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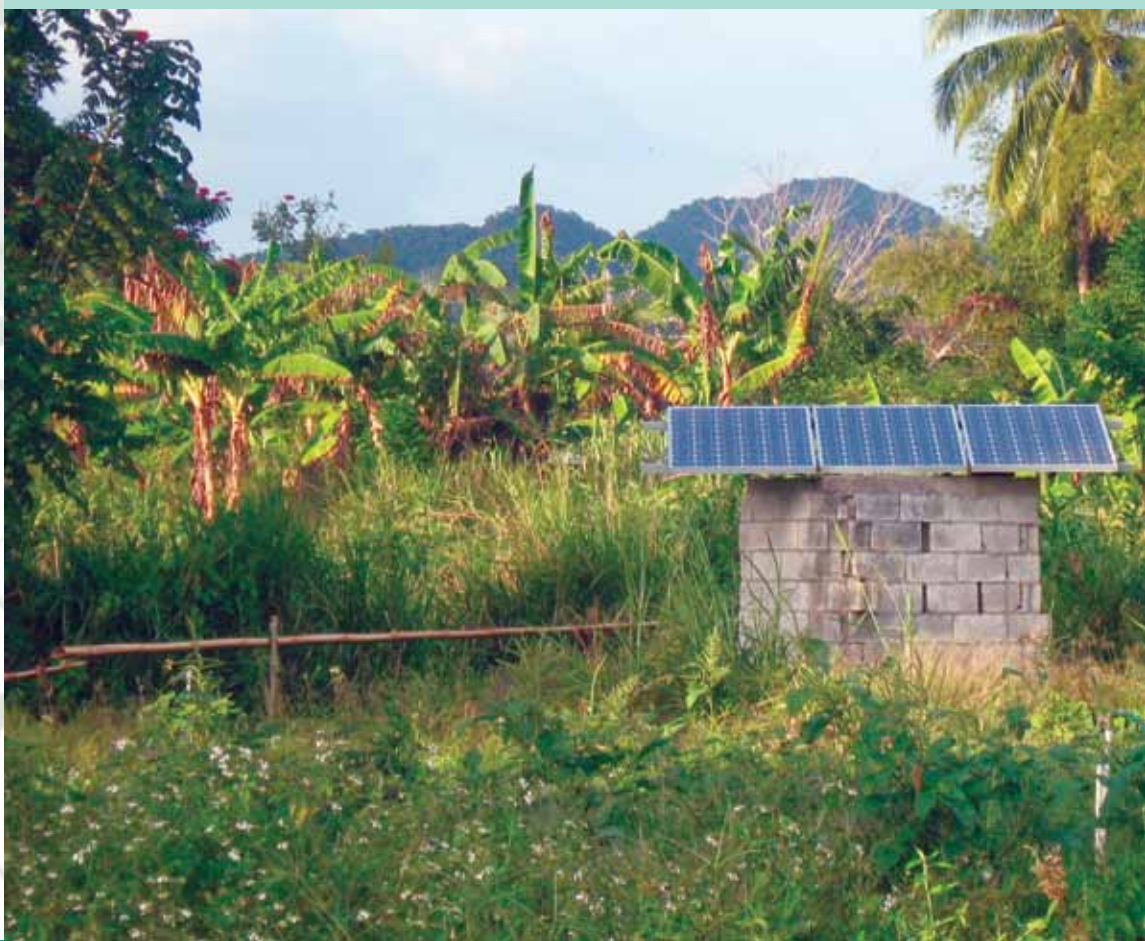
PORTFOLIO
STUDY

Jamaica (1994–2010)

Volume 1: Evaluation Report



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Country Portfolio Study: Jamaica (1994–2010)

April 2012

(The main conclusions and lessons learned of this evaluation were presented to the GEF Council in May 2011.)

