



# Briefing Note of the ECLAC Expert Group Meeting on the Economic Impacts of Climate Change in Latin America and the Caribbean

Published by the International Institute for Sustainable Development (IISD)  
ONLINE AT [HTTP://WWW.IISD.CA/CLIMATE/HLACRECC/](http://www.iisd.ca/climate/hlacrecc/)



## BRIEFING NOTE OF THE THIRD EXPERT GROUP MEETING ON UNDERSTANDING THE POTENTIAL ECONOMIC IMPACTS OF CLIMATE CHANGE IN LATIN AMERICA AND THE CARIBBEAN: 30 JUNE 2011

The third Expert Group Meeting on Understanding the Potential Economic Impacts of Climate Change in Latin America and the Caribbean was held on 30 June 2011, in Port of Spain, Trinidad and Tobago. Hosted by the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), the Expert Group Meeting examined country case studies of the economic costs and benefits of climate change in key sectors in four Caribbean countries and discussed how these economic assessments may guide or influence national climate change policies. The meeting included government and academic participants from Grenada, Haiti, Jamaica, Saint Lucia, Saint Vincent and the Grenadines, and Trinidad and Tobago, as well as representatives of ECLAC and the Caribbean Community (CARICOM) secretariat.

This briefing note provides a brief history of the Understanding the Potential Economic Impacts of Climate Change in Latin America and the Caribbean project, together with a summary of the discussions during the third Expert Group Meeting.

### A BRIEF HISTORY OF THE UNDERSTANDING THE POTENTIAL ECONOMIC IMPACTS OF CLIMATE CHANGE IN LATIN AMERICA AND THE CARIBBEAN PROJECT

With funding from the United Kingdom Department for International Development, the ECLAC Subregional Headquarters in Port of Spain, in cooperation with CARICOM and its Climate Change Centre, has, since 2008, pursued two related projects on the economics of climate change in the Caribbean. The first, known as the Review of the Economics of Climate Change in the Caribbean (RECC) project, began Phase 1 in 2008, with a scoping exercise to determine the scope and feasibility of an economic assessment of the costs and benefits of climate change actions in the Caribbean. Phase 2 began in 2010 with 26 national sectoral studies of the economic impacts of climate change, and Phase 3, which is yet to commence, is intended to broaden these studies by incorporating the multiplier effects caused by regional interdependence.

The second is a connected, but separate, project on Understanding the Potential Economic Impacts of Climate Change in Latin America and the Caribbean, which began in 2009 with the aim of improving and harmonizing the ability of Latin American and Caribbean countries to cope with the

economic impacts of climate change on development. The project has three objectives, which are to: increase awareness in the region of the economic impacts of climate change, as well as of adaptation and mitigation options; strengthen national capacities to identify responses to the potential economic impacts of climate change; and strengthen regional capacities to identify responses to these potential impacts. The purpose of the expert group meetings is to provide a platform to discuss and assess the findings of the various activities carried out under the project.

The project started with a study on climatic modeling in the Caribbean that was shared at the Expert Group's first meeting that year. In the project's second activity, three regional studies were commissioned on climate change impacts on the macroeconomy, and the tourism and water sectors in the Caribbean. These regional-level studies utilized data from nine countries and were shared at the second Expert Group Meeting in 2010. The third activity under the project, the subject of this third Expert Group Meeting, focuses on the science-policy interface and looks at how the results of the national sectoral studies under the RECC may be mainstreamed into national policy.

### SUMMARY OF THE EXPERT GROUP MEETING

#### OPENING

The meeting opened on Thursday morning, 30 June, with Charmaine Gomes, United Nations Economic Commission for Latin America and the Caribbean (ECLAC), facilitating. Gomes explained that, of the countries for which ECLAC had funded national sectoral assessments, the four to be discussed during this Expert Group Meeting were selected because all four were either drafting or updating their national climate change policies. She said while the assessments currently focused on how the impacts of climate change on three different sectors in these four countries affect their gross domestic product (GDP), ECLAC also plans to address other impacts, such as impacts on employment. Gomes added that ECLAC recognized the econometric modeling capacity challenge facing the Caribbean, and explained that one of the project's goals is to build a cadre of local experts to ensure that, as models evolve, Caribbean countries will be up to the task of updating the economic assessments on their own.

