FINAL REPORT OF THE CARIBBEAN PLANNING FOR ADAPTATION TO CLIMATE CHANGE (CPACC) PROJECT

APRIL 1997 – DECEMBER 2001
Executive Summary

Produced jointly by the Unit for Sustainable Development of the Organization of American States and the CPACC Regional Project Implementation Unit

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ACKNOWLEDGEMENTS

The successful implementation of the Caribbean Planning for Adaptation to Climate Change (CPACC) project can be attributed to the commitment and dedication of several regional entities. The foresight of Caribbean governments in according priority status to addressing the problem that climate change poses to the future socioeconomic development of the region must be commended. The subsequent involvement of the Caribbean Community (CARICOM) Secretariat in organizing many aspects of project implementation and ensuring that climate change issues were placed on the regional political agenda was invaluable. The offer of the government of Barbados to provide facilities for hosting the Regional Project Implementation Unit (RPIU) and provision of strong political support for our project activities through the auspices of the Ministry of Health and the Environment and later through the Ministry of Physical Development and Environment is greatly appreciated.

Key elements in the implementation of CPACC were the National Focal Points (NFPs), appointed by governments, and the network of national offices — the National Implementation Coordinating Units (NICUs) — which were established in each participating country. Without their dedication and commitment the implementation of this multi-country and multifaceted project would not have been possible. We are deeply indebted to participating CARICOM governments for providing the services of their skilled nationals to carry out the many functions accorded to the NFPs and NICUs.

CPACC has also been supported through services rendered by regional institutions – the Caribbean Institute of Meteorology and Hydrology (CIMH), the campuses of the University of the West Indies (UWI) at St. Augustine in Trinidad and Tobago, Cavehill in Barbados, and Mona in Jamaica – institutions which are now key partners in a regional strategy to develop capacity to address critical climate change issues. Special mention must be made of the Administration of UWI Cavehill which offered accommodation for the CPACC Regional Project Implementation Unit (RPIU) during the first years, and provided financial services for the project. The University of the West Indies Centre for Environment and Development (UWICED) at the Mona campus provided the necessary institutional umbrella for the implementation of the project, and the Centre for Marine Sciences on the same campus housed the data analysis activities related to CPACC's regional coral reef monitoring programme. Finally the St. Augustine campus played host to the Regional Archiving Centre for the data generated by the monitoring stations with generous support from the government of France which is appreciated.

The CPACC project was financed by the Global Environment Facility (GEF) through the World Bank as project implementing agency. The Organization of American States (OAS), which prepared the original project proposal on behalf of the CARICOM countries, acted as executing agency for CPACC. Both institutions made available highly dedicated staff who worked closely with the RPIU and NFPs on the successful implementation of the project. Several national agencies such as the United States National Oceanic and Atmospheric Administration (NOAA) and the United Kingdom Climate Impacts Programme (UKCIP) provided the project with valuable technical inputs which are hereby acknowledged.

During its short life, the CPACC project attempted to build bridges with several Caribbean publics including professional associations, NGOs, and the regional private sector. For the latter, the project was ably supported by the Petroleum Company of Trinidad and Tobago (PETROTRIN), which has led by example in the region by establishing its own internal Climate Change Institute. From time to time the project sought advice from a number of regional professionals in the network, and we are grateful for their wise counsel. Finally, the expert chairing and supervision of the Project Advisory Committee by the CARICOM Secretariat contributed significantly to the development of harmonious and effective partnerships between the various entities responsible for project implementation.

LIST OF ACRONYMS

AOSIS	Alliance of Small Island States
ACCC	Adaptation to Climate Change in the Caribbean
CARICOM	Caribbean Community of Nations
CARICOMP	Caribbean Coastal Marine Productivity Project
CEHI	Caribbean Environmental Health Institute
CERMES	Centre for Resource Management and Environmental Studies
CIDA	Canadian International Development Agency
CIMH	Caribbean Institute of Meteorology and Hydrology
CCCCC	Caribbean Community Climate Change Centre
CMS	Centre for Marine Sciences of the UWI
CoP	Conference of the Parties to the UNFCCC
CPACC	Caribbean Planning for Adaptation to Climate Change
CRIS	Coastal Resources Information System
GEF	Global Environment Facility
GETF	Global Environment Trust Fund
GHG	Green House Gases
GCC	Global Climate Change
GLIS	Geographic and Land Information System
GS/OAS	General Secretariat of the Organization of American States
ICZM	Integrated Coastal Zone Management
IPCC	Inter-Governmental Panel (of Experts) on Climate Change
LAN	Local Area Network
MACC	Mainstreaming Adaptation to Climate Change
NCCC	National Climate Change Committee
NEA	National Enabling Activities
NFPs	National Focal Points
NICUs	National Implementation Co-ordinating Units
NRMU	Natural Resources Management Unit of the OECS
OAS	Organization of American States
OECS	Organisation of Eastern Caribbean States
PAC	Project Advisory Committee
PDF	Project Development Facility
PICCAP	Pacific Island Climate Change Assistance Project
POA	Programme of Action
RAC	Regional Archiving Centre
RPIU	Regional Project Implementing Unit
SDR	Special Drawing Right
SIDS	Small Island Developing States
SLR	Sea Level Rise
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UWI	University of the West Indies
UWICED	University of the West Indies Centre for Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change
V&A	Vulnerability and Adaptation Assessments

