CPACC

Progress Report 6
July – December, 1999

Caribbean:
Planning for Adaptation to Global Climate Change

A Joint Project of OAS-CARICOM-UWICED-World Bank-GEF

January 15, 2000

Organization of American States
Unit for Sustainable Development and Environment
(USDE)
1889 F St., NW
Washington, DC 20006 USA
Tel: (202) 458 3228
Fax: (202) 458 3560

CPACC/RPIU
Regional Project Implementation Unit
Old West Indies Commission Building
Lazaretto, Black Rock
St. Michael, Barbados
Tel: (246) 417 4579-82
Fax: (246) 424 4204

Acronyms

BPOA	Barbados Plan of Action
CARICOM Secretariat	Caribbean Community Secretariat
CDM	Clean Development Mechanism
CERMES	Center for Resources Management and Environmental Studies
CGLIS	Certificate in Geographic and Land Information Systems
CIHM	Caribbean Institute of Hydrology and Meteorology
CMS	Center for Marine Sciences
CORS	Continuously Operating Reference Station
CPACC	Caribbean: Planning for Adaptation to Global Climate Change
CRIS	Coastal Resources Information System
CZMS	Coastal Zone Management Specialist
DGPS	Digital GPS
DPM	Deputy Project Manager
EC	European Union
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
GHG	Greenhouse Gases
GIS	Geographic Information Systems
GPS	Global Position Systems
GS/OAS	General Secretariat of the Organization of American States
IMA	Institute of Marine Affairs
IPCC	Intergovernmental Panel for Climate Change
ISC	Information Systems Coordinator
LDC	Least Developing Countries
NFPs	National Focal Points
NICUs	National Implementation Coordinating Units
OAS	Organization of American States
PAC	Project Advisory Committee
RFP	Request for Proposals
RPIU	Regional Project Implementing Unit
SA	Screening Assessment
SIDS	Small Islands Development States
SIDSNet	SIDS Network (UNDP Program)
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNFCCC	United Nations Framework for the Convention on Climate Change
US NOAA	National Oceanographic and Atmospheric Administration
UWI	University of the West Indies
UWICED	University of the West Indies Centre for Environment and Development
VA	Vulnerability Assessment

Table of Contents

EXECUTIVE SUMMARY I

PROJECT IMPLEMENTATION I
NEXT SIX MONTHS I
FINANCIAL STATUS II

CPACC ADMINISTRATION 4

EXECUTING AGENCY: ORGANIZATION OF AMERICAN STATES 4
REGIONAL PROJECT IMPLEMENTATION UNIT (RPIU) 4
NATIONAL IMPLEMENTATION COORDINATING UNITS 7
CAPACITY-BUILDING ACTIVITIES 8
OTHER MATTERS 8

CPACC TECHNICAL ACTIVITIES 10

COMPONENT 1: DESIGN AND ESTABLISHMENT OF SEA LEVEL/CLIMATE MONITORING NETWORK 10
COMPONENT 2: ESTABLISHMENT OF DATABASES AND INFORMATION SYSTEMS 11
COMPONENT 3: INVENTORY OF COASTAL RESOURCES AND USE 12
COMPONENT 4: FORMULATION OF A POLICY FRAMEWORK FOR INTEGRATED COASTAL AND MARINE MANAGEMENT 13
COMPONENT 5: CORAL REEF MONITORING FOR CLIMATE CHANGE 13
COMPONENT 6: COASTAL VULNERABILITY AND RISK ASSESSMENT 15
COMPONENT 7: ECONOMIC VALUATION OF COASTAL AND MARINE RESOURCES 15
COMPONENT 8: FORMULATION OF ECONOMIC/REGULATORY PROPOSALS 16
COMPONENT 9: GREENHOUSE GASES INVENTORY/AGRICULTURE AND WATER RESOURCES VULNERABILITY ASSESSMENT 17

ANNEXES 18

ANNEX 1 19
OUTCOME OF CPACC MID-TERM REVIEWS, SEPTEMBER 1999 19
ANNEX 2 22
BACK-TO-THE-OFFICE REPORT FROM COP5 22
(PREPARED BY MESSRS. VOLONTE AND VERMEIREN) 22
ANNEX 3 28
COMPONENT 6: IMPLEMENTATION PLAN AND DATA REQUIREMENTS PER PARTICIPATING COUNTRY 28

Executive Summary

Project Implementation

Major accomplishments were achieved regarding project implementation, management and administration. All project components and activities are being executed as planned, with few exceptions. The Regional Project Implementing Unit (RPIU) has moved to the former West Indies Commission Building, on loan from the government of Barbados. The World Bank conducted the Mid-term review of CPACC with the purpose of reviewing the project's development objectives and the extent to which they are being achieved. The review observed that project implementation performance is satisfactory, but made some key recommendations on adjustments needed for the remainder of the project. A technical meeting was held in November 1999, with Caribbean, US and Canadian institutions to establish a regional network for capacity building in the use and application of regional climate models, a M.Sc. program in climate change at UWI, and to support the establishment of the regional Climate Change Center.

CPACC had a prominent role during COP5. Participation in COP meetings proved to be an excellent opportunity to promote the visibility of the project, to establish contacts with organizations working on climate change, with donor organizations and key institutions.

A Memorandum of Understanding has been signed between UWICED (representing CPACC) and South Pacific Regional Environmental Program (representing PICCAP) to encourage exchange of information between the two regional programs as well as possible exchange of personnel to promote technical assistance.

Project implementation advanced considerably in the last six months. Spare parts for the monitoring stations have been purchased under Component 1. The second continuously operating GPS station was installed in Jamaica, and the Institute of Marine Affairs (IMA) launched a web site to present data from the monitoring stations (http://www.ima-cpacc.gov.tt/index.htm). With assistance from CPACC's Component 2, the series of workshops sponsored by the UN SIDSNet program were successfully completed. The metadata protocol for coastal resources inventories was prepared and participating countries were trained on how to complete them under Component 3. A first evaluation of existing policies for adaptation to climate change impacts on coastal areas was completed under Component 4. As part of Component 5, the coral reef monitoring activities have begun in the three participating countries. Phase I of Component 6 was successfully completed, producing national screening assessments, implementation plans and data requirements. A draft methodology for Component 7 was discussed and agreed upon at a sub-regional workshop in Trinidad and Tobago. Country visits were conducted to the two participating countries in Component 8. The national communication for St. Vincent and the Grenadines is awaiting endorsement by the national government.

Next six months

The next six months, January - December 2000, will be a very active period for CPACC. Most activities will be producing a first draft of major outputs. It is expected that the Global

---

This report was prepared by Claudio R. Volonte, CPACC Technical Coordinator, GS/OAS and CPACC/RPIU staff members Ulric Trotz, Leslie Walling, Ian King and Leisa Perch.

Environment Facility and other regional and international donors will provide financial assistance in support of the establishment of the Caribbean Climate Change Center.

Financial Status

The table below shows a snapshot of expenditures cleared by the OAS Financial Services as of November 30, 1999 (this includes expenditures at UWI).

According to Project Components

Component	Year 1 (*) April 97 – March 98	Year 2 (**) April 98 – March 99	Year 3 (***) April 99 – Nov. 99	Cumulative since project effectiveness April 97 – Nov. 99	Expenditures as a% of total budget
1. Design /Establishment of Sea Level/Climate Monitoring Network	$438,529	$146,108	$54,460	$639,097	79
2. Establish Database and Information System	$125,043	$20,614	$9,367	$155,024	40
3. Inventory of Coastal Resources and Use	---	$52,298	$79,173	$131,472	18
4. Policy Framework for Coastal and Marine Management	---	---	$16,509	$16,509	5
5. Coral Reef Monitoring	$365	$57,356	$57,450	$114,805	29
6. Coastal Vulnerability and Risk Assessment	---	$19,056	$35,109	$54,164	13
7. Economic Valuation of Coastal and Marine Resources	---	$6,919	$8,090	$15,009	5
8. Economic and Regulatory Proposals	---	$4,951	$632	$5,583	3
9. Greenhouse gases inventory/agri-water resources assessment	---	$29,566	$29,257	$58,822	49
RPIU	$222,012	$668,468	$389,967	$1,058,435	51
Executing Agency	$133,169	$280,167	$113,562	$393,729	58
Total Project	$919,118	$929,958	$829,140	$2,678,216	40

(*) Applications for Withdrawal #1 through 7.
(**) Applications for Withdrawal #8 through 13.
(***) Applications for Withdrawal #14 through 18.