#### COST/BENEFIT ANALYSIS OF THE ECONOMIC IMPACTS OF CLIMATE CHANGE ON NATIONAL POLICY

**SAINT LUCIA:** This session was moderated by Kishan Kumarsingh, Ministry of Housing and the Environment, Trinidad and Tobago. Neranda Maurice, Ministry of Physical Development and the Environment, Saint Lucia, discussed Saint Lucia's 2003 National Climate Change Policy and Adaptation

The *Briefing Note of the ECLAC Expert Group Meeting on the Economic Impacts of Climate Change in Latin America and the Caribbean* is a publication of the International Institute for Sustainable Development (IISD), publishers of the *Earth Negotiations Bulletin*. This issue was written and edited by Keith Ripley. The Editor is Tomilola "Tomi" Akanle <tomilola@iisd.org>. The *Briefing Note* is part of IISD Reporting Service's Latin America and the Caribbean Regional Coverage Programme in partnership with the United Nations Economic Commission for Latin America and the Caribbean (ECLAC). The Director of IISD Reporting Services is Langston James "Kimo" Goree VI <kimo@iisd.org>. Funding for coverage of the meeting has been provided by the International Development Research Centre, Canada, through the Latin America and the Caribbean Regional Coverage Programme for IISD Reporting Service's coverage of meetings in Latin America and the Caribbean. The opinions expressed in the *Briefing Note* are those of the authors and do not necessarily reflect the views of IISD or other donors. Excerpts from the *Briefing Note* may be used in non-commercial publications with appropriate academic citation. For more information, including requests to provide reporting services, contact the Director of IISD Reporting Services at <kimo@iisd.org>, +1-646-536-7556 or 300 East 56th St., 11D, New York, New York 10022, USA.



Group photo of the Expert Group on Understanding the Potential Economic Impacts of Climate Change in Latin America and the Caribbean

Plan, highlighting some of its achievements. She explained that work is underway to update the Plan, with a focus on: facilitation and implementation of adaptation; creation of new opportunities for private sector engagement; mobilization of financing and funding; and creation of a climate change adaptation trust fund. She said that the Review of the Economics of Climate Change in the Caribbean (RECC) project had helped operationalize the updated policy framework, by costing key sectoral impacts, speaking to the “dollars and cents outlook” of policymakers, aiding private sector buy-in, and identifying needs for further funding.

Responding to a question about why the ongoing update singled out the financial sector, Maurice replied that the government realized that finance is a cross-cutting issue that had not been sufficiently dealt with under the original plan. She further observed that more needs to be done with regards to coastal zone management and water management, noting that the Ministry is advocating physical development and zoning regulations, as well as a new water regime that requires hotels, commercial and residential buildings to install water storage facilities.

Sharon Hutchinson, University of the West Indies (UWI), Trinidad and Tobago, presented the sectoral assessments for Saint Lucia. On tourism, she explained that the author of the assessment constructed a “tourism climatic index” to project demand-side impacts of climate change of about five times Saint Lucia’s 2009 GDP. She said that on the supply side, the author projected losses of US\$12.1 billion under the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report’s A2 climate modeling scenario and US\$7.9 billion under the B2 scenario, from coral reef loss and land loss due to sea level rise. She noted that the author, after considering a wide variety of potential adaptation measures and calculating cost/benefit ratios, suggested three measures: changing the design of new tourism-related structures; enhancing reef monitoring; and using artificial reefs or fish-aggregating devices.