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The full version of the report on the Caribbean Planning for Adaptation to Climate Change (CPACC) project and supporting documents can be found on the Web at **www.cpacc.org**

1.0 BACKGROUND

Over the past two decades, the fragile coastal resources and marine ecosystems of the Caribbean Community (CARICOM) member states have come under increasing stress from a range of activities, including intensification of human population and activities; concentration of tourism-related infrastructure; inadequate waste disposal; poor drainage infrastructure; uncontrolled and often ill-conceived development schemes; severe weather events, which have caused record losses and a crisis within the insurance and reinsurance industries; and mismanagement of coral reefs, sea-grass beds, mangroves, and wetlands. The lack of comprehensive information systems and an uncoordinated institutional structure have prevented an integrated approach to the management of those resources.

The findings and predictions of the Intergovernmental Panel on Climate Change (IPCC) have increased fears that these problems could be seriously aggravated by global climate change and its anticipated impacts, including global warming, changes in ocean dynamics, sea-level rise, increased surface temperatures, and more robust wind and ocean currents. It is feared that sea-level rise, in particular, will most likely affect freshwater supply, accelerate beach and coastal erosion, cause permanent coastal inundation, and aggravate the impact of tropical storms, thereby placing the economic and social assets in the coastal zones under serious threat.

The 1992 IPCC Report estimated the "first-order" costs for the protection of Caribbean shorelines and their uses from future sea-level rise at US$11.1 billion, which far exceeds the combined investment capacity of the Caribbean economies. The Report recommended that Small Island Developing States (SIDS) move urgently to improve their coastal-zone management and take other relevant measures to reduce their vulnerability to global climate change.

Driven by these concerns, the CARICOM member sates joined with other SIDS in an Alliance of Small Island States (AOSIS), which played a significant role, first in the work of the IPCC and thereafter in the negotiations that produced the United Nations Framework Convention on Climate Change (UNFCCC).

Being relatively small contributors to the production of greenhouse gases, but extremely vulnerable to the impacts of climate change, meant that the Caribbean SIDS were well positioned to qualify for assistance from the Global Environment Facility (GEF). After the 1994 UN Global Conference on Sustainable Development of Small Island Developing States in Barbados, a number of CARICOM countries sought the assistance of the General Secretariat of the OAS (GS/OAS) in developing a project that would help them start the process of adapting to the impacts of climate change.

1.1 THE PROJECT DESIGN PROCESS

The GS/OAS organised a series of technical consultations with the active participation of several countries and agencies including the CARICOM Secretariat and the OECS Natural Resources Management Unit (OECS/NRMU) which produced a project proposal. The project concept was subsequently approved by the GEF Council as part of its work program in May 1995, and a Project Development Facility (PDF) grant was made available to the GS/OAS to enable it to prepare a full project document in consultation with the participating countries and regional institutions.

From this process emerged a project document entitled "Caribbean Planning for Adaptation to Climate Change (CPACC)." The GEF approved a project grant totalling 4,400,000 Special Drawing Rights (SDR), or the equivalent of US$6,300,000 on April 11, 1997, when the project became effective. In June 1998, an additional amount of 260,000 SDR or US$349,500 was received to allow for the participation of St. Vincent and the Grenadines in the project as soon as it became a party to the UN Convention on Climate Change.

1.2 THE PROJECT STRUCTURE

The overall objective of CPACC was to support Caribbean countries in coping with the adverse effects of global climate change, particularly sea-level rise, in coastal and marine areas, through vulnerability assessment, adaptation planning, and related capacity-building initiatives. More specifically, the project was expected to assist national governments to:

(a) Strengthen the regional capacity for monitoring and analysing climate and sea-level dynamics and trends;

(b) Identify areas particularly vulnerable to the adverse effects of climate change and sea-level rise;

(c) Develop an integrated management and planning framework for cost-effective response and adaptation to the impacts of global climate change on coastal and marine areas;

(d) Enhance regional and national capabilities to prepare for the advent of global climate change through institutional strengthening and human resource development; and

(e) Identify and assess policy options and instruments that might help to initiate a long-term adaptation programme in vulnerable coastal areas.

