

PN-AAU-218

43218

EPM 34

**SCOPING STUDY FOR JAMAICA  
COUNTRY ENVIRONMENTAL PROFILE**

Ralph M. Field  
Dennis McCaffrey

August, 1984

This document was produced for the Environmental  
Planning and Management Project of the  
International Institute for Environment and  
Development under the  
Purchase Order Contract No. PO-1A

The Environmental Planning and Management Project is a cooperative agreement between the International Institute for Environment and Development and the U.S. Agency for International Development to respond to requests for assistance from developing countries in a variety of environmental and natural resource management problems.

Single copies of this document are available free from:

**International Institute for Environment and Development**  
1717 Massachusetts Ave. N.W.  
Washington, D.C. 20036  
(202) 462-0900

## CONTENTS

	<u>Page</u>
BACKGROUND	1
PROFILE OBJECTIVES AND PURPOSES	1
METHODOLOGY	2
GENERAL TERMS OF REFERENCE	3
WORK PHASES	4
ALLOCATION OF RESPONSIBILITY	6
SPECIFIC TERMS OF REFERENCE	7
Team Leader	7
Socio-economist	8
Legal/Institutional Analyst	9
Hydrologist	10
Agriculture Specialist	10
Forester	11
Specialist in Promotion	12
Parks and Wildlife Specialist	13
Fisheries Specialist	15
Specialist in Environmental Education	16
Specialist in Natural Hazards	17
Specialist in Pesticides, Pollution and Public Health	18
Tourism Specialist	19
Archeologist	19
Air Quality Specialist	20
PROGRAM BUDGET	21
ESTIMATED CEP BUDGET OPTIONS	23
DRAFT TABLE OF CONTENTS	24

- (

SCOPING STUDY  
FOR  
JAMAICA COUNTRY ENVIRONMENTAL PROFILE

BACKGROUND

This scoping study was prepared in Jamaica between August 23 and August 31, 1984 by Ralph M. Field, President, RMFA, Inc., and Dennis McCaffrey, Senior Research Associate for IIED, (henceforth called the CEP design team in this report). The design team held extensive interviews and meetings in Kingston with staff of Jamaican ministries and other public agencies, and with the USAID/Jamaica Mission.

The design team spent a considerable amount of time in discussion with the senior professional staff of the Natural Resources Conservation Department. The group was exceptionally well informed about environmental issues, and enthusiastic about performing a country environmental profile (CEP). In the course of discussions with NRCD staff, and others as well, specific issues to be addressed in the CEP were suggested. These suggestions were taken into consideration in designing the product outputs and the process to be followed in performing this CEP.

PROFILE OBJECTIVES AND PURPOSES

The environmental profile of Jamaica has the following objectives and purposes:

1. To prepare an authoritative reference work that documents Jamaica's natural resource base and the condition of the natural environment (in a way that can be periodically updated).
2. To describe and analyze the existing institutional framework as it affects resource sectors and areas of environmental concern.

3. To identify key governmental policies, programmes, and investment priorities affecting resource and environmental management.
4. To establish an analytic framework for evaluating and resolving conflicts in existing resource use and planned allocation.
5. To identify the areas of congruity and conflict between economic development and environmental protection in key sectors and activities.
6. To prepare a draft environmental policy statement for Jamaica.
7. To identify programmes and projects that further both environmental and development objectives that could be financed by the Government of Jamaica and/or the private sector with financial and technical assistance from AID and other donors.

#### METHODOLOGY

The Jamaica Country Environmental Profile will be performed by a team of Jamaican specialists covering the whole spectrum of environmental interest. The Jamaican team will be headed by Mrs. Beverly Miller, Principal Director, of the Natural Resources Conservation Department. An international environmental specialist with experience in Jamaica will serve as overall team leader for the profile. Additionally an international legal/institutional analysis will work with the team. General terms of reference for all team members are described below, followed by specific terms of reference for each specialist. Separate terms have been prepared for each principal sector, although there may be cases where a specialist will be responsible for more than one sector.

