



UNITED NATIONS



Economic Commission for Latin America and the Caribbean
Subregional Headquarters for the Caribbean

Roundtable: Towards Development of a Climate Change Policy
for the Caribbean
Port-of-Spain, Trinidad and Tobago
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**REPORT OF THE ROUNDTABLE: TOWARDS DEVELOPMENT OF
A CLIMATE CHANGE POLICY FOR THE CARIBBEAN**

(Understanding the Potential Economic Impacts of Climate Change in Latin America and the Caribbean)

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Table of contents

Background	1
Agenda item 1: Opening	1
Agenda item 2: Climatic modelling in the Caribbean.....	1
Agenda 3: The economics of climate change in the Caribbean.....	5
Agenda item 4: The CARICOM climate change policy	7
Agenda item 5: Wrap up and closure.....	11
Annex I.....	13
Annex II	15
List of participants	15

BACKGROUND

The Economic Commission for Latin America and the Caribbean (ECLAC) Subregional Headquarters for the Caribbean, in collaboration with the Caribbean Community (CARICOM) Secretariat through the Caribbean Community Climate Change Centre (CCCCC), convened a meeting of technical experts working in the field of economics and climate change. The main objective of the meeting was to present the results of studies that were conducted under the project, “Understanding the Potential Economic Impact of Climate Change in Latin America and the Caribbean”. These presentations were expected to sensitize the experts to the costs of the impacts of climate change in different development scenarios and also present the costs of adaptive and mitigative strategies to 2100. It was expected that discussions of the presentation would inform the preparation of a subregional climate change policy through an examination of the existing Regional Climate Change Framework for Building Resilience. Discussions were also intended to focus on updating participants on the upcoming negotiations for the new Kyoto Protocol that would take place in Mexico in November 2010.

The meeting took the form of presentations by relevant experts followed by discussions. Each discussion segment resulted in recommendations that would inform development of the policy.

The meeting was held at the ECLAC Subregional Headquarters for the Caribbean, Port of Spain, Trinidad and Tobago, on 30 June 2010.

An agenda and list of participants are annexed to this report.

Agenda item 1: Opening

The Head of the Sustainable Development Unit of the ECLAC Subregional Headquarters for the Caribbean welcomed participants and expressed gratitude to the experts as well as the consultants for their diligence in supporting the work of ECLAC on the economics of climate change. Information on the project “Understanding the Potential Economic Impact of Climate Change in the Caribbean” was provided and the experts were apprised of progress made in implementing the initiatives. The project would culminate with a final meeting to be held in September 2010 where the results of a number of national, sectoral reports would be shared with government representatives.

Agenda item 2: Climatic modelling in the Caribbean

A. Climatic modelling in the Caribbean

The first presentation focused on sustainable subregional efforts that represented opportunities for further developments in climate change scenarios and issues. It described the different techniques used to model changes in temperature and precipitation in the Caribbean and compared the outputs of these models. Essentially, temperatures were expected to increase while

precipitation might increase for countries in the southerly latitudes and decrease in the northerly countries (Bahamas, Cuba and Hispaniola) resulting in drought. These changes would bring with them tremendous challenges for the Caribbean subregion and, despite the progress made in recent years, there was a need for continuous development of climate research and modelling in order to produce more relevant information for subregional and national studies and overcome the limitations of existing results. That might be realized through the coordination of activities among CCCCC, the Institute of Meteorology (INSMET) in Cuba and the University of the West Indies (UWI). These activities would address the requirements for more analyses using available information to generate best practices and produce useful results. There were also new opportunities for climate research in the subregion with the Coordinated Regional Downscaling Experiment planned to start early next year. It was expected that the participation of various Caribbean institutions, such as INSMET, UWI, CCCCC and Caribbean Institute for Meteorology and Hydrology in this global project, would allow the generation of new and more abundant information.

B. Economic modelling frameworks

In the second presentation on “Economic Modelling Frameworks”, the discussion of climate change effects no longer concentrated on whether the effects were real but on the optimum strategies to pursue with respect to adaptation and mitigation, which straddled local, regional and international jurisdictions. The presenter stated that the development agenda had been complicated by the urgency of climate change effects which reflected additional layers of constraints and opportunities. Unlike in the past, there was an abundant literature on the major effects of climate change around the globe. When considering the level of adaptation to undertake, policy-makers should consider costs, benefits and the state of the Caribbean economies which are characterized by limited fiscal space due to large fiscal deficits, large current account deficits, mounting debt and vulnerability to external shocks. Moreover, many countries relied heavily on a few key industries, such as agriculture and tourism, which were extremely vulnerable to the effects of climate change.

