

# CWIP

**Guidelines for Implementing  
Coastal Water Quality Monitoring  
Program to Port Antonio**

# **Coastal Water Quality Improvement Project**

USAID Contract No. 532-C-00-98-00777-00

## **GUIDELINES FOR IMPLEMENTING COASTAL WATER QUALITY MONITORING PROGRAM TO PORT ANTONIO**

June 2001

Prepared for the:

Government of Jamaica's  
National Environment and Planning Agency

And the

United States Agency for International Development

Implemented by:

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## **PREFACE**

The Coastal Water Quality Improvement Project (CWIP) is a six-year bilateral initiative between the Government of Jamaica's National Environment and Planning Agency (NEPA) and the United States Government's Agency for International Development (USAID). Five distinct, but interrelated activities, associated with coastal water quality improvement are being carried out to form a synergy of interventions contributing to the achievement of the USAID Strategic Objective 2 (SO2) - *Improved quality of key natural resources in selected areas that are both environmentally and economically significant*. CWIP is being implemented by Associates in Rural Development, Inc. (ARD) with assistance from Camp, Dresser & Mckee, Inc. (CDM) and the Construction Resource and Development Centre (CRDC).

This report was prepared by Louis Daley, Pollution Prevention Policy Specialist with responsibility for the water quality monitoring program implemented by the project. The objective of this report is to provide a strategic plan which will serve as a guide for CWIP and NEPA to introduce and implement a Coastal Water Quality Monitoring Program in Port Antonio. This Program will have elements similar to the program developed and implemented by NEPA, CWIP, and local stakeholders in Negril and Ocho Rios, and builds on lessons learned from the implementation of this program in those two communities. The Plan also incorporates information obtained from discussions held with stakeholders in Port Antonio.

This document is intended to serve as a guide during the development of the Port Antonio Program. As the program unfolds, it may be necessary to modify provisions in order to satisfy local needs.



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## ACRONYMS

ARD	Associates in Rural Development, Inc.
ARD/B	Associates in Rural Development, Inc./Burlington Office (International Headquarters)
CASE	College of Agriculture Science and Education
CDM	Camp Dresser McKee
CBO	Community-Based Organization
COP	Chief of Party
CR	Contract Result
CRDC	Construction Resource and Development Centre
CWIP	Coastal Water Quality Improvement Project
ENGO	Environmental Non-governmental Organization
GOJ	Government of Jamaica
JHTA	Jamaica Hotel and Tourism Association
LPC	Local Program Coordinator
MOU	Memorandum of Understanding
NCC	Negril Chamber of Commerce
NCRPS	Negril Coral Reef Preservation Society
NEPT	Negril Area Environmental Protection Trust
NGO	Non-governmental Organization
NEPA	National Environment and Planning Agency
NWC	National Water Commission
OSO	Organizational Strengthening Officer
PEPA	Port Antonio Environmental Protection Association
PPMP	Procurement and Property Management Plan
SO2	Strategic Objective 2
SOW	Statement of Work
USAID	United States Agency for International Development
USEPA	United States Environmental Protection Agency
UWICMS	University of the West Indies Centre for Marine Science

## **1.0 BACKGROUND**

CWIP officially entered Port Antonio, the Project's third target site, in April, 2001. As a part of the entry strategy to the area, CWIP hosted a stakeholders workshop that month to determine the priorities of the Port Antonio community around which to build a work plan. Water quality monitoring was identified as a desired activity for that community. Discussions continue with a Task Force of the Port Antonio Parish Development Committee to explore, develop, and agree on strategies for CWIP's entry into the Port Antonio area. Some of these discussions have focused on sensitizing the participants to the concept and rationale of a water quality monitoring program, to obtain in a preliminary manner, an idea of the community's interests and needs.

Many lessons were learned in creating a coastal water quality monitoring program in Negril, and these were captured in CWIP's document NGO-Government Partnership to Expand and Regularize Coastal Water Quality Monitoring - First Year Report. Lessons were also learned from a similar program facilitated by CWIP in Ocho Rios. These lessons and the refinements that continue to emerge from these programs will be used as the basis upon which activities will be designed in Port Antonio.