The CEP will be prepared sequentially to ensure that the technical information gathered and its subsequent analysis is reviewed in the broad context of the Government of Jamaica's existing and potential capabilities to address environmental issues. The CEP team leader will present a general orientation on the CEP process to the CEP Team. Members will then collect and analyze information on their principal sector and prepare a draft sector report. These sector reports are to be submitted to the team leader, who will lead the synthesis effort among the team members. The final environmental profile document should be published as soon as possible after completion of the draft synthesis. At least one thousand copies of the final document should be printed.

The environmental profile document should be brief enough, (maximum of 125 - 150 printed pages), that busy people will read it, as well as the executive summary that will be extracted from it and printed separately. The document should be promoted within Jamaica and internationally. Good promotion will increase Jamaican awareness of environmental issues and encourage public and private actions. It will also bring national environmental issues to the attention of international lending agencies that can be approached for financing environmental actions suggested in the profile.

#### GENERAL TERMS OF REFERENCE

In performing the environmental profile each sector specialist should actively exchange information and ideas with other team members. The specialist should present data graphically (where possible) and also submit captioned photographs that illustrate issues or points of interest. Each sector specialist will be expected to analyze the

key institutions involved in or responsible for his sector. The specialists should also point out actual and potential conflicts with other sectors and state insights on how to resolve such conflicts. Each specialist should identify possible environmental improvement projects, within his sector, that could be financed by the Government and/or private sector with and without financial assistance from the donor community.

Each specialist must turn in a draft report, approved by the team leader, covering his specific terms of reference. International consultants will be expected to work a six day week.

#### WORK PHASES

##### Phase 1:

In order to ensure that the research and analysis is carried out with maximum effectiveness, work in Phase 1 should begin as soon as possible. Materials in NRCO files pertinent to each of the sectors or areas of environmental concern, shall be summarized by NRCO's professional staff. The file search will be supplemented by interviews with knowledgeable persons from other agencies, library research, and referencing of earlier documents pertaining to the CEP. A principal objective of the Phase 1 work is to correctly focus the direction of the research that will be conducted by local consultants retained to prepare the sectoral reports.

The work in Phase 1 will be designed to reveal major gaps in our information base. By systematically reviewing readily available information sources, NRCO staff will be able to provide the team leader with a much sounder basis for programming future work, identifying where technical experts will be needed, and helping to focus

their efforts to produce desired outputs. No contracting of technical experts will be undertaken during Phase 1. (See page 22 for Phase 1 budget.)

Phase 2:

The full study effort will be launched during Phase 2. Final work scopes for each of the sectors shall be prepared; candidates will be screened for the various consulting assignments; and, contracts will be entered into between those who are selected and IIED. In addition to proceeding with the technical work, various administrative procedures shall be established between IIED and the Government of Jamaica for the disbursement of funds for consultants, and for expenses incurred by NRCD in the course of carrying out the CEP. As part of the CEP effort, NRCD will attempt to set up both a technical advisory committee and a citizens advisory committee to ensure wide participation by a cross section of Jamaican society. A special attempt will be made to obtain private sector representation on the citizens advisory committee.

ALLOCATION OF RESPONSIBILITY

Responsibility for producing the Jamaica CEP shall be allocated among the International Institute for Environment and Development, IIED, the Jamaican Natural Resources Conservation Department, NRCD and the United States Agency for International Development, USAID.

IIED shall have overall responsibility for production of the CEP and for presenting a camera-ready copy of the profile document to USAID. IIED will meet its responsibilities by contracting an international environmental management specialist to serve as team leader for the profile process plus contracting any other personnel not available in Jamaica. IIED shall also provide from its staff a legal/institutional analyst to participate in the profile.

NRCD shall provide from its staff the Jamaican team leader for the CEP plus several specialists to work on various sectors of the profile that lie within their expertise. NRCD shall also provide office space in which to work on the profile. NRCD's contribution of personnel and office space constitutes the Jamaican Government's counterpart contribution to the CEP project.

In its contract with IIED, provision shall be made for NRCD to hire a secretary to work on the profile. Provision shall also be made in the contract for the logistical and administrative needs of the CEP team by providing funds for photocopying, local travel, local and long distance telephone, and other support services.

NRCD shall locate qualified Jamaican personnel to perform those parts of the CEP that will not be performed by international specialists nor by NRCD staff. These Jamaican specialists will be contracted individually by IIED to perform specific portions of the CEP. Their contracts will provide for partial disbursement upon initiation of work, partial disbursement upon submission of a draft report, and final disbursement upon acceptance by the international team leader of a final report.