According to Legal Agreement

	Reimbursed expenditures from World Bank to OAS Special Account				
Legal Categories	Year 1 (*) April 97 – March 98	Year 2 (**) April 98 – March 99	Year 3 (***) April 99 – Nov. 99	Cumulative since project effectiveness April 97 – Nov. 99	Expenditures as a % of total budget
(1) Goods	$464,815	$50,385	$104,288	$619,488	48
(2) Consultant's Services and Training	$127,327	$712,834	$575,855	$1,602,066	35
(3) CMI Sub-grant	---	---	---	---	---
(4) RPIU	$7,758	$19,741	$35,428	$62,927	67
(5) Executing Agency	$133,171	$146,997	$113,562	$393,730	58
Total	$919,121	$929,957	$829,132	$2,678,210	40

Commitments and Replenishments

Withdrawals from CPACC account	Expenditures incurred during	
Initial advance:	Advance	$500,000
Withdrawals 2 through 6	CY1: April 97- Dec. 97	$781,182
Withdrawals 7 through 12	CY2: Jan – Dec. 98	$869,003
Withdrawals 13 through 18	CY3: Jan. – Dec. 99	$1,028,026
Second Advance	Dec. 99	$300,000
Total from CPACC Special Account at World Bank	April 97 – Dec. 99	$3,478,211
Commitments	Dec. 1999	$350,000

CPACC Administration

Executing Agency: Organization of American States

The GS/OAS continued to provide technical, management and financial oversight of project implementation. During the period under review, the GS/OAS has been involved in several activities, including:

(a) World Bank mid-term review

The World Bank conducted the Midterm Review of the CPACC Project in September 2000 as required by the legal agreement between the Bank and the GS/OAS. The review was conducted in Barbados and Guyana. GS/OAS and RPIU staff were intimately involved in the review. Independent evaluators were contracted to prepare reports on Components 1 and 5 and on implementation of CPACC at the national level. Annex 1 presents a summary of the main recommendations.

(b) The GS/OAS participated in the Fifth Conference of the Parties (COP5) of the United Nations Framework Convention for Climate Change (UNFCCC). It was an excellent opportunity to interact with the climate change international community and provide CPACC with exposure in a world forum. Meetings were held with Caribbean representatives and with several international and regional organizations. Annex 2 presents the back to the office report prepared by Messrs. Volonte and Vermeiren.

(c) GEF Mid-sized grant proposal for Caribbean Climate Change Center. The GS/OAS and the RPIU prepared a first of draft of a project concept to request financial assistance from the GEF to support the establishment of the Caribbean Climate Change Center.

(d) Increase in the "authorized allocation". One of the recommendations of the Mid-term review was to increase the "authorized allocation" of funds at the OAS Special Account for CPACC. This amount was raised to $800,000, which will alleviate some of the problems with cash flow, and will facilitate the implementation of several activities simultaneously.

(e) Components 1, 6 and 9

GS/OAS provided direct technical and management assistance for the implementation of Components 1, 6 and 9 (see details on each component).

Regional Project Implementation Unit (RPIU)

Office Space

The RPIU moved its offices to the former West Indies Commission building in September. The building was given on loan from the government of Barbados for the duration of the project. The project is very grateful to the government of Barbados for its generous support. The new building has created a much better working environment for staff and visitors.

RPIU Staffing

Ms. Leisa Perch assumed her post as Public Relations and Project Officer at the RPIU in September 1999. The RPIU now has its full complement of staff. However, it is anticipated that two additional short-term positions will be filled to provide in-house

support: (1) for the Public Awareness initiatives, which will be launched next year, and (2) for the implementation of Component 6.

Ms. Judi Clarke's contract for the SIDNET program came to an end during this period. All the workshops with the exception of those in Antigua and Barbuda and St. Kitts and Nevis, which were disrupted by regional hurricanes, were completed (see below under Component 2 for more detail in this activity).

Now that all the components are active, RPIU staff have to spend much time on the road. To ensure that there is on-going communication with and support to the CPACC network a series of short-term contracts will be utilized. This was recommended by the Mid-term review.

Financial procedures and reporting

Communications between the University Bursary and the RPIU have been strengthened, resulting in improvements in the financial reporting from the University, with no significant delays on processing and reporting transactions. Although there is agreement for the RPIU Accountant to be connected to the University Banner System (accounting system) this has not been accomplished due to technical difficulties. It has been decided however that the connection will be to a stand-alone system for the Accountant (mainly for security reasons). This will hopefully be in place before the next audit in February 2000.

RPIU has contracted PriceWaterhouse Coopers to prepare a manual for accounting and administrative procedures. This manual is expected to be completed by January, before the next audit.

Project Sustainability

(a) One of the members of the mid-term review was Mr. Wayne King, Project Manager of the enabling activities for the South Pacific program (PICAP). Mr. King's participation allowed for a rich exchange of experience between CPACC and the South Pacific counterparts. This has resulted in the development of an Memorandum of Understanding (Annex 3) between SPREP and UWICED which will facilitate the development of cooperative linkages between these two programs such as: exchange of information, linking of web-sites, exchange of address books so that technical documents can be exchanged throughout the network, sharing of expertise and the exploration of opportunities for joint activities.

(b) Climate change regional modeling/M.Sc. Program on Climate Change

A meeting took place at Florida Institute of Technology (FIT) on November 29-30, 1999 to begin the process of establishing a network for capacity building in the use and application of regional climate models in the Caribbean. The Canadian government provided funds for this meeting. A series of actions will be taken in the coming year to better understand climate and develop the ability to predict climate change in the region in the future. The recommendations of the meeting included: use of MM2 model at UWI/Mona, use of the Canadian model at UWI/Cave Hill and development of a proposal for a regional climate modeling network based on the development of capacity at Cave Hill and Mona utilizing two different climate models. In addition, the group recommended that the major output of this network should be strengthening of regional technical capacity aimed at the use of regional climate models. The objective is to generate more region-specific scenarios for use in studying regional climate change impacts.

The group also agreed that the M.Sc. program in climate change and clean technology should get the highest priority as the University moves to reorganize its M.Sc. on

Environment. FIT and Canada offered assistance with the development of syllabuses in areas where expertise is lacking at UWI, and are considering schemes whereby their faculty could deliver some courses in the program and for staff and student exchange under the umbrella of the program. The climate change M.Sc. will be known as "The Collaborative Program in Regional Climate Change Modeling." A proposed budget and timeframe will be prepared by the end of February 2000. The program is also expected to produce graduates with capacity in impact prediction and adaptative planning.

In conclusion, the meeting served to consolidate the foundation of three CPACC initiatives (regional modeling, M.Sc. program and climate change center) and to firmly establish strategic alliances with FIT and Canadian institutions in assisting with the realization of these developments.

(c) Caribbean Climate Change Center

The first draft of a "conceptual" proposal for a medium sized GEF grant to support the establishment of the center has been prepared and is now under review. A more comprehensive concept paper is also under preparation by Prof. Binger, which will be available in the beginning of the new year. All stakeholders have continued expressing their support for the idea.

(d) Private Sector

CPACC Project Manager met with the Environmental Advisor of PETROTRIN to discuss PETROTRIN's continued interest in CPACC and their possible contribution to the establishment of the Caribbean Climate Change Center. CPACC was informed that PETROTRIN has allocated funds in support of CPACC activities in their 2000 budget. At present, a PETROTRIN officer is working on modeling of currents and tides in the Gulf of Paria. Given the resident expertise, PETROTRIN expressed interest in participating in the Regional Climate Network. In addition, PETROTRIN offered to host a consultation workshop with the private sector of the region to raise their awareness on climate change issues. PETROTRIN also expressed interest in becoming part of the Trinidad country team implementing Component 7, since the firm is considering major investments along the coastal area identified as one of the pilot sites for this component.

Public Awareness Strategy

The mid-term review highlighted the need to pay greater attention to public awareness related to climate change. CPACC contracted a firm to develop material for public education and awareness. The materials have been reviewed and were fund to be not fully satisfactory. It light of this development CPACC contracted the services of a communications specialist to develop a strategic document for CPACC. This document has been completed and is now being reviewed by the RPIU, OAS and the World Bank.

In addition, CPACC has been provided a modest grant by the GS/OAS, which can be applied to the implementation of a public awareness strategy. This will supplement whatever resources are available from the CPACC budget. A program will be prepared for next year's implementation.