The presentation mentioned the drivers of climate change which included, inter alia, increased use of fossil fuels as coal and oil, as well as increases in population, deforestation and land use. Some of the likely effects in the Caribbean subregion included sea level rise, coral bleaching, increased temperatures and occurrence of extreme events, such as hurricanes. To estimate the cost of climate change, a number of methodologies had been used. The step-by-step approach to building a methodology was set out by the Economics of Climate Change Working Group (2009) and entailed a careful approach to calculate and overcome the costs of climate change. The modelling strategy used must consider issues such as dynamic feed back effects, linearity vs. non linearity, uncertainty and data frequency, among others. Some of the models used in the Caribbean include Partial Equilibrium models, General Autoregressive Conditional Heteroskedasticity models, Input–Output models and integrated Assessment models e.g. T21. With regard to the way forward, he noted that the modeling approach must be consistent, data sources must be developed, assumptions must be clearly set out, scenarios should be emphasized, comparisons should be possible across jurisdictions, and regional modelling approaches should be pursued.

C. Discussion

The representative of INSMET stated that conditions such as drought should be addressed at the subregional scale, and not only at local and national levels. He referred to the 1998 Intergovernmental Panel on Climate Change (IPCC) meeting where it was stated that complete adaptation to climate change might not be attainable at subregional and local levels. Mitigation was dependent on the country's paradigm of development, while adaptation required greater effort at the international level. He also made reference to the Liliendaal Declaration on climate change and development in which the issue of common goals and sustainability was addressed, however, he noted that some aspects of adaptation were not sustainable and could not raise production.

The representative of Saint Lucia stated that despite common goals there were differentiated responsibilities. The developed countries were not fulfilling their responsibilities. He noted work has been done on the Economics of Climate Change at the national levels in collaboration with UWI, Barbados and Mona, Jamaica, however, data was lacking. The Caribbean Catastrophe Risk Insurance Facility was currently undertaking work on insurance which could be incorporated into the economic scenario to lead to a more comprehensive result. He also noted that in reality there was nothing like average impact and proposed that ranges be used, instead, to show the level of impact and built into models.

The representative of Trinidad and Tobago stated that economic models should be integrated with climate change models. There was a need to identify what needed to be done at the subregional level by CCCCC.

The representative of the United Nations Development Programme (UNDP) stated that his office had mobilized funds for disaster risk reduction and emphasized the linkages between climate change and disasters. The UNDP Caribbean Risk Management Initiative sought to assist with modeling activities being undertaken in the subregion. In that regard, he enquired about the financial support needed for the new era of Providing Regional Climate Scenarios (PRECIS). He also recognized that data storage was a major challenge.

In response to some of the questions and comments raised by participants, the representative of the Economic Development Unit of ECLAC stated that in relation to the Step Approach, the subregion was not at a point to respond. However, there were certain things that should be started, for instance, water resource management. The representative of Jamaica also recognized that there was a data gap, and meteorological services were not at a stage to increase data collection due to lack of capacity, therefore, there was a need to increase capacity to improve data collection.

The representative of INSMET stated that, in looking at adaptation, one should look at a subregional approach but adaptation and mitigation were national concerns that began at the national level and could then expand to the subregional level.

The representative of the CARICOM Secretariat, in his capacity as Chair, stated that the subregion must have a coherent and consistent approach towards climate change negotiations.

There should also be a greater level of cooperation among subregional institutions and a committee established in order to identify national priorities.

The representative of INSMET informed the meeting that information based on the models relied on global output related to extreme events, for example, precipitation, and was used together in PRECIS to downscale for the Caribbean subregion. In reference to financial support from UNDP, it was hoped that a proposal would be finalized by mid-July which would detail the amount of support needed and would take into consideration the problem of data storage and collection.

