



Operating Plan

July - December, 1999

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

July 15, 1999

Organization of American States

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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 (July –December 1999) will be a period of evaluation and reflection on project performance to date. The following tasks will be undertaken:

Midterm Review. A mid-term review of project implementation will be conducted in September – October 1999. The review will assist the GS/OAS and the World Bank in identifying positive experiences, implementation problems and bottlenecks in order to fine-tune the project and determine any needs for modifications during the second half of project implementation. In particular, the mid-term review will evaluate the efficiency and impact of the various components, monitoring and evaluation procedures, and the effectiveness of regional and national institutional development activities. Several independent consultants have been contracted to prepare materials that will facilitate the review process.

Climate Change Center. Efforts to further the establishment of a Climate Change Center in the Caribbean will focus on attaining wider support for it by seeking further strategic alliances with the private sector and international agencies.

Fifth Conference of the Parties (COP5). CPACC will actively participate in the Fifth Conference of the Parties (COP5) of the UNFCCC. In coordination with the GEF Secretariat, CPACC will organize meetings and prepare presentations for the Caribbean delegations and other interested parties.

Relocation of RPIU Facilities. During this period, the RPIU office will be relocated to premises provided by the Government of Barbados. In administrative terms the RPIU will still be within the University of the West Indies. It is expected that the move will be completed by the end of August. Staffing requirements resulting from the departure of the Deputy Project Manager will also be addressed.

Financial Reporting. Financial reporting will be improved, in terms of timeliness, in both the GS/OAS and the University.

With regards to project activities, Component 3 will be the center of attention during the next six-month period. Efforts will focus on completion of the new implementation work plan and timetable.

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

The first round of annual equipment calibrations will be conducted by CIMH. A training video will be produced. IMA and CIMH will assume their responsibilities as Regional Archiving Centers (RACs). The second CORS station will be installed in Jamaica.

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

CPACC will collaborate with the execution of the UNDP sponsored project: SIDSnet in the Caribbean. An audit of CPACC equipment will be conducted to ensure Year 2000 compliance. Computers will be purchased for several national counterpart institutions participating in Component 1 to facilitate their access to the Internet.

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

Consultants will begin work on developing a coastal zone inventories framework for each of the participating countries and identifying existing data for pilot components. The tasks that will be completed during this period include: preparation of an information assessment survey, assessment of existing information, development of database design and metadata, collection of data and identification of data gaps. All participating countries will be visited.

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 and Ian King. The report was presented, discussed and endorsed at the Third Project Advisory Committee (PAC) meeting held in Barbados, July 8-9, 1999.

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

Consultants will review and analyze existing policies, legislation and institutional mechanisms related to coastal zone management in the context of adaptation planning for climate change.

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

In-country institutional arrangements will be finalized. Monitoring activities will begin and data will be analyzed.

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

Three national coordinators will be identified for the implementation of national activities. Tasks to be completed during this period include: finalizing list of sites, reviewing and analyzing institutional arrangements, identifying human and technical resources, evaluating existing information, and selecting climate change scenarios.

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

The draft methodology for economic valuation will be completed. A sub-regional workshop for participating countries will be organized to discuss work plan and timetable.

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

A comprehensive review of economic instruments for adaptation to climate change will be prepared followed by consultations with national counterpart institutions.

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

The GHG inventory will be completed. A first draft of the vulnerability assessment for the water and agricultural sectors will be prepared. The interim Initial National Communication to UNFCCC, as defined in the project document, will be ready for presentation to the UNFCCC Secretariat.

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:

- 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 Coordinating Units (NICUs). These two meetings were rescheduled from June to July 1999 due to conflicting scheduled activities.
- Coordinate, together with RPIU staff, the World Bank's mid-term review of project implementation.
- Ensure that the GS/OAS establishes efficient procedures for submitting and receiving replenishments from the World Bank and sending replenishments to the RPIU.
- Provide, in coordination with the RPIU, technical and managerial assistance with the implementation of Components 1, 6 and 9.
- Participate, as an official observer, in the fifth Conference of the Parties (COP5) of the UNFCCC. Coordinate with the GEF Secretariat and the RPIU, the preparation of presentations, press releases and display/exhibition booth as a way of promoting CPACC during the Conference
- Prepare, in coordination with RPIU staff, progress report and operating plan for January – June 2000.
- Continue to produce concise summaries and guidelines on the various outputs/activities resulting from the pilot components as a mechanism for the dissemination of information to CPACC countries not participating in the pilot activities. These summaries will aid CPACC countries in the implementation of their National Communications to UNFCCC.
- Continue efforts to ensure that the municipal government of the Archipelago of San Andres, Colombia, has access to CPACC activities and outputs.
- Participate in international workshops and conferences relevant to CPACC.

Regional Project Implementation Unit: RPIU

The RPIU will be relocated during this period and will occupy premises provided by the Government of Barbados. In administrative terms, the RPIU will still be under the University of the West Indies. It is expected that the move will be completed by the end of August. Staffing needs resulting from the departure of the Deputy Project Manager will be addressed.

With the final report of the consultancy on public awareness available there will be much greater attention paid to this aspect of our work. There is a need to promote greater visibility of climate change issues in the Caribbean and the RPIU will work with the NICUs to develop an effective campaign in this area.

During the coming period the RPIU will be engaged in the following activities:

- PAC and NICU meetings and follow-up activities arising from them;
- Implementation of project components with particular emphasis on the implementation of Components 2, 3, 5 and 6. The remaining components will become under full implementation during this period (Components 4, 7 and 8).
- Coordinate activities under the implementation of the UNDP program SIDSnet in the Caribbean.
- Implementation of the recommendations put forth by Price Waterhouse with regards to RPIU financial procedures.
- Furthering institutional arrangements to ensure the long-term sustainability of climate change activities in the region (MSc. program, regional climate modeling, climate change center);
- Assistance with Coordination of World Bank mid-term review ;
- Participation in the UNFCCC Fifth Conference of the Parties.

RPIU Staff

With the departure of the Deputy Project Manager, staffing requirements at the RPIU will be reviewed. A short-term contract, financed by the UNDP will assist the ISC in the implementation of SIDSnet training program.

Financial Procedures and Reporting

RPIU staff will be trained on the updated UWI financial management systems and will be given access to UWI computerized accounting system. Internally, actions will be taken, in as far as possible, to implement the recommendations put forth by Price Waterhouse with regards to RPIU financial procedures.

Project Sustainability

A majority of the efforts to ensure project sustainability will focus on rallying wider support for the Climate Change Center, by seeking further strategic alliances with the private sector (insurance, tourism, banking) and international agencies (CIDA, DFID, UNDP, IDB). Work will be undertaken, in collaboration with the University, to finalize the syllabus for the MSc. program on climate change.

During the forthcoming period, Environment Canada, (a Canadian government agency), and the RPIU will organize a regional consultation to consider furthering the following initiatives:

- Climate change Center;
- MSc. program on Climate Change; and
- Regional modeling network.

Education and public relations program

The report from the consultants on a CPACC strategy for this activity will be available and the RPIU will commence on its implementation. Full implementation will require the identification of national entities. One package prepared by the consultants will address teachers and secondary school students. These will be distributed, via CPACC's NFPs but direct contact will also be made with teacher's organizations and Ministries of Education to promote the use of these materials.

More interactions with the regional media will be promoted to ensure a wider dissemination of climate change information in the regional press.

Project Advisory Committee (PAC) follow-up

The formation of the three working groups recommended by the PAC at its last meeting will take place during this period. The working groups will address the following issues:

- Finance and sustainability of the project;
- Long-term training program (distance education at UWI, for example) and public awareness and information; and
- Technical capacity.