RPIU participation in international, regional and national workshops and conferences

(a) The Project Manager participated in the following meetings:

- UNFCCC-COP5, Germany. October 25-November 5, 1999. The GEF sponsored CPACC's participation in a COP5 presentation of the CPACC and PICAP projects. The presentation by the RPIU Project Manager focussed on issues such as progress

to date in implementation, difficulties encountered, lessons learnt during the course of implementation which can be incorporated in the future design of GEF projects and efforts to develop support among stakeholders. The presentation was well received and attended. In fact, the presentation put CPACC in a very positive light with the GEF and representatives of other donor agencies present. This was evidence from the feedback, which was received after the meeting and during the course of the remainder of the COP.

Minister Lasse, Minister of Finance, Planning and Development of Trinidad and Tobago, delivered the statement at COP5 on behalf of CARICOM member states. The statement was drafted in full consultation with the group and included a paragraph on CPACC's achievements and on the proposed Climate Change Center.

- UN General Assembly Special Session – Preparatory Meeting. September 9-10, 1999. One of the major proposals from the Caribbean delegates was to have the Caribbean Sea declared a special area in the context of sustainable development. The resolution prepared during this meeting was then presented for consideration to the UN/GA Special Session in late September. The Special Session referred the proposal to a special committee.

(b) Coastal Zone Management Specialist participated in the following meetings:

- OECS/NRMU Workshop on development of a coastal resource inventory, December 1999 (St. Vincent and the Grenadines).

(c) The Information Systems Coordinator participated in the following meetings:

- ESRI (ArcInfo) Users Conference, July 1999 (San Diego, California, USA)
- OECS/NRMU Workshop on development of a coastal resource inventory, December 1999 (St. Vincent and the Grenadines).

(d) The Public Relations Officer participated in the following meetings:

- Experts meeting on Manual for Environmental Statistics, organized by the UN Statistics Division, Sept. 27 – Oct.1' 1999 (New York).
- Technical meeting on Fish Kill Events in Barbados organized by the CARICOM Secretariat and the Government of Barbados, Oct.10, 1000 (Barbados).

National Implementation Coordinating Units

Advantage was taken of several opportunities to meet with National Focal Points in and out of their countries during the course of this report period. At COP5, the CPACC management team took the opportunity to caucus with them and other regional personnel on several issues related to CPACC, such as enabling activities under UNDP/GEF projects, vulnerability and adaptation assessment, climate change center and Clean Development Mechanism.

Several CPACC countries sent representatives to COP5 (Antigua and Barbuda, Barbados, Bahamas, St. Lucia, Guyana, Jamaica, Dominica, and Trinidad and Tobago). Some of these were CPACC national focal points. The strong representation from the region facilitated several regional consultations on some outstanding issues. These consultations were coordinated by Mr. Cornelius Fevrier, who represented the CARICOM Secretariat, and were supported by the active participation of Jamaica's ambassador to Bonn and personnel from the Barbados Office in Bonn.

Capacity-building Activities

CPACC sponsored a series of training workshops during this period (for more details, see relevant component below):

Technical Workshops

- Component 3: Metadata workshop in Trinidad and Tobago (Nov. 1999).
- Component 5: three national workshops in Jamaica, Belize and The Bahamas (Nov. – Dec. 1999).
- Component 7. Workshop on Economic Valuation on Natural Resources (Dec. 1-4, 1999 – Trinidad and Tobago).

Hands-on training

- Training on monitoring stations equipment calibration for CIMH staff.
- Training on metadata and data collection and assessment during visits by Component 3 consultants.
- CPACC is sponsoring representatives from IMA, CIMH, Grenada, Guyana, Antigua and Barbuda, Belize and the RPIU to participate in the one year Certificate of Geographic and Land Information Systems (CGLIS). The first two modules of the six-module program were conducted between November and December 1999. Additionally, the two Barbadian participants in the 1998-1999 course completed their work in September/October 1999.

Other Matters

UNDP/GEF Support Program

UWICED assumed responsibility for coordination of the implementation of the global support program for enabling activities (UNDP/GEF) in the Caribbean region, in the form of a short-term contract to collect information about the status of implementation of enabling activities in the region and to coordinate training and workshops. A workshop for capacity building in vulnerability and adaptation assessment is scheduled for the end of the first quarter of 2000.

Suriname

Discussions were held with the Suriname delegate, Mr. Ewald Leeflang, during COP5, regarding Suriname's participation in CPACC. Since COP5, Suriname has indicated that they will begin preparations for Dr. Trotz to visit Suriname in early 2000 as they need some time to ensure that all the necessary arrangements were in place. A representative of Guyana's NICU will also participate in this visit to present Guyana's work in CPACC.

Clean Development Mechanism – Baselines

The Clear Air Policy and the GCLSI groups discussed the CDM proposal at COP5 with representatives of the Caribbean countries. Delegates expressed reservations in reference to the lack of sufficient attention to the capacity building aspect of the proposal and the negligible role accorded to regional experts in its implementation. It was agreed that a new proposal will be developed taking these concerns on board, and that it will be submitted to CARICOM Secretariat and member countries for their consideration. Partial funding for this proposal has already been made available through the US Department of Energy. It is anticipated that if the proposal is approved the first workshop will be held in

Barbados immediately after the Latin America and Caribbean Ministers of Environment meeting on March 2-8, 2000.

European Community and the LOME negotiations

The Coordinator of the European Center on Pacific Issues (ECSIEP) organized a meeting between CPACC, GS/OAS, SPREP and the European Commission during COP5. The meeting centered on the EC's plans for including climate change in the next round of the LOME negotiations. This may provide a window for funding climate change activities in the region. CPACC was informed that the EC had approved a regional environmental program for CARIFORUM and had made available ECU 9 million for its implementation. The Caribbean Conservation Association will be the executing agency for this program but implementation has not commenced.

Since COP5, the ECSIEP coordinator has contacted CPACC with a proposal to start a process to enhance the integration of the SIDS, climate change, and vulnerability and adaptation assessments into the mechanisms of the LOME Convention, in particular the new 5-year programs under the European Development Fund. Negotiations for these new national and regional indicative programs are expected to start in the second half of 2000 and first half of 2001.

CPACC Technical Activities

Component 1: Design and Establishment of Sea Level/Climate Monitoring Network

Installation of monitoring stations

Installation of monitoring stations was completed at all 18 sites. During the period under review, local technicians received additional training by the CPACC ARNC as requested by the governments of The Bahamas, Guyana, Trinidad and Tobago, Antigua and Barbuda, and St. Kitts and Nevis.

Station Configuration and Equipment Installation

Spare parts for the sensors were purchased and shipped to Barbados to start stockpiling replacement parts at CIMH. The station in Barbados, damaged by a Dutch vessel, was not installed as planned due to the fact that the Dutch government did not reimburse the government of Barbados until later in the year.

Operation, Maintenance and Calibration

An instrument calibration facility has been installed at CIMH and training of the CIMH personnel has begun. This is an on-going training program. The first annual sensor calibration and replacement campaign will begin in early 2000. The CIMH personnel will take on the responsibility for calibration and logistics with supervision by the ARNC. National sensor replacement will begin in early 2000 with responsibility for the effort taken by the national agency participants with training assistance from the ARNC. CIMH, with assistance from the ARNC, conducted the first round of annual equipment calibration at CIMH headquarters in Barbados. The development of an equipment inventory tracking and calibration database was started. The training video on how to properly maintain and operate the monitoring stations was delayed. This activity will be completed in the next period.

CPACC's ground station is still at Vitel, Inc. Further improvements were made on the data acquisition system in collaboration with Vitel, Inc., while the system is being operated at their site in Virginia. The completed system will be delivered to its final CPACC destination in 2000. It was now been decided that the equipment would be transferred to IMA in Trinidad and Tobago. This decision was taken through consultations with all stakeholders and reviewed by an independent evaluator. The transfer of the equipment will take place early next year as requested by IMA management.

A first draft of the agreement between OAS and CIMH for the establishment of the Sea Level and Climate Monitoring Network Replacement Fund was completed and is now under review by World Bank. At a recent CMO board meeting, the board members endorsed the agreement and indicated that the fund should not cover damage by storms since governments are encouraged to insure the equipment.

Data Acquisition, Achieving and Dissemination

IMA has launched a web site, which includes CPACC Component 1 sea level data along with summaries (http://www.ima-cpacc.gov.tt/index.htm). Data is being downloaded and

archived at Vitel, Inc., at the NOAA Sea Level Center in Hawaii, the Climate Center in Boulder Colorado and via the Internet from Vitel at IMA in Trinidad. Data from selected CPACC monitoring sites has been provided to a number of users for national meteorological condition reporting, storm events, engineering projects, and scientific research.