In response to some comments raised, the Economic Affairs Officer, ECLAC, stated that model building capacity existed in the subregion and that models must reflect Caribbean realities and be modified to suit smaller jurisdictions. Local capacity should be enhanced to strengthen those abilities, despite limitations, in order to provide better outcomes and less impact over time. Models should account for improvement in technology function. He also emphasized that there must be a way to compensate for the lack of data by exploring less data-intensive methodologies. Although Vector Autoregressive models were useful in the determination of impacts, those models did not reveal causes and were data intensive. He noted that a variety of methodologies were needed, which would allow for better comparison and application and it was necessary to build local capacity with the ability to modify global models. Capacity existed in traditional model building but these should be extended to include climate change indicators.

The representative of Saint Lucia stated that data collation was important and there was a need to improve data quality and collection. Another representative of Saint Lucia referred to data retrieval and the fact that economic models were not taking into account current economic trends superimposed on climate change models.

The representative of Trinidad and Tobago suggested that the CCCCC should demand mandatory reporting especially on price information. The representative of Jamaica stated that natural disasters, especially hurricanes, should be modeled. The representative of INSMET responded that efforts were being made to incorporate cyclones in models, notwithstanding capacity constraints. The Chair stated that the issue of implementation and member State capacity was critical.

Agenda 3: The economics of climate change in the Caribbean

The session focused on the impacts of climate change on the tourism, water and agriculture sectors in the Caribbean

A. The impact of climate change on the tourism sector

The presentation sought to reflect an estimation of the economic impact of climate change on nine countries in the Caribbean basin, Aruba, Barbados, Dominican Republic, Guyana, Jamaica, Montserrat, Netherlands Antilles, Saint Lucia and Trinidad and Tobago. A typical tourism demand function, with tourist arrivals as the dependent variable, was used in the analysis. To establish the baseline, the period under analysis was 1989-2007 and the independent variables were destination country Gross Domestic Product (GDP) per capita and consumer price index, source country GDP, oil prices to proxy transportation costs between source and destination countries. At the preliminary stage the climate variables were used separately to augment the tourism demand function to establish a relationship, if any, among the variables.

Various econometric models (single Ordinary Least Squares models for each country, pooled regression, Generalized Method of Moments estimation and random effects panel models) were considered in an attempt to find the best way to model the data. The best fit for the data identified (1989-2007) was the random effects panel data model augmented by both climate variables, that is, temperature and precipitation. Projections of all variables in the model for 2008-2100 were done using forecasting techniques. Projections for the climate variables were undertaken by the INSMET. The cost of climate change to the tourism sector was estimated under three scenarios: A2, B2 and Business as Usual (BAU) (the mid-point of the A2 and B2 scenarios). The estimated costs to tourism for the Caribbean subregion under the three scenarios were all very high and ranged from US\$ 43.9 billion under the B2 scenario to US\$ 46.3 billion under the BAU scenario.

B. The impact of climate change on the water sector

The presentation stated that caring for the quality and quantity of freshwater sources was critical to the development of human life and ecosystems. Without adequate management, poor water quality or dwindling water supplies could set limits in the attainment of sustainable development. Caribbean countries faced many constraints in obtaining high quality and quantities of freshwater due to their small size and geo-climatic conditions and the management of freshwater was further complicated by the threat of climate change. In order to determine the impact of climate change on the water sector in the Caribbean, the study attempted to establish a baseline or reference climate parameters for a 40-year period from 1966–2006 and used the IPCC A2 and B2 scenarios as the projected future climate for the Caribbean. In addition to forecasting climate as in Westway (2000), future socio-economic parameters, such as population size and per capita water use, had to be determined.

Two future scenarios were then compared: The BAU which would be the case if the climate and socio-economic parameters in the baseline period remained unchanged; and the case

where the socio-economic parameters remained unchanged, but the climate parameters changed according to the forecasted climate scenarios. As a result, the impact of climate would be measured as the difference between the outcomes of the BAU case and the outcomes of the forecasted climate scenario. After the impact of climate change had been determined, mitigation and adaptation measures would be proposed for each Caribbean country, working independently, or as a group.

