CPACC

Operating Plan
January – June, 1999

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
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
RPIU	Regional Project Implementing Unit
SIDS	Small Island Development States
UNFCCC	United Nations Framework Convention on Climate Change
UWI	University of the West Indies

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Executive Summary[1]

Project Implementation

During the next six months, the project will reach the mid-point in project implementation. By June 1999, the project should have a fully functioning network for monitoring long-term sea level and meteorological variables. The assessment of the GIS capacity of national institutions will provide a clear road map for the most cost effective and efficient interventions by CPACC in assisting these institutions to fully participate in the pilot activities. Existing data on coastal resources from around the region will be catalogued, and evaluated. Information gaps will be identified for countries to proceed in developing their national coastal resources inventories and for CPACC to acquire the information required for pilot activities. Existing work at the regional and national levels on integrated coastal zone management will be expanded to be able to include issues related to climate change impacts on those resources. The first set of data from the CPACC coral reef monitoring sites will be available for analysis. The national institutional arrangements negotiated and agreed in the past few months will guarantee that the monitoring exercises will continue to satisfy the long-term monitoring of coral reefs. A regional approach to assess coastal vulnerability to climate change appropriate for the Caribbean will be agreed upon and countries will begin to identify their most vulnerable areas and start the process of planning for adaptation. Existing work on economic valuation of coastal resources and economic policies to protect them will have been evaluated and an appropriate methodology chosen for the Caribbean countries. The GHG inventory for St. Vincent and the Grenadines will be completed in draft format to be discussed with national officials.

Three challenges for this period are: (1) ensure that the implementation of Component 3 accompanies the developments and needs of the pilot components; (2) improve the financial and administrative procedures at the University and its relationship to the RPIU; and (3) implement alternative financial and administrative structures for the RPIU.

Component 1: Design and Establishment of Sea Level/Climate Monitoring Network *(Regional)*.

All monitoring stations have been installed. A second continuously operating GPS reference station will be installed in Jamaica. Substantial steps will take place to address issues of continuity, sustainability and strengthening institutional capacity at the Caribbean Institute for Hydrology and Meteorology (CIHM, formally Caribbean Meteorological Institute, CIHM) once the Acting Regional Network Coordinator leaves his post at the end of this planning period. Transference of the ARNC's responsibilities to CIHM staff will be gradual during the next six months.

Component 2: Establish Database & Information Systems *(Regional)*.

The report "Review of GIS capability and needs in CPACC partner institutions" will be ready for public distribution by mid-February. The draft version of this report will be discussed during a meeting of GIS experts scheduled for the first week in February. National agencies involved in Component 1 will receive assistance to purchase computer hardware and software so they can access the Internet and the data directly from their desktops. Extensive on the job training will take place while implementing the coastal resources inventory system. The second edition of the RPIU bulletin will be issued in January 1999.

Component 3: Inventory of Coastal Resources and Uses *(Regional).*

All GIS software will be delivered to the RPIU by the end of January. The new "road map" for this component will be used to guide implementation. The first step will be to assess the status of existing coastal resources information. A summary report on this step will be prepared by April. Subsequently, the data cataloguing and identification of gaps will be completed by using the CPACC adopted metadata guidelines and standards (June). The third module in the road map will consist in designing

[1] This report was prepared by Claudio R. Volonte, CPACC Technical Coordinator at the General Secretariat of the Organization of American States (GS/OAS) and the staff of the CPACC/RPIU located at the University of the West Indies, Barbados.

the coastal resources inventory system database (June). Collection of new data is not expected to begin until July.

Component 4: Formulation of a Policy Framework for Integrated Coastal and Marine Management *(Regional).*

Terms of reference will be prepared for an evaluation of approaches and policies for adaptation to climate change within the context of coastal zone management. Requests for proposals will also be drafted and sent out to selected consultants in the region by the end of the first quarter of 1999.

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

A final version of the monitoring protocols will be issued before the planned sub-regional workshop scheduled for March. The Bahamas will host this workshop. The remaining of the equipment will be purchased and delivered to the participating countries. The first monitoring activities will be completed by the end of March.

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

The draft methodology for coastal vulnerability and risk assessment has been completed. Participating countries received guidelines on how to conduct a rapid assessment of potential impacts of sea level rise on different economic sectors of the country. The sub-regional workshop has been rescheduled to March to present and discuss the proposed methodology, to determine human and institutional capacity as well as specific sites to implement the pilot component.