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Contents

Foreword

The Jamaica Country Portfolio Study was one of two such studies conducted in 2011 examining Global Environment Facility (GEF) support in the Latin America and Caribbean region. The Jamaica Country Portfolio Study was conducted in parallel with a country evaluation being conducted by the United Nations Development Programme (UNDP) Evaluation Office in Jamaica. The rationale behind this approach was that in Jamaica, UNDP is the main GEF Agency implementing projects; from the UNDP point of view, the GEF is one of the main UNDP funders in Jamaica. This collaboration between the two offices enabled a more informed evaluation, a lower evaluation burden to the country, and cost savings in the evaluation effort.

The study found that GEF support in all focal areas has helped Jamaica develop good capacity in environmental management and link to international best practices. However, the country lacks the resources to scale up from these initial benefits, and the GEF portfolio is not sufficiently well known among Jamaica's other international development partners to maximize collaboration and follow-up. The process of developing and managing the GEF portfolio has strengthened networking among national agencies engaged in environmental management. It would be more appropriate to talk of national "adoption" than of national "ownership" of the GEF portfolio.

The study found that GEF support in Jamaica has been relevant to its national environmental goals and priorities, as well as to the country's efforts to fulfill its obligations under the international agreements to which it is a signatory.

Analysis of the efficiency of GEF support indicates that all three GEF Agencies active in Jamaica—UNDP, the United Nations Environment Programme, and the World Bank—have experienced problems in keeping projects within their intended time limits. This situation frustrates partners and may reduce effectiveness, since projects often have to take shortcuts to try to get back on schedule. Few projects have avoided contracting delays, because of limited national and regional availability of qualified environmental expertise, as well as administrative hold-ups.

The GEF Evaluation Office and the GEF operational focal point invited a large number of stakeholders to a presentation of a synthesis of the study findings in April 2011 in Kingston. During the workshop, the context and methodology were presented as well as the preliminary findings and lessons. The feedback received was highly constructive, and comments have been incorporated into this report as appropriate. A summary of this document was presented to the GEF Council in May 2011.

The GEF Evaluation Office would like to thank all who collaborated with the study. I would also like to thank all those involved for their support and useful criticism. Final responsibility for this report remains firmly with this Office.

Rob D. van den Berg
Director, GEF Evaluation Office

Acknowledgments

This report was prepared by a team led by Carlo Carugi, Senior Evaluation Officer and Team Leader for country portfolio evaluations in the GEF Evaluation Office. Maria Soledad MacKinnon acted as research assistant. The evaluation team included David Todd (Lead Consultant) and David Lee (Senior Environment and Energy Specialist). Government officials of Jamaica were very supportive and provided full cooperation to these evaluation efforts.

An aide-mémoire containing key preliminary findings was presented in Kingston in April 2011 to national stakeholders, including representatives of the national government, the GEF Agencies, nongovernmental organizations and other civil society partners, and academia. The feedback received was highly constructive and the comments have been incorporated into this report as appropriate.

Abbreviations

CARICOM	Caribbean Community
CBD	Convention on Biological Diversity
CEO	Chief Executive Officer
CIDA	Canadian International Development Agency
CPE	country portfolio evaluation
CPS	country portfolio study
DFID	Department for International Development
FSP	full-size project
GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
IDB	Inter-American Development Bank
IUCN	International Union for Conservation of Nature
IWCAM	Integrating Watershed and Coastal Area Management in the Small Island Developing States of the Caribbean
MSP	medium-size project
NEPA	National Environment and Planning Agency
NGO	nongovernmental organization
PARC	Protected Area Resource Conservation
PDF	project development facility
POP	persistent organic pollutant
PPG	project preparation grant
RAF	Resource Allocation Framework
ROtI	review of outcomes to impacts
SGP	Small Grants Programme
SIDS	small island developing states
STAR	System for Transparent Allocation of Resources
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services
USAID	U.S. Agency for International Development

All dollar amounts are U.S. dollars unless otherwise indicated.