C. The impact of climate change on the agriculture sector

The presentation on the agriculture sector provided a short introduction into the history of climate change impact studies and collaborative efforts carried out in the Caribbean subregion. It also sought to highlight a general consideration about the more probable climate change scenarios that were expected in the future. Results of research indicated that a warmer and drier future climate, combined with a rise in sea levels, was adopted as the worst case scenario for agriculture. The results of impact studies and conclusions, obtained since 1998 by INSMET on relevant sectors and subsectors related to food production in different Caribbean countries, were also discussed. These included aridity trends, water resources, net primary productivity, crop yields, integrated crop production of potato, rice and corn and heat stress on livestock and human labor. The presentation ended by stressing the need for deeper assessment studies and the fact that adaptive policies and strategies should be implemented immediately.

D. Discussion

The representative of Saint Lucia underscored the fact that the expectation of extreme events, such as hurricanes, had a high impact on tourism. Issues such as diseases, for example, dengue, could also have an impact on the sector. He mentioned that the expected increases in temperature and rainfall, for example during July and August, might not impact tourist arrivals, however, that possibility needed to be explored further. In addition, he stated that there needed to be an understanding of the push and pull factors of the home country. In response to these comments, the Sustainable Development Officer of ECLAC enquired about sources of data that could be used to ascertain these factors. The representative of INSMET responded that estimating the push and pull factors would require a different estimation but data might well be available from countries.

The representative of the CARICOM Secretariat stated that there was a report from the World Bank on sea level rise in Latin America and the Caribbean, (which included eight countries from CARIFORUM) in which most of the values were underestimated. He noted that there was a distinction between climate change and climate variability and enquired if that was reflected in the studies. In response, the representative of the Sir Arthur Lewis Institute of Social and Economic Studies indicated that temperature could have a real impact on tourist arrivals, considering that most tourists looked at temperature in order to choose their final destination. Countries where the temperature levels were not so high, attracted more tourists. She mentioned that more of the direct and indirect impacts would be included in the study.

The representative of the University of the West Indies (UWI) was uncertain about including climate variability at that time, as data would be necessary in order to make that

distinction. The representative of Saint Lucia stated that there were droughts over the last 40 years and hoped that the water presentation could address that occurrence. In response, the representative of UWI mentioned that it was difficult to use past extreme events by themselves, but that cyclical variation could suffice if the data could be obtained. She enquired if it was possible to get data for 5 to 10 years, to which the representative of INSMET stated that it was challenging. He pointed out that climate change was long term and that one could not use 5 to 10 years to review climate change. He further noted that it would be useful to know if an extreme event had a high or low impact on any particular sector and that one needed to look at threshold levels and the type of information that would be needed to examine extreme events. Another representative of INSMET stated that it was methodological, in that data did not usually reflect reality.

Agenda item 4: The CARICOM climate change policy

The representative of CARICOM discussed the context for the establishment of the United Nations Framework Convention on Climate Change (UNFCCC) in 10 years of global negotiations. The main failure of that protocol was due, in part, to the fact that one of the major emitters, the United States, did not sign on to the protocol. He mentioned that there was a need for a new and concrete climate change framework for Small Island Developing States (SIDS). The presentation highlighted the key issues for attention in a post-Kyoto framework, as follows:

- (a) The involvement of key industrialized nations and rapidly developing countries was paramount in seeking to design a new protocol
- (b) In the process of designing a new protocol, it was necessary to ensure a development pathway which also took into consideration the new tools and approaches adopted across the world to tackle climate change
- (c) It was important to explore potential options using the BAU approach for the newly emerging countries to address climate change. Negotiators must decide whether Kyoto was going to be extended or replaced with a new protocol and targets should be based on an income elasticity formulae, whichever approach was adopted. That was more appropriate than GDP
- (d) Emphasis was needed on an extended time path of action. There were calls for moderate, short-term targets and stringent, long-term targets versus calls for stringent targets only
- (e) Inclusion of market-based policy instruments. Due to the subregion's need to harness a market system it might be desirable to have both a regulatory and market-based system in place so countries were able to change from one system to another as they went through transition phases
- (f) The Caribbean countries must pay attention to the fiscal implications of mitigation and adaptation strategies. An assessment of the different types of absorptive capacities when developing an adaptation strategy was needed
- (g) There was need to ensure that Annex I countries also addressed intensity of targets (emissions/unit of GDP). The subregion had undersold itself in the GDP calculation, therefore, the preferred method should be GNP as there was a tendency to overstate GDP (i.e. remittances)

(h) At that time the only proposal being offered, which was also consistent with a time path of targets, was the emissions/unit of GDP

With respect to the state of play in Copenhagen and its outcome, there was a feeling of some level of conspiracy underlying the calculations presented. The framework for the calculations were based on calculations from South Korea and Australia and subsequently applied to all the major players. There were also new players represented by China, Japan, United States, the rest of the Organization of Economic Cooperation and Development countries and Eastern European countries which needed to be accounted for.

