CPACC

Operating Plan
January – June, 2000

Caribbean:
Planning for Adaptation to Global Climate Change
A Joint Project of OAS-CARICOM-UWICED-World Bank-GEF

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Acronyms

ARNC	Acting Regional Network Coordinator
CDM	Clean Development Mechanism
CIHM	Caribbean Institute of Hydrology and Meteorology
CMS	Center for Marine Sciences
CZMS	Coastal Zone Management Specialist (CPACC/RPIU)
CPACC	Caribbean: Planning for Adaptation to Global Climate Change Project
CRISs	Coastal Resources Information Systems
DVC	Digital Video Cameras
GEF	Global Environment Facility
GHG	Greenhouse Gases
GIS	Geographic Information Systems
GPS	Global Position System
GS/OAS	General Secretariat of the Organization of American States
ISC	Information Systems Coordinator
NFPs	National Focal Points
NGOs	Non-governmental Organizations
NICUs	National Implementing Coordination Units
O&M	Operations and Maintenance
PAC	Project Advisory Committee
RACs	Regional Archiving Centers
RPIU	Regional Project Implementing Unit
SIDS	Small Island Development States
SIDSnet	SIDS Network (UNDP project)
TORs	Terms of Reference
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNFCCC	United Nations Framework Convention on Climate Change
UWI	University of the West Indies

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Executive Summary

Project Implementation

The next six months (January – June 2000) will be a period of much activity in CPACC. All components will be fully operational and significant efforts will be directed toward project sustainability. The following tasks will be undertaken:

Climate Change Center. Efforts will continue for the development of a strategy to establish a Climate Change Center in the Caribbean. This strategy will focus on attaining wider support for the Center-seeking additional strategic alliances with the private sector and regional and international agencies. In particular, a one-day brainstorming session will be held March 30th with key regional experts to begin discussions of its functions and structure. Two regional seminars will be organized, one with representatives of the private sector and another with national and regional media representatives, to seek support for the Center.

Components. With regards to project activities, it is expected that the following activities will be completed during this period:

Component 1: Design and Establishment of Sea Level/Climate Monitoring Network ***(Regional).*** The CIMH Trust Fund for the periodic maintenance and replacement of the monitoring stations will be established in Barbados. The first meeting of the Fund Oversight Committee will be convened on March 31, 2000. National workshops will be organized to improve technical capacity on the use and application of data from the stations.

Component 2: Establish Database & Information Systems (Regional). An assessment of the hardware and software needs of the Component 1 agencies will be conducted to improve direct access to data from the monitoring stations. A final report from the SIDSNet training will be prepared.

Component 3: Inventory of Coastal Resources and Uses (Regional). Metadata records from all countries will be collected and evaluated. New data will be acquired to fulfill requirements from pilot components.

Component 4: Formulation of a Policy Framework for Integrated Coastal and Marine Management (Regional). A project team will hold a one-day meeting in each country to discuss Component 4 methodology and prepare a National Issue Paper on climate change. This paper will be presented to each country for review and endorsement.

Component 5: Coral Reef Monitoring for Climate Change (Bahamas, Belize, and Jamaica). The Coastal Marine Science Center (UWI/Jamaica) will begin functioning as the archiving and data analysis node for Component 5.

Component 6: Coastal Vulnerability and Risk Assessment (Barbados, Grenada and Guyana). All data for the assessments will be prepared and made available. National reports on the potential impacts of sea-level rise and future socioeconomic activities along the coastal will be drafted.

Component 7: Economic Valuation of Coastal and Marine Resources *(Dominica, St. Lucia and Trinidad & Tobago).* A subregional workshop for Component 7 & 8 countries will take place to present methodologies for both components and update national implementation plans.

Component 8: Formulation of Economic/Regulatory Proposals (Antigua & Barbuda and St. Kitts & Nevis). The project team will visit each of the five countries to prepare and discuss the methodology and implementation plan.

Component 9: Greenhouse Gases (GHG) Inventory and Agriculture and Water Resource Vulnerability Assessment (St. Vincent and the Grenadines). The national communication report will be presented for government endorsement, finalized, and forwarded to the UNFCCC Secretariat.