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

Terms of reference for the development of an approapriate methodoldogy for resource valuation in the region will be finalized and services of a consultant(s) engaged to carry out the task. Once this is completed, a small sub-regional workshop will be organized.

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

Terms of reference will be developed to review existing legal and institutional mechanisms in place in the region to promote environmental protection.

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

The first chapter, “National Circumstances,” of the UNFCCC National Communication will be ready during this period. In addition, local and international consultants will complete a draft version of the GHG inventory for this country. As a demonstration study, three dates will be used as baselines for the inventory, 1990, 1994, and 1997. A second national workshop to present the results of the National Circumstances and GHG Inventory will take place before the summer.

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 disbursements to the RPIU, technical supervision, and overall project quality assurance, as well as acting as liaison between RPIU, World Bank, GEF and United Nations Framework Convention on Climate Change (UNFCCC) Secretariat. Specifically, during the next six months, the GS/OAS will:

- Participate in CPACC sponsored regional activities, such as the third meeting of the Project Advisory Committee (PAC) and the second meeting of the National Implementing Coordination Units (NIUCs, June 1999).
- Participate in international workshops and conferences relevant to the topics of CPACC.
- Provide direct technical and management assistance for the implementation of Components 1, 6 and 9.
- Establish contacts with the government of Colombia and the international donor community to facilitate the incorporation of the Archipelago of San Andres to CPACC.
- Coordinate the 1998 Audit of the CPACC Special Accounts at OAS headquarters and at the RPIU.
- Coordinate the fourth World Bank supervision mission of project implementation.
- Begin preparation for the World Bank mid-term review, scheduled for the summer.
- Produce short summaries and guidelines on different outputs/activities from each of the pilot components for other CPACC countries no participating in the particular pilots. The first two examples will come out of outputs from Components 6 and 9. These short summaries will help CPACC countries in some of the aspects and responsibilities for the implementation of their National Communications to UNFCCC.

Regional Project Implementation Unit: RPIU

The RPIU will continue to perform its role in the day to day monitoring and implementation of the project components. The CPACC/RPIU Project Manager will continue to seek opportunities to promote the project at the regional political fora and to develop strategic partnerships with the private sector. Efforts will be directed towards the establishment of firm linkages with other climate change activities in other Small Island Development States (SIDS) (particularly in the South Pacific) and in Central America. Outputs from the consultancy addressing public awareness aspect of the program are expected to lead to a more effective effort by the RPIU in this direction.

The challenges to the CPACC RPIU for this coming period include:

- Ensuring timely and good quality outputs from the several consultancies which are going to be engaged.
- Addressing institutional arrangements for the long-term sustainability of climate change activities in the region.
- Promoting a higher visibility at all levels of society of the impacts of climate change and the vulnerability of Caribbean States to those threats.
- Streamlining the administrative procedures in the RPIU office, especially financial procedures to ensure effective project implementation.
- Establishing strategic linkages with other climate change groups and with the regional private sector.
- Ensuring that CPACC emerges as the major focal point for all climate change activities in the region.

RPIU Staff

All staff have been contracted during the last reporting period. As the need arises, short-term contracts will be awarded to provide assistance in the relevant areas, e.g. workshop organization, Web site update, documentation.

Financial Procedures and Reporting

Attempts will be made to resolve some of the difficulties encountered during the last reporting period in tracking expenditures and in financial reporting. A reconciliation of expenditures (April 1997 to December 1998) has been commissioned and will be completed by January 1999. Negotiations with Pricewaterhouse Coopers to conduct an internal audit for the accounting process were initiated and it is expected that the audit will be completed by the end of January 1999. An accounting software (ACCPAC) will be purchased in February for use in the RPIU to assist in tracking expenditures. The World Bank audit of the CPACC accounts is also expected to take place by the end of February.

Project Sustainability: The Caribbean Climate Change Center

Discussion will continue with the University of the West Indies (UWI) and the Government of Barbados regarding the long-term accommodation of CPACC. Discussions will also continue with appropriate organizations regarding the establishment of a Climate Change Center in the region. More alliances will be sought with the private sector (insurance, banking, and tourism) for supporting this initiative. Efforts will be made to get political approval for the concept of this regional center at meetings such as the Fifth Meeting of the Council for Trade and Economic Development (COTED) in Jamaica and SIDS Ministerial meeting in May.