CIMH has also made progress to develop a data delivery strategy. CIMH has agreed to archive and perform QA/QC on the meteorological data, with summaries presented on their existing web site. This will be realized in early 2000.

Geocentric Fixing of Benchmarks

The geocentric fixing of benchmarks for all 18 sites was completed. The data was reduced to ellipsoidal heights and ITRF coordinates are available online by station ID at http://www.gracie.noaa.gov. Raw data is also available via this site. The second CPACC GPS campaign is planned for all 18 sites in the year 2000.

The second continuously operating GPS reference station was installed, as planned, in Jamaica. The government of Jamaica leveraged the opportunity to purchase optional add-on DGPS equipment to provide the local user community with DGPS capability. Training was provided to the system operators during the installation. CPACC coordinated the training, which was conducted by equipment vendor for the local user community.

Component 2: Establishment of Databases and Information Systems

Information Systems Coordinator

The Information Systems Coordinator (ISC) provided technical assistance in the implementation of Component 3. He traveled to several participating countries to assist the Coastal Zone Specialist and consultants with introducing the component to national participants.

Assessment and System Design

The assessment and design of the CPACC network was completed.

Coordination of SIDSnet National Workshops

A technical assistant was identified and contracted under the UNDP/CPACC agreement for the implementation of the SIDSNet program. Her contract ended at the end of December 1999. The ISC and the technical assistant coordinated and conducted 10 workshops under this program. Two of them had to be rescheduled due to severe weather conditions.

System Procurement

The ISC conducted a review of the computer equipment needs on a country and pilot component basis. Equipment will be purchased in the next six months.

Training Program

CPACC is sponsoring two professionals, one each from IMA and CIMH, to the one-year modular UWI's CGLIS. The course is offered at UWI's campuses in Barbados and Trinidad and Tobago.

System Implementation, Maintenance and Upgrading

The ISC conducted extensive maintenance and repair of computers, network system and web site at the RPIU, mainly during the move to the new RPIU premises. An assistant has been contracted to maintain the CPACC web page.

Component 3: Inventory of Coastal Resources and Use

GIS installation and upgrade: Collaboration with CERMES and Engineering Institute

In addition to professionals from IMA and CIHM, CPACC is sponsoring 5 other participants from Grenada, Guyana, Antigua & Barbuda, Belize and RPIU for the 1999-2000 CGLIS program offered at the UWI's campuses in Barbados and Trinidad and Tobago.

Coastal Resources Information Systems (CRISs)

Due to the complexity of this task, some delays have occurred in the delivery of products as projected in the July-December 1999 Operating Plan. A review meeting between RPIU staff and APA Consultants took place on January 14, 2000. Phase I, Data Assessment, Cataloguing and Design will be completed during the first quarter of 2000. Phase II, Data Collection, Automation and Implementation will begin at that time. Below is a summary of activities conducted during the period under review.

(a) Phase I: Data assessment, cataloguing and design

Module I: Data Assessment

APA Consultants submitted an interim report on November 15, 1999. Several countries did not submit the required questionnaires before the deadline and those that did were incomplete or with incorrect information. In response to this, APA deployed one of its technical specialist to visit all 12 CPACC participating countries. During her visits, the consultant was able to review the information provided and acquired new data to complete the questionnaires. The final Data Assessment Report will be submitted by February 15, 2000. Since the cut-off date for submission of data has passed, this report will reflect an assessment of data received as of January 14, 2000. The report will be circulated among participating countries for review and comments.

Module II: Data Cataloguing and Metadata Standards

A metadata tool and standard have been prepared and distributed to all participating countries. National counterparts have not fully completed the metadata creation and cataloguing as planned, although about half of the participants to the metadata workshop reported that they conducted national workshops within their respective organizations. One problem identified with completing this task is that most of the participants to the metadata training workshop hold junior positions in their institutions and therefore have no authority to schedule their time to undertake metadata creation or to demand the data from more senior individuals. RPIU will send letters to the heads of the departments working in Component 3 to sensitize them and request their collaboration.

Although there were some delays in this module, it should not have major negative repercussions to the project at this point. The advantage of completing the metadata cataloguing process as originally designed was to increase capacity building and project visibility through the posting of the metadata on the Internet. In summary, the module was redefined to the compilation of 100 metadata records on coastal resources uses in 4

weeks for each pilot project site, with the emphasis being on the creation of metadata records for data critical to the success of the pilot projects. Metadata is to be compiled in conjunction with the pilot country team leader and pilot project consultant where possible. The incorporation of the metadata workshop trainee in each country and the pilot project lead person will be critical for the success of this new strategy. These reduced number of metadata records will feed directly into Module 4: Data Collection.

Module 3: Database Design and Management

A draft database design was completed as planned in November 1999. The draft is under review. A second phase of reviews will take place in conjunction with a training activity on data collection and automation, to be held in April 2000. A small workshop was held in Barbados on January 13 with at least one representative from each of the pilot components, RPIU staff and APA consultants, to determine the needs of pilot components and refine the database design. The final design of the database, for CPACC review, will be prepared by mid-March 2000.

Module 4: Data Collection

Collection of new data did not begin as planned during this period due to delays in the data assessment module. A revised schedule was developed. The draft data collection strategy report will be due by the end of February for comments and the final version by the end of March 2000. It was determined that there is much greater need for interaction between C3 consultants and the pilot project national and international consultants.

Component 4: Formulation of a Policy Framework for Integrated Coastal and Marine Management

Terms of reference were developed and a consultant identified for the first phase of the implementation of Component 4. During this phase the consultant will review and analyze current policies, legislation and institutional mechanisms related to coastal zone management, in the context of adaptation planning for climate change in a group of selected developed countries and in the Caribbean. On the basis of this analysis the consultant will outline the most appropriate policy, legislation and institutional options to be used in the implementation of this component. In addition, the consultant will also present a proposal for data, human resources and institutional arrangements necessary to implement these options at the national and regional levels.

Component 5: Coral Reef Monitoring for Climate Change

Awareness and Education

A public awareness video on Component 5 was produced in March 1999. The documentary provides a summary of the CPACC project and describes Component 5 and its methodology.

Site Selection and Methodology

The data analysis protocol was originally presented at a CPACC training workshop held in The Bahamas in March 1999 (www.cpacc.org, "What's New"). The protocol was based on the Aronson method, and was adapted to CPACC's needs by Jeff Miller, U.S. Geological Survey, Biological Division, US Virgin Islands (jeffmiller@islands.vi). Since the March 1999 workshop, Mr. Miller has refined the data analysis protocol by developing data capture process that:

- Captures discrete images from continuous digital video footage of coral reef transects with the aide of a video capture card;
- Creates a random dot plot;
- Combines the image and the random dot plot to create a discrete file; and
- Saves the original and the "dotted" images as a discrete file to separate folders.

The data obtained with this method is entered into a spreadsheet, which tabulates the records, by species and benthic grouping (providing mean and standard deviation of each group). This data sheet can be easily modified to meet the specific needs of a particular group or individuals (i.e., coral bleaching or disease data can be extracted).

A series of successful workshops were held in the three Component 5 pilot countries: Jamaica (November 22-24, 1999), The Bahamas (November 24-27, 1999) and Belize (November 29 – December 1, 1999). The purpose of the workshops was to update the reef monitoring teams on recent advances in the data analysis protocol described above. The agenda in each of the workshops included: installation of hardware and software, demonstration of the data capture process, review of digital videotape footage of C5 monitoring sites in each of the pilot countries, preparation of software to capture images from digital videotape footage of coral reefs transects, capture of images from digital videotape footage of coral reef transects, combination of each discreet image with a unique random dot plot, archiving images to CD's and preliminary analysis of archived "dotted" images. As a result of these workshops, the participants have been trained to conduct the computer video image capture and automated dotting process as part of the data analysis protocol. The workshop also provided an opportunity to review the digital video footage of coral reef transects and to assess compliance with the CPACC monitoring protocol. Suggestions were made to improve videotaping and enhance data collection. The automated, computer-capture method will allow for the easy exchange of data for quality control/quality assurance and archiving purposes.

Refinements in site selection and monitoring protocols are being undertaken in response to findings of the Mid-term review. Refinements are expected to be completed by February 2000.