Hutchinson said the health assessment looked at various vector and water-borne diseases and projected mean annual costs ranging from US\$80.2-182.4 million. She said the author’s examination of the cost/benefit ratios of possible interventions found that moderate costs can deliver significant benefits in terms of avoided health costs, and that he recommended improved disease monitoring and improved water supply.

Hutchinson described her assessment of impacts on agriculture, explaining that this looked primarily at impacts on banana exports, but also assessed impacts on fisheries. She said the assessment projected a cumulative loss in all sub-sectors ranging from €498.3-950 million, and that her calculations suggest that the highest net benefits would come from using drip irrigation, mainstreaming climate change issues into agricultural management, and undertaking food storage measures.

In the ensuing discussion, participants: observed that the tourism analysis focused too much on reefs and not enough on impacts on biodiversity and the emerging ecotourism sector, or on the linkages between tourism and water demand; noted that water supply was an issue that featured in all three analyses; and suggested that the tourism assessment should take into account other factors, such as milder climatic conditions in the countries of tourists, which could encourage them to stay at home.

**GUYANA:** Garfield Barnwell, Caribbean Community (CARICOM) Secretariat, moderated this session. Gomes, on behalf of Shyam Nokta, Head, Office of Climate Change, Guyana, presented Guyana’s draft Low Carbon Development Strategy (LCDS), and explained that the Strategy relies heavily on reducing emissions from deforestation and forest degradation in developing countries (REDD) and Guyana’s partnership with Norway to generate payment for forest services that make Guyana’s forests “worth more alive than dead.” She noted that Nokta’s presentation said RECC will help ongoing adaptation planning and response, assist in LCDS priority setting, and aid Guyana’s reporting under the UN Framework Convention on Climate Change (UNFCCC).

One participant questioned Guyana's heavy focus on REDD and suggested investigating its hydropower and biofuel production potentials.

Elizabeth Emanuel, Sustainability Managers, Jamaica, presented the sectoral assessments for Guyana. She said the agriculture assessment found that under the IPCC's A2 and B2 scenarios, rice yields would improve, sugarcane yields would decline and fishery outputs would increase. She noted that the author did not calculate cost/benefit for adaptation options, but rather, simply identified the options, such as moving rice cultivation inland and improving drainage and irrigation.

Presenting her own assessment of health sector impacts, Emanuel reported that her projections found that malaria-related illnesses would involve higher costs in the short term under the IPCC's A2 scenario, but higher under B2, in the 2021-2050 period. She added that for dengue fever and leptospirosis, cases were higher under the business-as-usual scenario. She explained that in terms of adaptation options, she found that improved water and sanitation involve the highest initial costs, but have higher benefits in terms of productivity losses averted, and that regarding malaria, it was more cost-effective to treat patients than to prevent the disease.

On impacts on human settlements, Emanuel said the author focused principally on how sea level rise will affect exposed populations, with projected exposed assets being anywhere from US\$27 million to US\$5 billion. She said the study examined many different adaptation strategies, including building codes, moving critical assets, "planned retreat" of the coastal population, a coastal development ban, increased use of dikes and sea walls, and mangrove rehabilitation.

In the ensuing discussion, several participants questioned the results of the agriculture assessment, especially regarding rice yields, which they suggested should be verified by factoring in existing crop-specific variability models. Some participants observed that the author's recommendation to move populations away from the coast would be strongly resisted in Guyana. One participant said the agriculture assessment did not sufficiently consider drainage and irrigation, and focused too much on individual sub-sectors, rather than looking at aggregate impacts.

**JAMAICA:** This session was moderated by Charmaine Gomes. Clifford Mahlung, Meteorological Service, Jamaica, outlined his country's draft climate change policy and action plan 2010-2030 (NCCPAP). He said the NCCPAP would identify and prioritize mitigation measures in energy, tourism, forestry and municipal waste management, as well as adaptation measures for water, agriculture, tourism, biodiversity, human health, land use, coastal zone resources and disaster management. He explained that the NCCPAP will commit the government to adopt a new legal and institutional framework, establish databases, alter building codes, and institute an accountability, monitoring and review mechanism.