The emissions intensity factor identified where vulnerabilities existed in countries. Based on their vulnerabilities, countries might have to rethink where they drew their borders with respect to trade. The priority area for the subregion in the context of climate change was energy.

The scenario with an increase in temperature of 2°C indicated that the most vulnerable sectors were agriculture, forestry, fisheries and tourism.

There was a lack of information on the climate change impacts on fisheries, forestry, health, water, infrastructure and biodiversity. There were many players in the water sector at the subregional level which created coordination difficulties and a tremendous amount of duplication in this sector. A certain amount of caution should be exercised when considering the climate change impact for within the insurance sector, as that sector had a vested interest in those outcomes.

Human resources were the most important resources. Challenges of climate change presented employment opportunities, but there was a need to build capacity. Some already existed in the energy sector and those needed to be harnessed, along with expanding research and development activities, exploring low-volume, high-value tourism, shifting to indigenous production methods, and the dissemination of clean technologies in transport sector.

The CARICOM representative cautioned the subregion about under-selling itself in negotiations. There were conflicting messages, for example, the 1.5°C vs. 2°C, and there was need for a strong and unified message within the subregion which would come from a greater understanding of climate change science.

A. Discussion

The representative of Jamaica enquired whether or not the Kyoto Protocol targets were realistic. It was agreed that those targets might have been too ambitious especially within the short time frame identified.

The representative of Trinidad and Tobago asked for clarification on the issue of accounting for remittances. The CARICOM representative proceeded to explain the difference between GDP and GNP highlighting that in the calculation of GNP, foreign investment and associated income were deducted from the calculation, which also included remittances sent in from abroad. Many developing countries had high foreign investment and relied heavily on

remittances which, in turn, were reflected in the GDP value. The gap between GDP and GNP could, therefore, be very large and, depending on which value was used in climate change negotiations that would, in turn, influence the setting of climate change targets. The issue was about establishing a consistent numerator across countries from which to establish targets. It was also highlighted that big countries calculated their GDP differently to small countries and that information was crucial to negotiating a monetary value for GDP. Although there were different applications of measuring GDP, the representative of CARICOM stressed that the Purchasing Power Parity was essential to those calculations. He expressed his satisfaction with the revelation that Cuba was the first nation in the subregion to recognize the importance of Purchasing Power Parity.

The representative of Trinidad and Tobago agreed that the subregion should review the advantages and disadvantages of using GDP vs. GNP in the calculation of emissions. He stated that they had been reluctant to promote the use of GNP and other socio-economic indices and emission rights which did not reflect the climate change science especially in the context of SIDS. The meeting was cautioned against using the term “emission rights” because that would have implications for countries such as Trinidad and Tobago, Jamaica and Saint Kitts and Nevis because of their high emission levels. He also explained that an examination of CO₂ emissions with respect to electricity per capita unit showed that Trinidad and Tobago had the lowest value because it used natural gas, but for Saint Vincent and the Grenadines where diesel was used, the value was very high. Belize and Barbados had higher emissions per capita than the United States of America. As a result, setting emission rights and targets was not such a straight forward issue and the subregion should be cautious when engaging in such discussions. From a Caribbean perspective, caution should be exercised on proposed policies and strategies in terms of acceptability of units used for measuring emissions and setting targets.

The issue of trade also needed to be dealt with analytically, as it was an emerging issue and potential response measures needed to be explored fully before adopting a position. That issue could also have negative implications for the subregion, which must be prepared to negotiate in favour of its interests.