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

CPACC Administration

Executive Agency: OAS

The General Secretariat of the OAS (GS/OAS) will continue the overall management of CPACC implementation. As executing agency, the GS/OAS will continue its responsibilities for financial disbursements to the RPIU, technical supervision, and overall project quality assurance, as well as acting as liaison between the RPIU, the World Bank, the GEF and the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat. Specifically, during the next six months, the GS/OAS will:

- Coordinate, together with World Bank, UWICED and RPIU staff, a concept paper for the establishment of the Caribbean Climate Change Center and a project proposal for the CPACC follow-up project.
- Assist RPIU staff in the preparations for the Media and Private Sector seminars.
- Prepare background technical documents for the XXXth OAS General Assembly on the topic of climate change, adaptation planning and the Climate Change Center.
- Coordinate, together with RPIU staff, technical and managerial implementation of Components 1, 4, 6 and 9.
- Coordinate, together with RPIU staff, the World Bank's supervision mission, scheduled for March 28-31, 2000. A brainstorming session on the proposed Climate Change Center will take place on March 30, 2000.
- Prepare, in coordination with RPIU staff, financial reports for replenishment from the World Bank.
- Prepare, in coordination with RPIU staff, progress reports and operating plans.
- Participate in international workshops and conferences relevant to CPACC.

Regional Project Implementation Unit: RPIU

RPIU Staff

Although the RPIU now has a full complement of staff according to the project document, it is anticipated that two new additional posts will be made available to support: (1) the Public Awareness campaign to be launched during this planning period and (2) Component 6 as well as follow-up with UNFCCC/COPs guidelines and decisions.

Now that all components are active, the RPIU staff will have to spend much time travelling around the region. To ensure that there is on-going communications within the CPACC network, short-term internships and consultancies will be announced.

Financial Procedures and Reporting

PriceWaterhouseCoopers will complete a procedural manual before the 1999 audit.

Project Sustainability

In the next six months, CPACC/RPIU, UWICED, GS/OAS, World Bank and CPACC's national focal points will finalize a concept paper on the establishment of the Caribbean Climate Change Center. In addition, discussions will begin on developing a project proposal as a follow-up of CPACC. Specifically, CPACC will sponsor a series of brainstorming sessions with regional and international experts to discuss the next steps in project preparation. The first of these

brainstorming sessions will take place on March 30, 2000 during the World Bank supervision mission.

Education and public relations program

The Public Awareness campaign will be launched during this planning period. A consultant has been identified and is under contract to provide technical assistance on the implementation of the strategy.

The GS/OAS, through UWICED, will provide a modest grant to contribute to the implementation of the public awareness campaign. This will supplement whatever resources are available from the contingency budget line, as recommended by the mid-term review.

In the next six months, CPACC will sponsor three international workshops/meetings under the education strategy:

(a) Workshop on Climate Change Awareness for Regional and National Media Representatives will be held April 27-28, 2000 in Trinidad & Tobago

(b) Workshop on Climate Change Awareness for Private Sector Representatives will be held May 15-16, 2000 in Trinidad & Tobago

(c) Training for National Focal Points and Project Advisory Committee representatives on communication skills.

In addition, an education kit and TV clips will be produced during the next six months.

Project Advisory Committee (PAC)

The PAC will meet in July 18-21, 2000, probably in Guyana.

Visits to NICUs

RPIU staff and consultants will visit all participating countries during this period in relationship to CPACC implementation.

National Implementation Coordinating Units

All components are now fully operational and thus, all national focal points and national implementation coordinating units will be very active. National focal points will be called upon to:

- Assist in the education and public awareness campaign. In particular, national focal points will be asked to nominate 3 participants for each of the public awareness workshops;
- Oversee all project implementation activities at the national level;
- Support national training workshops under Component 1 and consultants working on the second GPS campaign;
- Identify the particular software and hardware needs of Component 1 agencies;
- Nominate participants to training workshops under Component 3;
- Support national consultation meetings under Component 4 and identify a national coordinator for this component;
- Provide support for consultants contracted under Components 7 and 8;
- Prepare and submit quarterly reports to the RPIU.

Capacity-building Activities

During this period, CPACC will sponsor a series of training workshops (for more details see relevant component below):

- National workshops will be held to improve technical capacity in the use and application of data from the CPACC monitoring stations (Component 1).
- Regional Workshop on Metadata will be held March 20-25, 2000 in Saint Lucia (Component 3).
- National consultative meetings to prepare National Climate Change Actions Policies (Component 4).
- Subregional Workshop on Economic Valuation and Instruments for Coastal Resources Management will be held in May of 2000 (Components 7 & 8).
- Second national workshop to present draft national communication for St. Vincent and the Grenadines will be held March 23, 2000 (Component 9).

Next six months

The period July-December 2000 will begin with the Annual Meeting of CPACC's Project Advisory Committee and CPACC's National Focal Points scheduled for July 18-21, 2000 in Guyana. Most pilot components will start producing the first draft of their final products. CPACC will participate in the Sixth Conference of the Parties of UNFCCC.

