multiple site studies.

The lack of availability of data and uncertainties in scientific models are serious constraints. However, considerable analyses can be undertaken using various simulation approaches. Studies would, however, have to carefully account for prevailing uncertainties.

A key suggestion made during the workshop was for SANDEE to facilitate the writing of a Stern-type report for South Asia. This could take place in a couple of years when more SANDEE studies become available. Such a report would need to be authored by key advisors such as Partha Dasgupta or Karl Goran Maler or others in the SANDEE group.

**Climate Science and Policy
AIT, Pathumthani, Thailand**

Jan 12, 2008

8:00	Breakfast	
9:00	Welcome by Priya Shyamsundar Introductions	
9:15	Climate Change Science <i>Speakers:</i> K. Krishna Kumar: Regional scenarios of climate change and likely impacts on the monsoonal climate S. Ramachandran: Aerosol Radiative Forcing and Climate Impact	Discussants: Chandra Venkataraman Ainun Nishat Moderator: Nalin Wikramanayake
10:45	Tea/Coffee Break	
11:00	CC Impact - I: Agriculture and Coastal Issues <i>Speakers:</i> Janaka Ratnasiri: Vulnerability of Sri Lankan Tea Plantations to Climate Change Nalin Wikramanayake: Coastal Changes and the Possible Impacts of Climate Change Abdullah Naseer: Vulnerability of Coral Reef systems to Climate Change	Discussants: Jean-Marie Baland Bharat Ramaswami Moderator: Lucy Emerton
1:30	Lunch	
2:00	CC Impact - II: Glacier and Water Issues <i>Speakers:</i> Ainun Nishat: Water sector and Climate Change: Emerging Concerns in Bangladesh Ghazanafar Ali: Impacts of Climate Change on Fresh Water Resources of Pakistan Rajendra Shilpakar: Water and Wetland Ecosystems in the Himalayan Region: Responses to Climate Change	Discussants: Yoginder K. Alagh S. Ramachandran Moderator: Joyashree Roy
4:00	Tea/Coffee Break	
4:00	CC Mitigation: Options for S. Asia <i>Speakers:</i> Joyashree Roy: Mitigation and the IPCC 4th Assessment Report Chandra Venkataraman: Climate Mitigation Co-benefits of Clean Biomass Energy Technologies for Cooking	Discussants: M. N Murty Janaka Rantasiri Moderator: Ainun Nishat

6:30	SANDEE Internal Discussion - Themes for Research	E. Somanathan, Kavi Kumar, Joyashree Roy, Enamul Haque, Subhrendu Pattanayak, Pranab Mukhopadhyay
7:30	Dinner	

Jan 13, 2008

8:00	Breakfast	
9:00	Knowledge Gaps in Economics and Climate Change Research <i>Panel Speakers:</i> Bharat Ramaswami Subhrendu Pattanayak Enamul Haque	Discussants: Abdullah Naseer Lucy Emerton K. Krishna Kumar Moderator: Yoginder K. Alagh
11:00	Tea/Coffee Break	
11:30	Research Issues: Identifying themes for SANDEE <i>Panel Speakers:</i> E. Somanathan (Institution, Valuation) Joyashree Roy (Mitigation) Kavi Kumar (Adaption)	Discussants: Nalin Wikramanayake Ghazanfar Ali Rajendra Shilpakar Moderator: Subhrendu Pattanayak
1:00	Lunch	
2:00	Departures	

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