A meeting of the three campuses of the University of the West Indies, CIHM, Commonwealth Secretariat, local Government officials, the private sector, and Canadian Climate Change experts was held in Barbados in late October 1998 to discuss the establishment of a Caribbean Center for Climate Change. A sub-committee of eminent University researchers, CIHM and the private sector was subsequently set up to determine the objectives of and mechanisms for the establishment of the center. The recommendations of this sub-committee are expected in January to assist in the preparation of a proposal. This proposal will be submitted for consideration and endorsement to the SIDS Ministers meeting scheduled for March 1999.

Education and public relations program

Terms of reference for the public awareness and education program have been developed. Consultants to implement this program will be contracted by the end of January. Specifically during this six months, this program will concentrate on climate change and sea level rise impacts on coral reefs. Outputs from consultants are expected by the end of June.

Project Advisory Committee (PAC) Follow-Up

The last PAC had recommended the establishment of three Special Working Groups:

- Finances and Sustainability.
- Long-term training program and public awareness and information.
- Technical capacity.

Unfortunately none of these committees have been established although some of their functions are being addressed through the RPIU and the OAS CPACC offices. During this working period efforts will be made to formalize the functioning of the working groups.

The third PAC meeting is scheduled to be held in June and the RPIU will be actively involved in its coordination.

Visits to NICUs

The CPACC/RPIU Project Manager will visit participating countries as the need arises. During this period first visits will be made to Dominica and St. Kitts and Nevis to meet with NICUs and relevant personnel and organizations. Other CPACC staff will visit NICUs regarding implementation of specific components.

CPACC Support of Climate Change Activities in the Region

CPACC will liaise with the Global Change Strategies International, Inc. of Canada and the Center for Clean Air Policy of the U.S.A. to develop and implement a project designed to determine Regional Baselines for the Clean Development Mechanism (CDM) established through the UNFCCC Kyoto

Protocol. This is an outcome of the regional consultation on the CDM, which CPACC co-sponsored during the last reporting period.

CPACC will work closely with UWI and CIHM to develop:

- A post-graduate program on climate change at UWI.
- A regional network for climate modeling.

There will be a follow-up on the recommendations by the Caribbean Group at the Miami meeting held in December 1998. This calls for CPACC to establish linkages with:

- Central American Commission on Environment and Development to facilitate development of expertise in climate modeling techniques and assessment and adaptation planning.
- Pan American Climate Information System (PACIS) to further strengthen mechanisms for the timely dissemination of climate forecast information.

National Implementation Coordinating Units

CPACC will continue to work closely with NICUs to ensure that nationally the appropriate arrangements are in place to facilitate project implementation. In particular, NICUs will be expected to identify relevant personnel and institutions for the implementation of project components. A crucial area for NICUs input is the implementation of Component 3 and it is of vital importance that they ensure that locally all institutional arrangements are in place for the collection of the data that will be necessary for the successful implementation of the pilot components.

Though the information network is now providing an effective medium for contact with the NICUs, there is still room for improvement, especially with the submission of quarterly reports. Improving the CPACC Web site should facilitate more vigorous information exchange between network members.

NICUs will be expected to participate in a NICU meeting before the next PAC meeting and to feed their inputs into this through their selected representatives.

Specifically, during the next working period NICUs will:

- Select representatives to participate in CPACC-sponsored workshops and training;
- Identify local counterpart teams for local project implementation;
- Oversee the local implementation of project components;
- Coordinate visits of CPACC staff;
- Prepare quarterly reports, including accounting of CPACC/NICUs grants;
- Be responsible for the proper functioning of CPACC equipment installed in the respective countries;
- Assist CPACC staff in the identification of local and regional consultants to work on pilot components; and
- Make efforts to raise public awareness on climate change issues in collaboration with the RPIU.

Capacity-building Activities

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

- Continue training on analysis, dissemination and marketing of tidal and weather data for CIHM and IMA staff (Component 1);
- Expert meeting regarding capacity building and CPACC requirements on GIS and metadata (Component 2);
- On the job training on metadata and information systems for national institutions participating in Component 3;
- Sub-regional workshop on analysis of video taped coral reef monitoring data (Component 5);
- Sub-regional workshop on coastal vulnerability risks and assessment (Component 6);
- Sub-regional workshop on economic valuation of natural resources (Component 7).