USAID, through the AID/Jamaica Office of Agricultural Development and the office of the Regional Environmental Management Specialist for the Caribbean, shall provide guidance and review to the CEP to insure that it meets USAID'S development objectives in Jamaica.

#### SPECIFIC TERMS OF REFERENCE

##### Team Leader

##### Duties:

- Direct the environmental profile process for the CEP, including the preparatory meetings in Kingston, collaboration with the Jamaican Natural Resources Conservation Department in selection of Jamaican participants and defining their terms of reference, organizing and coordinating CEP team efforts in Jamaica, leading the synthesis effort and following through to publication of the CEP.
- Approve and accept all draft sector reports prepared by CEP participants.
- Work closely with Jamaican counterpart to maximize integration and collaboration of all members of the CEP team.

##### Qualifications:

- Significant expertise and experience in directing multi-sectoral, environmental teams.
- Working experience in Jamaica, and familiarity with development projects and environmental issues in Jamaica.

- Demonstrated competence in technical writing and integrating several sectoral reports into a coherent document.
- Ability to work effectively with Jamaican professionals.

### Socio-economist

#### Duties:

- Review and briefly describe the cultural history and background of Jamaica, emphasizing patterns and attitudes concerning natural resources and the environment.
- Summarize demographic patterns and projections for Jamaica's population with emphasis on pressures on the environment and natural resources.
- Briefly describe Jamaica's general economy, covering such things as GNP, imports and exports, economic activity by sector and by population group, balance of payments, unemployment, etc. Relate the general economy to natural resources and environment.
- Analyze social and economic aspects of key sectors affecting natural resources and the environment: agriculture, energy, mining, forestry, fisheries, tourism, etc.

#### Qualifications:

- Education in sociology and economics.
- Experience in social and economic analysis in Jamaica.
- Thorough familiarity with Jamaica's social and economic conditions.

Legal/Institutional Analyst

Duties:

- Review and briefly describe relevant legislation and policy documents regarding natural resources and environment. Description should concentrate on adequacy and effectiveness of laws and policies.
- Review and briefly describe government and non-government institutions working with natural resources and environment. Description should concentrate on objectives, policies, and programs. It should also discuss levels of capability and expertise, credibility, and effectiveness of the institutions.
- Make recommendations on how to enhance the effectiveness of legislations, policies, and institutions analyzed. Recommendations should be tailored to carrying out environmental action programs set out in the CEP.

Qualifications:

- Familiarity with environmental and natural resources law and policy in developed and developing countries.
- Experience in programming and administering complex environmental projects involving public and private sector institutions.

Hydrologist

Duties:

- Review and briefly describe the hydrologic resources of Jamaica.
- Summarize the environmental aspects of existing and planned water projects: irrigation, potable water, industrial water supply, hydroelectric power generation.
- Assess the causes and potential controls of floods along major rivers in Jamaica.
- Assess the groundwater resources of the country, with emphasis on availability and quality suitable for competing uses.

Qualifications:

- Thorough expertise in the evaluation of hydrologic resources.
- Familiarity with water resources and projects in Jamaica.
- Capability of assessing groundwaters resources.

Agriculture Specialist

Duties:

- Review and briefly describe the agricultural situation in Jamaica, including recent statistics on major crops for internal and external markets, and the area planted and average yields of each major crops, include discussion of important subsistence crops.
- Assess the current economic role and possibilities for increasing production of major crops.

- Describe current practices of land preparation, use of fertilizers and pesticides, and harvesting, and assess the environmental implications of traditional and high technology agricultural practices.
- Evaluate Jamaican efforts and programs in soil conservation and land use capability classification.
- Discuss programs to promote non-traditional crops in Jamaica.

Qualifications:

- Education in agriculture, agronomy or related field.
- Thorough familiarity with traditional and modern agriculture in Jamaica.

Forester

Duties:

- Review and briefly describe the forest resources of Jamaica, including summaries of ecological life zones, major forest types and principal tree species.
- Assess the state of knowledge about the Jamaican flora, highlighting endangered or threatened plant species.
- Summarize the economic and ecologic roles of forest industries, including recent statistics on production, demand, local consumption, exports, etc.
- Assess the causes, rate, extent and effects of deforestation in Jamaica.