Visits to NICUs

The RPIU technical staff will continue missions to selected CPACC countries to meet with the NICUs. These meetings will address the effective functioning of the NICUs and in particular, will clarify their roles and responsibilities in the implementation of Component 3.

CPACC Support of Climate Change Activities in the Region

Wherever possible, CPACC will seek to promote relevant Climate Change activities in the region. To this end, CPACC is cooperating with a global UNDP/GEF project that provides technical support for completing UNFCCC National Communications. CPACC is also cooperating with Environment Canada to promote a pilot project in St. Kitts and Nevis (and maybe Barbados) on "Greening Governments." CPACC will use its network of national and regional institutions (what network) to organize a regional consultation before COP5 to be held in Barbados. The feasibility of regional membership of the IAI will be explored with the intention of providing an avenue for the support of climate change activities in the region. Support for a regional study on "regional baselines" and regional projects under the CDM will continue to be explored.

National Implementation Coordinating Units

This will be a crucial period for NICU operations, as all project components will be operational. Critical to the implementation of several components will be the execution of Component 3. To this end, the consultants chosen for this component will meet with the NFPs, at the NICU meeting scheduled for July, to ensure that there is a full appreciation of their role in the implementation of this component. The NICUs will be asked to:

- Support the implementation of Component 3 through the identification of relevant counterparts and lead agencies and facilitating the access to relevant data and information.
- select sites for Component 6 and 7 and identify local counterparts;
- identify local counterparts for Components 4 and 8;
- oversee all project implementation activities at the national level;
- assist in the education and public awareness program;
- prepare and submit quarterly reports to the RPIU; and
- provide support for consultants hired for the World Bank mid-term review.

Capacity-building Activities

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

- Continue training and analysis, dissemination and marketing of tidal and weather data for CIHM and IMA staff (Component 1);
- On-the-job training on metadata and information systems for national institutions participating in Component 3 (rescheduled from previous six-month period due to delays in awarding contract);
- Regional workshop on metadata and database design;
- Sub-regional workshop on economic valuation of natural resources (Component 7);
- Second national workshop to present results of GHG inventory for St. Vincent and the Grenadines (Component 9).

Next six months

The World Bank mid-term review and the third PAC meeting will provide guidance on how to proceed in the next six months (Jan.-June 2000). Efforts will continue to secure endorsement and concrete actions for the establishment of the Caribbean Climate Change Center. Component 3 will continue to be the center of attention, in terms of both financial and human resources, to ensure its completion.

Financial Plans

COMPONENT/ ACTIVITY	Budget Year 2 (1)	Expenditures claimed and replenished April 98 – March 99 (2)	Balance Year 2	Year 3 Budget (3)	Expenditures April – May 99 (4)	Expected expenditures June – Dec 99
1	\$220,771	\$178,563	\$42,148	\$89,248	\$5,866	\$95,000(5)
2	\$162,132	\$25,368	\$136,764	\$180,314	\$6,049	\$58,000
3	\$598,350	\$52,298	\$546,052	\$663,402	\$9,023	\$160,000
4	\$96,900	----	\$96,900	\$134,750	\$5,379	\$40,000
5	\$163,911	\$54,355	\$109,556	\$202,056	\$41,762	\$33,000
6	\$41,700	\$19,055	\$22,645	\$228,145	\$17,461	\$50,000
7	\$18,000	\$6,918	\$11,082	\$232,082	----	\$60,000
8	\$18,000	\$4,951	\$13,049	\$187,049	----	\$40,000
9	\$45,000	\$29,565	\$15,435	\$91,435	\$6,811	\$50,000
RPIU	\$525,572	\$512,932	\$12,640	\$525,140	\$72,624	\$390,900
OAS	\$140,900	\$180,886	-\$39,986	\$131,257	\$39,582	\$65,000
Contingencies	\$68,450	----	\$68,450	\$127,700	---	\$50,000
Total	\$2,099,626	\$1,064,891	\$1,034,735	\$2,792,578	\$204,566	\$1,091,900

Note:

- (1) Year 2: April 98-March 99 (includes undisbursed balances from Year 1 budget).
- (2) Applications for Withdrawal # 7-13
- (3) Year 3: April 99-March 2000 (includes undisbursed balances from previous years)
- (4) Application for Withdrawal #14 under process
- (5) Includes \$50,000 for CIMH Trust Fund ahead of schedule

CPACC Technical Activities

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

Installation of monitoring stations

Completed.

Station Configuration/Equipment Installation

Spare parts for the sensors will be purchased to start stockpiling replacement parts at CIMH (this activity was postponed from the previous period due to a shortage in project funds).

CPACC will reinstall the equipment at the monitoring site in Barbados, damaged by a Dutch vessel early in the year. The government of Barbados will purchase the new equipment with funds from the insurance company.

<p>Spare parts Wind monitor (RM Young) Barometric Pressure sensor (RM Young) Gel cell batteries (Yuassa 24 amp. Hour) Temperature sensors (Vitel Cal/Range) Relative humidity/air temperature sensor (Vaisala) Additional cable Additional tubes and kits for the acoustic sensor</p>
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Operation and Maintenance of monitoring systems

CIMH, with assistance from the ARNC, will conduct the first round of annual equipment calibrations at CIMH headquarters in Barbados. In addition, all sites will undergo the first annual stability check survey.

The ARNC, in coordination with CIMH, IMA and the RPIU, will prepare a training video on how to properly maintain and operate the monitoring stations. The reinstallation of the damaged equipment at the monitoring site in Barbados will be captured on video and this footage will be used to prepare the training video. Upon completion, the video will be distributed to all national counterpart institutions. In addition, documents describing each of the monitoring sites will be completed and posted on the CPACC web site.

CPACC will transfer the earth ground station from its present location at Vitel, Inc. to a site to be determined taking into consideration the results of the mid-term review and the PAC Meeting.

Negotiations between OAS, World Bank and CIMH will conclude and the legal document establishing the CIMH Replacement Trust Fund will be finalized. The seed funds (US\$50,000) provided by the CPACC grant will be transferred to CIMH.

Data Acquisition & Archiving System

IMA will assume its responsibilities as a CPACC RAC for sea level data. During this period, IMA will implement a data archiving and dissemination program through its web site.

CIMH will also assume its responsibilities as a CPACC RAC for meteorological data.

An agreement has been reached with the US National Weather Service to provide access to meteorological data collected from the CPACC monitoring sites through the existing STAR-4 system. This system already delivers real-time data to all meteorological offices in the Caribbean. CPACC data will be additional. During the next six months, CPACC will assist meteorological officials in member countries with the retrieval of this data.

Geocentric Fixing of Bench Marks

The installation of the second continuously operating GPS reference station (in Jamaica) will be completed in July. Technicians from the National Meteorological Office will be trained on the maintenance and use of the Differential GPS (DGPS) equipment purchased by the government of

Jamaica as add-on to the CORS. The GPS will provide real-time, accurate GPS positions for surveyors and marine navigators with GPS receiving units.

Component 2: Establishment of Databases and Information Systems

Assessment of current needs

Completed.

Information System Coordinator (ISC)

The ISC will attend the ESRI User's Conference in San Diego, California scheduled for July 24th - 29th 1999. In addition to providing valuable networking opportunities, the conference will allow the ISC to review developments and experiences in the application of geomatics, particularly with regards to coastal environments and developing countries.

The ISC will take on the additional responsibility of managing the Client-Server network. As a result, additional training is expected to be necessary in the area of systems administration.

System Design and Databases

A consultant will be contracted to undertake additional activities relating to database development under Component 3.

System Procurement

The ISC and ARNC will finalize arrangements to purchase computers and software for agencies participating in Component 1. These computers will be used for data management and direct Internet communication purposes.