1. Main Conclusions and Lessons Learned

1.1 Background and Objectives

Country portfolio studies (CPSs) supplement the country portfolio evaluations (CPEs) that comprise one of the main evaluation work streams of the Global Environment Facility's (GEF's) Evaluation Office. CPSs provide additional coverage of country portfolios, but with a reduced focus and scope. The purpose of CPEs and CPSs is to provide the GEF Council with an assessment of how GEF support is implemented at the country level, to report on results from projects, and to assess how these projects are linked to national environmental and sustainable development agendas as well as to the GEF mandate of generating global environmental benefits within its focal areas. CPSs have the following objectives:

- Independently evaluate the **relevance and efficiency** of GEF support in a country from several points of view: national environmental frameworks and decision-making processes, the GEF mandate and the achievement of global environmental benefits, and GEF policies and procedures[1]
- Assess the **effectiveness and results** of completed projects aggregated at the focal area[2]
- Provide **feedback and knowledge sharing** to (1) the GEF Council in its decision-making process to allocate resources and to develop policies and strategies; (2) the country on its participation in, or collaboration with, the GEF; and (3) the different agencies and organizations involved in the preparation and implementation of GEF-funded projects and activities

1.2 Scope and Methodology

The Jamaica CPS covered the full range of GEF-financed interventions, including national projects and Jamaican elements of regional and global projects. Although the principal focus was on completed projects, those still active were also assessed in terms of their relevance.

The CPS used a variety of evaluation methods. Its starting point was a detailed review of public and internal documents, including those from the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), the World Bank, the GEF

[1] **Relevance:** the extent to which the objectives of the GEF activity are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donors' policies; **efficiency:** a measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results.

[2] **Results:** the output, outcome, or impact (intended or unintended, positive and/or negative) of a GEF activity; **effectiveness:** the extent to which the GEF activity's objectives were achieved, or are expected to be achieved, taking into account their relative importance.

Evaluation Office, the Jamaican government, nongovernmental organizations (NGOs), and other sources. These documents yielded initial data sets that provided directly relevant information as well as established key questions for follow-up through primary data collection.

After the initial desk review work, a program of semi-structured interviews was drawn up with a broad range of partners in government, parastatals, civil society, international development partners, and other bodies.[3] Respondents were invited to draw on their understanding and experience of activities, projects, processes, challenges, and results. These interviews provided the major source of primary data assembled by the study team.

To explore the long-term results of one major GEF activity, a review of outcomes to impacts (ROtI) was undertaken for the Jamaica Demand Side Management Demonstration project (GEF ID 64). This study is presented in volume 2 of this report. Using the standard ROtI methodology (see GEF EO and CDC 2009), the CPS team conducted group and individual interviews and critically reviewed documents to explore progress along a theoretical chain from outputs to global environmental benefits.

An additional source of evaluative material was a review of existing evaluations of projects and of the UNDP energy and environment portfolio (Navajas 2010). The CPS team also undertook limited field-level verification of results to add to the understanding of results achieved, beneficiary perceptions of participating in GEF-supported activities, and sustainability of benefits. A coherent understanding of the issues under review was obtained through triangulation of methods (desk review of monitoring data, evaluation reports, interviews, and field verification) and sources (Implementing and executing Agency staff, project personnel, and beneficiaries).

A specific feature of the Jamaica CPS is that it was conducted in parallel with the UNDP Assessment of Development Results for Jamaica (2002–2010). The team leader and consultant conducting the CPS were also responsible for coverage of the UNDP energy and environment portfolio. This provided advantages for both studies, as well as cost savings. For the CPS, the sharing of team members meant that the UNDP GEF portfolio was studied in greater detail than would otherwise have been possible. Substantive issues, such as the overlap between GEF and Agency project cycles, were also clarified.