CPACC was designed as a regional project. Its implementation modalities emphasised a co-operative approach by the agencies involved and the 12 participating countries to developing the requisite capacity at the national level to continually assess the impacts of climate change on the coastal resources and, by extension, on the societies and economies of the countries. The project comprised four regional and five pilot action components. The regional components were as follows:

a) Design and establishment of a sea-level/climate monitoring network

b) Establishment of databases and information systems

c) Inventory of coastal resources and uses

d) Formulation of a policy framework for integrated coastal and marine management.

The countries were given an opportunity to decide the national pilot components in which they wished to participate. Their selection was as follows:

e) Coral-reef monitoring for climate change (Bahamas, Belize, Jamaica)

f) Coastal vulnerability and risk assessment (Barbados, Grenada, Guyana)

g) Economic valuation of coastal resources (Dominica, St. Lucia, Trinidad and Tobago)

h) Formulation of economic/regulatory proposals (St. Kitts & Nevis, Antigua and Barbuda)

i) Greenhouse-gases inventory and vulnerability assessment of the agriculture and water sectors (St. Vincent and the Grenadines)

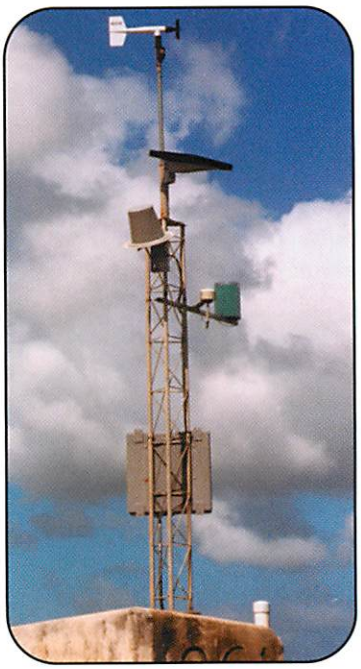
1.3 PROJECT MANAGEMENT ARRANGEMENTS

The project's management structure was determined largely by the institutional requirements introduced by the GEF. The World Bank was the designated Implementing Agency for the GEF, and the beneficiary countries gave the GS/OAS the responsibility to manage the project as Executing Agency for the World Bank. The GS/OAS, in turn, established an agreement with the University of the West Indies (UWI) under which the UWI's Centre for Environment and Development (UWICED) would establish a Regional Project Implementation Unit (RPIU) at the UWI campus at Cave Hill, Barbados. Since UWICED did not have the legal autonomy necessary to enter into contractual arrangements, UWI (Cave Hill) assumed the responsibility for financial oversight and general administration of the RPIU. The RPIU coordinated project implementation in the participating countries, with the help of National Implementation Coordinating Units (NICUs) that were established in each country.

2.0 REVIEW OF IMPLEMENTATION OF PROJECT COMPONENTS

2.1 COMPONENT 1: DESIGN AND INSTALLATION OF SEA-LEVEL MONITORING SYSTEM

Eighteen automated sea-level and climate monitoring stations were installed in the 12 CPACC countries under this Component. As a result, regional climate change data can now be integrated into global data sets. A Regional Archiving Centre (RAC) was established at the UWI in Trinidad and Tobago. The Centre is managed by a regional co-ordinator who has been trained to carryout the necessary quality assurance and quality control (QA/QC) procedures on the data, and to analyse the data for specific applications. Skills to manage, maintain, and service the network have been developed in the Caribbean Institute of Meteorology and Hydrology (CIMH), based in Barbados, and in national meteorological offices. However, it has been recognised that more effort needs to be expended on consolidating the skills base at the national level, especially in the smaller states.



Automated Sea-level and Climate Monitoring Station

2.2 COMPONENT 2: ESTABLISHMENT OF DATABASES AND INFORMATION SYSTEMS

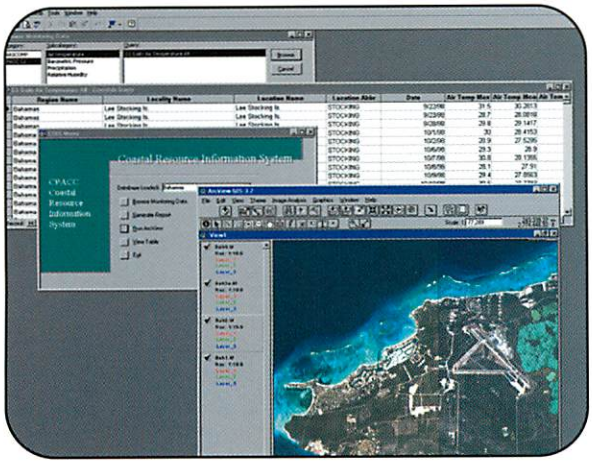
Under this Component, the National Focal Points of the project were equipped with computers and Internet access. Further, a CPACC Web site was developed, which served as an integral aspect of the project, facilitating the dissemination of technical and meeting reports, contact information, information on