The three pilot countries, and two observer countries[2], Barbados and the Turks and Caicos Islands, have been involved in capacity building activities. Trinidad and Tobago has expressed interest in becoming involved in Component 5 through the Institute of Marine Affairs (IMA). Discussions have been held with the OECS/Natural Resources Management Unit and government representatives from St. Vincent and the Grenadines and the British Virgin Islands regarding the incorporation of CPACC methodologies and approaches into their planned national coastal resource inventories. The other CPACC countries will have the opportunity to become actively involved in the network through annual data review workshops to be held in 2000 and 2001.

Monitoring Activities

Refinements of the data analysis protocol have been completed and were applied in November 1999 to field data during workshops held in each of the three participating countries (see above). Hardware and software were purchased for each pilot country to support the automated data analysis process.

[2] Observer countries, or non-pilot project countries, may participate fully in capacity building activities, providing that they meet all costs associated with their participation.

The Bahamas site selection process has been completed and monitoring has started at one of the three sites. In the case of Belize, site selection has also been completed. Monitoring was conducted in one of the three monitoring sites. Monitoring at Hol Can was delayed as a result of damage to the underwater camera housing (a replacement has been found). In Jamaica, the site selection is still in progress but monitoring is underway in one of the three areas.

Negotiations are nearing completion for the Data Management Center (DMS) the Center for Marine Sciences (CMS), at the University of the West Indies, Mona, Jamaica, to serve as the archiving and data analysis node for Component 5. The CMS is currently a regional node for the Global Coral Reef Initiative (GCRI). In support of this initiative, discussions have been initiated with the director of the CMS, Dr. J. Woodley, and the Manager of the DMS, Dulcie Linton, regarding:

- The appointment of a CPACC funded (coral reef) Data Analyst to the DMS, and
- The contracting of technical assistance to design the C5 database to hold the monitoring data form the pilot countries.

Component 6: Coastal Vulnerability and Risk Assessment

Refinement of Methodology

Phase I of the methodology has been completed. The three countries have now selected the sites for implementation, determined national arrangements and evaluated existing data.

Collection of Information

In each of the participating countries a local consultant was contracted to implement Phase I of this component. The consultants have now completed their tasks which consisted in preparing final national reports for the screening assessment, selecting sites for implementation, and formulating appropriate scenarios for coastal vulnerability assessment (Stage 2 of methodology). The three consultants, through national consultations, have prepared a review and analysis of the institutional arrangements as well as additional human and technical resources required for the implementation of the component. Annex 3 provides a summary of implementation plans and data requirements for each of the participating countries.

In the case of Guyana, it was decided that the best approach for national implementation was to contract the Guyana Environmental Protection Agency to coordinate the component. An MOU has been prepared and signed between OAS and this agency. The agency will be in charge of delivering the vulnerability assessment with support from international consultants. Similarly, in the case of Grenada, a consultant firm was selected to act as national coordinator for the implementation of this component. Plans for Barbados have not been finalized yet.

Component 7: Economic Valuation of Coastal and Marine Resources

Terms of reference for the first phase of this component were finalized, consultants identified and contracted. This phase of the work involved:

- Review of the use of economic valuation tools in the region;
- Develop methodology for use in the implementation of the component;

- Further refine the methodology after discussion with country teams;
- Select pilot country sites in consultation with country teams; and
- Provide training to country teams on the methodology.

The Consultants have completed the following tasks assigned:

- A methodology has been developed and refined after discussions with country teams.
- Country teams have been identified and selected in each participating pilot country.
- Country visits were made by the consultants and RPIU representatives. During these visits the methodology was discussed, site visited and the criteria for site selection clarified.
- A workshop was held in Trinidad and Tobago (December 1-4, 1999) for the three pilot countries to provide training on the methodology. Also in attendance, utilizing their own resources, were participants from Barbados, Antigua and Barbuda, and Grenada. Discussions with the country teams led to a clear understanding of respective roles and responsibilities, which they were to assume. It was agreed that CPACC would provide resources to each country team to support implementation. The countries also identified sites to be utilized in the study.

Component 8: Formulation of Economic/Regulatory Proposals

Contracts have been finalized with consultants (US NOAA) for the implementation Phase I of Component 8. During the period under review, country visits were planned by the consultants and the RPIU to the two pilot countries (Antigua and Barbuda and St. Kitts and Nevis). Unfortunately the visit to St. Kitts and Nevis had to be rescheduled as Hurricane Lennie prevented the team from meeting with any of the local counterparts.

In Antigua and Barbuda, the CPACC team met with representatives of the Ministries of Agriculture, Planning, Public Works and Tourism. At each meeting the team discussed the objectives of Component 8 and provided information on the nature of economic instruments and their utility.

At the Ministry of Tourism the CPACC team met with the Permanent Secretary and other technical staff. Discussions here were very useful in that the Ministry disclosed that they were in the process of negotiating new conditions for the operation of many of the hotels in the island. It was the Government's intention to ensure that the industry complied with ISO standards and operated in a sustainable manner. For compliance, the Ministry would seize the opportunity to explore the use of economic instruments instead of the standard command and control approach. This offers an excellent opportunity to achieve one of the goals of Component 8 – design and implementation of economic instruments during the pilot phase.

The mid-term review had recommended that CPACC examine the possibility of expanding Component 8 to a regional component. Also at the NICU meeting in July 1999, participants expressed the view that implementation of Components 7 and 8 should be closely coordinated. The latter option was discussed with the participants who expressed support for the coordination.

Originally, when CPACC examined the option of expanding Component 8 to a regional component, it was decided, after discussions with Component 8 consultants, that this was not feasible due to constraints of time and resources. However, as a compromise, it was proposed that after each country reviewed the status of use of economic instruments and the design of the pilot implementation plan, CPACC would host a regional workshop on this subject. This workshop should provide enough data and background material to

encourage the initiation of activities in member countries. The CPACC consultants would then assist any of the latter wishing to institute mechanisms for the use of economic instruments.

After the Component 7 workshop in Trinidad (Dec. 1999) and further discussions with consultants under contract for Components 7 and 8, it was agreed that an attempt would be made to expand Component 8 activities to the three pilot countries in Component 7. This will be in addition to the regional workshop discussed in the previous paragraph. To this end, consultants for Components 7 and 8 will be meeting before the end of the year to discuss and develop a work plan to facilitate this proposal.

Component 9: Greenhouse Gases Inventory/Agriculture and Water Resources Vulnerability Assessment

(a) National Circumstances

Completed.

(b) GHG Inventory

Completed.

(c) National workshop on results

The workshop was not conducted as planned due to delays in completing the first draft of the national communication. It will take place early next year.

(d) Vulnerability Assessment: Agriculture and Water Resources

Completed.

(e) Initial National Communication to UNFCCC

A first draft was completed by late December 1999, but it has not received government endorsement yet. A series of reviews, both national and internationally, will take place in January. The report then will be presented, for review and endorsement, at a national workshop.

Annexes

Annex 1

Outcome of CPACC Mid-Term Reviews, September 1999

The mid-term review took place between September 26th and October 2nd, 1999 in Barbados and Guyana. The World Bank team was comprised of Mr. Walter Vergara, Team Leader, Ms. Loretta Sprissler, Operations Analyst, and Mr. Kevin Fitzgerald, Consultant. In addition, the evaluation was joined by Dr. Al Binger (Director of UWICED), Mr. Cornelius Fevrier (CARICOM), two representatives of the Government of Barbados, two representatives of the national focal points (Jamaica, and St. Vincent and the Grenadines), Dr. Colin Depradine (CIMH), Ms. Shelly-Ann Jules-More (IMA), and Mr. Wayne King, Project Manager of the Pacific Islands Climate Change Assistance Project. Dr. Neville Trotz, CPACC/RPIU Project Manager and the technical and support staff of the RPIU actively participated in the meetings. Discussions were assisted by the work of a team of five independent evaluators contracted under the project.

Objectives

The objectives of the mid-review were to: (i) evaluate project development objectives and the extent to which they are being fulfilled; (ii) recommend any changes in project structure and allocation of resources required to ensure that the development objectives are successfully obtained; (iii) identify both positive experiences and implementation bottlenecks in order to fine-tune the project and determine any needed adjustments during the second half of the project implementation period; (iv) assess expected technical inputs and impacts of the project; and (v) evaluate the sustainability of project activities after closure.