Sandra Sookram, UWI, presented the sectoral assessments. She explained that the agriculture assessment focused on sugarcane, yams and scallions, with the analysis recommending replanting sugarcane with heat resistant varieties, rehabilitating irrigation systems where they exist, and establishing technologically appropriate irrigation systems where they do not exist, for the three crops.

Sookram said the health sector assessment modeled dengue, gastroenteritis and leptospirosis, finding costs from dengue and leptospirosis cases increasing under the IPCC's A2 and B2 scenarios, but dropping compared to business-as-usual for gastroenteritis. She said the assessment's discussion of adaptation options suggested that for gastroenteritis, oral rehydration therapy was cheaper than immunization, while for dengue, the most cost-effective strategy on the long term may be improving community education and setting up early warning systems.

On tourism, Sookram said the assessment attempted to model how projected changes in temperature and rainfall might affect tourism from the key source markets of Canada, the UK and the US, and the impact of extreme events and sea level rise on the tourism infrastructure along Jamaica's coast. She noted the author found in his cost/benefit analysis of adaptation options, that most options would produce negative net benefits, and that he recommended a more detailed follow-up study of the sector's vulnerabilities.

Responding to a question about whether the RECC studies would influence NCCPAP drafting, Mahlung explained that they provided more updated data that should improve the final product. Another participant urged the tourism assessment to be given to the Tourism Ministry to help the Ministry better understand the impacts of climate change on this sector, which contributes a large percentage of Jamaica's GDP. Another participant asked what the NCCPAP would do to improve data collection, plug gaps and assign values to environmental resources. Emanuel noted that Jamaica is implementing a UN Development Programme-funded project on ecosystem valuation. Another participant, welcoming the latter news, suggested lessons learned in Jamaica's project might be applied elsewhere in the Caribbean.

**TRINIDAD AND TOBAGO:** This session was moderated by Neranda Maurice. Kishan Kumarsingh described his country's recently-finalized national climate change policy, highlighting, on mitigation, a commitment to: increase the use of renewable energy; improve building energy efficiency; increase the use of alternative fuels and fuel switching in transport; implement mandatory greenhouse gas (GHG) inventorying; and enforce reporting and auditing for all sectors. He explained that these measures are a step toward the development of regulations on GHG emissions and a cap-and-trade regime in the country.

Responding to questions, Kumarsingh said: the new policy was broadly consistent with CARICOM's draft Regional Framework Implementation Plan on Climate Change; Trinidad and Tobago's envisioned cap-and-trade system would only be implemented after the mandatory reporting and auditing system is in place; and while the cap-and-trade system would be only domestic at first, a regional application could be explored.

Willard Phillips, ECLAC, presented the sectoral assessments for Trinidad and Tobago. He said the agriculture assessment showed increases in yields for green vegetables under the IPCC's A2 scenario, decreases in root crops under both A2 and B2, and a 10-20% reduction in fish catch by 2050. He said the report evaluated the costs and benefits of 10 potential adaptation options, and recommended altering the crop calendar, implementing on-farm water harvesting and mainstreaming climate change issues into agricultural management.

Phillips said the energy sector assessment focused on: changes in domestic energy consumption; the possible impact of sea level rise on the oil and gas facilities of PETROTRIN, Trinidad and Tobago's major state-owned oil company; and how energy diversification in markets such as the US, might affect demand for Trinidad and Tobago's liquefied natural gas. He said the assessment primarily looked at energy efficiency and conservation measures as adaptation options, but also suggested market diversification for the country's oil and gas exports.

On health sector impacts, Phillips said the assessment projected lower dengue incidence, but more cases of leptospirosis, food-borne illnesses and gastroenteritis. He said the assessment's author, while not putting independent benefit values to various adaptation options, argued that past studies suggested improvements in water source and sanitation facilities would provide the greatest benefit. He said the author also suggested changes in attitudes, behaviors and lifestyles regarding water and sanitation.