Training of Information System Officers

events, progress reports and work plans, and other project-related material. This has proved to be a very useful and cost-effective means of providing information to a wider audience. The site functioned well as a project site, serving an audience in search of technical and factual information. The number of visits or "hits" rose from under 10 a week in early 1997 to approximately 300 during the final year of the project. Additionally, the use of resources available on the Internet supported the establishment of electronic groups for communication on focused areas. This was found to be especially successful in the cases of Components 3, 5, and 7.

2.3 COMPONENT 3: INVENTORY OF COASTAL RESOURCES AND USES

This Component developed a Coastal Resources Information System (CRIS) and built capacity to implement such a system in each of the countries. Training was given in data collection and automation, feature extraction for satellite imagery, database design and system maintenance and system use for decision-making. Support was provided to the Centre for Resource Management and Environmental Studies (CERMES) at the UWI campus in Barbados, to develop a Geographic Information System (GIS) capacity to train several regional participants for the UWI Certificate for Geographic and Land Information Systems (CGLIS). As a result, the region now has an effective network of GIS users who actively participate in regional GIS-related meetings. The CRIS has been installed in an appropriate institution in each country, with personnel skilled in its operation. In one country it has already been adapted to serve as a decision support tool for the management of its sea defences. Although the CRIS was developed as a tool for coastal-resources management, its methodology and software can also be applied to the management of other resources.



Coastal Resources Information System - Bahamas, with climate monitoring data from Lee Stocking Island and Satellite Imagery from New Providence

2.4 COMPONENT 4: FORMULATION OF POLICY FRAMEWORK FOR INTEGRATED ADAPTATION PLANNING AND MANAGEMENT

This was the last component to be implemented, and thus benefited from the lessons learned in carrying out the other components. It has helped to strengthen significantly national capacity to analyse critical issues of climate variability and change through the preparation of national "issues papers". These documents served as a basis for the development of National Climate Change Adaptation Policies and Implementation Plans. To ensure "buy-in" to the policy-formulation process, it involved wide national consultations that served as an effective means of raising public awareness at several levels in the countries grass roots, the private and public sectors, key sectoral technocrats, and, above all, the political level.

In articulating the adaptation policy, the countries were encouraged to develop short, medium and long-term strategies and approaches to adaptation. These policies are expected to facilitate integrated planning and management for a cost-effective response to the impacts of global climate change, and should affect the formulation and implementation of appropriate adaptation management mechanisms. The acceptance and approval of the national policies and implementation plans at the level of national cabinets is the first step towards mainstreaming adaptation measures in the national (and regional) planning mechanisms.

2.5 COMPONENT 5: CORAL REEF MONITORING FOR CLIMATE CHANGE IMPACTS

This Component helped to strengthen the capacity of participating countries to monitor coral reefs regularly for climate-change impacts, through the development of a monitoring methodology and the training of country teams in its application. Monitoring is now conducted by the country teams

Coral Reef Monitoring in Jamaica

in the three pilot countries. Capacity in data processing and management has also been developed and a regional node for carrying-out the Quality Assurance/Quality Control and data processing and analysis has been established at the Centre for Marine Science, based at the UWI in Jamaica. Draft manuals for QA/QC and Substrate Identification have been developed and will guide future work within the network. A Coral Reefs E-group has been established to permit more effective sharing of coral reef management information and updates within the group and between it and other international coral-reef-monitoring networks.

Significantly, coral-reef monitoring has been incorporated into the annual budgets and work plans of the lead agencies in The Bahamas, Belize, and Jamaica. In addition, a cadre of professionals versed in the CPACC methods and procedures has been developed. Collectively or individually they can provide training and technical assistance in monitoring and in data capture and processing. An agreement in principle has been reached between the CPACC RPIU, the Coastal Zone Management Unit (CZMU) in the Ministry of Physical Development and Environment of the Government of Barbados, and the Natural Resources Management Programme (NRMP) at the Cave Hill campus of the UWI to jointly provide technical support in monitoring, data processing and analysis, and data archiving to the countries in the Eastern Caribbean.