Major findings

Overall project implementation performance was found to be satisfactory. It was determined that CPACC has made worthy progress towards the achievement of expected technical and institutional outputs, and that is emerging as the regional center for climate change in the Caribbean. Furthermore, the evaluation team concluded that progress has been made toward the achievement of the project development objective to strengthen the Caribbean region's capacity to prepare to cope with the adverse affects of climate change. In particular, it was found that CPACC has enhanced technical capacity at the regional and national levels and the project's role as a focal point for supporting efforts to bring forward a sustainable development agenda for the region was acknowledged.

The World Bank team commended the CPACC project team for its effective management of the complex institutional and implementation arrangements required for project execution. In addition, it was determined that the OAS and the RPIU have put in place effective technical supervision and reporting procedures. In fact, the RPIU was recognized for its effective performance and leadership on issues of climate change in the region as well as internationally.

Key Recommendations and Actions

	Recommendation	Responsibility/Deadline
1) Changes in Project Structure		
a) Component 8	Review feasibility of expanding this pilot component to all participating countries based on available resources and institutional capacity	OAS, RPIU, C8 consultants Nov. 30, 1999

b) CPACC and capacity building for vulnerability assessment and adaptation (VA).	Explore options for inclusion of regional capacity building activities on VA for climate change impacts in agriculture, water resources and human health; develop associated medium-sized grant for GEF funding or supplemental grant from GEF for new component.	OAS, World Bank, RPIU, OAS to consult with GEF Secretariat by Nov. 15, 1999.
2) Project Management		
a) OAS/RPIU briefings	Conduct bimonthly briefing meetings with the World Bank to facilitate project supervision during the remainder of the project.	OAS, World Bank, RPIU
b) RPIU	Allocation of additional resources for the hiring of short-term consultants and UWI students on a part-time basis to assist with the maintenance of information systems and administrative tasks.	RPIU
c) NFPs/NICUs	(i) Define a strategy to further strengthen the NICU role in project implementation.	RPIU, Consultant Nov. 30, 1999
	(ii) Evaluate NFPs and NICUs: 1) performance; 2) effectiveness in coordinating activities; and 3) national ownership of project.	RPIU, Consultant. Report: Oct. 30, 1999
d) CARICOM	Introduce climate change issues in the agenda of the CARICOM Heads of Government meeting.	CARICOM, RPIU
3) Public Awareness		
a) Elements of the strategy:	i) Information kit for decision makers; ii) Plan for maintenance and broad dissemination of the CPACC web-site; iii) Media campaign on climate change issues and potential contributions by CPACC; and iv) Public education campaign. - Portion of the project's contingency funds will be allocated to fund the strategy. - The strategy should include expected costs and a strategy for support from external funding.	RPIU/ISC/PRO, Consultants November 30, 1999 for OAS and World Bank review.
4) Support for Project Sustainability		
a) Information Products	Report documenting potential applications of the data and deriving revenue from value-added applications.	RPIU/RNC
b) Country Ownership	Update MOU between OAS/CPACC and participating countries reflecting their actual responsibilities and long-term institutional commitments.	OAS, RPIU
c) Caribbean Climate Change Center (CCCC)	Prepare mid-size proposals for GEF funding.	OAS, RPIU First draft: October 25, 1999
d) CMI Replacement Fund	Prepare draft MOU for World Bank review.	OAS, CMI November 30, 1999
5) Disbursement and Accounting Procedures		
a) Accounting Procedures	Review pending recommendations	RPIU

	made by PriceWaterhouse Coopers report, especially RPIU connecting to UWI's accounting system.	Connection by October 10, 1999
b) Authorized allocation to the special account	Increase authorized allocation to OAS special account to $800,000.	OAS, World Bank October 21, 1999

Annex 2

Back-to-the-office report from COP5

(Prepared by Messrs. Volonte and Vermeiren)

CPACC follow-up

Following the recommendations made by the mid-term evaluation of CPACC we met with officials from GEF and World Bank.

Neville Trotz and Jan met with Charles Feinstein, climate change specialist of the World Bank/GEF office. We informed him of the plan to establish a regional climate change center as a permanent institution that will take over from CPACC, and the promising political and private sector support for such an initiative. We suggested that we would seek to apply for a medium-size GEF project to carry out the institutional design for the center.

Mr. Feinstein said that the timing of the submission of a proposal is critical. The project cycle has been modified and lengthened in some ways. A project concept needs to be presented to the GEF council one meeting prior to the council meeting at which the project concept will be considered. He said that the GEF council might be reluctant to approve any new proposal without seeing an evaluation of the outcomes of the previous activity. With this in mind, he suggested that we consider putting the follow-up to CPACC in the context of a UNFCCC Stage 2 enabling activities. He said that if we do not need much funding for the establishment of the center, we might consider applying for a Block B for CPACC-2 that includes the establishment of the center, rather than for an MSP.

To conclude he said that the Bank would support the next step, as long as the task manager (Walter Vergara) supports it and the concept has sufficient political support.

Action:

- Prepare a draft feasibility analysis, including budget, of the different options, MSP, CPACC-2 and Block-B, and discuss the possible plan of action with Walter Vergara and Charles Feinstein.

CPACC Presentation

The GEF sponsored a special event on Tuesday, October 26 to present two projects, CPACC and PICCAP. Neville Trotz made the presentation on CPACC. The presentation was very well received and provided an excellent introduction of CPACC to COP participants. The GEF considered our presentation very “refreshing” because of the great accomplishments achieved by the project, to this date.

Adaptation

Although the political process of UNFCCC has concentrated primarily in the reduction of GHG emissions, several non-Annex I countries are now insisting that the topic of adaptation be brought to the table. It seems that the developed countries are now willing to do so. Claudio was invited to be part of panel of a “side-event” on adaptation sponsored by the Potsdam Institute for Climate Impact Research (Germany) and the Climate Action Network South Asia. The other panelists were: Prof. Barry Smit (University of Guelph, Canada), Dr. Robert Watson (World Bank and IPCC), Dr. Wolfram Klein (Germany), Mr. Alan Miller (GEF Secretariat) and Dr. Saleemul Huq (Imperial

College, Bangladesh). It was stated that the donor community is not clear on how much they should pay for adaptation to climate change given that much of the cost will include activities that the countries should be doing anyway to adapt to present climate variability. The GEF expressed that they do not have a clear mandate from the COP on supporting adaptation projects but that the GEF had included funds for adaptation in projects under the other two focal areas (biodiversity and international waters). The World Bank clearly explained that vulnerability assessments and adaptation to sea level rise are topics that could be financed today through loans and credits. In fact, the Bank representative mentioned that Bangladesh included a climate change vulnerability assessment study on a coastal zone management credit. Claudio explained that the OAS has been working on issues of planning for adaptation to climate variability for many years through work on natural hazards. These experiences need to be brought to the attention of the climate change community through the IPCC review process. In addition, Claudio concluded that there is a need to increase awareness through public education on the issues of impact quantification and adaptation strategies.

Actions:

- Participate in the next Inter-Agency Task force on natural hazards to present opportunities for interaction between the natural hazards and climate change communities.
- Participate in technical meetings of experts on adaptation.

Capacity-building

Several delegations from G77/China countries, especially LDCs and SIDS, insisted that capacity building is critical for their effective participation in the Convention and Kyoto Protocol processes. Most decisions in COP5 have references to capacity-building, but three in particular we believe are relevant to the OAS and CPACC: Decision 5 :research and systematic observation (CPACC component 1); Decision 8: other matters related to non-Annex I Party communications (CPACC-2, second national communications, consultative group of experts); and Decision 10: capacity-building in developing countries (CPACC-2, establishment of Caribbean Climate Change Center). In particularly, the GEF was mandated to finance a network of experts from non-Annex I countries with expertise in GHG inventories, mitigation and adaptation for climate change impacts. It was also requested that these experts should meet periodically to exchange information and experiences.

The OAS could have a role in the capacity-building topic by working with the UNFCCC Secretariat, GEF and other institutions, such as IUCN and Pew Center to facilitate the formation of expert group and the holding of specific technical meetings in our region. Specifically, CPACC could host an expert meeting in Barbados either on the National Communications, GHG inventories or adaptation. The Pew Center also expressed interest in working in partnership with the OAS to reach the private sector of our member states. Specifically, the Pew center is interested in bringing companies that are already working on reducing emissions in non-Annex I countries to LAC countries to share their experience.

Actions:

- Follow-up with UNFCCC secretariat and the Pew Center to plan for technical meetings.
- Prepare a proposal for the GEF Secretariat to conduct a technical meeting in Barbados of experts from the hemisphere.