- Describe the status, purpose, extent and administration of plantation forest reserves and other production forests.
- Evaluate forestry programs in silviculture, reforestation, agroforestry, training, etc.

Qualifications:

- Thorough familiarity with Jamaica forestry and forest resources.
- Expertise in tropical forestry/silviculture.

Specialist in Promotion

Duties:

- Set up and carry out promotional activities for the CEP during the process of its preparation and upon its publication.  
Promotional activities could include such things as seminar, business lunches, press conferences, television appearances and formal and informal meeting with influential persons in government and the private sector.
- Coordinate promotional activities with the advancement of the preparation of the CEP and with the findings of other members of the CEP team.

Qualifications:

- Experience in setting up and carrying out promotional activities in Jamaica.
- General knowledge of environmental and natural resources issues in Jamaica.

## Parks and Wildlife Specialist

### Duties:

- Review and briefly describe the status of conservation of Jamaica's parks and wildlife.
- Assess the state of knowledge about Jamaica's terrestrial wildlife (plants and animals) highlighting endangered or threatened species.
- Evaluate Jamaica's system of national parks and equivalent reserves as to ecosystems represented or not included, administration, protection, legal status, problems, threats, etc.
- Review the political, legal, economic and ecologic implications of hunting (both for game meat and for skins or hides) and recommend objective and politically feasible mechanisms of control.

### Qualifications:

- Recognized expertise in the taxonomy and ecology of Jamaican wildlife.
- Familiarity with parks and wildlife conservation issues in Jamaica.

### Specialist in Urban Development and Industry

#### Duties:

- Briefly describe Jamaica's urban development and industrial situation, paying particular attention to development trends and the interaction that urban development and industry have with natural resources and the environment.
- Analyze predicted impacts on environment and natural resources of Jamaica's urban development and industrial plans and programs.

#### Qualifications:

- Thorough knowledge of Jamaican industry and urban development.
- Experience in analyzing urban development and industrial trends and programs.

### Mining and Energy Specialist

#### Duties:

- Review and briefly describe the energy situation in Jamaica emphasizing actual and planned projects, actual energy sources in urban and rural areas, sector demands and substitution of local energy for petroleum products.
- Assess the potential of alternative energy sources such as alcohol, solar, wind, biomass, etc.
- Describe Jamaica's mineral resources and mining industry with special emphasis on present and predicted environmental impacts of mining.

Qualifications:

- Thorough knowledge of the energy requirements and possibilities of Jamaica.
- Familiarity with a broad array of alternative energy sources.
- Thorough knowledge of Jamaica's mineral resources and mining industry.

Fisheries Specialist

Duties:

- Briefly describe Jamaica's fisheries resources and their significance in Jamaica life including statistics on catch, imports and exports, fish consumption, and industries based on fish.
- Assess the quality and quantity of fish stocks and indicate predicted trends in stocks and in fishing.
- Analyze the relationship between fisheries and environmental factors that affect them.

Qualifications:

- Knowledge of Jamaican fisheries and environmental impacts on fisheries.
- Experience in analyzing fisheries in an environmental context.

Specialist in Environmental Education\*

Duties:

- Review current status of environmental education (e.e.) in formal and non-formal settings, identify and briefly describe existing programs.
- Review results of CEP sector assessments and identify where e.e. can play a significant role in carrying out recommendation actions.
- Based on review, make recommendations for the types of e.e. programs appropriate for Jamaican needs.
- In close coordination with the institutional analysis identify private and public institutions that can carry out e.e. programs.
- Make recommendations for possible funding mechanisms and sources for potential e.e. projects.

Qualifications:

- Experience in Jamaica in programming e.e. programs in formal and non-formal settings for different types of audiences on small and large scales

---

\* Environmental education to be defined in the broad sense, i.e. any type of education to be applied for diverse audiences in order to bring about improved environmental/natural resources management.

Specialist in Natural Hazards

Duties:

- Briefly describe the natural hazards to which Jamaica is vulnerable. These should include hurricanes, coastal floods, riverine floods, high winds, earthquakes, landslips, and storm surge.
- Identify the areas of high risk in both rural and urban settings. Trace the pattern of past damages resulting from natural hazards including property damage and loss of life or personal injury.
- Assess the extent to which environmental problems such as deforestation, soil erosion, and wetlands destruction contribute to hazard-related risks to life and property.
- Assess the extent to which hazard mitigation actions have been taken, their degree of success, and needed additional implementation measures or programs.