Financial Plans

COMPONENT/ ACTIVITY	Expenditures Year 1 (1)	Expenditures Year 2 (2)	Expenditures Year 3 (3)	Balance from total budget	Expected expenditures Jan - June 00
1	438,529	146,108	55,309	171,552	100,600
2	125,043	20,614	10,985	233,284	37,500
3	---	52,299	108,885	554,517	164,500
4	---	---	21,594	282,257	46,500
5	365	56,991	78,603	257,666	24,900
6	---	19,055	72,734	356,509	112,300
7	---	6,918	51,180	250,901	70,500
8	---	4,951	4,443	182,606	44,500
9	---	29,566	43,294	48,140	27,500
RPIU	222,011	446,456	461,235	939,798	230,000
OAS	133,169	146,998	126,689	275,264	90,050
Contingencies	---	---	62,619	180,361	20,000
Total	919,118	929,958	1,097,570	3,702,855	968,850

Note:
(1) Year 1: April 97 – March 98
(2) Year 2: April 98 – March 99
(3) Year 3: April 99 – March 00 (expenditures claimed as of December 1999).

CPACC Technical Activities

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

Installation of monitoring stations

Completed.

Station Configuration/Equipment Installation

All 18 monitoring stations in the 12 participating countries have been installed. Officials from Suriname have expressed interest in this particular component. The Acting Regional Network Coordinator (ARNC) will travel to Suriname to discuss the possibility of installing a CPACC monitoring station in that country. Funding, if Suriname agrees, would come from Suriname's initial national communication project funded by the GEF, through UNDP. The damaged CPACC monitoring station in Barbados will be re-installed.

Regarding the earth ground station, the ARNC will arrange its transfer and installation at IMA. A strategic plan will be developed to identify training needs and establish guidelines for operations and maintenance of the station.

Operation and Maintenance and Calibration of monitoring systems

The legal agreement between GS/OAS and CIMH for the establishment of the maintenance and replacement fund has been completed and signed. The GS/OAS will transfer US$50,000 to Barbados once CIMH opens a special account at their bank, creates accounts in two or more express courier services in Barbados for shipping of equipment and sets a date for the meeting of the Fund Oversight Committee.

Two "Standard Operating Procedures" (SOPs) will be issued by CIMH regarding ownership of the equipment and the establishment of the replacement trust fund. The first SOP addresses the recommendations presented during the mid-term review, by the consultants reviewing Component 1, that clarification was needed because several countries were unclear as to who owned the CPACC equipment. The SOP will communicate that the equipment belongs to the countries and that they are responsible for its maintenance, operations and insurance. The second SOP will detail the modis operanti of the fund and the responsibilities of all parties involved.

Furthermore, CIMH staff will be assisted in defining their advisory role regarding CPACC monitoring stations, including decision-making procedures to be followed by national agencies in the event of having to remove CPACC equipment when threaten by storms. An annual operating plan for Component 1, covering activities in 2000, including annual swapping and calibration of sensors will be prepared.

The ARNC, the RPIU Public Relations Officer (PRO) and CIMH staff will produce a training manual on how to maintain and operate the monitoring stations. It is expected that this manual will be produced as a CD-ROM for easy distribution. An outline of the training manual is attached as Annex 1.

The ARNC will visit at least 6 of the 12 participating countries during this period to improve technical capacity of national institutions and organizations interested in the use and application of data from the CPACC monitoring stations. Specifically the visits will try to respond to some of the recommendations made during the mid-term review, such as:

- Strengthen technical capacity of the national meteorological offices in retrieving and using data from the monitoring stations;

- Prepare country specific revenue generation strategies to cover the cost of the long-term maintenance and operations of the monitoring sites;
- Increase participation by land survey departments in the implementation of Component 1;
- Increase private sector involvement in the implementation of Component 1; and
- Conduct demonstration of "add-on" and "voice" options to the monitoring stations.

Data Acquisition & Archiving System

Both CIMH and IMA have assumed their responsibilities as Regional Archiving Centers (RACs). The ARNC will prepare a plan and then coordinate a training program for the two RACs participating in Component 1 to improve data quality assurance and quality control (QA/QC), dissemination and product delivery from the CPACC monitoring stations. In addition to the training program, operational procedures for each of the RACs regarding data QA/QC will be issued.

Geocentric Fixing of Bench Marks

The second campaign of GPS surveys will begin during this period. US National Geodetic Services of NOAA is expected to coordinate this task.

Component 2: Establishment of Databases and Information Systems

Assessment of current needs

Completed.

Information System Coordinator (ISC)

The ISC will continue to provide technical backstopping support to the implementation of Component 3 with particular reference to GIS and Remote Sensing elements. Travel associated with this activity will include support and oversight at training events, participation in related initiatives (i.e., OECS NRMU events) and liaising with country representatives.

System Design and Databases

Completed.