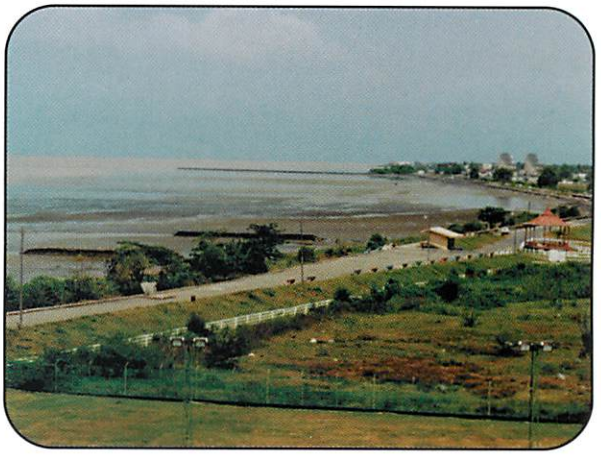
Further, there is a likelihood, based on preliminary discussions between International Center for Living Aquatic Resources Management (ICLARM) and the CMS/UWI, that the data generated under this component will be incorporated into the Reef Base, a global repository of information for responsible management of coral reefs.

2.6 COMPONENT 6: COASTAL VULNERABILITY ASSESSMENT

This Component has resulted in the development of a methodology for carrying out coastal vulnerability and risk assessments. Country teams in the three pilot countries of Guyana, Grenada, and Barbados were trained to carry out these assessments with specialised inputs from consultants. Capacity for carrying out these assessments is sadly lacking in the region, and this should be seriously addressed in the future.

Coastal erosion on windward coast in Grenada

The preliminary results of the assessments have confirmed the vulnerability of CARICOM SIDS to the impacts of climate change. The assessment in Guyana revealed that agriculture, human settlement and infrastructure, fisheries, and water resources were likely to be significantly affected by erosion, inundation, and



Low lying coastal area in Guyana

salinization due to sea-level rise. In Grenada, the most significant impacts of sea-level rise would be on human settlements and coastal infrastructure, tourism, and water resources. In Barbados, the screening assessment noted that tourism, human settlement, and water supply were extremely susceptible.

2.7 COMPONENT 7: ECONOMIC VALUATION OF COASTAL AND MARINE RESOURCES

This Component has generated a methodology for the economic valuation of coastal and marine resources in Saint Lucia, Dominica, and Trinidad and Tobago and has trained pilot-country teams in its application. Information on valuation work and other relevant matters are passed on continually to the country teams. A virtual office established in one of the pilot countries is expected to play a key role in sustaining capacity. Team members participated in the design of surveys and were responsible for the necessary data collection. Capacity in the analysis and interpretation of these data is to be enhanced in each pilot country.

The results of the application of the methodology indicate that the social and economic impacts of climate change on activities within the coastal zone are likely to be severe.

Another key achievement of this Component has been the enhanced capacity of a group of persons from various technical fields in economic valuation and the building of a regional team with growing experience and knowledge.

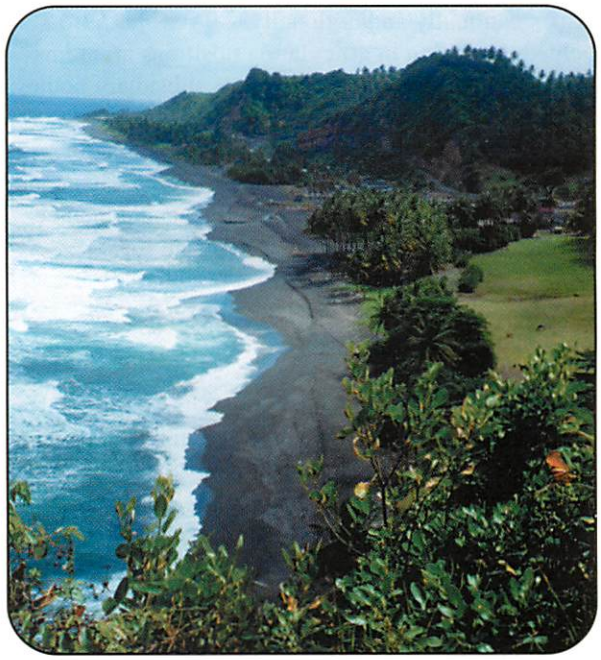
Beach tourism – St. Lucia

2.8 COMPONENT 8: FORMULATION OF ECONOMIC AND REGULATORY PROPOSALS

Under this Component, in-country capacity was developed in the design and use of economic instruments for environmental management. This was applied to sand-mining in Antigua and Barbuda and to analysing the environmental sustainability of development projects on beach-fronts in Saint Kitts and Nevis. In each case country teams have also developed experience in designing local strategies to facilitate the incorporation of the instruments into the national legislative framework.

2.9 COMPONENT 9: GREENHOUSE GASES INVENTORY AND VULNERABILITY ASSESSMENT OF THE AGRICULTURE AND WATER SECTORS IN ST. VINCENT AND THE GRENADINES

Capacity developed under Component 9 made possible the completion of the First National Communication of St. Vincent and the Grenadines. The country should be well placed to prepare the Second National Communications to the UNFCCC. The National Communications of St. Vincent and the Grenadines also confirmed that sectors such as agriculture and tourism were highly vulnerable to climate change, but that more in-depth work on assessment and data gathering was required.