Training Program

Staff from IMA and CIMH will continue training, as needed, to ensure that these institutions fulfill their responsibilities as CPACC RACs. In particular, staff from CIMH will travel to the US National Weather Service in Washington, DC to receive training on quality control and analysis of meteorological data from the monitoring sites.

The implementation of Component 3 is expected to require the convening of up to three workshops between July 1999 and June 2000. As a result, the remaining funds under this line item will be utilized to fund these workshops.

System Implementation, maintenance and upgrading

During this period, the RPIU will acquire and install software to ensure Year 2000 compliance. In addition, CPACC will refund countries for expenses generated by activities undertaken to ensure that CPACC equipment meets Year 2000 compliance only when the country has or will exhaust the annual US\$3,000 grant provided by CPACC.

The ISC will continue to maintain and upgrade the CPACC web site to facilitate effective communications within the project. The Web site is also an important information dissemination tool and will be updated in a timely fashion.

The ISC will also continue to maintain, trouble shoot and upgrade the RPIU's information system to facilitate effective project management and communication.

(a) RPIU Update

During this period, two quarterly bulletins will be produced. These will be circulated via e-mail, the CPACC Web site and, in hard copy, to various individuals and institutions.

Coordination of National Workshops in Internet Use/SIDSnet

CPACC and SIDSnet signed a Memorandum of Understanding in June of 1999 for the coordination of training workshops in 10 Caribbean countries. The workshops will be undertaken between July and September 1999. The CPACC/RPIU will coordinate the workshops and SIDSnet will meet expenses. SIDSnet will support a part-time technical assistant for the ISC to facilitate the activity.

Component 3: Inventory of Coastal Resources & Use

GIS Installation/Upgrade

CPACC/RPIU will sponsor the participation of two individuals from participating countries for the Certificate in Geographic and Land Information Systems (CGLIS) to be conducted at the Center for Resource Management and Environmental Studies (CERMES) in the Cave Hill campus of UWI. The candidates should be selected by early July 1999 so that they can begin taking courses in October 1999.

Where necessary, CPACC will provide limited financial support for the purchase of GIS software and hardware to implement this component.

Coastal Resources Information Systems (CRISs)

A three-phase strategy for the implementation of the CRIS for the region and for each participating country has been developed. It is expected that Phase I will be completed by the end of 1999 and Phase II will begin during the next six months. Relationships between phases and their modules are presented in the figure below. The timetable for implementation is also presented in the same page.

CRIS implementation phases
I. Data assessment, cataloguing and design
II. Data collection, automation and implementation
III. Training and decision making

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

Module I: Data Assessment

The objective of this module is to assess the status of coastal resources management data in each of the participating countries through a national survey and questionnaire. In particular, during the next six months consultants involved in Component 3 implementation will identify key agencies and data sources, evaluate data, identify data gaps and identify hardware, software and human resources. The critical factors that are required for the success of this module include: appropriate choice of respondent based on knowledge of subject matter, availability of time to respond, completeness of information provided, and quality of information provided and effective coordination and management of the national survey by the NFP.

Module II: Data Cataloguing and Metadata Standards

This module will establish a data catalogue for coastal resource inventories in each of the participating countries by developing and providing a metadata standard, cataloguing existing data and implementing an Internet clearinghouse. The success of this module at the national will depend on the successful completion of the previous module, NFPs arrangements to access information to create the metafiles, cooperation of technical counterpart staff with consultants and assignment of technical personnel to prepare the metadata from data sources.

Module III: Database Design

The objective of this module is to develop a database system and management strategy for the coastal resource inventory by designing a database for spatial and non-spatial data, identifying the key system functions, developing a data management strategy, identifying hardware and software requirements and developing a system prototype. Each participating country will need to designate a national data repository, make equipment available, involve end users and make institutional arrangements for establishing an on-going process for database management at the national data repository.

(b) Phase II: Data collection, automation and implementation

Module IV: Data Collection

Once existing data has been assessed, the project will collect and compile new and existing baseline coastal resource data for each participating country through the design of a data collection strategy. The module will succeed if there is inter-agency support for the data compilation and collection program and the repository agencies take over the data collection program once it is established.

Module V: Data Automation/Conversion

Baseline coastal resource data collected will be converted into digital form. The module will design a data automation/conversion strategy, acquire necessary hardware and software, convert the data to digital form and verify the quality of the resulting data. The success of the module will depend on the adequacy of data automation training and quality assurance and quality techniques as well as on the confirmation by national counterpart agencies that adequate resources for data automation and conversion have been allocated.

(c) Phase III: Training and Decision Making

Module VII: Training

Training will take place at several instances during the implementation of the component, both formally through training workshops and informally through hands-on training directly provided by consultants during their country visits. The objective of the training module is to develop the capacity to create, use and maintain a coastal resource inventory in each participating country. Specifically, training will concentrate on creation and maintenance of metadata catalogues, database development and GIS customization, data collection and automation/conversion and uses of CRIS to improve decision-making. In particular, during this period two training sessions will be conducted: one on metadata and the other one on database design.

(d) National Focal Points responsibilities

The implementation of this component will be both demanding and fast. National focal points will need to provide strategic support during the implementation for the component to succeed. In particular, NFPs will have to:

- Arrange for consultants to have access to coastal resource data for data assessment, metadata catalogue creation and database development;
- Prepare a list of government institutions with data or interest in coastal resources and their uses;
- Advise CPACC on the identity of the national data repository;
- Supervise the data assessment survey;
- Identify and arrange meetings with knowledgeable individuals for each data type; and
- Assist in the arrangement of technical liaison support for the co-implementation of Component 3.

(e) Responsibilities of National Repository agencies

The national repository agencies are the main CPACC counterpart for the implementation of Component 3. They will have to provide assistance, oversight and follow-up with implementation activities initiated by consultants in the areas of:

- Data assessment;
- Data entry for metadata creation and catalogue;
- Data collection;
- Database design and development; and

- Data entry and database maintenance.

It is essential that these counterpart agencies be nominated to participate in CPACC training activities to ensure the necessary skills are transferred to the appropriate institutions.

(f) RPIU responsibilities

Both the CZMS and ISC will continue to visit NICUs in July and August to present and discuss the implementation of Component 3. The RPIU will assist in liaison, support in-country activities and provide quality assurance by maintaining a presence during all activities.

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

A strategic implementation plan has been developed for this component. The tasks to be completed include:

- 1) Review and analysis of current policies, legislation and institutional mechanisms related to coastal zone management, in the context of adaptation planning for climate change in the Caribbean;
- 2) Formulation of a policy framework for integrated coastal zone management that incorporates climate change concerns in the Caribbean through in country consultations;
- 3) Formulation of country specific regulatory instruments/legislation for addressing climate change issues through integrated coastal zone management through in country consultations; and
- 4) Development of country specific framework for physical planning for adaptation to climate change such as land use zoning, building control guidelines, disaster contingency planning and sea defense improvements.

It is expected that during this period task (1) will be completed and work will be initiated on (2).

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

Site Selection and Methodology

Sites selection are underway in Bahamas and Jamaica while Belize has selected three sites and will begin data collection in July 1999. The Bahamas has selected three potential sites: Ridge and Goulding Cay, New Providence; Walker's Cay, Abaco; and Exuma Cays. These three sites will be visited during July and August to make a final decision. In the case of Jamaica, five potential sites have been selected but institutional arrangements are still being worked out: Port Royal, Pedro Cays, Discovery Bay, Negril, and Portland.

Expand on-going monitoring

(a) In-country and regional monitoring and data analysis

Monitoring of selected coral reef sites will begin in September and October. National implementing agencies have been trained and monitoring equipment delivered. Data collected from the monitoring exercises will be analyzed in-country and copies will be sent to the Data Management Center of the Center of Marine Sciences (CMS), University of the West Indies, Mona campus. CMS will have the responsibilities of checking for accuracy of data analysis, analyze data for countries if necessary, interpret analysis from a regional point of view and archive data.