System Procurement

Computer systems will be purchased for specific Component 1 lead agencies to facilitate their access and use of data from the monitoring stations and to ensure quality control for those stations under their responsibility. The agencies that will benefit do not currently have any Internet access to the data due to lack of adequate equipment and Internet access. CPACC will provide the computers with the understanding that the agencies will arrange for access to Internet. The specific activities to complete this task will include:

- Identification of Component 1 lead agencies (by ARNC)
- Drafting of MOU between NFP and CPACC specifying responsibilities of both parties (by ISC/ARNC)
- Selection, acquisition, and shipment of equipment to respective agencies (by ISC).

Training Program

Two professional staff members, one from each RACs, will be participating in the Certificate in Geographic and Land Information Systems (CGLIS) at UWI's campuses in Barbados and Trinidad and Tobago.

System Implementation, maintenance and upgrading

(a) Web Management. The web site serves as a major tool for information dissemination to project constituents and the wider public. A UWI student assists the ISC, on a part-time basis, in maintaining and upgrading the web site. Activities for the next six months will include maintaining the CPACC web site, updating the calendar of events, and uploading reports.

(b) Maintenance of the CPACC LAN and information systems. The ISC will continue to maintain and trouble shoot problems at the RPIU, including maintaining and securing systems through data back up and virus protection.

Coordination of National Workshops in Internet Use/SIDSNet

Two more workshops will be conducted during this period. They were cancelled due to hurricane Lenny. Once all workshops are completed, the ISC will compile the national reports into a regional report to be presented to UN SIDSNet.

Component 3: Inventory of Coastal Resources & Use

GIS Installation and Upgrade

CPACC will provide capacity building activities in the area of GIS primarily focussing on the Component 3 repository agencies to support the implementation of this component. In addition, CPACC will provide computer hardware and software where necessary as well as training outside of the structured process associated with the development of CRISs for each country. Specific activities include:

- Financial support for five participants for the 1999-2000 CGLIS program in Barbados and Trinidad and Tobago.
- Acquisition of computer software and hardware to support Component 3 related agencies. This activity is to support those agencies that lack necessary equipment to properly function as repositories for the Component 3 data. Agencies will be requested to provide the following information for CPACC evaluation: requirements by agency and memorandum of understanding or agreement between agency, National Focal Point and CPACC specifying responsibilities of all parties.

Coastal Resources Information Systems (CRISs)

Component 3 has had delays in implementation due to slow responses from participating countries in completion of inputs for the various modules. The delays have taken place despite extensive direct guidance and visits to each country by consultants and RPIU staff between April and July 1999 to discuss extent of work load and in-country commitments required to successfully implement this component. The RPIU has developed a series of strategies to minimize the impact of the delays in the implementation of pilot components as well as further delays in the future: for example, the RPIU established parallel consultation and assessment processes to identify and evaluate data gaps, data needs, and data sources for the pilot components. Components 5 and 6 have been the primary beneficiaries of this process because they are further along in implementation than Components 7 and 8.

The overall impact of the delays has postponed:

- the delivery of the Metadata Catalogue from November 1999 to April 2000. The creation of the Metadata Catalogue will contribute to the data automation process in each country and therefore, is not a critical path activity.
- the collection of new data from March to June 2000. This delay may not effect Components 5 and 6 because of the progress that has been made in the identification of data gaps and needs, and the dialogue, consultation and review established with vendors of remote sensing imagery.
- the delivery of the CRIS software and database from June 2000 to August 2000. CRIS and the capacity building associated with the six modules are the ultimate deliverables of Component 3.

Coastal Inventory Design

Completed.

Compile and Digitize Existing Information

(a) Initial data assessment, identification of data gaps (Module 1) and extraction (Module 2).

The Data Assessment Survey has been completed. The preliminary and penultimate drafts of the report have been submitted and reviewed by the RPIU. Countries are currently reviewing the report and their comments are due by March 15, 2000. The final report will be prepared by March 30.

The metadata collection strategy agreed during the September 1999 Metadata workshop was revised in January 2000. The metadata submissions are due by March 15.

(d) Design Database (Module 3)

A two-phased process has been adopted to review the design of the CRIS database. The initial internal review, by the RPIU and the Data Management Center of the Center for Marine Sciences (UWI/Mona – Jamaica), of the draft database has been completed. The second phase, which is currently underway, involves testing the database with Component 5 data. The prototype of the database will be presented at the Data Automation Workshop (March 2000). Comments received at the workshop will be incorporated into the final revision of the database. The Data Collection Strategy report (Module 4) will also provide inputs into the design of the database. The database/CRIS will be delivered to CPACC countries in August 2000.