1.3 Overview of the GEF Portfolio

As shown in table 1.1, completed activities in the GEF's Jamaica portfolio are predominantly in the climate change focal area. However, these figures—as is discussed later in this report—are skewed by one early full-size project (FSP); aside from this, the portfolio has been balanced across the focal areas and consists of predominantly small inputs. Table 1.2 clarifies the balance among project activities.

The national portfolio consists largely of UNDP–implemented activities, which are either enabling activities or medium-size projects (MSPs), often with a focus on capacity development. All projects are under the $0.5 million level, except for one early World Bank project ($3.8 million) and two FSPs that are just getting started.

In addition to these activities, Jamaica has participated in various regional and global projects. Several of these have had relatively small national capacity development inputs, but others have

[3] See annex B for a list of persons contacted.

Table 1.1

GEF Portfolio in Jamaica by Focal Area, Status, and Amount of Support

Focal area	Completed		Ongoing		Pipeline		Total		Share (%)	
	GEF grant (million $)	Total support (million $)	GEF grant (million $)	Total support (million $)	GEF grant (million $)	Total support (million $)	GEF grant (million $)	Total support (million $)	GEF	Total
Biodiversity	0.41	0.59	2.77	10.38			3.18	13.74	26.81	32.64
Climate change	4.13	12.95			3.08	9.20	7.21	25.23	60.79	59.94
International waters							0	0	0	0
Land degradation			0.50	0.99			0.5	1.49	4.22	3.54
POPs	0.24	0.24					0.24	0.24	2.02	0.57
Multifocal	0.23	0.26	0.50	0.63			0.73	1.39	6.16	3.30
Total	**5.01**	**14.04**	**3.77**	**12.00**	**3.08**	**9.20**	**11.86**	**42.09**	**100.00**	**100.00**

Note: POPs = persistent organic pollutants.

Table 1.2

GEF Portfolio in Jamaica by GEF Agency, Focal Area, Modality, and Amount of GEF Support

GEF Agency	Focal area	No. of projects	Modality	GEF grant (million $)
UNDP	BD	2	EA	0.41
	BD	1	FSP	2.77
	CC	2	EA	0.33
	CC	1	MSP	0.72
	LD	1	MSP	0.50
	POPs	1	EA	0.24
	MF	1	EA	0.23
	MF	1	MSP	0.50
UNEP	CC	1	FSP	2.36
World Bank	CC	1	FSP	3.80

Note: BD = biodiversity, CC = climate change, EA = enabling activity, LD = land degradation, MF = multifocal, POPs = persistent organic pollutants.

had pilot or demonstration activities in Jamaica; these have been larger than most activities in the national portfolio. These regional and global projects are therefore a considerable and important part of overall GEF support to Jamaica—a situation likely to be common among small island developing states (SIDS) in general and in the Caribbean in particular.

1.4 Conclusions

Results

GEF **biodiversity** projects have been broadly successful in delivering their intended results, most of which have enabled Jamaica to meet its obligations under the global environmental conventions. Jamaica's participation in the many international conventions and agreements to which it is a signatory would have been significantly delayed without GEF assistance.

In the field of **climate change**, some measurable environmental benefits have been attained through the large-scale adoption of compact fluorescent light bulbs, with limited additional gains from energy efficiency measures taken by the government. GEF support has helped Jamaica substantially increase its capacity in such areas as renewable energy, energy efficiency, climate change adaptation, and energy sector planning and management. The adaptation activities have increased capacity to understand and track the effects of climate change and to plan responses to them. The major challenge remaining concerns how the country can finance the measures

necessary for further mitigation and to adapt effectively and reduce vulnerabilities associated with climate change.

International waters projects have produced results in terms of capacity development, enhanced regional collaboration, and successful pilot/demonstration activities, but prospects for sustainability of benefits are weak. Activities in the marine environment and watershed management are of critical importance to Jamaica and have received effective support from the GEF. However, the high costs of investment proposed in Kingston Harbour were beyond national resources, and the community-based environmental management processes demonstrated by the Integrating Watershed and Coastal Area Management in the Small Island Developing States of the Caribbean (IWCAM) project (GEF ID 1254) have already encountered sustainability issues in the absence of continued benefit flows to communities.