During the next six months, CPACC, in coordination with CMS, will recruit a part-time technical assistant for data analysis, quality assurance and control, and archiving. The assistant will be located at CMS. In addition, CPACC will discuss with CMS staff about equipment needs to support CPACC activities at this center.

(b) Data collection

The data collected from each site will include:

- Habitat types and community composition;
- Geomorphologic classification;
- Water quality;
- Depth of coral;
- Degree to exposure;
- Reef health and impacts levels; and
- Historic records.

(c) List Server

A list server has been created in the Web (cc-reefs@egroups.com) to continue discussions that started at CPACC sponsored training workshop in The Bahamas in March 1999 on the implementation of this component and about coral reefs in the Caribbean. The list server has been proven to be very effective in the exchange of ideas and experiences among regional coral reef professionals, disseminating information from Component 5 and collect suggestions from the global professional community.

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

Refinement of Methodology

The methodology has been drafted and discussed with the countries participating in this pilot component. In addition, during the first Sub-regional workshop, held in Grenada in March 1999, the countries agreed on an implementation plan and a timetable (see Progress Report No. 5 for details). Phase I of the national vulnerability assessments will concentrate on determining potential sites for implementation, determining institutional arrangements and evaluating existing data. Phase II will concentrate on interpreting and analyzing data for the vulnerability assessment model. Both phases will begin during this period.

Collection & Evaluation of Information/Institutional arrangements

(a) National Coordinators

Terms of reference have been drafted to contract a local consultant in Guyana and Grenada to coordinate activities implemented under this component. Contracts will be finalized during this period. Tasks include:

- 5) Finalize the list of potential sites for component implementation, the most important biogeophysical impacts of climate change, and the socio-economic sectors that could be potentially affected by climate change. This should be based on the Screening Assessment completed in each country.
- 6) Review and analyze institutional arrangements as well as human and technical resources required for component implementation;
- 7) In coordination with CPACC consultants contracted to work on Component 3, compile and evaluate existing information related to the methodology to be used in Component 6 and propose new sources of data and information;
- 8) Select appropriate scenarios for coastal vulnerability assessment (Stage 2 of methodology), such as climate and non-climate induced environmental changes as well as present and future socio-economic ramifications.
- 9) Organize national meetings with agencies involved in the implementation of Component 6 to present and discuss progress on component implementation.

It is expected that as soon as the three national coordinators have been identified a technical meeting will be organized in Barbados with GS/OAS and CPACC/RPIU staff to discuss component implementation.

CPACC will participate in the UNDP/GEF sponsored workshop on Vulnerability Assessment and Adaptation to be held in Trinidad and Tobago, July 21-23, 1999. CPACC will coordinate the session on vulnerability assessment for coastal areas.

(b) National Consultations

There will be at least one national consultation per country before a final decision on site selections is made.

Vulnerability Assessment

Several tasks will be completed in conjunction with Component 3 (i.e., evaluation of existing data, identification of gaps and acquisition of new data) and in coordination with Component 6 consultants and national focal points.

In particular, during the next six months, the project plans to:

- (a) Assess biogeophysical impacts and determine suitable methods to assess potential climate change impacts. The main biogeophysical effects of sea-level rise include: increasing flood risk and storm damage; erosion, inundation; ecosystem (wetland and coral reef) loss; rising water tables and saltwater intrusion.
- (b) Assess potential socio-economic impacts. There is a wide range of potential socio-economic impacts that could come about due to the biogeophysical impacts of sea-level rise. Three distinct categories will be explored: impacts on human population, impacts on marketed and non-market goods and services.

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

Consultants should start work in July 1999 to prepare the draft methodology. This report will be ready by the end of September 1999. A sub-regional workshop to finalize the methodology and to prepare detailed arrangements for the implementation of the valuation exercise is scheduled for November 1999.

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

The first draft of a comprehensive review of economic instruments currently in use in the region and the identification of opportunities for the introduction of economic instruments in the policy framework of the two pilot countries will be completed by October 1999. This will be followed by consultations with the two pilot countries to make arrangements for the introduction of economic instruments into their regulatory regime.

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

National Circumstances

The draft of the first chapter of the Initial National Communication Report has been completed. The final version will be completed during this period.

GHG Inventory

The first draft of the GHG Inventory has been completed. A final version will be produced during this period after the results are presented in the second national consultation workshop scheduled for August 1999. Delays with the completion of the first draft were due to difficulties experienced by the Consultants with regards to the application of the IPCC methodology.

National workshop on results

Due to delays in the completion of the GHG inventory, the second national workshop was postponed to August 1999. 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 the implementation of recommendations and follow-up activities as well as to promote education and public awareness.

Vulnerability Assessment: Agriculture and Water Resources

(a) Review existing methodologies

An international consultant has been contracted to review existing methodologies and to assess the vulnerabilities of the agriculture and water sectors to climate change. The consultant will review UNEP's handbook on vulnerability assessments, and the US Country Studies Program. Based on the review, the consultant will make recommendations on how to adapt these methodologies to the case of St. Vincent and the Grenadines.

(b) Collection of information

A local consultant will be contracted to compile information relevant to these two sectors and necessary for the application of the methodology.

(c) Analysis and assessment of impacts to these two sectors

Initial National Communication to UNFCCC

It is expected that a first draft of the Initial National Communication will be ready for presentation at the UNFCCC Fifth Conference of the Parties (COP5). The report will be prepared following guidelines developed by the IPCC and in accordance with decision 10 of COP2.

**UPDATE to CPACC's OPERATING PLAN
INCLUDING ACTIVITIES SCHEDULED FOR July - December, 1999**

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

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

Objective: Strengthen the regional capacity for monitoring and analyzing climate and sea level dynamics and trends, seeking to determine the immediate and potential impacts of global climate change.

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Scheduled Dates	Status Actual Date
Institutional and human capacity strengthening at both regional and national levels for monitoring and analysis of sea level and climate data as well as in the O&M of tidal gauges.	Train national and regional staff in monitoring and analysis of sea level and climate data.	Technical assistance, consultant services, and training.	A. <u>Coordination & Launching Workshop</u> . In order to ensure maximum participation at the regional and national levels project start-up workshop and training at CMI, Barbados was completed. In addition, this task included the technical design and assembly of climate and sea level sensors.	Travel & per diem for start-up activities and participation in workshop.	ARNC, NOAA, CMI	4-12/97	Completed (12/97)
				Launching workshop for national agencies in charge of tidal and meteorological gauges and data.	ARNC, NOAA, CMI, OAS Barbados, OAS HQ	5/97	Completed (5/97)
Enhanced Caribbean sea level gauge and climate variables network	Installation of 18 gauges in the twelve participating countries collecting data on sea level and climate.	Technical assistance, consultant services, and training.	B. <u>Site Selection & Preparation</u> . One trip per participating country to consult and discuss the location of tidal and weather stations with local experts and officials. The first hands-on training of national personnel took place during these visits.	Mobilization of OAS-NOAA and OAS-CMI agreements for the execution of component1. CPACC team traveled to participating countries.	ARNC, NOAA, CMI NICUs: local coordination	6-11/97	Completed (11/97)
				Reconnaissance trip to St. Vincent and the Grenadines	ARNC, NOAA, CMI NICU: local coordination	8/98	Completed (8/98)
			C. <u>Station Configuration/Equipment installment</u> . The ARNC and a representative of CMI and NOAA will travel to each of the countries to install the equipment. Local participants will be directly involved and will receive hands-on training on the design, installation and O&M.	Procurement equipment (20 systems in a single order)	ARNC, OAS HQ	5/97	Completed (10/97)
				Shipment of equipment to CMI, Barbados.	ARNC, CMI	11/97	Completed (11/97)
				Purchase of spare parts and shipment to CMI, Barbados.	ARNC, CMI, OAS/HQ	4/99	Rescheduled (8/99)
Contract, travel and per diem for specialists to work in the installation of the equipment.	ARNC, NOAA, CMI NICUs: local coordination	11/97-10/98	Completed (11/98)				