Acquire and automate new data

(a) Preliminary assessment of remote sensing options

The data needs for Components 5 and 6 have been defined and conveyed to the Component 3 consultants. In addition, several of the countries have provided the geographic coordinates of the pilot component sites (Bahamas, Dominica, Grenada, Jamaica, and Trinidad and Tobago). Preliminary feasibility and cost estimates for obtaining remote sensing information are under preparation. The iterative cost and feasibility assessment process involves consultants, pilot project lead agency personnel, CPACC RPIU personnel as well as several vendors of remote sensing services. Preliminary cost estimates for the collection of data in the specific areas have been received from Terra Remote Sensing Inc (www.terraremote.com) for LIDAR imagery, Hyperspectral Data International (www.hdi.ns.ca) for CASI imagery and a vendor for Ikonos 2 imagery. The RPIU is now in the process of requesting Terra Remotes and each country to refine the areas designated for surveying, to eliminate extensive areas of land and excessively deep water. The preliminary assessment will provide inputs to the Data Collection Strategy report as well as to the final decision regarding data collection strategies for Components 5 and 6 and for the preparation of performance contracts.

(b) Data Collection Strategy Report

This report will be submitted by the end of March 2000 and will be completed, after internal reviews, by the end of April. Actual data collection is tentatively scheduled by early June 2000. The report will provide a cost effective data collection strategy for pilot projects, the design of a geo-referenced data collection strategy, a QA/QC strategy and inform the design of CRIS. Component 3 consultants have received contact information for the consultants working on the pilot projects to facilitate.

(c) Capacity building: data collection and automation

The data collection and automation workshop will be held in St. Lucia, March 20-25, 2000. The workshop is the second of three formal training activities associated with the development of the national CRIS. The first of these training activities was the Metadata Training Workshop held in Trinidad and Tobago in September 13-17, 1999.

The goal of the workshop is to expose the participants to data collection and data automation techniques in GIS. At the end of the training program, the participants should be able to:

- Design spatial databases for GIS;
- Digitize and edit errors in mapped data;
- Extract specific data from existing records;
- Use GPS and map geographic features;
- Integrate data (scanned images, video); and
- Manage spatial databases.

(d) Preparation of performance contracts for the acquisition of new data

This activity will begin in May 2000 following the submission of the final Data Collection Strategy report in early April 2000 and following final consultations with participating countries regarding country specific data collection strategies.

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

Methodology

A methodology and implementation plan has been developed for Component 4. The methodology proposes that participating countries will need to establish a number of management mechanisms for integrated adaptation planning and management to become a reality. These mechanisms cannot be established concurrently, since in almost all instances considerable resources (human, technical, financial) will be required to establish the policy, legal and institutional structures that are necessary to give effect to these mechanisms. Most importantly, the implementation of appropriate management mechanisms needs to be achieved in a strategic manner, which recognizes existing conditions and restraints.

Accordingly, it is considered that the limited resources that are available under Component 4 should be used to assist each participating country with the formulation of a *National Climate Change Adaptation Policy*. This policy will serve as a mechanism to facilitate integrated planning and management for a cost-effective response and adaptation to the impacts of global climate change.

The draft methodology report will be circulated, early in the year, to a small group of regional and international experts for their review and comment. Once these comments are incorporated, the focal points will be requested to review the report and determine the level of support for the proposed approach.

A team of consultants will be identified and contracted during the first quarter of 2000. A team approach has been chosen given the complexity of the issues involved. The team will have, at a minimum, the following specialists:

- ***Environmental law, policy and institutional expert*** (team leader/coordinator) with proven experience in the development of policy frameworks at the national/regional level and possessing a background in implementing the United Nations Framework Convention on Climate Change in a small island context and demonstrated experience in resource management, disaster response, environmental impact assessments, physical planning, environmental regulation, and building codes/standards;
- ***Environmental and coastal zone specialist*** possessing proven experience in the development of policy frameworks at the national level and with a background in implementing the United Nations Framework Convention on Climate Change in a Caribbean context;
- ***Physical planning specialist*** with experience in the physical planning/environmental impact assessment process in the Caribbean region, and possessing proven experience in the development of policy frameworks at the national level within the Caribbean region; and
- ***Local environmental law and/or public administration specialist*** with experience in national legislative and political process.

Framework legislation

The process selected for drafting the national policy paper includes the following tasks and outputs, which will be implemented in the next 12-18 months:

(a) Identification of climate change issues and Inception Mission: Climate Change Issues and draft "Issue Paper";
(b) Review "Issue Paper";
(c) Development of "Position Paper";
(d) Development of Draft Policy and Strategy;
(e) Development of Final Policy and Strategy; and
(f) Development of Regional Policy and Strategy.

Tasks (a) and (b) will be completed in the next six months.

(a) Identification of climate change issues and Inception Mission.

A regional consultant(s) will be identified and contracted to conduct a desk review in each of the participating countries on the main climate change issues. The consultant(s) will prepare a brief (3-4 pages) paper summarizing the findings.