Regarding the Kyoto Protocol, there was a consensus that it had served its time and, as such, CARICOM needed to accept that the new agreement would not have some elements of the Kyoto Protocol. Although the protocol was ambitious, it was not successful and few countries would meet the targets and calling for more ambitious targets would only create additional problems. It was not clear what the subregion would be pushing for at the negotiation table in Cancun in 2010. Those matters were discussed within the Alliance of Small Island States (AOSIS) and resolution was still pending. The 1.5°C scenario promoted by the subregion was ambitious, but the 2°C scenario was still relevant and was the pace set by the developed countries in the negotiation process. Those were all issues which needed discussing amongst leaders especially as the accord was not adopted and no follow-up process had been established.

The representative of CARICOM highlighted that a joint meeting of the Council for Trade and Economic Development and The Council for Human and Social Development was being planned and suggested that those issues should be on the agenda.

It was also noted by the representative of Trinidad and Tobago that the subregion had not reached a consensus on the issue of carbon capture and the Reduce Emissions from Deforestation and Degradation initiative. If there was agreement to implement the 1.5°C scenario, then it would be necessary to pursue specific activities to realize that.

The representative of Saint Lucia stated that the idea of using public funds for adaptation would not be entertained and emphasized the need for new and predictable funding sources. The representative of Jamaica responded that there were funds from Copenhagen to be channeled through the Adaptation Fund, to which developing countries had direct access for the implementation of adaptation strategies. It was suggested that such requests be included in country proposals.

The Sustainable Development Officer of ECLAC enquired into the role of the CCCCC in accessing these funds. The representative of Jamaica outlined that it was intended for the CCCCC to be established as a National Implementing Entity for the Adaptation Fund and to provide scientific advice within this capacity. The CCCCC also had a role in bringing focal points together who had previously met separately.

The representative of Trinidad and Tobago raised the issue of moral arguments in reference to differential responsibility. In the last Conference of the Parties (COP), Australia stated that some Caribbean countries should be meeting targets. On the whole, CO₂ intensity contribution was low from the Caribbean, however, some countries from the subregion were now enlisted to meet targets. SIDS generally had not benefited from investments coming out of the Kyoto protocol, with the exception of Jamaica.

The representative of Saint Lucia expressed disappointment in the weak stance of CARICOM with respect to reaching a subregional consensus on climate change policy. He felt that by trying to accommodate everyone, meaningful subregional progress was not being made. The task force established on climate change also needed to be strengthened as their discussions did not filter down to the focal points, resulting in little action.

It was mentioned that Caribbean leaders needed to be briefed on the disadvantages of agreeing to soft loans as those might well be sourced from the Adaptation Fund. He also cautioned that it was necessary to be wary of persons or countries that “tested” their new technology by selling it to the subregion.

In reference to earlier discussions of market structure, an Economic Affairs Officer of ECLAC cautioned about giving the wrong signal that Caribbean markets were sufficiently developed to cope with climate change marketing instruments such as the Clean Development Mechanism (CDM). Therefore, he enquired about the effectiveness of such instruments for the subregion. The CDM chair was Jamaica and the subregion needed to take advantage of that to further efforts in climate change policy and accessing funds.

Agenda item 5: Wrap up and closure

A. Key points of the meeting

1. Climate change was taking place and the subregion, as a matter of urgency, should consider mitigation and adaptation strategies
2. An important question focused on the opportunity costs of adaptation and mitigation given the limited fiscal space within which the subregion operated
3. Adaptation efforts had been made but few countries had integrated these into development planning
4. In modeling the impacts of climate change, modelers needed to consider the interaction of parameters that were used to project the costs of impacts. Therefore modeling frameworks needed to be developed
5. There was urgent need to validate the integrity of data sources and to focus on data maintenance to produce complete datasets
6. Climate change impacts were not about forecasting but about scenario building and looking at different types of outcomes
7. The longer the projection of impacts, the greater the uncertainty. Perhaps projections should be pursued incrementally
8. In the tourism sector analysis, it was necessary to focus on both "pull" and "push" factors
9. It was important to distinguish between climate change and climate variability
10. Annex I countries were advocating intensity targets (emission/unit of GDP), but GDP was calculated differently for SIDS and, perhaps, GNP should be used
11. The most vulnerable sectors to climate change were agriculture, forestry, fisheries and tourism
12. Climate change offered economic opportunities, such as employment in the renewable energy sector
13. It was important to diversify the tourism products into areas such as heritage and eco-tourism
14. Most implementation efforts had focused on strategic elements 1 and 3 of the regional climate change framework, however the other elements needed to be addressed
15. The second national communications to the UNFCCC were important sources of data on climate change
16. Official Development Assistance should not be used for adaptation
17. The climate change task force needed representation from country focal points