Scenic coastal view – St. Vincent and the Grenadines

3.0 OVERALL PROJECT IMPACT

The reduction of the project budget by approximately 6% due to the unfavourable fluctuation of the SDR against the U.S. dollar over the project's lifetime forced the cancellation of a number of review and dissemination workshops that had been scheduled as final activities in each of the project components, thus negatively affecting the overall impact of the project.

Although CPACC has made a significant contribution towards enhancing regional and national capabilities

for preparing for the advent of GCC, more has to be done to consolidate this start. Capacity developed under the pilot activities has to be disseminated regionally and further capacity development needs to be undertaken in other key areas related to climate-change adaptation. Much of the work under CPACC has been hampered by a lack of baseline data, and the region will need to invest in efforts aimed at addressing this handicap.

In the implementation of the CPACC project, modalities were adopted to ensure the maximum involvement of national/regional personnel and institutions. In each participating country National Focal Points, through the NICUs, ensured that appropriate local counterpart personnel and institutions were selected to work along with the consultants. In this way capacity building at the national/regional level was ensured. The region now has a cadre of personnel with capacity in different skill areas related to climate-change adaptation.

The NFPs and NICUs have emerged as a prominent source of expertise and advocacy for climate-change issues nationally and regionally. CPACC has also helped the region in articulating positions at international forums such as COPs and its subsidiary bodies. Further, regional personnel play a prominent role in the negotiating process, often representing major blocs such as AOSIS, the Group of 77 and China, and GRULAC. At COP7 one of the NFPs and a member of the RPIU (in his capacity as delegate for Barbados) were designated as representatives of AOSIS and GRULAC, respectively, on the Technology Transfer Board.

The RPIU has developed into an effective mechanism for coordinating climate-change activities in the region. By virtue of the arrangements for the Project Advisory Committee (PAC), which is chaired by CARICOM, the project, through the RPIU, had a direct link to the regional political decision-making process. This has led to the recognition of its leadership role in the advocacy for climate-change issues that the RPIU now performs in the region. The present RPIU staff have also built up an excellent liaison with NFPs, NICUs, and country implementation teams and have provided support services for their functioning. The experience and the momentum built up through institutions and organisations (both public and private) dealing with climate-change issues need to be maintained. Ministers responsible for the implementation of the Barbados Programme of Action (BPOA) agreed that the region should develop a permanent institutional mechanism to ensure that climate-change issues are addressed after the cessation of CPACC. Consequently, a proposal was developed to establish a regional Climate Change Centre which will perform the leadership function in implementing climate-change activities in the region. This proposal was endorsed by the Council of Ministers responsible for Trade and Economic Development (COTED) and later by CARICOM heads of government at their meeting in Canouan, St. Vincent, in July 2001.

The Caribbean countries have been meeting their obligations under Multilateral Environmental Agreements (MEAs) e.g. the Convention on Biological Diversity, the Montreal Protocol, and Enabling Activities under the UNFCC, mainly by responding at the national level. The exception has been in the implementation of CPACC, which adopted a regional approach. The success in its implementation has been due in no small measure to the ability of the RPIU to establish and coordinate a dynamic and highly motivated regional network of technical skills and institutions. The initiative to establish the Climate Change Centre seeks to institutionalise the regional mechanism for the implementation of GEF projects that has been developed and effectively applied under CPACC. The modus operandi developed in the course of implementing CPACC provides a logical platform for the establishment of the Climate Change Centre.

As a multi-country, multi-component project, CPACC presented several unique challenges. The most important was that of arousing the interest of the participating countries and maintaining it throughout the period of the project. This was made possible through the process of stakeholder consultation during the preparation of the project and during the entire implementation period (NICU meetings). The constant networking and coordinating function performed by the RPIU also contributed to keeping up interest and enthusiasm among the participants. The full involvement of the NICUs and the use of country teams (advised by consultants) in implementing project activities also served to heighten stakeholder interest and participation in the project. At another level, the governance mechanism employed for the project, with the Project Advisory Committee chaired by the CARICOM Secretariat, provided a basis for the "visibility" and "legitimacy" of the project at the regional political level. This paved the way for significant political decisions on the continuation of climate-change work in the region. Climate change as an issue is now a permanent item on the agenda of the meeting of CARICOM Council of Ministers of Trade and Economic Development (COTED).

Although the national arrangements were commendable, they placed tremendous strain on already stretched national resources, especially human resources. Future projects should provide for some support to be given to facilitate these national arrangements and to encourage a higher level of national participation in project implementation.