Development of a Port Antonio Program must include feedback from dialogue with the Port Antonio community. This dialogue must also make clear to community stakeholders the objectives, critical factors, limitations, and strengths of activities under CR 4.

### **1.1 *The objectives of the Programs are the following:***

- Facilitate NGO-government partnerships to support the mandates of government while making data transparent and accessible;
- Regularize monitoring to generate defensible data on a regular basis; and
- Expand the regularized system into a sustainable national program.

### **1.2 *Critical factors which must be part of all efforts under CR 4 include the following:***

- The laboratory of the NEPA will be the central site of sample analysis, quality control, and data storage;
- Local Programs must be financially and logistically sustainable beyond intervention by CWIP; and
- Analytical results from sampling exercises must be returned to participants in a format which is understandable and useable by them.

### **1.3 *Limitations of these Monitoring Programs include the following:***

- By monitoring coastal water quality once every two months as will be proposed because of budget considerations, only an imperfect understanding of the environmental conditions is achieved;
- Individual polluters cannot be identified without more in-depth study; and
- Bi-monthly monitoring is not likely to capture impacts of discrete environmental events.

#### **1.4 Strengths of these Programs include the following:**

- Practical actions can be taken in response to regular, transparent, high quality collection, transportation, and analysis of samples;
- Local stakeholders are brought into partnership with government to maximize resources;
- “Hot points” of pollution can be identified and monitored over time;
- Rigorous documentation following uniform procedures is maintained; and
- Long-term results are generated to detect changes in coastal water quality.

The design of the Port Antonio Coastal Water Quality Monitoring Program will be achieved through dialog with the Port Antonio community. Dialog will be supplemented with communication with entities associated with the monitoring programs in Negril and Ocho Rios in order to expose the Port Antonio participants to lessons from the model as established in these areas. Implicit in the design of the program is the element of sustainability. The program will need a structure that will guarantee its continuity after the end of CWIP’s support.

## **2.0 COMPONENTS OF AND ADMINISTRATION OF THE COASTAL WATER QUALITY MONITORING PROGRAMS**

Discussions so far with Port Antonio community stakeholders have identified the College of Agriculture Science and Education (CASE), and the Port Antonio Environmental Protection Association (PEPA) as potential key program partners. A preference has been indicated for CASE to be the local program Coordinator since, as an educational institution, CASE has resources and expertise that could facilitate and sustain implementation of the local program. PEPA is the lead environmental NGO in Port Antonio, having the focal interest of establishing a marine park in that town. They have expertise in working with community based organizations (CBOs), and other community members and could facilitate linkages with community entities.

CASE, as an educational institution, offers a degree program in Environmental Science. Linking the institution with the water quality monitoring program could provide the opportunity for students in the degree program to assist with implementation of the various components of the monitoring program including sampling and community outreach activities. In return, these students would obtain practical training and experience to support classroom lectures. The laboratory at CASE could also play a role in the program, a role that could be defined and agreed on with NEPA, NEPA being the institution having the national mandate for water quality monitoring. Use of the CASE laboratory initially could be for the provision of inter-laboratory calibration services at program start up for at least the first three sampling exercises. This would provide for orientation and training. As capacity and expertise increase, the laboratory could assume more of the required analytical responsibilities, at which time another laboratory would provide inter-lab calibration services. The selection of CASE as the local program Coordinator would go a far way toward ensuring program sustainability. That institution has demonstrated interests in Port Antonio’s coastline and has resources that would ensure continuity of the program upon termination of CWIP’s assistance.

Components of the monitoring program proposed for Port Antonio are described in the chart below. These components could be administered solely by the local program Coordinator, assuming that CASE is this Coordinator, or they could form the Terms of a Memorandum of Understanding (MOU) linking individual partners to the program with defined roles and

responsibilities. A decision as to the desired direction would have to be taken as the mechanics of implementation is ironed out through dialog with the stakeholders. An MOU that was signed by the Negril community is appended (Appendix 1) for reference.