In some focal areas, the results of individual GEF projects have made a cumulative contribution toward broader environmental benefits. The first set of activities that has allowed accumulation of results supported integrated watershed management, sustainable land use, national communications to the United Nations Framework Convention on Climate Change (UNFCCC), energy efficiency, and renewable energy—all of which have contributed to national policies and actions related to climate change mitigation and adaptation. A second, partially overlapping, set has contributed to biodiversity conservation as well as to the quality of international waters through strengthened national participation in the Convention on Biological Diversity (CBD), management of watersheds in areas rich in biodiversity, conservation of areas important for bird life, coastal zone management, and measures to address invasive alien species.

Conclusion 1: GEF support in all focal areas has helped Jamaica develop good capacity in environmental management and link to international best practices. However, the country lacks the resources to scale up from these initial benefits, and the GEF portfolio is not sufficiently well known among Jamaica's other international development partners to maximize collaboration and follow-up.

Most of the activities completed with GEF assistance have been of an enabling, capacity development, or pilot nature, and the real challenges come with the need to sustain and scale up the results achieved. Given the limited resources available to the Jamaican government, the prospects for this to happen appear slight. This deficiency increases the importance of effective collaboration among GEF Agencies, and with other international development partners, to maximize the complementarity between their activities. The possibilities for such collaboration are unfortunately limited by the low profile of the GEF portfolio among these international stakeholders.

After an initial engagement with Jamaica through an FSP, the World Bank has mainly been active in regional activities affecting the country. Interagency collaboration between the UNDP country office and the UNEP regional office was found to be at a low level. International stakeholders outside the GEF Agencies claimed little knowledge of the portfolio and were therefore unable to respond to it effectively.

Conclusion 2: The process of developing and managing the GEF portfolio has strengthened networking among national agencies engaged in environmental management.

Partnership building is an additional benefit expected to result from participating in GEF activities. This result is particularly important

for a relatively small program such as Jamaica's. In several cases, national Agencies have expanded their partner networks through GEF projects. For example, the IWCAM project has helped Jamaica's National Environment and Planning Agency (NEPA) develop a new approach to working with government agencies, local government, and community organizations. The Meeorological Service, which is the national focal point for the UNFCCC, strengthened its contacts with the Cabinet of ministers and line agencies while preparing the Second National Communication on Climate Change; it also worked directly with an NGO on climate change for the first time.

Conclusion 3: It would be more appropriate to talk of national "adoption" than of national "ownership" of the GEF portfolio.

The GEF portfolio has been mainly designed by the GEF Agencies, but is relevant to national priorities. The Jamaican government and other stakeholders have committed to activities at various stages of design and implementation, but cannot be said to have led the process. Many national stakeholders indicated that the availability of environmental specialists in the UNDP country office allows for a more inclusive approach to the design and implementation of GEF activities than is possible from distant offices. At the national level, there is little coherence to GEF monitoring and evaluation processes, which are primarily driven by Agency systems. National stakeholders are involved in collecting monitoring data proposed by Agencies and in evaluations undertaken by these Agencies, but they are not actively engaged in the design or implementation of a system to cover the entire GEF portfolio in the country.

Relevance

There has been substantial GEF support since the mid-1990s for Caribbean regional international waters activities, most of which have included Jamaica. The IWCAM project in particular is well known in the country, by virtue of its substantial national demonstration project on watershed management. Other projects are less visible, although the Kingston Harbour component of the regional Demonstrations of Innovative Approaches to the Rehabilitation of Heavily Contaminated Bays in the Wider Caribbean project (GEF ID 614) has left detailed analysis and some sustainable benefits to the associated water body.