For the RPIU, the task of coordinating the implementation of nine project components in 12 sovereign countries was not an easy one, and in future adequate resources have to be allocated to facilitate the successful performance of this function. Too little importance was attached to procedures for the financial management of the project at the level of the RPIU, and this, together with the complicated arrangements put in place for this function, placed undue strain on those charged with its execution. Financial management is a critical element in the mosaic of functions required for project implementation, and adequate resources should be made available to ensure that it is properly addressed.

The active involvement of the different agencies World Bank, OAS, CARICOM Secretariat, UWI, and RPIU in NICU and PAC meetings was an essential element of project success. These meetings provided an excellent platform for review and adjustment of project activities and proved to be a good management mechanism.

The overarching lesson drawn from this project is that for small developing countries with scarce human resources and weak adaptive capacity, the most effective use of resource can be made by adopting a regional approach to meeting their obligations under the multilateral environmental agreements to which they are party.

4.0 PROJECT SUSTAINABILITY

From the outset, the sustainability of CPACC has been an issue of concern for the Caribbean governments. At their meeting in Barbados in November 1997, to review the implementation of the SIDS/POA, Caribbean Ministers of the Environment recorded their support for CPACC and called on the Caribbean states to develop the necessary institutional mechanisms to ensure that critical programmes initiated under the project were sustainable beyond its lifetime.

When taken in its strictest context, there is strong appreciation, especially within the NICUs and NFPs, of climate-change issues and concerns and an equally strong commitment to continue with the scientific aspects of CPACC provided that adequate financial and other resources are made available to facilitate the work.

While there is little evidence of direct investment in climate-change activities by governments, there appears to be a high level of activity and investment in related areas such as coastal-zone management, energy conservation and management, solid and liquid waste management, reduction of vulnerability to hurricanes, and disaster preparedness. The fact that these investments are not being driven by climate change *per se* is only material to the extent that the climate-change dimension can "add value" to the policies and programmes. For example, following the damage caused by Hurricane Lenny to nearly 60 dwellings on Saint Lucia's south-west coast, the Government decided to relocate the affected households to less vulnerable areas. In essence, this is a classic "retreat" measure, which is not necessarily linked to climate change.

The capacity for in-depth, routine research in general and on climate-change issues in particular is another determinant of the future sustainability of the CPACC and Enabling Activities projects. Even with the strongest appreciation of climate change and its effects, there are limits to the level of research that can realistically be undertaken at the national level. Some of the research activities, such as the Sea Level/Climate Change Monitoring Network and Data Gathering on GHGs can be incorporated into the routine activities of the pertinent agencies. But for the scientific purposes of the UNFCCC, these and other activities will have to be given some degree of oversight and focus — ideally, by a regional agency.

4.1 THE CARIBBEAN COMMUNITY CLIMATE CHANGE CENTRE (CCCCC).

Against this background, the emergence of a Caribbean Community Climate Change Centre (CCCCC) has strong appeal and has already begun to receive overwhelming support from the region's political directorate and from the donor community. One of its key functions would be to develop special programmes targeting issues such as coastal-zone management and vulnerability reduction in sectors such as tourism, agriculture, health, insurance and the oil and petrochemical industries. Other proposed functions include:

- Executing regional projects pursuing adaptation to climate change;
- Formulating clean development mechanism projects;
- Providing information exchange on training, both regionally and elsewhere throughout the world;
- Strengthening the negotiating capabilities of SIDS representatives at CoP;
- Defining common strategies and goals; and
- Advocating for Caribbean SIDS at international forums.

The Agreement to establish the CCCCC has already been approved by CARICOM heads of government. Endorsement was also secured at the Twelfth Meeting of Ministers of Environment of Latin America and

the Caribbean, promoting the cause of south-south cooperation on climate-change issues.

While there is a compelling case for the establishment of the CCCCC, more thought will have to be given to the Centre's ability to address other cross-cutting issues, as part of a wider portfolio. The evidence suggests that, for the moment, it is not climate change that is driving the sustainable development policies and programmes that are emerging in Caribbean countries. It is quite likely that this situation will change as more hard evidence of climate-change-related phenomena becomes available. But a huge body of work remains to be done at the sectoral level, to bring about the kind of changes in approach that will reduce the causes as well as the impacts of climate change. This body of work should not be underestimated, especially given the fact there is no CARICOM-wide sustainable development agency with the requisite political or technocratic support. The longer this deficiency remains unaddressed, the less effective the CCCCC is likely to be.