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Scheduled Dates	Status Actual Date
				Installation Schedule Barbados Grenada Trinidad & Tobago St. Lucia Belize Bahamas Jamaica Antigua and Barbuda St. Kitts/Nevis Dominica Guyana St. Vincent & the Grenadines		11/97 2/98 3/98 3/98 4/98 4/98 5/98 7/98 7/98 7/98 7/98 9/98 10/98	Completed (11/97) Completed (2/98) Completed (3/98) Completed (8/98) Completed (4/98) Completed (5/98) Completed (5/98) Completed (7/98) Completed (7/98) Completed (7/98) Completed (9/98) Completed (11/98)
				Reinstallation of damaged equipment in Barbados	CIMH/ARNC, Gov. Barbados	12/99	Planned
	Geocentric fixing of bench marks.	Technical assistance, consultant services and training.	D. <u>Geocentric Fixing of Bench Marks.</u>	Issue plan of operations from NGS/NOAA to work in the geocentric fixing of bench marks, both the two continuously operating ones and the ones at each of the tidal gauges.	NGS/NOAA, ARNC, OAS/HQ	12/97	Completed (12/97)
			Establish one continuously operating GPS reference station in Barbados to shorten baselines and ensure more precise position and height determinations in the region.	Travel, per diem and equipment for the installation of a continuously operating GPS station in Barbados.	NGS/NOAA, ARNC, CMI NICUs local coordination	11/97	Completed (11/97)
			Establish a second continuously operating GPS reference station in another participating country.	Travel, per diem and equipment for the installation of the second GPS station.	NGS/NOAA, ARNC, CMI NICUs local coordination	5/98	Rescheduled (9/99)
			Campaign 1. Multiple day GPS observation sessions with GPS receivers that meet geodetic standards to obtain geodetic quality horizontal and vertical positions in each of the tidal gauges sites. A technical workshop will be organized in addition to hands-on training for country participants during the GPS survey on the collection and processing of GPS data.	Travel, per diem and equipment for geofixing bench marks at monitoring systems stations.	NGS/NOAA, ARNC, CMI NICUs local coordination	11/97 – 5/98	Completed (11/98)

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Scheduled Dates	Status Actual Date
				Technical workshop for land surveys technicians representing all CPACC countries on GPS.		4/98	Completed (4/98)
Sustained long term operations of Sea Level/Climate Monitoring Network	Action plan for continued operation and maintenance of monitoring systems	Technical assistance, consultant services and training	<u>E. Operation, Maintenance & Calibration</u>	Issue of plan of operations, maintenance and calibration of monitoring systems	ARNC, CMI	5/98	On-going
				Memorandum of Understanding between OAS and CMI	ARNC, CMI, OAS/HQ, RPIU	3/98	Completed (3/98)
				Transfer of ARNC responsibilities to CMI staff	ARNC, CMI, OAS/HQ, RPIU	6/99	Completed (6/99)
				Perform annual operation, maintenance, and calibration.	ARNC, CMI, OAS/HQ, RPIU	6/99	Ongoing (6/99 to end of project)
	Tidal Gauge Replacement and Maintenance Fund at the CMI	Tidal Gauge Replacement Fund (\$50,000 seed funding)		Establish a Tidal Gauge Replacement Fund at CMI	ARNC, CMI, OAS/HQ, RPIU	3/00	On-going
				Prepare a training video on maintenance and operations of monitoring stations	CMI, IMA, OAS, RPIU	9/99	Planned
Improved sea level and related climate variables data available to the Region and worldwide.	Regional Archiving Center (RAC), a long-term regional data and analysis center for sea-level and climate network at CMI and IMA	Regional data acquisition, quality control, archiving, and dissemination system for sea level and climate related variables. Technical assistance, consultant services and training.	<u>F. Data Acquisition & Archiving System.</u> Acquisition of data from the network accomplished through a GOES satellite downlink. The GOES downlink and accompanying software and data storage peripherals mounted initially at the site of the vendor and then moved to CMI (in a year). CPACC web page used to disseminate the data. Training of the regional institutions and national agencies on analysis and dissemination of the data.	Regional data acquisition, archiving, and dissemination system for sea level and climate related variables. Technical assistance, consultant services and training.	ARNC, NOAA, ISC, OAS/HQ, CMI, IMA	1/98 to end of project	On-going
				Memorandum of Understanding between OAS and IMA	ARNC, CMI, OAS/HQ, RPIU	5/98	Completed (5/98)
				Provide data through the web	ARNC, ISC, consultant	9-10/98	Phase I/raw data completed (11/98) Phase II/interactive Web site: On-going
				Transfer of ground station from Vitel	OAS/HQ, RPIU	12/98	Rescheduled (TBD)

Component 2: Establish Database & Information System

Objective: Establish databases and information systems allowing key regional and national institutions to acquire, analyze, store and disseminate data on climate change and its impact on natural and man-made systems.

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Dates	Status
Improved communications and data sharing between national and regional institutions.	Computer based network linking the main institutions involved in project implementation (RPIU, CMI, IMA, UWICED-Jamaica and the NICUs)	Technical assistance, consultant services and regional and national training courses.	A. <u>Information System Coordinator (ISC)</u> . The ISC is part of the core staff of the RPIU and leads the design and implementation of the information system and data bases with the assistance of short term consultants.	Training of ISC in information systems, networks and metadata approaches	OAS/HQ, RPIU	7/97	Completed (7/97)
				ISC participation in Caribbean GIS conference	RPIU	11/97	Completed (11/97)
				Training of ISC in GIS applications for environmental information systems	RPIU	2/98	Rescheduled (TBD)
				ISC travel to all NICUs to review installation of computer equipment provided and assess information systems and needs.	ISC/RPIU	1-9/98	Completed (9/98)
				ISC participation in Coastal GeoTools 99 Conference	ISC/RPIU	4/99	Completed (4/99)
				ISC travel to St. Vincent and the Grenadines to review installation of computer equipment	ISC/RPIU	2/99	Completed (6/99)
			B. <u>Assessment of current conditions/needs</u> . Conduct an assessment on Internet capacity and information networking needs of CPACC's counterpart institutions, particularly in Barbados and Jamaica.	Performance contract for an Internet specialist to conduct assessment and assist ISC.	Consultant OAS HQ	9/97	Completed (9/97)
				Organize meeting with key regional persons/institutions on GIS capacity and training in the region vis-à-vis CPACC	ISC/RPIU	9/98	Completed (2/99)
			C. <u>System Design</u> Based on the results of task (B), specialists will prepare a description of the system to be developed, including expected outputs, and major data bases, select appropriate hardware and software packages.	Performance contract for an Internet/Information specialist to design the information system and assist ISC. Consult with NICUs	ISC/RPIU Consultant OAS HQ	9-12/97	Phase 1 Completed (12/97) Next phase part of project implementation