The GEF has engaged in biodiversity activities in Jamaica since 2003, and expanded in this area as earlier major funders such as the U.S. Agency for International Development (USAID) phased down. It has collaborated consistently with NEPA, which is the main agency mandated to develop biodiversity conservation in the country. In addition to the national elements of regional activities, there has been a progression of activities—from a set of enabling activities, through an MSP, to the first national FSP—focusing on sustainability of the protected area system.

In the area of climate change, there was a large national FSP early on in the GEF engagement in Jamaica. The country has also participated in a set of national, regional, and global activities including enabling, capacity development, and pilot projects. Both climate change mitigation and adaptation have received GEF support. Multifocal areas, the Small Grants Programme (SGP), and newer GEF focal areas—notably land degradation—have also received support relevant to the country's national and international priorities. This support has included enabling activities and MSPs.

Conclusion 4: GEF support in Jamaica has been relevant to its national environmental goals and priorities, as well as to the country's efforts to fulfill its obligations under the international agreements to which it is a signatory.

GEF support has covered the range of focal areas for which the country is eligible, either through national projects or through Jamaican components of regional or global projects.

Efficiency

Conclusion 5: All three GEF Agencies active in Jamaica—UNDP, UNEP, and the World Bank—have experienced problems in keeping projects within their intended time limits.

Both UNEP and the World Bank have experienced substantial delays in their regional projects. Many UNDP projects have experienced some form of delay, which frustrates partners and may reduce effectiveness, since projects often have to take shortcuts to try to get back on schedule. Few projects have avoided contracting delays, because of limited national and regional availability of qualified environmental expertise, as well as administrative hold-ups. Some of these constraints are a function of the UNDP global system and difficult for its country office to resolve.

1.5 Lessons Learned

In Jamaica, the combination of global, regional, and national projects has enabled the GEF to provide some degree of coverage in most of the global environmental areas for which the country is eligible for support, even though the allocations for national projects in the Resource Allocation Framework (RAF) and the System for Transparent Allocation of Resources (STAR) are relatively small. Most of the results and benefits to date have been in terms of developing and assisting in the institutionalization of environmental management. This is a long-term process, and even after more than 15 years of GEF involvement, there are few measurable environmental outcomes or impacts as yet.

Lesson 1: The Jamaica portfolio gives cause for concern about the possibilities for sustainable progress in environmental management.

Jamaica has high human capacity and a substantial national budget, but high debt repayment obligations mean that the government has very little funds available to implement programs. It therefore has limited possibilities to move forward in managing its environment for the global good. Much of its GEF work, particularly in regional and global projects, has been of a pilot or demonstration nature. While these efforts have often produced good results at the field level, there are serious doubts about the availability of resources to sustain or scale up such results, since the national economy is severely stressed.

Lesson 2: Many Agency procedures are not appropriate for small countries in regions with limited resources; this is seriously hampering the efficiency of GEF implementation.

All three GEF Agencies involved in Jamaica have faced severe efficiency problems. These are neither GEF specific nor Agency specific. Many of them derive from the application of inflexible procedures for recruitment and procurement in a situation where they simply do not work. The procedures are not adapted to the situation of SIDS in general or the Caribbean in particular. Often, they require competitive bids from a greater number of environmental specialists or supply companies than are actually present in the country. When the conditions are not met, processes are referred to regional or international recruitment, which imposes severe delays. Unless more flexible procedures can be developed and applied for SIDS,

desired levels of efficiency and results will be very difficult to achieve.

Lesson 3: Some possible procedural improvements have been suggested by evaluations and reviews of GEF activities by its Agencies.

UNDP has suggested options to improve efficiency; these include the use of consultant rosters and referrals, the rotation and cost sharing of specialized expertise among projects addressing common issues, and "topping up" budget lines for international expertise when national or Caribbean-based candidates are not available. Unrealistic project timelines could be partially offset by budgeting additional time to compensate for slow recruitment and start-up processes, and by including inception phases to expedite implementation and contracting arrangements in advance.