### Components of the Coastal Water Quality Monitoring Program Proposed for Port Antonio

Program Stage	Activity	Responsible
Program development	Overall coordination of the Coastal Water Quality Monitoring Partnership Program in collaboration with local stakeholders and NEPA/CWIP	Port Antonio Stakeholders
	Ensure sample collection and transport methods are in accordance with NEPA/CWIP protocols	
	Select suitable volunteers to collect water samples	
	Provide training for selected water sample collectors	NEPA/CWIP
Field implementation	Deliver prepared sample containers and equipment to the lead local partner as per agreed schedule	NEPA/CWIP
	Receive prepared sample containers in advance of field sampling for safekeeping and delivery to water quality sampling team as per agreed schedule	
	Provide for and equip a boat or boats for transport to collect water samples	
	Solicit and provide some financial contribution from community stakeholders to defray costs of some field activities such as those related to boats, boatmen, and fuel	
	Assemble water samples at a designated collection site for transport to Discovery Bay and/or Kingston	
	Ensure water samples are packaged and transported in conformance with NEPA/CWIP protocols	
	Arrange for transportation of the water samples to designated drop-off sites in Discovery Bay and/or Kingston	
Sample analysis	<p>Analysis and interpretation of water samples.</p> <p>This activity will be done through the University of the West Indies' Discovery Bay Marine Laboratory during the initial phases of the Program until arrangements to provide for this activity are worked out with CASE and NEPA</p>	NEPA/CWIP

<b>Program Stage</b>	<b>Activity</b>	<b>Responsible</b>
Communication of results	Return of water quality data to partner organizations for effective dissemination to community members, local and national environmental management decision-making groups, and other appropriate interests	NEPA/CWIP
	Receive and ensure public dissemination of findings	
	Organize meetings with stakeholders to review, discuss, and plan appropriate environmental actions in response to water quality monitoring data	
Program management	Provide technical advice and oversight for Program implementation	NEPA/CWIP
	Provide on-going technical and quality control oversight	NEPA/CWIP
	Commitment to sustain the Program beyond the completion of direct support from CWIP	

### **3.0 PROPOSED ACTION PLAN FOR DEVELOPMENT AND IMPLEMENTATION**

Discussions have already been initiated with Port Antonio stakeholders for implementation of the coastal water quality monitoring program in that town. These discussions will continue by CWIP, NEPA, and other supporting partners to ensure that the Program take the form which is most useful to and compatible with meeting the needs, resources, and desires of the Port Antonio community. The following table contains a time-bound action plan for NEPA, CWIP, and Port Antonio stakeholders to follow. This plan will lead to the final design and implementation of the Port Antonio Program.

#### **Time Bound Action Plan for Implementing Port Antonio Program**

<b>Action</b>	<b>Date</b>	<b>Responsible</b>
Dialogue with strategic partners regarding objectives of a Port Antonio Coastal Water Monitoring Program, the accomplishments of the monitoring program in Negril and Ocho Rios, and the definition of a program specific to Port Antonio that would address pertinent needs including pollution issues	June 2001	CWIP PPPS, COP, Local Stakeholders
Continued dialog to determine local partners and local coordinator, also the identification of these entities, with consideration being given to program sustainability in the selection of these entities.	July 2001	CWIP PPPS, COP, Local Stakeholders, NEPA

Action	Date	Responsible
Capacity review of identified local program coordinator and other program partners as applicable, also review of local resources that support program sustainability	August 2001	CWIP COP, PPPS, NEPA
Discussion with UWICMS regarding partnership arrangements for monitoring in Port Antonio, also with NWC to address inter-laboratory calibration activities	September 2001	CWIP PPPS, COP
Dialog with NEPA and CASE on the role that CASE would assume in the Port Antonio Program; also review of the CASE laboratory to determine capacity to participate in laboratory analytical activities for the program.	September 2001	CWIP COP, PPPS, NEPA, CASE, UWICMS
Agreement on role of PEPA	September 2001	CWIP COP, PPPS, NEPA, PEPA, CASE, UWICMS
Determination of effort and the compilation of a list of equipment needed to strengthen laboratory capacity at CASE to participate in program for the role designated	October 2001	CWIP COP, PPPS, NEPA, CASE, UWICMS
Consultation with partners associated with monitoring program in Negril and Ocho Rios, also with NWC with respect to the provision of inter-laboratory calibration services	October 2001	CWIP PPPS
Development of grant program with local program coordinator to facilitate implementation of the water quality monitoring program, along with a description of the role and responsibilities of the coordinator and program partners, also signing of grant proposal and agreement	November 2001	CWIP COP, Local Program Coordinator (LPC), OSO, PPPS
Discussion of Blue Flag certification program for beaches with local partners and stakeholders as an incentive to stimulate local support for water quality monitoring program	November 2001	CWIP PPPS, LPC, Local stakeholders
Development and signing of Memorandum of Understanding for the Port Antonio Coastal Water Quality Monitoring Program as applicable	January 2002	CWIP PPPS, LPC, Program partners, NEPA