4.2 THE ADAPTATION TO CLIMATE CHANGE IN THE CARIBBEAN PROJECT (ACCC)

The cause of post-CPACC sustainability is being supported by a project titled Adaptation to Climate Change in the Caribbean (ACCC), funded by the Canadian International Development Agency (CIDA). Its objectives include ensuring that:

(a) The CCCCC becomes a sustainable institution for all climate-change related activities in the region;

(b) The countries of the region begin to build adaptation to climate change into their planning and assessment processes in all key economic and social sectors;

(c) The region's scientific and technical competence to address climate change issues is strengthened;

(d) Soundly based national and regional involvement in international climate-change negotiations is pursued; and

(e) Citizens, the private sector, and the governments of the region have the necessary knowledge and information to support and conduct response initiatives at home and internationally.

Thus far, the project, which is being managed by the RPIU, has assisted with the preparation of a detailed project design and business plan for the CCCCC. A Master of Science degree programme in climate change has been introduced at UWI, starting in the 2002/2003 academic year.

Support will also be provided for public education and outreach and for the formulation of implementation strategies for adaptation in the water, human health, and agriculture and food sectors. In addition, the capacity of the Caribbean Institute for Meteorology and Hydrology (CIMH) will be strengthened to enable it to provide data on climate variability.

Other components of the ACCC include:

- Integrating climate change into the planning process using a risk-management approach;
- Strengthening technical capacity;
- Integrating adaptation planning into environmental assessments for national and regional development projects; and
- Fostering collaboration/cooperation with non-CARICOM countries.

The C$3.14 million ACCC Project has a duration of 36 months. Project execution is being undertaken by de Romilly and de Romilly Ltd. and Global Change Strategies International (GCSI), based in Canada.

4.3 THE MAINSTREAMING ADAPTATION TO CLIMATE CHANGE PROJECT (MACC)

The unanimous decision of the GEF to approve the MACC Project concept document and to provide PDF Block B funding for the design of the project, has placed the sustainability of the outputs of the CPACC deeper into the realms of certainty. The project is currently undergoing detailed design, with the participation of the key stakeholders in the 12 participating countries and CARICOM specialised agencies.

In accordance with the UNFCCC and the guidance issued at the Conference of Parties, the MACC project will seek to build capacity in the CARICOM SIDS to develop Stage II adaptation strategies and measures. This will be pursued by (1) mainstreaming climate-change considerations into development planning and sectoral investment projects; (2) developing appropriate technical and institutional response mechanisms for adaptation to global climate change; and (3) improving the monitoring and modelling of regional climate change.

It is proposed that the MACC include activities that will:

- Expand and strengthen the existing knowledge base to facilitate the assessment of climate-change impact as a basis for decision-making on adaptation. This will include strengthening the monitoring networks established under CPACC, and building capacity to use downscaled global climate models and to develop impact scenarios.

- Integrate climate-change concerns into the planning and practices of highly vulnerable sectors and the line agencies that support them, and formulate appropriate response policies in water resources, agriculture, forestry and food security, tourism, fisheries, and health.
- Develop strategies to address the impacts of climate change across key economic sectors such as land-use planning, infrastructure, disaster-risk management, and insurance.
- Support the formulation of a demonstration project, using the outputs from the knowledge base, and sectoral and cross-sectoral activities, which will consist of an integrated "planning for climate change" exercise that involves land-use planning, water-resources management, coastal-zone management, infrastructure design, and disaster prevention planning.
- Intensify public education and outreach while fostering collaboration in the climate-change adaptation activities of CARICOM and non-CARICOM countries, and sharing results and lessons learned with other regions.
- Assist with integrating individual national communications to the UNFCCC into a regional agenda for adaptation that will provide support for a regional negotiating position at the UNFCCC.

The detailed project formulation and appraisal for MACC are expected to be completed by the end of 2002, and the implementation of the project is scheduled to begin by the second quarter of 2003. The CARICOM Secretariat will act as Executing Agency for the MACC during the start-up period, until the CCCCC is fully operational and will take over this function. Further, it is intended that the ACCC activities will be integrated into the MACC project once it comes on stream. The overall estimated budget for the five-year MACC project is US$10.9 million, including US$3.1 million in counterpart contributions from participating national and regional agencies, US$2.0 million funding from the ACCC project, and US$0.8 in counterpart from the U.S. National Oceanic and Atmospheric Administration (NOAA).

5.0 CONCLUSION

The activities described in this Executive Summary clearly indicate that CARICOM SIDS have come a long way in their individual and collective attempts at understanding the myriad threats and risks posed by global climate change and setting in train a process aimed at mitigating them. However, the dynamic nature of global climate change, when placed alongside the capacity and financial constraints of Caribbean SIDS, suggests that significant challenges will emerge in the medium to long term. The clear lesson from CPACC is that the region stands a better chance of overcoming these challenges if there is political will, continued collaboration among all SIDS, and the sustained support of the international community.