Next six months

The World Bank mid-term review of project implementation will take place during the next six months (July-December 1999). Some of the expected outputs and impacts of the project should be appreciable by then. Collection of new coastal resources data for Component 3 and the five pilot components will be underway. It is expected that St. Vincent and the Grenadines, through Component 9, will issue the first Initial National Communication report to UNFCCC from the region.

Financial Plans

COMPONENT/ ACTIVITY	Budgeted Year 2 (*)	Expenditures claimed and replenished (**) April – Dec., 98	Expected commitments Jan.-March, 99	Percentage of Year 2 budget
1	$220,771	$131,729	$40,000	78%
2	$162,132	$19,192	$50,000	43%
3	$598,350	$36,974	$90,000	21%
4	$96,900	----	$50,000	52%
5	$163,911	$39,376	$50,000	55%
6	$41,700	$12.008	$29,700	100%
7	$18,000	$4,917	$13,000	100%
8	$18,000	$2,749	$15,000	100%
9	$45,000	$15,226	$20,000	78%
RPIU	$525,572	$359,089	$140,000	95%
OAS	$140,900	$119,656	$20,000	99%
Total	$2,031,234	$740,918	$517,700	62%

Note:
(*) Year 2: April 98-March 99 (includes undisbursed balances from Year 1 budget).
(**) Applications for Withdrawal # 7-11 (#11 is under process at the World Bank)

Technical Activities

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

Station Configuration and Equipment Installation

Although all monitoring stations have been installed a set of spare sensors will be purchased to replace the ones installed in St. Vincent and the Grenadines. The spare parts will be used to start building up the replacement stock at CIHM. Funds for this purchase order will come from funds budgeted for St. Vincent and the Grenadines.

Geocentric Fixing of Bench Marks

Negotiations with the government of Jamaica have concluded and the government is now ready to sign a legal agreement with the OAS for the installation, operation and maintenance of the second continuously operating GPS reference station. It is expected that the document will be signed in early January and by February the reference station will be installed at the N. Manley International Airport-Meteorological Service Upper Air Facility, near Kingstown.

Operation and Maintenance of monitoring systems

The ARNC will produce a final draft of the O&M guidelines for CIHM and each of the national coordinating agencies. Each of participating institutions have received instructions and training on how to performance routine operation and maintenance of the stations during the several visits completed by the CPACC team but they need more long term guidelines. In addition, the ARNC will issue schedules and administrative directives on how to proceed with equipment calibration before he leaves his post at the end of this planning period.

As a trial, the ARNC together with the designated CIHM staff will perform the first annual operation, maintenance and calibration exercise before June 1999.

The CIHM Sub-grant called for by the project document and legal agreement is not due to be established until April 2000 but negotiations between relevant parties have began to prepare the legal documents. It is expected that a first draft of these documents will be prepared for World Bank review by June 1999.

Substantial steps have taken place to address issues of continuity and strengthening institutional capacity at CIHM for the future of this component. It has been agreed, between all parties involved, that transference of the ARNC's responsibilities to CIHM staff will be gradual during the next six months. A proposal was prepared for CIHM's consideration with concrete description of future CIHM responsibilities as the leading agency for Component 1: (a) data quality monitoring; (b) system calibration and maintenance; and (c) production of meteorological products. CIHM has agreed, in principle, with the proposal. CIHM also agreed that progress of this transfer process will be evaluated in early 1999 by an independent evaluator contracted by CPACC and adjustments may be made at that time.

Data Acquisition & Archiving System

Data from the monitoring stations has been available through the CPACC Web site for a few months now. Vitel, Inc., the equipment manufacturer had agreed to create a "user-friendlier" Web site for retrieving the data. The site is still under construction but it should be completed during the first quarter of 1999. This site will be additional to sites to be created by CIHM and IMA to provide regional analysis and summaries of meteorological and sea level data. All sites will be linked.

The transference of the ground station receiving the data from the monitoring stations via the GOES satellite has been rescheduled to a later date (see Progress Report No. 4). It has been decided that the ground station will be located within the region, but it still under review if CIHM is the best location,

mainly because of problems with Internet connectivity. It is expected that during the next six months this will be resolved and the ground station will be transferred to the region.