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Dates	Status	
			D. <u>Coordination of National Workshops in Internet Use and Information Management.</u> Based on MOU with SIDSNET.	Selection of part-time Technical Assistant to the ISC	ISC/RPIU	6/99	On- going	
				Organization and conducting of 10 National Workshops	ISC/RPIU, TA/RPIU, Trainers, SIDSNET	7 – 9/99	Planned	
				Collect reports from trainers and participants for review, summary & submission to SIDSNET	ISC/RPIU, TA/RPIU	7 – 9/99	Planned	
				Organize final review meeting	ISC/RPIU, TA/RPIU	9/99-10/99	Planned	
		Computer hardware and software for database management and analysis, INTERNET communication, and web browsing.	E. <u>System Procurement.</u> Specialist prepared bidding documents, procure systems components and train RPIU staff.	Prepare procurement documents for bidding and purchase.	ISC/RPIU OAS HQ	8-10/97	Completed (9/97)	
					Purchase equipment and distribute it to NICUs, RACs and RPIU.	OAS HQ	8-11/97	Completed (12/97)
					Evaluate and purchase GIS software for RPIU	ISC/RPIU, OAS/HQ	3-5/98	Completed (2/99)
					Purchase of computer, software and printer for St. Vincent and the Grenadines	ISC/RPIU, NICU coord.	9/98	Completed (2/99)
			F. <u>RPIU Bulletin</u> Preparing a periodic publication outlining activities coordinated by the RPIU and circulating it via the internet as well as through the CPACC Web site	Selection and purchase of software	ISC/RPIU	10-12/98	Completed (12/98)	
					Preparation of articles and reports	RPIU	10/98	On-going
					Preparation of publication	ISC/RPIU	11/98	3 rd edition completed (6/99) On-going
					Publication and distribution	ISC/RPIU	11/98	On-going
Technical and human capacity for data management and analysis strengthened at regional and national levels.	Training	Technical assistance, consultant services and regional and national training courses.	G. <u>Training Program.</u> Training to national and regional institutions participating in CPACC on information systems design and management and databases.	Workshop at UWI, St. Augustine campus, for representatives of all CPACC countries on the uses of the Internet and information systems.	ISC/RPIU Consultant OAS HQ NICUs: local coordination	11/97	Completed (11/97)	

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Dates	Status
				Workshop (Barbados) for representatives of all CPACC countries on metadata approaches and information system networks.	ISC/RPIU Consultant OAS HQ NICUs coord.	4/98	Rescheduled to 5/98. Completed in conjunction with C3 workshop
				Workshop (Trinidad and Tobago) on information and database mngt. for C3 repository institutions.	ISC/RPIU Consultant, OAS HQ NICUs coord.	11/98	Rescheduled 9/99 as hands-on training with C3
				Training on analysis and dissemination of data for CMI and IMA staff	ARNC, ISC, CMI, IMA, Consultant	2/99	Completed (2/99; 5/99)
Improved availability of data related to climate and sea level.	Databases using data/information generated by the project activities.	Technical assistance, consultant services and regional and national training courses.	H. <u>System Implementation, maintenance and upgrading.</u> Develop and implement data management and communications procedures, install hardware and software and perform necessary operational testing. Develop and implement a technical support and maintenance plan. Formulate criteria for system upgrading.	Acquisition and upgrading of Web site management software	ISC/RPIU	8-11/98	On-going
				Updating of Web site	ISC/RPIU	8/98 to end of project	On-going
				To contract TA for CPACC web page review	ISC/RPIU	11/98	Completed (11/98)
				To contract TA for CPACC web page upgrading	ISC/RPIU	12/98	Completed (1/99)
				Develop maintenance and upgrading plan	ISC/RPIU	12/98	Completed (12/98)
				Implement maintenance and upgrading plan	ISC/RPIU	12/98 to end of project	On-going
				Procure Document Management Software	ISC/RPIU	11/98	Completed (11/98)
				To contract TA for cataloguing and organization of CPACC Documentation Center	ISC/RPIU Consultant	8/98 to end of project	On-going
				To contract TA for review and reconfiguration of CPACC LAN, including Internet access	ISC/RPIU Consultant	12/98 to 1/99	On-going
				Management of CPACC computers and LAN	ISC/RPIU	11/97 to end of project	On-going

Component 3: Inventory of Coastal Resources and Use

Objective: Further the development of each participating country's inventory of coastal resources so as to provide the necessary baseline data for the execution of other project activities.

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Sub-Activities	RESPONSIBLE	Dates	Status
Increased regional and national information on coastal zone resources, their conditions and uses.	Develop and improve GIS capacity for coastal resource management.	Equipment to create or upgrade existing GIS capacity.	A. <u>GIS installation/upgrade</u> . Assessment of conditions of counterpart institutions with regard to GIS capabilities.	Conduct surveys followed-up by communications and visits to all NICUs to assess counterpart institutions.		NICUs local coordination	12/97-4/98	First phase completed (9/98), final report completed (11/98)
				Assessment and recommendation on counterpart institution to act as repository for the coastal resource inventory.		ISC/RPIU	8/98	Completed 11/98
				Final decision on counterpart institution		NICUs	4/99	Planned
				Develop plan of action to install or upgrade GIS systems in counterpart institutions.		ISC	10/98	Completed (2/99)
				MOU Between CPACC and CERMES for development and management of GIS Lab and training of CPACC beneficiaries		RPIU, CERMES	8/98	Completed (8/98)
				Purchase of equipment and software for RPIU and GIS Laboratory		ISC/RPIU	4-9/98	Completed (11/98 to 1/99)
				Training of CPACC sponsored students in GIS Certificate Course		ISC/RPIU, UWI	10/98	On-going.
Consolidate, evaluate, and computerize existing information in each participating country.	Technical assistance, consultant services and training.		B. <u>Coastal Inventory Design</u> Inventory of existing information by identifying existing information on coastal resources from regional and national agencies.	Prepare proceedings from workshop		CZMS	10/98	Completed (10/98)
				Prepare technical report			2/99	Rescheduled (7/99)

Improve baseline data for other project activities.

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Sub-Activities	RESPONSIBLE	Dates	Status
				Develop a strategy for collection of information (type of information and criteria for evaluation/ assessment)	- Select Metadata Std. - Dev. data categories. - Formulate preliminary data assessment objs. - Pre-data-extraction/ cataloguing workshops to define strategies.	CZMS/RPIU, OAS/HQ, consultant NICUs local coordination	7-8/98	Completed (10/98)
				Organize countries in 2 or three groups according to their stage in coastal inventory development.	Develop preliminary classification.	CZMS/RPIU, OAS/HQ,	10/98	Rescheduled (7/99) Confirmation in the Inception Mission Report.
				Prepare requests for proposals.	- Request proposals. - Review consultant's proposals.	CZMS/RPIU, OAS/HQ, consultant NICUs local coordination	9 – 10/98	Completed (12/98)
				Prepare performance contracts and contract consultant(s) to implement collection and evaluation of information.	Prepare TOR & performance contracts.	CZMS/RPIU, OAS/HQ, consultant NICUs local coordination	9 – 10/98	Completed (4/98)
				Assist counterpart institutions to develop a mechanism for inputting and cataloguing existing information	Notify NFP's & NICUS of activities & responsibilities.	CZMS, ISC	10/98	Completed (7/99)
			Identify respondents for info. assessment survey (IAS)		NFP, RPIU	4-7/99	Planned	
			Design and implement IAS.		Consultants	7/99	Completed (7/99)	
			Analyze IAS responses & deliver draft report.		Consultants	7/99	Planned	
			C. Compile/Digitize Existing Info. To contract an individual or firm to compile/digitize existing information and train local counterparts.	Prepare performance contracts (individual or firm) to standardize and digitize existing information and to provide training. Compile/digitize existing information and train local counterparts.	Initiate data assessment & extraction.	Consultant, NICUs coord.	11/99	Planned
				Design database.	Consultants	8/99	Planned	
				Design cost effective data collection strategy.	Consultants, Country, RPIU.	3/00	Planned	