The project team will receive an initial briefing from CPACC management, and thereafter undertake an inception mission to each participating country. Prior to the arrival of the project team, the focal point in each country will have circulated background documents to key stakeholders, and where possible shall have established a project coordinating committee.

The inception mission undertaken by the project team shall comprise of a one-day meeting in each country with the project coordinating committee and select stakeholders, including amongst others:

- the Ministry/Agency responsible for: climate change activities, national planning, physical planning, environment, coastal/marine affairs, disaster management, tourism, finance;
- Representatives from the private sector: insurance/finance industry, tourism industry, engineering/ construction industry;
- Non-governmental organizations; and
- Coastal communities representatives and users.

The purpose of the meeting will be to review the material previously circulated and discuss the activities that will be necessary for the formulation of a *National Climate Change Adaptation*

Policy and Implementation Strategy. It is foreseen that stakeholders at the meeting will assist the project team in:

(i) Identifying relevant climate change adaptation issues and pertinent adaptation planning and management mechanisms;
(ii) Identifying the nature and scope of an appropriate *National Climate Change Adaptation Policy* and Implementation Strategy, and where possible determining the format and structure of such policy instruments;
(iii) Developing an appropriate process that will lead to the formulation and subsequent adoption of the *National Climate Change Adaptation Policy* and Implementation Strategy at the highest level within government;
(iv) Formulating an appropriate consultation process to guide the development and subsequent adoption of the *National Climate Change Adaptation Policy* and Implementation Strategy;
(v) Developing an appropriate public education/awareness process in support of the *National Climate Change Adaptation Policy* and Implementation Strategy; and
(vi) Identifying a local coordinator/consultant.

Upon completing the inception missions, the project team will prepare inception mission reports, summarizing the outcomes of the one-day meeting with stakeholders. Specifically, each inception mission report will contain an "Issues Paper" presented in a format that can be circulated for review and comment to the project coordinating committee and other stakeholders. The Issues Paper will identify relevant climate change adaptation issues in the context of each country, presenting an overview of relevant social, economic, environmental and institutional aspects. The paper is to establish the background situation against which appropriate interventions will subsequently be formulated during the policy formulation process.

It is foreseen that the project coordinating committee in each participating country will embark upon an extensive consultative process to facilitate the development and subsequent approval (by government and the public at large) of the *National Climate Change Adaptation Policy* and Implementation Strategy. With this in mind, the "Issues Paper" will be presented in a format suitable for use in the consultation process.

(b) Review of Issue Paper

After the Inception Report has been circulated and reviewed by each country (a period of approximately four to six weeks) the project team will return to convene a two-day meeting with the project coordinating committee and other stakeholders. This two-day meeting will focus on:

(i) a critical review of the "Issues Paper" (day 1) during which comments arising from the consultation process shall be evaluated; and
(ii) the identification of appropriate interventions to address identified issues (day 2).

Drawing upon the evaluation of appropriate management mechanisms outlined in this report, the project team will assist the project coordinating committee and other stakeholders in the evaluation and identification of appropriate strategies for climate change adaptation planning and management.

Component 5: Coral Reef Monitoring for Climate Change (The Bahamas, Belize and Jamaica)

Site Selection and Methodology

Refinements in site selection and monitoring protocols will be completed. These modifications were a direct response to recommendations from the mid-term review.

Expand on-going monitoring

(c) Equipment

A computer will be purchased for each coordinating agency to ensure that a dedicated computer is available for data analysis.

(d) Monitoring

The CPACC countries not participating in this pilot activity will have a chance to become fully involved in the network via participation in the First Annual Data Review Workshop that will be held during the period under review.

An agreement will be reached with the Coastal Marine Science Center (CMS/UWI 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). Specifically, the agreement will include funding for the development of a database complementary to the on-going CARICOMP database and funding for a one-year consultancy for a Data Analyst to provide pilot countries with technical assistance and support in data analysis and QA/QC.

Component 6: Coastal Vulnerability and Risk Assessment (Barbados, Grenada and Guyana)

Refinement of Methodology

Completed.

Collection & Evaluation of Information

Most of data required for the implementation of this component has been identified. New data, such as remote sensing images, will be acquired in coordination with Component 3.