Component 2: Establishment of Databases and Information Systems

Assessment and system design

The Information Systems Coordinator (ISC) will circulate the report "Review of GIS capability and needs in CPACC partner institutions" among National Focal Points (NFPs) in January. A final version will be ready for distribution by mid-February. A meeting of GIS experts will take place on the first week of February 1999. The meeting will review the assessment and recommendations made in this report, review comparable activities undertaken by other regional initiatives and make specific recommendations for the capacity building in the CPACC countries regarding GIS and metadata. It is expected that the recommendations of this meeting will be incorporated in the strategies adopted by the Consultants contracted to develop the Coastal Resource Inventory Systems (CRISs) in Component 3 including the metadata tool adopted during the data cataloguing exercise.

System Design and Databases

The ARNC is presently finalizing arrangements with Vitel, Inc. for a new Web page and interface to download data from the CPACC monitoring stations. This Web page, accessible through the CPACC Web site, includes a query interface for accessing the information. The Web page should be concluded in the first quarter of 1999.

System Procurement

Computer hardware and software will be purchased for St. Vincent and the Grenadines which recently joint CPACC in early January 1999. In addition, the ISC will assist the National Focal Point to create a national climate change web site using the CC:TRAIN format provided for this task.

Selected computer hardware and software will be purchased for national agencies involved in the implementation of Component 1. It has been recognized by the ARNC and ISC that several of these agencies do not have adequate computer hardware, software or access to the Internet or e-mail. There are several reasons for this proposal: (1) Internet access to data coming from the monitoring stations is one of the main objectives of CPACC; (2) this task requires some level of sophistication on computer hardware and software which is not present in most national agencies; and (3) there were some savings from the previous purchase of computer equipment to National Focal Points. This proposal will include several steps such as identifying agencies, signing appropriate agreements and selection, purchase and delivery of the equipment. It is expected that this task will be completed by the end of April 1999.

Training Program

Originally, a workshop on Metadata and Information management was scheduled for November 1998. This was planned as a follow-up activity to the training and materials received during the May 1998 workshop. The activity has been restructured due to the new "road map" for Component 3. Training will now take place as hands-on and on the job training within the context of the CRIS implementation. Consultants contracted for Component 3 will conduct the activity. Although consultants will be working starting by the end of February, the hands-on training will not likely be undertaken until the second quarter of 1999.

System Implementation, maintenance and upgrading

(a) Draft Plan

The elements and budget of the draft Technical Support, Maintenance and Systems Upgrading Plan will be concluded by February 1999, although this plan will have flexibility to address unplanned events and changing technologies. In addition, the plan also includes a review of additional equipment and maintenance needs for CPACC donated equipment and equipment related to planned activities. This review will not commence until the end of June 1999.

(b) CPACC Web Site Management

A report has been issued that includes an assessment of the Web site and recommendations for improvement. Once this report is reviewed and approved, the implementation of its recommendations will commence in January and conclude in February. Updating of the Web site will be a continuous exercise, particularly in terms of the "What's New" page.

(c) RPIU Bulletin

The second edition of the RPIU Update will be issued in January 1999 with monthly publications thereafter.

(d) RPIU Documentation Center

The development of a specialized Documentation Center in the RPIU will be advanced with the cataloguing of publications. A student or part-time assistant will be employed on a temporary basis to develop the catalogue and organize the documents using Procite software. This is expected to commence by February 1999 and all existing documentation should be documented by March 1999.

Component 3: Inventory of Coastal Resources & Use

GIS Installation/Upgrade

The GIS software, IDRISI has been received recently by the RPIU. The ESRI suite of GIS products will be delivered to the RPIU by the end of January. The software will be used to review existing GIS data and to examine and assess prototype CRIS products.

Coastal Resources Information Systems (CRISs)

The new implementation plan for Component 3 includes the following modules[2]:

(i) Data assessment;
(ii) Data cataloguing;
(iii) Database design
(iv) Data collection
(v) Data automation/Conversion
(vi) Data management

The first four modules will be active during the next six months. The implementation plan was designed to ensure that the major objectives of Component 3 are achieved by defining the execution process, critical technical considerations and criteria for execution. The allocation of responsibilities to the various stakeholders involved in the implementation process was developed by:

- Identifying strategic coastal resource information requirements necessary to support the execution of each of the CPACC pilot project components;
- Developing a comprehensive check-list of coastal resources that will be used to assess and catalogue existing coastal resource information, and to identify information gaps;
- Designing the information collection strategy for each participating country based on a common database model; and
- Developing quality control, quality assurance and product assessment for the information cataloguing process.