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Sub-Activities	RESPONSIBLE	Dates	Status
					Present metadata catalogue	Consultants, Country, RPIU.	11/99	Planned
					ID data gaps.	Consultants, Country, RPIU.	12/99	Planned
			In-country consultations; design of inventory methodology; identify information necessary for pilot components.	In-country consultations with all relevant agencies including NGOs to design the inventory methodology and coverage.	<ul style="list-style-type: none"> - Notify NFP's & NICUS of activities & responsibilities. - Review pilot project methodologies & info requirements. - Post data-extraction/cataloguing in-country consultations to ID gaps and methodology. 	NICUs to conduct consultation with assistance from RPIU, and consultants.	4 - 5/98	<p>Process started by RPIU 04/99. Will be completed by Consultants 07/99.</p> <p>Data Assessment Report, 09/99.</p> <p>Planned (11/99)</p>
			<u>D. Prepare Coastal Inventories</u> Acquire additional information	Prepare performance contracts (individual or firm) to prepare plan of action to acquire additional information, such as color photographs and satellite images and to purchase them.	A comprehensive performance contract will be prepared as part of Task C.	OAS/HQ, RPIU	5/98	Rescheduled (03/00)
			Acquire additional information		<ul style="list-style-type: none"> - Design geo-referenced data collection strategy & forms. - Design QA/QC strategy. - Design new-data, collection program. - Present database design. - Begin collection of new data. - Order/contract new remote sensing imagery as required. 	OAS/HQ, RPIU	5/98 3/00 5/00 4/00 5/00	Rescheduled (03/00) Planned

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Sub-Activities	RESPONSIBLE	Dates	Status
Improve the institutional framework, technical capacity and equipment for inventory and analysis of coastal zone resources, their conditions and uses.	Regional training courses on techniques for resource inventory preparation and management.	Technical assistance, consultant services and training.	E. <u>Coastal Inventory Design</u> . Hire coastal zone specialist (CZS) to become part of the RPIU staff.	Selection, hiring and contract for a CZMS.		OAS/HQ, RPIU	7/97	Completed (3/98)
			Regional training/ workshop (place to be determined).	Regional training/consultation workshop (Barbados) for participants from all CPACC countries on various techniques for coastal resource inventory preparation, including GIS technology.		RPIU, OAS/HQ	3/98	Completed (5/98)

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

Objective: Develop a generic policy framework for the preparation of Integrated Coastal Zone Management (ICZM) legislation throughout the region that would incorporate mechanisms for planning for the adaptation to climate change.

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Dates	Status
Support the development of a generic policy framework for the preparation of ICZM legislation throughout the region.	Review and analysis of existing institutional and legal mechanisms, including regulatory framework, for ICZM.	Technical assistance, consultant services and regional workshop.	A. <u>Develop Methodology</u> . Evaluate existing approaches, policy frameworks and legislation relating to ICZM. Develop framework legislation	Develop TOR for consultant to do an evaluation of approaches and to develop a policy framework for adaptation to climate change within the context of coastal zone management	CZMS, OAS/HQ	8/98	Completed (7/99)
				Identify and contract consultant.	CZMS/RPIU, OAS/HQ	5-9/98	Completed (5/99)
				Draft versions of framework for preparation of ICZM legislation	CZMS, OAS/HQ, consultants	12/98	Rescheduled (9/99)

Component 5: Coral Reef Monitoring for Climate Change

Objective: Building upon ongoing coral reef monitoring throughout the region, establish a long-term monitoring program in the Bahamas, Belize and Jamaica, which over time would show the effects of global warming factors (temperature stress, sea level rise, and hurricanes) on coral reefs.

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Dates	Status
Improved methodology for coral reef monitoring to determine over time the effects of global climate change on Caribbean reef ecosystems.	Review existing status of coral reef monitoring and research in the three participating countries and their institutional capacity and responsibilities.	Technical assistance, consultant services and training and sub-regional meetings and regional workshops.	A. <u>Sub-Regional Workshop</u> . Meeting with focal points of each participating country	Meeting was held at OAS HQ with representatives of the three participating countries to brainstorm on the implementation of this component.	OAS/HQ	9/97	Completed (9/97)
			Sub-regional workshop for representatives of the three participating countries in Belize.	Sub-regional workshop	CZMS/RPIU, OAS/HQ NICUs local coordination	3/98	Completed (3/98)
			B. <u>Site Selection & Methodology</u> . Determine the sites and methodology to be used in each the region and in each country.	Draft Regional Monitoring approach	CZMS, NICUs, consultants	5/98	Completed (7/98)
				Country specific plans of action, including equipment, time table and site selection.	CZMS, DPM, OAS, NICUs, consultants	5-8/98	Completed (12/98)
Improved public awareness and education program on coral reefs conditions and management throughout the region.	Dissemination of information and methodology to all participating countries through regional workshops and study tours.	Technical assistance, consultant services and training and sub-regional meetings and regional workshops.	C. <u>Awareness & Education</u> To contract a local/regional NGO to prepare a plan of action for public awareness and education.	- Request and review proposals for performance contract for local/regional NGO to prepare plan action and materials for public awareness and education on coral reefs and potential impacts of climate change. - Issue contract	DPM/RPIU	2/99	Completed (2/99)
Enhanced long-term coral reef monitoring systems and institutional capacity throughout the region.	Monitoring program to determine potential impacts of climate change on coral reef.	Training in field data collection and data analysis techniques as well as on monitoring biological and physical indicators. Equipment	D. <u>Expand On-going Monitoring</u>	- Purchase of required equipment for implementation of country specific plans of action (DVC & data loggers) - Review equipment needs of CMS. Purchase appropriate data archiving and analysis equipment.	RPIU, OAS/HQ	11/98 to 2/99	Completed (04/99)
					RPIU.	08-09/99	Planned

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Dates	Status
				Select data analysis method.	CZMS, Consultants, Countries.	2/99	Completed 03/99.
				Contract resource persons.	CZMS	2/99	Completed 02/99
				Sub-regional workshop on the site selection, monitoring, video data analysis protocols in the Bahamas.	CZMS, NICUs coordination	3/99	Completed 03/99.
				Finalization of in-country institutional arrangements between lead agency and participating organizations.	Lead Agency, NFP, NICU and CZMS.	03/99 to 07/99.	On-going
				Field reconnaissance and site selection exercises in preparation for implementation of Monitoring Programs.	Lead Agency, participating organizations.	03/99 to 08/99	On-going
				Begin monitoring of coral reefs in selected sites.	CZMS, NICUs local coord.	1/99 to 3/99	Rescheduled 09/99
				Analyze coral reef monitoring data and submit report.	Consultants, CZMS	4 – 6/99	Rescheduled 09/99 to 11/99
				Review new generation of data analysis applications for possible use in pilot countries and CMS.	CZMS, Countries.	02/00	Planned.
				Repeat monitoring of coral reefs in selected sites.	CZMS, NICUs local coord.	03/00	Planned.
				Analyze coral reef monitoring data and submit report.	Consultants, CZMS	4 – 6/00	Planned.

Component 6: Coastal Vulnerability and Risk Assessment

Objective: Develop pilot coastal vulnerability and risk assessments in Barbados, Grenada and Guyana.