Qualifications:

- Professional involvement in hazard mitigation activities in Jamaica and the Caribbean.
- Training in the social or physical sciences related to one or more aspects of natural hazards and hazard mitigation.

Specialist in Pesticides, Pollution, and  
Public Health

Duties:

- Briefly describe the Jamaican situation in environmental pollution with regard to water quality solid waste disposal, sewage disposal, and pesticides.
- Assess the use of pesticides in Jamaica including imports, controls and education for appropriate usage, and disposal of residues.
- Briefly describe the public health and nutritional status of Jamaica's population with such stratification by age, sex, education, urban/rural location and other criteria as are appropriate.
- Evaluate Jamaican public health and environmental sanitation programs.

Qualifications:

- Thorough knowledge of Jamaican public health and environmental sanitation situation.
- knowledge of appropriate pesticide handling techniques and dangers of improper pesticide usage

### Tourism Specialist

#### Duties:

- Describe Jamaican tourist industry with particular reference to interrelationships between tourism and environment.
- Analyze effects that environmental degradation could have on tourism and also adverse effects that tourism can have on the environment.

#### Qualification:

- Thorough knowledge of Jamaica's tourist industry.
- Solid understanding of environmental problems and issues in Jamaica.

### Archeologist

#### Duties:

- Describe the role of archeology in Jamaican culture.
- Describe Jamaica's major archeological and historic sites and discuss their protection and how they interrelate with the environment and with environmental protection.

#### Qualifications:

- Thorough knowledge of Jamaican archeology.
- Good understanding of environmental issues in Jamaica.

Air Quality Specialist

Duties:

- Briefly describe Jamaica's situation with regard to air quality, highlighting localities where air pollution are acute.
- Analyze Jamaica programs for air pollution control.

Qualifications:

- Thorough knowledge of Jamaica's air quality situation and programs for air pollution control.
- Good understanding of environmental issues in Jamaica.

PROGRAM BUDGET

Budget Management:

The full budget, presented on page 23, is divided into a Jamaica Component and an International Component. While all disbursements would be made through the prime contractor (IIED), the Principal Director of NRCD, who would be the counterpart Team Leader, and the Team Leader would jointly concur on disbursements for the Jamaica Component. As noted previously, an accounting procedure would be incepted by NRCD, for purposes of recording payments to local consultants, and paying for the purchase of services and supplies required by the project.

Options:

At the request of AID, three budget alternatives were prepared.

Option A (\$149,000) Full Staffing 15-Month Effort, is the preferred alternative. It would permit a full 12 months for the conduct of the technical work, carrying out of the public educational program, and the preparation of the draft report. The remaining three months would be used for GOJ and AID review, revisions to the draft report, and preparation of camera-ready copy.

Option B (\$122,600), Full Staffing, 12-Month Effort, is less desirable since it would allow only three-quarters of a year for conducting the technical work, undertaking the public education, and establishing the technical advisory committee and citizens advisory committee. The remaining quarter would be used as indicated in Option A above.

Option C (\$94,000), Minimum Staffing, 12-Month Effort, is least desirable. It would allow nine months for completion of all the technical work with minimum allowance for retaining local technical experts. The International Component would be reduced to the point of providing overall guidance without any technical input and minimum participation in writing the final report. While a product would be assured, product quality would be weakened.

Project Phasing:

Earlier in this Scoping Study (see pages 4-5), it was recommended that a Phase 1 effort be launched as soon as possible to maintain the momentum that has been generated. To expedite the Phase 1 work it is suggested that a short-term contract (or purchase order) be authorized by AID to allow the Team Leader to assist NRCD's staff in getting the process underway. This move is regarded as desirable from a management standpoint as well as from a technical point of view. A small initial expenditure would have a major multiplier effect insofar as it would mobilize NRCD's technical and professional staff, and lay the basis for the full program in Phase 2.