All NFPs and relevant regional organizations will be notified by the end of January about the new proposed process, scheduled activities and responsibilities. In the meanwhile, consultants for this component will be selected and contracted by mid-February. The proposed workshops for Components 6, 7 and 8 in March will identify data and information required specifically for the implementation of these components.

[2] For more information refer to Progress Report No. 4 for a copy of the "Technical Implementation Guide for Component 3: Inventory of Coastal Resources and Uses – GIS Database."

(i) Data Assessment

The objective of this module is to assess the status of coastal resources data in each of the participating countries. Specifically, during the next six months, a questionnaire for data assessment will be designed and later administered to CPACC national counterpart institutions (March). The analysis of the responses to the questionnaires will be summarized in a report due in April.

(ii) Data Cataloguing

The data cataloguing will be implemented by developing metadata guidelines and standards. Metadata standards provides a consistent approach and format for the description of data characteristics through a common set of terms and definitions used when documenting data sets. A first step in training participating institutions in the use of metadata software was completed during a workshop in May 1998. At the end of 1998, CPACC developed a metadata structure. On the job training is proposed for the next six months while consultants travel to each of the CPACC countries to initiate the catalogue of data.

The metadata catalogue of existing coastal resources information and uses will be completed by the end of June. At this point, gaps in existing coastal resource information will be identified.

(iii) Database design

It is expected that by the end of April 1999, the structure for the inventory of coastal resources and uses database will be designed. Several options for database design are under consideration at this point, such as corporate-wide database (user-centered/flexibility of use), data-driven, GIS-based or WWW-based (HTML ready). The selection will depend on the type and spatial relationship of data as well as on the agencies and institutions involved and their inter-relationships. The database design document will be ready for the end of June. Some of the questions that will guide the database design include:

- What data is needed to support the required and planned applications:
- What is the positional accuracy required?
- How should the data be partitioned? By: themes/layers; administrative boundaries; watersheds; distribution districts.
- Should the database be distributed or centralized?
- What is the target GIS platform, data format and database structure?

(e) Data Collection

The data to be collected in each country will be based on the data assessment exercise previously completed and under the assumption that all primary data collection will be restricted to those geographic areas and themes that relate to the pilot projects. It is expected that by the end of May a geo-referenced data collection strategy as well as data collection forms will be prepared. In addition, for each type of data, a quality assessment/quality control strategy will be also prepared. Collection of new data will begin by the end of June. One of the outputs of this module will be the design of a collection program for new data for each of the 12 participating countries.

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

Terms of reference will be prepared for an evaluation of approaches and policies for adaptation to climate change within the context of coastal zone management. Requests for proposals will also be drafted and sent out to selected consultants in the region by the end of the first quarter.

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

Site Selection and Methodology

Terms of reference and contracts will be prepared for technical assistance on training, database design, site selection and monitoring protocol preparation. All contracts will be awarded by the end of January and output will be ready for the planned sub-regional workshop in March (see below).

Expand on-going monitoring

(a) Equipment

CPACC has procured two digital video cameras (DVC) with accessories and one underwater DVC housing. Two more cameras and three more housings are to be acquired in January 1999. All equipment will be delivered during the first two weeks of March 1999.

(b) Technical Assistance

Arrangements will be made to have a sub-regional workshop in the Bahamas on site selection, monitoring and data analysis in March. The workshop will promote consistency in the coral reef monitoring and data analysis activities conducted in each pilot country. It will also facilitate the establishment of a CPACC monitoring site in the Bahamas, the latter having less institutionalized experience in coral reef monitoring than either Belize or Jamaica.

The first monitoring activities will be completed by the end of March in each of the participating countries. Data generated from the monitoring activities in the three participating countries may be analyzed at a central data analysis facility. Analysis should begin in April 1999 and be completed by June 1999. In this regard, discussions are underway with the Manager and Director of the Data Management Center at the Center of Marine Sciences, University of the West Indies, Jamaica.

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

Refinement of Methodology

A draft methodology has been produced for coastal vulnerability and risk assessment in the Caribbean, based on the several existing methodologies, including the one from IPCC. In addition, each participating country in this pilot activity has received guidelines on how to conduct a vulnerability screening assessment. This rapid assessment method consists in completing a matrix which rows present the bio-geo-physical impacts of sea level rise (i.e., inundation, erosion, flooding, salt-water intrusion) and columns cover different socio-economic sectors relevant to the country (i.e., tourism, human settlements, infrastructure, agriculture, water supply, fisheries, human health). This exercise will be completed at the national scale with particular sites as examples.