Vulnerability Assessment

National coordinators in the three participating countries have been identified and are under contract. The following tasks will be completed during the next six months:

1. Prepare and digitize maps for pilot sites depicting zones of increased erosion and inundation due to future accelerated sea level rise. Inundation will be estimated by superimposing the sea level rise scenarios on existing information on 1:50 and 1:100 storm surge. If this information does not exist the “bathtub” method will be used (inundation to the predicted sea level rise contour). Erosion will be estimated by applying available erosion models (ie, Brunn Rule or historic analysis/extrapolation) to determine the new shorelines and potential land loss due to sea level rise for the different sea level rise scenarios for the years 2020, 2050 and 2100.
2. Identify and digitize the most important infrastructures in the selected areas which could be affected by inundation and erosion in light of the calculations outlined in (1). The replacement cost of infrastructure at risk for the different scenarios will be calculated as well as potential protection options.
3. Analyze the effect of sea level rise on coastal wells and aquifers and the other freshwater resources of the area. This will include an analysis of the potential number of people in the surrounding areas who could be affected.
4. Examine the effect of sea level rise on critical coastal ecosystems, such as coral reefs and mangroves.
5. Identify on-going and planned socio-economic activities in the selected sites that could be potentially affected by sea level rise in light of the calculations outlined in (1).
6. Identify adaptation options for different impacts on infrastructure, socio-economic activities and ecosystems. This task will 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.

The national coordinators for this component will meet on three occasions in the next six months to discuss implementation plans, problems and solutions.

It is expected that one or two international consultants will be contracted to provide technical assistance in the preparation of the vulnerability assessment.

Component 7: Economic Valuation of Coastal and Marine Resources (Dominica, St. Lucia and Trinidad and Tobago)

Methodology Definition

A methodology was prepared, presented and discussed at the December 1999 technical workshop.

A sub-regional workshop will be sponsored by CPACC in conjunction with Component 8 (May, place to be determined). It was determined that the most cost effective way to involve Component 8 countries in the implementation of Component 7 (and vise versa) was to bring the five countries together at a sub-regional workshop (other CPACC countries will also be welcomed). The objective of the workshop is to present the methodologies for both components, to allow country representatives to present an update of their work and to agree on an implementation plan for both components, taking into account possible synergies and collaboration.

Pilot Studies

The consultants working on this component have visited the three participating countries. The Consultants were able to develop a general idea of the resources and uses of each study site and identify a team of professionals to work on the implementation of the component at the national level. Countries have decided on the implementation sites, as follows:

	Proposed Sites	Proposed Sectors
St. Lucia	From the vicinity of Rat Island to the Union River	Tourism Residential properties Fisheries
Dominica	From Roseau to Scotts Head.	Residential and commercial properties (including the road) Tourism (mostly diving and snorkeling) Fisheries Other nature based tourism activities for visitors and locals.
Trinidad and Tobago	From Point Lisas to Waterloo (west coast)	Industrial Fisheries Wetlands Agriculture Residential and commercial land use Domestic recreation

Two international consultants and three country teams will be contracted during this period to implement the following activities:

1. Finalize delineation of pilot sites, specifically landward boundary, uses and resources in consultation with country teams.

2. Collection, by county teams, of all relevant secondary information, including past reports and studies, economic or otherwise, from national or regional sources. Consultants will review and assess the information collected to determine additional secondary data to be acquired.

3. Determine, based on the scope of pilot study, the site and data from the previous task, primary data requirements. Data collection instruments will be drafted at this point in collaboration with each country team.

4. Primary data collection. Using the collection instruments, country teams, supervised by the consultants, will begin collection of primary data. Country teams will begin coding data.

5. Data analysis. The processing of secondary and primary data will begin at this stage. All fieldwork will be completed for the first stage of data collection. Consultants will start producing draft outputs for each country.

In summary, it is expected that by July 2000 the three countries will have identified the pilot sites, collected and assessed secondary information, designed survey instruments, collected primary data in the three sites and produced the first set of results from the analysis of primary and secondary data. The consultants will travel to the three participating countries on several occasions during the period.

Component 8: Formulation of Economic/Regulatory Proposals (Antigua and Barbuda and St. Kitts/Nevis)

Methodology Definition

An agreement has been signed with US NOAA to provide the project with technical assistance in the implementation of this component. The first phase of implementation, to be completed during the period under review, will include:

1. Preparation of a draft budget and work program for the execution of this sub-agreement, including all four phases.
2. Review of the economic instruments that can be utilized to provide flexible, cost-effective alternatives to traditional "command and control" regulatory policies for environmental management of coastal resources.
3. Critical review of the existing legal institutional mechanisms, which will support the use of management-based approaches and to coastal and marine resource management policy information, both traditional and innovative, in response to impacts of climate change and, in particularly, of sea-level rise. This will include the review and evaluation of on-going or completed projects dealing with the application of these approaches within the Caribbean region, and the extent to which they can be applied to climate change impacts.
4. Develop methodologies that would be applicable for the Caribbean region and that are compatible with the general objectives of CPACC and the specific objectives of Component 8.
5. Travel, by the consultants, to each of the pilot countries to present the methodology and consult with appropriate national agencies on the identification of suitable applications and areas where these methodologies could be applied at the national level. A one-day workshop in each of the pilot countries for public and private organizations will be organized to discuss the implementation of the Component and the draft methodologies, and to allow other stakeholders to participate in the process.
6. Design, in consultation with local counterparts in each pilot country, a strategy for component implementation and define the appropriate economic-based-incentive systems to demonstrate the utility of these approaches.