European Community

During the COP5, Madeleen Helmer, coordinator of the European Centre on Pacific Issues (ECSIEP) approached the CPACC team and the South Pacific Regional Environmental Programme (SPREP), with a proposal to hold a meeting with a representative of the European Commission (EC), to discuss EC's plans for including climate change considerations in the next round of Lome negotiations for European assistance to the ACP countries (African, Caribbean and Pacific).

The meeting took place on Friday October 29. It was chaired by Amb. Slate, representative of Samoa and chair of AOSIS. The EC was represented by Artur Runge Metzger, responsible for Environment and Natural Resources, Sustainable Development Strategies, DGVIII – Development (Lome). Paul Hassing, head of the Climate, Energy and Environmental Technology for the Dutch Ministry of Foreign Affairs participated for the Netherlands. The SPREP was represented by Wayne King, its coordinator. CPACC was represented by Neville Trotz, program manager RPIU; Brian Challenger, NFP Antigua and Barbuda; Phil Weech, NFP Bahamas, Rawleston Moore, NFP Barbados, Clifford Mahlung, NFP Jamaica; and Claudio Volonte and Jan Vermeiren, OAS.

The ECSIEP has recently completed a study for the EU on the European Cooperation with Small Island Developing States (SIDS). Among the conclusions of the study are: (1) The Barbados Program of Action (BPOA) is more of an environmental POA than a development program, and does not seem to have been incorporated in the development policy of the countries; (2) The Barbados POA has not found its way into the European donors policies towards SIDS; (3) The EU donors acknowledge that SIDS are particularly vulnerable to CC, but do not have a clear understanding of adaptation. They also believe that CDM has limited benefit for SIDS because of small scale of emissions and high transaction costs.

The representative of the EU explained that assistance to the Caribbean is channeled through CARIFORUM, and is also handled bilaterally. He stated that the EU wishes to integrate Climate Change considerations into each one of their main programmatic areas, but are also prepared to support projects specifically designed to address climate change, as long as these projects are presented as priority needs by the countries.

The representative of the Dutch government made an interesting remark. He suggested that over the next few years the CDM mechanism would gradually take over the financing of mitigation measures, thus reducing the need for GEF funding in that area. This will free-up GEF funding for adaptation, which will become the mainstay of GEF funding. In another meeting, a representative of the GEF Secretariat informed the participants that adaptation/enabling activities now only represent 7% of the total funding in the CC area, the remainder being dedicated to mitigation. He indicated that his government is interested in supporting adaptation projects as part of its ODA.

Actions:

- Send e-mail to all CPACC focal points explaining the meeting with EU and requesting the name and position of all national EU representatives. Prepare talking points for the CPACC focal points to present CPACC and ideas for potential funding from EU to the EU national representatives.
- Write letter to EU representative thanking him for the meeting.

Suriname

Ewald Leeflang, National Institute for the Environment and Development in Suriname (NIMOS), approached Jan and Neville Trotz about the possibility of Suriname joining CPACC. Mr. Leeflang (nimos@sr.net) is since September 1999 secretary of the NIMOS (Nationaal Instituut voor Millieu en Ontwikkeling van Suriname). NIMOS was created 2 years ago, and was established with funding from the IDB. NIMOS is responsible for environmental assessment, monitoring and legislation and it is the working arm of the National Environmental Council, which is located in the Office of the President. Mr. Leeflang is also the focal point for all conventions, and coordinator for the UNDP/GEF project on the national communication.

Suriname has received funding from UNDP/GEF to prepare their national communication to UNFCCC. Some of these funds are earmarked for allowing Suriname to participate in CPACC. Jan briefly explained the management and operations of CPACC, the menu of activities offered, and the stage in which these activities are now. Jan explained that Suriname would have to cover all its costs. Mr. Leeflang informed us that he already had asked Neville to go to Suriname at the end of November to discuss in detail the participation of his country in CPACC.

Mr. Leeflang also asked if OAS could give advice regarding the implementation of a GHG inventory, including the identification of international consultants. Jan told him that the OAS can provide him with the TOR for the consultancies managed by CPACC in St. Vincent and the Grenadines, and that he can also contact the national communications coordinators in the other countries.

Action:

- Send TOR and report on SVG GHG to Leeflang
- Neville to take to Suriname detailed information on the equipment cost and training/installation inputs required for component 1 (to request from Lee)
- Request a copy of the Dutch funded national study on coastal vulnerability. There has been a presentation of the study, but they did not yet get the report.

UNDP/GEF National Communications Support Project

Neville Trotz, Claudio and Bo Lim (Manager of the UNDP/GEF support project) met to discuss the implementation of this project in the Caribbean. It was agreed that while the vulnerability assessment and adaptation workshop sponsored by UNDP/GEF (see below) represents a short-term solution to the needs of the region vis-à-vis first national communications, CPACC (and later the Climate Change Center) will be the focus of any long-term activities in the region on this topic.

At the suggestion of the GEF Secretariat, a meeting was organized with Caribbean representatives to discuss the upcoming UNDP/GEF workshop on vulnerability assessment and adaptation and the contract with UWICED. Participants included Al Binger (UWICED), Brian Challenger (Antigua and Barbuda), Phil Weech (Bahamas), Rawleston Moore (Barbados); Leonard Nurse (Barbados) and Jan. Al provided background information to the group on the proposed contract between UNDP/GEF and UWICED. He proposed that 3 persons (Al, Ricky Wilson and Brian Challenger) share the task of assisting the countries in doing their VAs, given all the work to be completed before the December training workshop. Leonard Nurse mentioned that John Haye and Dick Warrick of University of Waikato, trainers for the training workshop, would not be available

for the December workshop, since they will be in a workshop on the IPCCC third assessment report.

The group then agreed on delaying the VA workshop to the 2nd half of January. Al then suggested that this made it possible to consider contracting one expert to assist the countries under the contract with UNDP/GEF. This expert would be paid from the balance of the funds under the UNDP/UWICED contract, and would work out of the RPIU. The group saw the VA workshop as an integral part of the countries efforts in completing their national communications. The agenda for the VA workshop, as proposed by UNDP, was reviewed, and changes were suggested to better meet the needs of the countries. A list of tasks that need to be accomplished in the short term was prepared. The countries participating in this meeting agreed to brief, and seek support from, the other CPACC countries present at COP5.

It was also decided during this meeting that an informal working group would be formed to assist UWICED in its role as coordinator of the support program for the national communications. The group requested the participation of OAS in this work group.

French government

Jan met with Mr. Marc Gillet, head of the inter-ministerial mission on greenhouse gases in the Prime Minister's office, France, for the purpose of learning more about the "Basse Terre Charter" (in files). This charter, which was promulgated by the Region Guadeloupe on October 12, 1999, aims at" … initiating a consultative process on climate change with policy makers and business communities, as well as with all the Caribbean islands governments, at the appropriate level. This consultation will address the means of reducing as well as the means of adapting. The signatories of the Basse Terre Charter wish to place their undertaking on an international level, so it can be integrated in the French government's policy on climate change, and still be part of the Caribbean basin specificity." Mr. Gillet was aware of Guadeloupe's initiative, and said that the French government is interested in supporting this initiative. Jan briefed him on CPACC, and the project's efforts in bringing global warming and adaptation to the attention of policy makers and the private sector. It was agreed that cooperation between Guadeloupe and the CPACC countries would create benefits for both parties, and would meet the intentions of the charter.

Action:

- Mr. Gillet will send Jan's business card to the person coordinating the Guadeloupe effort for the French government, so that we may establish contact. Jan to follow-up via an e-mail.

IUCN

Claudio met with Mr. Brett Orlando, Climate Change Program Officer of IUCN. The board of directors of IUCN has recently approved a climate change work program for IUCN. As a result, Mr. Orlando explained that he was interested in pursuing two activities in the Caribbean and Central America: (1) socio-economic assessment of coral reefs related to potential degradation due to climate change; and (2) conduct an education campaign through IUCN's membership on climate change and potential impacts on communities. These two activities fit very well with CPACC's Components 5 and 7 and with the proposed public awareness strategy. Claudio suggested that IUCN might want to select a few of the CPACC sites for Components 5 or 7 to conduct these activities.

Actions:

- send IUCN copies of Component 5 and 7 methodologies and a copy of the Component 5 video.
- Request copies of the Manila workshop.

UN University training program

The UN University has sponsored several training sessions (5-day) around the world on improving negotiation skills of diplomats and technical staff participating in the UN conventions processes. The UNU representative expressed interest to conduct this kind of training in the Latin America region. He was especially interested in CPACC as a forum to host such training in the Caribbean.