B. The Way Forward

1. The CCCCC should facilitate climatic and economic modeling in the subregion
2. Countries should submit project proposals to the CCCCC
3. The CCCCC could play a greater role in data collection and storage
4. Capacity-building of member States to address climate change was important
5. It was important to have a coordinating body for all initiatives on climate change
6. Given the subregion's dependence on fossil fuels, the priority area to be addressed was the energy sector

7. The impacts of climate change on the fisheries, water, health and biodiversity sectors needed to be addressed
8. It was necessary to be strong and unified in the negotiations and in development of a climate change policy
9. Discussions on the strategies for the convening of COP 16 in Cancun, Mexico, in 2010 should be held and measures taken to invoke the 1.5°C temperature rise
10. CARICOM could bridge the gap between the climate scientists and the policymakers who negotiate
11. The Regional Negotiation Mechanism should address issues related to trade.

Annex I**PROGRAMME****Wednesday 30 June 2010****0830 hrs****Registration of participants****0900 hrs - 0930 hrs****Opening**

- Introductory remarks
*Charmaine Gomes, Sustainable Development Officer
ECLAC Subregional Headquarters for the Caribbean*

Security Briefing

*Juda Francis, Security and Building Management Assistant
ECLAC Subregional Headquarters for the Caribbean*

0930 hrs - 1200 hrs

- **Session 1: Climatic Modelling in the Caribbean**

Chair: Garfield Barnwell, Director, Sustainable Development Unit, CARICOM Secretariat, Guyana

This session will seek to present an update of climatic modeling in the Caribbean. It would describe the mechanism for obtaining the data and provide a forum for exchange of ideas concerning the implications for development of a climate change policy in the region.

- Climatic modelling in the Caribbean
Abel Centella, Scientific Director, INSMET, Cuba (40 minutes)
- Economic Modelling Frameworks
- *Dillon Alleyne, Economic Affairs Officer
ECLAC Subregional Headquarters for the Caribbean (40 minutes)*
- *Discussion (70 minutes)*

1200 hrs - 1400 hrs**Lunch****1400 hrs - 1530 hrs**

- **Session 2: The Economics of Climate Change in the Caribbean**

Chair. Shyam Nokta, Advisor to the President on Climate Change and Chairman of the National Climate Change Committee, Guyana

This session will highlight the results of assessments of the impacts of climate change in select Caribbean countries. It is expected that the presentations would provide information that may be relevant to development of a climate change policy.

- The impacts of climate change on the water sector in select Caribbean countries
*Sharon Hutchinson, Lecturer
Department of Agricultural Economic, Faculty of Science and Agriculture, University of the West Indies, Trinidad and Tobago
(30 minutes)*
- The impacts of climate change on the tourism sector in select Caribbean countries
*Sandra Sookram, Fellow
Sir Arthur Lewis Institute for Social and Economic Studies (SALISES), University of the West Indies, Trinidad and Tobago
(30 minutes)*
- The impacts of climate change on agriculture sector in select Caribbean countries
*Roger Rivero Vega, Senior Researcher, Institute of Meteorology (INSMET), Cuba
(30 minutes)*

1530 hrs – 1700 hrs

- **Session 3: The CARICOM Climate Change Policy**

Chair: Jeffrey Spooner, Climate Branch Head, Office of the Prime Minister, Jamaica

This session would feature the elements of the Strategic Framework for building Climate Resilience and examine it within the context of the results of climatic modelling and the economic impact studies with a view to development of a policy on climate change.

- Climate Change and the Kyoto Protocol
*Garfield Barnwell, Director, Sustainable Development Unit, CARICOM Secretariat, Guyana
(30 minutes)*
- Economics and the Climate Change Policy
*Garfield Barnwell, Director, Sustainable Development Unit, CARICOM Secretariat, Guyana
(30 minutes)*
- Discussion (30 minutes)
- Closure

Annex II**LIST OF PARTICIPANTS**

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