A workshop in conjunction with Component 7 will be organized (see Component 7 for details) to present outputs from Phase I and collect experiences from other CPACC participating countries.

Pilot Studies

Phase II (Implementation of Pilot Studies) will begin in June 2000, by which time the Consultants will have prepared draft terms of reference for local consultants. Pilot studies are not expected to start until the end of summer.

Component 9: Greenhouse Gases Inventory and Agriculture and Water Resource Vulnerability Assessment (St. Vincent and the Grenadines)

The National Communication on Climate Change for St. Vincent & the Grenadines is nearing completion. An outline for the report is attached (Annex).

National Circumstances

The National Circumstances section is written. Maps for inclusion in the final report were ordered from the GIS unit in St. Vincent and the Grenadines.

GHG Inventory

The bulk of the Greenhouse Gas Inventory was completed before the end of the last summer. Some missing information from agriculture and forestry remained at that time. Some of that information has come in but not all of it.

National workshop on results

Completed.

Vulnerability Assessment: Agriculture and Water Resources

The Vulnerability Assessment section has been written. The coastal vulnerability was prepared following Component 6 guidelines. Water resource and agricultural vulnerability sections have been written as well. For water and agriculture, the report provides a framework for addressing vulnerabilities and a reconnaissance assessment of current conditions.

Mitigation and Adaptation strategies were discussed at an earlier workshop and will be discussed again in the final workshop scheduled for March. Greater attention in the region has been given to adaptation although renewable energy seems to make sense as a no regrets investment option particularly for St. Vincent and the Grenadines, which has among the highest fuel prices in the region.

Initial National Communication to UNFCCC

A final report will be produced by mid-March and will be presented during a second national workshop.

Annex 1

Component #1
Training Manual Outline

1. Introduction
2. Site selection and planning features
   (vii) need for reoccupying historic tide stations
   (viii) recovery of existing historic survey bench marks
   (ix) comparison of current and previous tidal data
   (x) location due to oceanographic features
   (xi) location due to climate features
   (xii) security considerations
3. Monitoring Site Equipment Installation
   (i) Tools required
   (ii) Mount the tower base and upper structure
   (iii) Mount the DCP enclosure
   (iv) Mount the Wind Sensor
   (v) Rain tipping bucket/Relative Humidity & Air Temp crossarm
   (vi) Mount the Solar Panel
   (vii) Mount the GOES antenna
   (viii) Mount the sea-level sensor system
   (ix) Wiring the sensor and plugs
4. The Data Collection Platform (DCP)
   (i) Components
   (ii) Front panel operation
   (iii) Laptop computer serial interface
   (iv) System Security
   (v) Operating the DCP system
5. Station Documentation
6. Surveying the Sea-Level sensor for relative stability
   (i) Introduction to sea-level stability checks
   (ii) Surveying Equipment Required
   (iii) Reference Benchmarks
   (iv) Methods of "running" the levels
   (v) Recording the survey
7. Surveying a Sea-Level Monitoring Site for Absolute Measurement Stability
   (i) Introduction to GPS surveying at a sea-level monitoring site
   (ii) Reference points for GPS at a sea-level station
   (iii) Collecting GPS data at a sea-level monitoring site

Annex 2

Initial National Communication on Climate Change for St. Vincent and the Grenadines Outline

Executive Summary

(a) Introduction

National Circumstances

- Geography
- Demographics
- Economy
- Natural Resources
- Legal/Political Structure
- Framework for Addressing Climate Change

Greenhouse Gas Inventory

- Methodology
- Energy Utilization
- Carbon Dioxide Emissions
- Non-CO2 Emissions
- Emissions by Sector
- Energy
- Industrial Processes
- Agriculture
- Forestry & Land Use Change
- Waste Management
- Carbon Sinks
- Uncertainty

(e) Climate Change Vulnerability

- Climate Change Prospects
- Coastal Resource Vulnerability
- Water Resource Vulnerability
- Agricultural Vulnerability

(f) Climate Change Response Strategy

- Policy Response
- Adaptation Measures
- Mitigation Measures
- Constraints – Financial & Technical Needs
- Education, Training, Public Awareness

UPDATE to CPACC's OPERATING PLAN
INCLUDING ACTIVITIES SCHEDULED FOR JANUARY - JUNE, 2000

(based on Monitoring & Evaluation Plan, Annex 12 and Detailed Project Costs, Annex 14 of Project Document)