Action:

- contact UNU to begin arrangements for training through CPACC as a first training in the Americas.

UNEP Vulnerability Index (VI) and Adaptation

UNEP sponsored a special event on VI and adaptation. The session started with an introduction by Klaus Topfer, who mentioned UNEP's work in vulnerability analysis, and promised to increase UNEP's effort in this area. Co-chair John Ashe traced the origins of the VI to the SIDS Conference in Barbados, and pointed to the usefulness of the index for guiding the transition from Stage I to Stage II adaptation activities to be supported by GEF.

Tom Downing of Oxford University gave a presentation on the methodological work behind the construction of a VI. He expanded on the definition of Vulnerability, as per IPCCC, and its characteristics: - relative measure; - ordinal; -synthesis of various measures; - multi-level (scales). Two pilot applications of VI were briefly mentioned: (1) an environmental VI , produced by SPREP; and an economic VI, produced by CDB for CARICOM countries.

Another presenter talked about a study on CC vulnerability of a water basin in the Pacific Northwest. His main conclusion was that vulnerability is dynamic: intensive development changes the relationship between location and climate.

The audience expressed its concerns that donors were going to rely exclusively on this one VI super number. It was agreed that vulnerability assessment is always specific to the intended use, and that doing the assessment in creases understanding and therefore the capacity to adapt. Participation by the affected population in the assessment is therefore essential

COP6

COP5 decided that the sixth session of the Conference of the Parties will be held in The Hague, the Netherlands, from 13 to 24 November, 2000.

Annex 3

COMPONENT 6: Implementation Plan and Data requirements per participating country

Barbados

Sites: Cattlewash, Dover, Worthing, Spring Garden/Bridgetown, Speighstown.

Implementation team

National coordinator; Coastal Zone Management Unit of Barbados (CZMU).

Data requirements and tasks

- Prepare and digitize maps for the five sites (1:2,500) depicting zones of increased erosion and inundation due to future accelerated sea level rise.
  (b) Inundation. The CZMU has already estimated the area affected by the 1:100 year storm event. The storm surge took in to consideration a 5mm/yr rise in sea level (present level of sea level rise for Barbados). The IPCC has predicted a one meter sea level rise by the year 2100 as the "high" scenario. It is therefore necessary to revisit and re-assess the Water Levels Report for Barbados (Delcan 1994) utilizing a one (1)cm/yr rise in relative sea level to recalculate the 1:100 year flood/inundation zone. There will thus be a need for digitization as a result of these new calculations of the 1:100 year storm event flood limits.
  (c) Erosion. Apply available erosion models to determine the potential land loss due to sea level rise (i.e., Brunn Rule or historic analysis/extrapolation) for the different sea level rise scenarios for the years 2020, 2050 and 2100.
- Identify, geo-referenced and digitized all infrastructures in the three selected areas, which could be affected by flooding and inundation in light of the calculations, outlined in (1). Estimate the cost of infrastructure at risk for the different scenarios and potential protection options.
- Analyze the effect of sea level rise on coastal wells and aquifers and the subsequent fresh water resources of the area. This must include an analysis of the potential numbers of people in the surrounding areas who could be affected.
- Examine the effect of sea level rise on critical flora and fauna, notably the nesting sites of turtles.
- Identify on-going and planned socio-economic activities in the three sites that could be potentially affected by sea level rise in light of the calculations outlined in (1).
- Identify adaptation options for different impacts on infrastructure, socio-economic activities and ecosystems. This task should include a review of building codes, land use and setback policies to determine if sea level rise impacts are considered and if not, how to incorporate them.

Guyana

Sites: Georgetown, Leguan Island and Onverwagt.

Implementation team

Environmental Protection Agency of Guyana (EPA).

Data Requirements and Tasks

- Sea level trends and land movements
- Digitizing of base and thematic maps for three sites. Mr. Rash Singh (EPA) will coordinate this activity with assistance of 3 University of Guyana (UG) students. It was agreed that only 10 of the 48 1:50,000 topo maps, covering the three sites, will be digitized as this point. EPA will request the use of equipment at the NRNP. EPA will cover the cost of training, maps, students and necessary software from the CPACC contribution. If possible, the three mosaic photographs covering the three sites will be scanned and incorporated in the digitized maps. It is estimated that this task will take about 10 persons week.
- Survey of sea defenses at Onverwagt. EPA will request assistance from Sea Defense PEU to complete the information on this area to be compatible with the existing information from the other two sites. CPACC will provide funds to cover the cost of the field work and PEU will produce tables, graphs, and reports. It is estimated that this task will take about 3 weeks.
- Survey of inland areas. It was recognized that there is a lack of topographic information landward of the sea defenses in the three sites. This may be the most important missing information that CPACC will need to acquire. The OAS agreed to explore possible techniques to accomplish this in consultation with Component 3 consultants. EPA agreed to discuss this matter with Drainage and Sewage Department for available information on flooding records and drainage patterns and with Lands and Surveys for information on bench marks in the three sites.
- Socio-economic survey of three case study areas. EPA will contact UG to request assistance to conduct a survey of the inhabitants of the three sites. The survey will include questions on sea defenses failure, flooding frequency and damages, value of land and building; knowledge of climate change and sea level rise; conditions of drainage and sea defenses; relocation conditions; basic socio-economic characteristics. CPACC will provide the funding for this activity.
- Beach profile. EPA will coordinate the computerization of the beach profile data located at Lands and Surveys by contracting a university student and requesting assistance from Ministry of Public Works, Project Executing Unit (PEU).
- Videotape of coastal zone (tentative) to identify coastal geomorphology and uses.

Grenada

Sites: St. George's to Grand Anse; Greenville and Cariacou.

Implementation team

National coordinator; Ministry of Agriculture.

Data requirements and tasks

- Digitization, using existing maps (1:12,500 or better) and information, for the three C6 pilot sites, of thematic layers (land use, infrastructure/building, topography, coastal geomorphology).
  (i) Contour lines. The first question that needs to be asked is what is the zero (0) contour line represents. Is this the low water, high water or mean high water mark. This is important to determine what digitized shoreline represents. Using existing information digitize contour lines representing the 1 meter and higher in intervals of 5-10 meters to the 100 meter contour and then every 25 meters to the 300 meters meter.
  (ii) Beach monitoring surveys. These surveys can provide good information on the lower contour lines. The elevations along the transects that have been surveyed

will be located on the map and then lines will be drawn to construct the contours. These contours will be also digitized.

(iii) Bathymetry information. Contour lines will be drawn using the existing point bathymetric information and then digitized to reasonable depth. The 50 meter contour could be used as a guide.

(iv) Coastal geomorphology. Using existing aerial photographs and rapid ground truth, the coastal geomorphology of the three sites will be determined and then digitized as lines along the shoreline. The presence of coral reefs along the shore will be indicated also by a line offshore. The location and extent does not need to be exact but approximated.

(v) Coastal protection. The presence of man-made structures along the coast will also be indicated by lines.

(vi) Inland geomorphology. Using existing information and aerial photography digitize the geomorphology of the land between the beach and the 300 meter contour.

(vii) Flood areas and areas affected by storm surge.

(viii) Location of infrastructure, including roads and utilities.

(ix) Footprint of existing buildings as detailed as possible. In addition, and if available, digitize land plots. This information will be used as the basis for building a data base with the value of property at risk.

(x) Population density from the census using the minimum census track.

- Hydrological assessment of inundation and salt water intrusion processes, with particular interest in historical storm surges and flood events and contamination of groundwater wells by salt water. Apply sea level rise and storm surge scenarios to estimate potential impacts. Present potential adaptation measures.
- Assessment of historic erosion trends for the beach areas of the three selected sites. Apply erosion models to determine impacts of sea level rise, increasing sea surface temperatures and storm surges. Present potential adaptation measures.
- Assessment of infrastructure facilities located within the selected sites to determine their vulnerability to sea level rise. Present potential adaptation measures.
- An analysis of the socio-economic activities being carried out within the selected sites to identify their specific vulnerabilities to sea level rise and the potential costs of losses resulting from sea level rise. These activities will include human settlements and related social and commercial activities. Present potential adaptation measures.
- An analysis of the existing environmental, land use and building regulations to determine their adequacy to cope with the potential effects of sea level rise.
- An analysis of the preparedness of governmental, business and community leaders to cope with the effects of sea level rise and of the related policy frameworks that have been put on place.