Action	Date	Responsible
Survey of Port Antonio Coastline and selection of sample points and analytical parameters	February 2002	CWIP PPPS, UWICMS, NEPA, LPC
Training of volunteer samplers in sampling, storage, and transportation protocols, also chain of custody administration	February 2002	CWIP PPPS, CASE, NEPA, UWICMS
Initiation of sampling activities in Port Antonio	February 2002	CWIP PPPS, LPC, UWICMS
Revision and refinement of data dissemination mechanism	February 2002	CWIP PPPS, LPC
Second sampling in Ocho Rios	March 2002	LPC
Review of components to achieve program sustainability	March 2002	CWIP, LPC, Stakeholders, NEPA, UWICMS

This action plan will be amended as necessary based on discussions with the Port Antonio community and as the program unfolds.

**MEMORANDUM OF UNDERSTANDING FOR NEGRIL COASTAL WATER QUALITY  
MONITORING PARTNERSHIP PROGRAM**

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**Memorandum of Understanding**

for the implementation of the

**Negril Area Coastal Water Quality Monitoring Partnership Programme**

among

**Negril Chamber of Commerce**

AFIWI Plaza, West End Road  
Negril, Westmoreland  
Jamaica, West Indies

**Negril Area Environmental Protection Trust**

Community Centre  
Negril, Westmoreland  
Jamaica, West Indies

**Negril Coral Reef Preservation Society**

Community Centre  
Negril, Westmoreland  
Jamaica, West Indies

and

**Natural Resources Conservation Authority's  
Coastal Water Quality Improvement Project**

10 Caledonia Avenue  
Kingston 5  
Jamaica, West Indies

**Purpose**

This Memorandum of Understanding (MOU) among the above mentioned parties clarifies the roles and responsibilities for the implementation of a Coastal Water Quality Monitoring Partnership Programme for the Negril area. A sustainable water monitoring programme has been needed in the Negril area for sound environmental planning and management. Previous efforts in coastal water monitoring have been sporadic, parameters varied, sampling methods inconsistent, and sampling results not reported back to the community. In addition, previous efforts have not been financially self-supporting to ensure regularity over time.

The NRCA/USAID Coastal Water Quality Improvement Project will assist the Negril community in the design and implementation of a water quality monitoring programme. The purpose of the Coastal Water Quality Monitoring Partnership Programme is to coordinate efforts, establish parameters, standardize sampling methods, assure quality control of analyses, and disseminate resulting information.

## Partners

Successful implementation of the Coastal Water Quality Monitoring Partnership Programme will require coordination and collaboration among key stakeholders including Government Agencies, Non-Governmental Organizations, Community-Based Organizations, and private sector interests. The Negril Chamber of Commerce (NCC), Negril Area Environmental Protection Trust (NEPT), Negril Coral Reef Preservation Society (NCRPS), University of the West Indies' Discovery Bay Marine Laboratory, and NRCA's Coastal Water Quality Improvement Project (CWIP) have been identified as the initial primary partners for the implementation of the Programme. It is anticipated that the National Water Commission's Quality Control and the Environment Department will work with the Programme at least for the first six months of implementation to provide quality assurance and control checks. Broader participation from other public and private sector entities will be encouraged as the Programme expands.