Phase 1 costs are as follows:

<u>Jamaican Component</u>	- 0 -
<u>International Component</u>	
Team Leader	\$3,200
Travel	1,300
Per dien	<u>1,071</u>
SUB-TOTAL	\$5,571
OVERHEAD	2,786
TOTAL	\$8,357 (\$8,400 rounded)

This amount (\$8,400) would be subtracted from the total contract amount for each of the three budget options shown on the following page.

ESTIMATED CEP BUDGET OPTIONS

<u>Major Budget Item</u>	<u>A. Full Staffing 15 - Month Effort</u>	<u>B. Full Staffing 12 - Month Effort</u>	<u>C. Min. Staffing 12 Month Effort</u>
<u>Jamaica Components</u>			
Honoraria/Salaries*			
Technical Experts @ \$450 p/wk	24,750.00	20,230.00	15,750.00
Executive Secretary @ \$58 p/wk	3,750.00	3,000.00	3,000.00
Draftsman @ \$50 p/wk	750.00	500.00	-
Public Education/Promotion	3,125.00	2,500.00	2,000.00
Travel/Subsistence	3,750.00	3,750.00	2,500.00
Supplies and Equipment	2,500.00	2,000.00	1,500.00
Photoreproduction, graphics	750.00	750.00	500.00
Misc. (including telephone)	<u>750.00</u>	<u>500.00</u>	<u>500.00</u>
JAMAICA SUB-TOTAL	<u>\$40,125.00</u>	<u>\$33,250.00</u>	<u>\$25,750.00</u>

International Components

Honoraria/Salaries/Fees

(amounts shown are exclusive of fringe benefits, general and administrative, and overhead):

Technical Experts @ \$175 p/d	4,200.00	3,150.00	2,100.00
Team Leader @ \$200 p/d	16,800.00	14,400.00	12,000.00
Technical Support @ \$160 p/d	7,200.00	5,600.00	3,200.00
Travel and Transportation			
Per diem @ \$119 p/d	17,380.00	14,285.00	11,190.00
Travel @ \$650 p/rt	<u>\$13,650.00</u>	<u>\$11,050.00</u>	<u>\$ 8,450.00</u>
INTERNATIONAL SUB-TOTAL	\$59,230.00	\$48,485.00	\$36,940.00
TOTAL JAMAICA & INTERNATIONAL	\$99,355.00	\$81,735.00	\$62,690.00
OVERHEAD @ 50%	<u>\$49,678.00</u>	<u>\$40,868.00</u>	<u>\$31,345.00</u>
BUDGET TOTAL	\$149,000.00	\$122,600.00	\$94,000.00

\* Covers Jamaican personnel who would be contracted from outside the NRCD. These experts, and the executive secretary, would supplement NRCD's technical, professional and administrative staff who would be assigned to the CEP as part of the local contribution.

JAMAICA ENVIRONMENTAL PROFILE

DRAFT TABLE OF CONTENTS

- 1.0 Executive Summary
- 2.0 Introduction: Purpose of the Profile
- 3.0 Cultural history of human interactions with the environment
- 4.0 Country development goals
- 5.0 The national environment
  - 5.1 External interactions
  - 5.1 Country model
  - 5.3 Thematic maps
  - 5.4 Interaction matrix
- 6.0 Sector assessment
  - 6.1 Agriculture
  - 6.2 Forestry
  - 6.3 Fisheries
  - 6.4 Mining/minerals
  - 6.5 Training
  - 6.6 Industrial
  - 6.7 Parks and wildlife
  - 6.9 Recreation and Tourism
  - 6.10 Natural Hazards
  - 6.11 Coastal Areas
  - 6.12 Water and Hydrology
  - 6.13 Urban infrastructure
  - 6.14 People
  - 6.15 Education and research
  - 6.16 Private - Consultants, PVOs, etc.
- 7.0 Problems and Opportunities
  - 7.1 Policies, programs and projects
  - 7.2 Constraints and conflicts
  - 7.3 Conflict resolution and management opportunities
- 8.0 Draft environmental policy statement
- 9.0 Program and project recommendations
- 10.0 Updating process
- 11.0 Relation of Profile to other donor activities
- 12.0 Annexes
  - 12.1 Referenced cited
  - 12.2 Annotated bibliography
  - 12.3 Location of useful information
  - 12.4 Director of environmentl and social sciences
  - 12.5 Director of government agencies, PVOs, and consulting firms