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Dates	Status
Enhanced methodology for assessing coastal vulnerability and risk.	Studies to evaluate models and techniques for vulnerability analysis and risk assessment and adaptation of the IPCC common methodology for application to Caribbean region.	Technical assistance, consultant services and training and regional workshops.	A. <u>Refinement of Methodology</u> Identify an individual or firm to conduct an evaluation of existing methodologies for vulnerability assessment.	Prepare performance contract for evaluation of methodologies.	OAS/HQ, RPIU	5/98	Completed (7/98)
				Preparation of proposed methodology to be used in the project.	OAS/HQ, RPIU, consultant	7/98	Completed (9/98)
				National consultations to define implementation plan and preparation of country specific activities.	OAS/HQ, RPIU, consultant. NICUs: local coordination.	9-10/98	Rescheduled (2/99)
				Sub-regional workshop for three participating countries to standardize methodology.	OAS/HQ, RPIU, consultant. NICUs coord.	10/98	Completed (3/99)
			B. <u>Collection of information</u>	Define necessary data per country.	OAS/HQ, RPIU NICUs coord.	4/99	Rescheduled (8/99)
				Prepare performance contract for international experts and local consultants	OAS/HQ, RPIU, NICUs coord.	5/99	Completed (5/99)
				Collect and assess existing data and prepare strategy for collection of new data	OAS/HQ, RPIU, NICUs coord., consultants	8/99	Rescheduled (10/99)
Coastal vulnerability and risk assessment for three countries		Technical assistance, consultant services and training and regional workshops	C: <u>Vulnerability Assessment</u>	Prepare performance contract for international experts and local consultants	OAS/HQ, RPIU, NICUs coord.	9/99	Planned
				Define physical impacts	OAS/HQ, RPIU, NICUs coord., consultants	11/99	Planned
				Define socio-economic impacts	OAS/HQ, RPIU, NICUs coord., consultants	12/99	Planned

Component 7: Economic Valuation of Coastal and Marine Resources

Objective: Design and implement pilot studies in Dominica, St. Lucia, and Trinidad and Tobago on the economic valuation of economic resources in selected coastal ecosystems at risk from sea level.

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Dates	Status
Improved methodology appropriate to the region for resource valuation, environmental accounting, and environmental decision-making for use in development of policy frameworks and economic and regulatory approaches.	Assessment and review of resource valuation techniques.	Technical assistance, consultant services	A. <u>Methodology Definition.</u>	TOR for consultant(s) to review methodologies	RPIU, OAS/HQ	9/98	Rescheduled (1/99)
				Identify and contract consultant(s) to define methodology to be used.	RPIU, OAS/HQ	8/98	Completed (7/99)
				Draft methodology	RPIU, OAS/HQ, consultant(s)	12/98	Rescheduled (4/99)
	Three pilot studies using resource valuation techniques in ecosystems with varying environmental resources and economic uses.		B. <u>Pilot Studies</u>	Representatives of three countries participated in workshop organized by Commonwealth Science in Trinidad and Tobago	RPIU	3/98	Completed (3/98)
				Sub-regional workshop to discuss methodology	RPIU, NICUs, consultants	11/99	Planned
				C. <u>Assessment & Preparation of Findings</u>			
Regional and local capacity strengthened for resource valuation, environmental accounting and investment decision-making	Regional workshop to discuss and disseminate results of pilot studies.						

Component 8: Formulation of Economic/Regulatory Proposals

Objective: Implement two pilot studies in Antigua and Barbuda and St. Kitts and Nevis to demonstrate the design and use of economic and regulatory approaches to environmental protection in response to threats from sea level rise.

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Dates	Status
Sample regulatory program, including the use of economic instruments, to achieve specific objectives in the two pilot countries		Technical assistance, consultant services.	A. <u>Methodology Definition.</u>	TOR for consultant(s) to review methodologies	RPIU, OAS/HQ	12/98	Completed (1/99)
				Identify and contract consultant(s) to define methodology to be used.		1/99	Rescheduled (8/99)
				Draft methodology		3/99	Rescheduled (9/99)
Improved economic-based approaches to environmental policy appropriate to the region for use in preparation of national and regional policy frameworks.	Two pilot studies to illustrate the uses of various economic and other innovative regulatory options for coastal zone management.	Technical assistance, consultant services.	B. <u>Pilot Studies.</u>	Representatives of three countries participated in workshop organized by Commonwealth Science in Trinidad and Tobago	RPIU	3/98	Completed (3/98)
			C. <u>Assessment & Preparation of Findings.</u>				

Component 9: Greenhouse Gases Inventory and Agriculture and Water Resource Vulnerability Assessment

Objective: To assist St. Vincent and the Grenadines to develop, publish and periodically update their national greenhouse gases (GHG) inventory of sources and sinks and to prepare a first national vulnerability assessment of its agriculture and water resources to future climate variability and change.

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Dates	Status
Framework for assessing GHG emissions.	Survey instruments for compiling GHG inventory based on international guidelines and local input.	Technical assistance, consultant services.	A. <u>National Circumstances.</u>	TOR for consultant to collect information for national circumstances	OAS/HQ, RPIU	7/98	Completed (7/98)
				Prepare first draft National Circumstances	OAS/HQ, RPIU, Consultants NICU coord.	2/99	Completed (7/99)
			B. <u>Review GHG Inventory Methodology.</u>	TOR and performance contract for consultant.	OAS/HQ, RPIU, consultant	7-8/98	Completed (11/98)
Improved institutional capacity for maintaining and updating GHG inventories.	Training workshop on preparation of GHG inventories. Inventory by primary GHG and economic sector.	Technical assistance, consultant services. Compile GHG inventory grouped by major constituents and GHG sources and sinks. Delineate inventory by sector including: energy, industrial processes, agriculture, and land use change and forestry.	C. <u>National workshop on GHG inventories methodologies.</u>	TOR for local consultants	OAS/HQ, RPIU, consultant	9/98	Completed (10/98)
				Conduct workshop	OAS/HQ, RPIU, consultants, NICU coord.	10/98	Completed (11/98)
	D. <u>GHG Inventory</u>		TOR for local consultants	OAS/HQ, RPIU, consultants, NICU coord.	9/98	Completed (10/98)	
			TOR for international consultant	OAS/HQ, RPIU	2/99	Completed (2/99)	
			Prepare first draft of GHG Inventory	OAS/HQ, RPIU, consultants, NICU coord.	3/99	Completed (7/99)	
	National inventory of GHG emissions		Workshop to present findings	Technical assistance	E. <u>National Workshop results</u>	Conduct workshop	OAS/HQ, RPIU, consultants, NICU coord.
National action plan based on GHG inventory		- Workshop to solicit local input on abatement options and adaptation alternatives to address GHG impacts					

- Preparation of national plan for effective response measures to address implication of climate change

Outcome & Impacts	Outputs (goods and services produced by the project)	Inputs (resources provided for project activities)	Tasks	Activities	Responsible	Dates	Status
Public awareness and education programs on climate change and adaptation options	Materials	Technical assistance, consulting services and training	H. <u>Education and Awareness</u>	Consultants	OAS, RPIU, consultants NICUs coord	End of project	On-going
Upland vulnerabilities related to climate change and agriculture and water resources. Improved capacity for inland vulnerabilities and risk assessment	Preliminary assessment of upland vulnerabilities related to climate change.	Data gathering and information processing	I. <u>Vulnerability Assessment</u>	TOR for international consultant	OAS, NFP	8/99	Completed (02/99)
				VA Study	OAS/HQ, RPIU, NICUs coord., consultants	6/99	Rescheduled (10/99)
				Acquire additional data	OAS/HQ, RPIU, NICUs coord., consultants	6/99	Rescheduled (09/99)
				VA study	OAS/HQ, RPIU, NICUs coord., consultants	6/99	Rescheduled (10/99)
Identification of options for adapting to upland vulnerability both current and long-term.	Draft adaptation strategy to focus on immediate and longer-term vulnerability.	Technical assistance, consulting services and training					
Fulfills national reporting obligations to UNFCCC	Interim national communication report	Technical assistance, consulting services and training	F. <u>Final document to UNFCCC</u>	TORs for international and local consultants	OAS/HQ, RPIU, consultants NICUs coord., consultants	8/99	Rescheduled (10/99)
	Revised Initial National Communication submitted incorporated input form CPACC project	Technical assistance	G. <u>Monitoring and Evaluation</u>	Technical assistance	OAS/HQ, RPIU, consultants NICUs coord., consultants	01/01	Planned