## Roles and Responsibilities

The development of the Coastal Water Quality Monitoring Partnership Programme is the result of extensive dialogue over the past nine months among the primary partners. It was agreed that the Programme would commence in November 1998. It was agreed that water samples would be collected in the initial stages at least once every two months. Primary partners have committed to specific roles and to provide resources to assure the success of the Programme. This Memorandum of Understanding clarifies the responsibilities of each organization as listed below:

### *Negril Chamber of Commerce*

- ✓ Work jointly with NEPT, CWIP, NCRPS and NRCA to implement and sustain a water quality monitoring sampling effort.
- ✓ Collection of water quality sampling at least once every two months from up to sixteen inland and marine locations in Negril.
- ✓ Select suitable volunteer persons to collect water samples.
- ✓ Provide for and equip a boat or boats for transport to collect water samples.
- ✓ As necessary, assist NEPT with an agreed quantum of fuel on an agreed schedule in order to defray water sample transport costs.
- ✓ Ensure sample collection and transport methods are in accordance with NRCA/CWIP protocols.
- ✓ Arrange for transportation for the water samples to the designated drop-off site in Montego Bay.
- ✓ Cooperate and coordinate efforts with NEPT, NCRPS and NRCA/CWIP for the successful implementation of the Programme.

### *Negril Area Environmental Protection Trust*

- ✓ Overall coordination of the Coastal Water Quality Monitoring Partnership Programme in Negril in collaboration with NCC, NCRPS and NRCA/CWIP.
- ✓ Provide technical advice and oversight for Programme implementation.

- ✓ Assemble water samples at a designated collection site in Negril for transport to Montego Bay and Kingston as required.
- ✓ Ensure water samples are packaged and transported in conformance with NRCA/CWIP procedures and protocols.
- ✓ Receive prepared sample containers and sampling equipment in advance of field sampling for safekeeping and delivery to water quality sampling team as per agreed schedule.
- ✓ Receive and ensure public dissemination of findings.
- ✓ Organize meetings with JHTA, NGIALPA, Parish Health Committee and other relevant organizations to review, discuss, and plan appropriate environmental actions in response to water quality monitoring data.

*Natural Resources Conservation Authority/Coastal Water Quality Improvement Project*

- ✓ Provide on-going technical and quality control oversight.
- ✓ Provide training for selected and approved water sample collectors.
- ✓ Transport samples from the designated drop-off points (1) in Montego Bay to the UWI's Discovery Bay Laboratory and (2) in Negril to Kingston as required.
- ✓ Deliver prepared sample containers and equipment to NEPT as per agreed schedule.
- ✓ Analysis and interpretation of water samples through the University of the West Indies' Discovery Bay Marine Laboratory during the initial phases of the Programme, until alternative financial resources for analysis and interpretation are permanently secured or NRCA laboratory services are upgraded.
- ✓ Return of water quality data to NCC, NCRPS and NEPT for effective dissemination to community members, local and national environmental management decision-making groups, and other appropriate interests.

*Negril Coral Reef Preservation Society*

- ✓ Exchange the water quality data obtained during the regular work of NCRPS with those generated by the Programme to comprehensively examine both surface and deep water quality data.
- ✓ Ensure the consistency and quality of data by cooperating with the Programme to carry out interlaboratory calibration exercises for the analysis of duplicate samples at the NCRPS laboratory and analytical laboratories identified under NRCA/CWIP.
- ✓ Provide technical insight to the Programme as frequently as possible given the primary obligations of the Society.

*Negril Chamber of Commerce*

*Negril Area Environmental Protection Trust*

*Negril Coral Reef Preservation Society*

*Natural Resources Conservation Authority/Coastal Water Quality Improvement Project*

- ✓ NRCA, NEPT, NCRPS and NCC commit to sustain the Programme beyond the completion of direct support from CWIP.

## Agreement

After review of this Memorandum of Understanding, all primary partners agree to the roles and responsibilities outlined. All primary partners commit to working together for the successful implementation of the Coastal Water Quality Monitoring Partnership Programme. The appropriate authorizing signatures confirm the primary partner commitments.

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Cliff Reynolds  
President  
Negril Chamber of Commerce

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Vincent Guthrie  
Chairman  
Negril Area Environmental Protection  
Trust

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Jean Brown  
President  
Negril Coral Reef Preservation Society

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Franklin McDonald  
Executive Director  
Natural Resources Conservation  
Authority

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Alexander Dickie  
Assistant Director  
Supervisor, Program Office

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Jan Auman  
Chief of Party  
Coastal Water Quality Improvement  
Project

USAID/Jamaica

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Date

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Coastal Water Quality Improvement Project