In the ensuing discussion, several participants questioned the agriculture assessment and called for it to be checked using crop variability models. Others questioned the electricity consumption focus of the energy assessment and observed that its discussion of response options seemed to confuse adaptation and mitigation measures. Asked by Gomes whether the three assessments would be factored into the country's new policy work, Kumarsingh said the health sector assessment likely would, but that the other two could not, until their underlying assumptions and data were examined and verified.

### **STRENGTHENING OF NATIONAL CLIMATE CHANGE POLICIES USING RESULTS OF ECONOMIC ASSESSMENTS**

Garfield Barnwell provided an overview of the context for formulating and strengthening national climate change policies using the inputs provided by the economic assessments. He pointed out that the agriculture assessments suggested that climate change will adversely affect tropical small island developing states, by, among other things, increasing their food import bills and necessitating a fundamental restructuring of irrigated agriculture in the Caribbean. He stressed the role of CARICOM in: developing a regional-level planning and policy framework to complement national actions; working as part of the Alliance of Small Island States (AOSIS) lobby; serving as a hub of networks working on the meteorology, hydrology, environmental, health, fisheries, agriculture and tourism aspects of climate change; and formulating a strategy for the application of information and communication technologies to address climate change. He also underscored the CARICOM Regional Framework for Achieving Development Resilient to Climate Change, produced in March 2011.

### **RECOMMENDATIONS AND CONCLUSIONS**

Charmaine Gomes summarized the conclusions and recommendations from the discussions of the policies and economic assessments for the four countries, noting, *inter alia*: for Saint Lucia, that:

- RECC could be useful in updating the policy framework and getting private sector buy-in;

- rainwater harvesting is needed to address the needs of the tourism and residential sectors;
  - the impacts of extreme events should be considered;
  - ecotourism should be addressed in the assessment; and
  - improved health surveillance and early warning systems were recommended.
- for Guyana, that:
- sea level rise may create a catastrophe;
  - Guyana's LCDS places too much emphasis on REDD;
  - crop models should be incorporated into the agriculture assessment; and
  - RECC should support ongoing adaptation funding and planning.
- for Jamaica, that:
- the Government's Vision 2030 process should incorporate RECC;
  - RECC results should be mainstreamed into disaster risk reduction strategies;
  - climate change strategies should factor in education and an early warning system for disease surveillance; and
  - the vulnerability of the tourism sector needs to be studied in greater detail.
- for Trinidad and Tobago, that:
- the usefulness of the RECC assessments to date is not certain;
  - improvements in water management should cut across all sectors; and
  - ECLAC should become involved in looking at the socioeconomic impacts of implementing policies for nationally appropriate mitigation actions.
- and overall, that:
- it is important to promote public education and awareness of climate change impacts;
  - water management emerges as a cross-cutting issue that is important to all RECC assessments; and
  - research and development into climate change impacts and responses need to be included on the government agenda and inform national policy.

### **CLOSING REMARKS**

Garfield Barnwell recounted how, at the recent meeting of the Transitional Committee for the design of the Green Climate Fund, several Latin American countries had claimed that they were more vulnerable to climate change than Caribbean countries, and should therefore be given priority, contrasting their "concrete" data to "anecdotal information" from Caribbean countries. He urged Caribbean countries to redouble their efforts to generate the hard data they needed to document the vulnerability of their key sectors to climate change.

Charmaine Gomes closed by: recalling that, as part of the RECC process, ECLAC had built the local expertise of participating countries to conduct such assessments on their own in the future; calling for countries' support for the remaining work on regional economic assessments for energy, coastal and marine resources, health, agriculture, tourism, and water; and noting that ECLAC plans to explore the social dimensions of climate change economic impacts, such as employment effects. She declared the meeting closed at 6:25pm.