By the end of February 1999, a CPACC team will visit the three countries to evaluate progress in the screening assessment exercise, meet with national agencies working with coastal resources, discuss the proposed methodology, identify local consultants, and start preparation for the first sub-regional workshop, including identification of potential participants.

Sub-regional workshop

It is proposed that a first sub-regional workshop for this component be held by March 1999, possibly in Barbados. The workshop will have the following objectives:

1) Review existing models for coastal vulnerability analysis and risk assessment for climate change impacts;
2) Review coastal vulnerability assessment experiences in the region;
3) Present national reports from the vulnerability screening assessment exercises in each of the participating countries;
4) Assess government capacity to implement component;
5) Present proposed assessment methodology and finalize its adaptation to the Caribbean situation, including identification of necessary data;
6) To determine human and institutional requirements, work program and time table for component implementation;
7) To determine specific national sites to implement the component.

Participants to this workshop will be representatives of government agencies and NGOs with responsibilities and functions in coastal zone management, collection and analysis of environmental information (preferably already working in Components 2 and 3), physical planning and tourism.

Collection of Information

The proposed methodology includes a list of data that it is considered necessary to conduct coastal vulnerability assessments. The actual collection of information for the particular participating countries, both existing and new, will depend on the outputs from the screening assessment, country visits by the CPACC team, sub-regional workshop and implementation of Component 3. A team of international experts and local consultants will be contracted by the end of May 1999 to work throughout the implementation of Component 6. Specifically, during this period, these consultants will assist those working on Component 3 on the collection and assessment of existing information for Component 6. It is expected that by the end of the summer (August 1999) each country will have a national report describing existing data and proposing a strategy for collecting new data.

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

Terms of reference for the development of an appropriate methodology for resource valuation in the region will be finalized and the services of a consultant(s) engaged to carry out the task. In developing this methodology, the consultant(s) will take into account related studies that have been carried out in the region, current methodologies employed for resource valuation and environmental accounting and select, in consultation with pilot countries, a suitable area for the execution of the pilot study.

This will be followed by a small workshop conducted by the consultant(s) and involving a senior technician from each of the pilot countries to discuss and refine the proposed methodology and to work out the details for the implementation of the pilot study. The senior technician identified should be the prospective local coordinator for the small team of local personnel who will be responsible for carrying out the pilot studies under the guidance and supervision of the international consultant(s).

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

Terms of reference will be developed for:

- Review of existing legal and institutional mechanisms in place in the region to promote environmental protection.
- Any innovative approaches for environmental regulation including the use of economic instruments.
- Design a program based on best practices for the use of economic and other innovative regulatory approaches to environmental protection specifically in response to climate change impacts.
- In coordination with a multidisciplinary team identified in both pilot countries, the consultant(s) will finalize the design of the program and define concrete plans for the initiation of the pilot studies.

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

National Circumstances

A first draft of the “National Circumstances” (first chapter of the initial national communication to the UNFCCC) will be ready by late February, 1999. It will detail national and regional development priorities, objectives and circumstances on the basis of which the country will address climate change and its adverse impacts as well as information relevant to climate change.

GHG Inventory

The GHG Inventory will be completed during the first quarter of 1999, as a first draft, to be presented and discussed at a second national workshop scheduled for the second quarter. The consultants have begun the collection of data from sources and sinks that will be entered in the worksheets adapted from the IPCC methodology. It was decided to use three baseline dates for the collection of data, 1990, 1994 and 1997, instead of only one as required by the IPCC methodology since St. Vincent and the Grenadines is one of the first countries in the region to go through this process and its

experience could be used throughout the region. Conversion factors will be used to calculate the energy consumption and the GHG emissions to arrive at sources of sinks for GHG in St. Vincent and the Grenadines.

National workshop on results

This second national workshop will be organized after the first draft of the GHG inventory is completed. The objective of this workshop is to present the results of the inventory, to determine what elements to include in the national circumstances and to discuss a plan of action for implementation of recommendations and follow-up activities as well as for education and public awareness.

UPDATE to CPACC's OPERATING PLAN

INCLUDING ACTIVITIES SCHEDULED FOR JANUARY – JUNE, 1999

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