The World Bank's suggestions have included the need for conservative scheduling and planned cost contingencies, particularly to take currency fluctuations into account; careful planning and realistic scheduling for the establishment of new institutions; more realistic assessment of risks to project delivery; realistic assessment of implementation capacity on the ground and adequate allowance for capacity development needs; and consistent measures to ensure government commitment. In view of the complexity of the measures that have been found necessary to deliver results, project time scales should be more realistic.

Regarding the missed opportunities resulting from the GEF's low profile in Jamaica, a UNDP environment outcome evaluation proposed that results could be scaled up by earmarking "soft support" to document/disseminate case studies, facilitate institutional exchanges and mentoring, inform policy makers or parliamentary commissions, and move successful pilot experiences upstream (Navajas 2010). However, this form of support is not available through traditional GEF project funding modalities, other than through the limited funds provided for focal points.

2. Study Framework and Context

2.1 Methodology and Limitations

The Jamaica CPS used a variety of evaluation methods. It started with a detailed review of public and internal documents, including those from UNDP, UNEP, the World Bank, the GEF Evaluation Office, the Jamaican government, NGOs, and other sources.[1] These documents yielded initial data sets that provided directly relevant information as well as established key questions for follow-up through primary data collection.

After the initial desk review work, interviews were held with the GEF focal point and with staff in the UNDP country office, the UNEP regional office, the World Bank, the Inter-American Development Bank (IDB), and the European Commission, as well as with staff of a broad range of Jamaican development partners. These interviews also enabled finalization of detailed stakeholder maps, mostly sector specific, but others of broader programmatic contacts such as with the Planning Institute of Jamaica. On the basis of the stakeholder maps developed, a program of semi-structured interviews was drawn up with partners in government, parastatals, civil society, international development entities, and other bodies. Respondents were invited to draw on their understanding and experience of activities, projects, processes, challenges, and results. These interviews provided the main body of primary data assembled by the study team. Limited use was also made of telephone interviews and written inputs.

To explore the long-term results of one major GEF activity, an ROtI was undertaken for the Jamaica Demand Side Management Demonstration project. The results of this analysis make up volume 2 of this report. Using the standard ROtI methodology (see GEF EO and CDC 2009), the CPS team conducted group and individual interviews and critically reviewed documents to explore progress along a theoretical chain from outputs to global environmental benefits.

The CPS team also undertook limited field-level verification of results. Verification was limited for several reasons:

- A CPS is a scaled-down version of the GEF Evaluation Office's CPE approach and has a relatively limited budget and resources.
- Several projects were at early stages of implementation or had not yet started.
- Many projects were enabling activities aimed at capacity building or policy support and were not intended to have discernible field-level outcomes, or at least not in the short to medium term.

[1] Documents cited in this report are listed in the references. Many other documents were examined that are not cited or listed here.

- Direct beneficiaries were often only a few in pilots or demonstrations, and locations were dispersed.

In the context of these limitations, field visits and other direct contacts with intended beneficiaries were undertaken to add to the understanding of results achieved, perceptions of those participating in GEF-supported activities, and sustainability of benefits.

A coherent and consistent understanding of the issues under review was obtained through the use of triangulation. First, evidence from documents was compared with that from interviews. Second, perceptions from Agencies (whether obtained from interviews or documents) were systematically compared with those from executing partners. Third, to a limited extent, perspectives of management in agencies and government were compared with those of field staff and intended beneficiaries.

Limitations were mainly those imposed by the absence of time or resources to conduct a broader range and greater depth of fieldwork. An additional issue was the difficulty of gaining access to some stakeholders, who were not available during the restricted period of the CPS.

2.2 Key Questions

According to the standard terms of reference for GEF CPSs (see annex A), the following key questions are to guide the CPS. In view of the limitations on such studies, each CPS is to report only on those questions that are appropriate and for which sufficient information could be found.

- Effectiveness, results, and sustainability
  - What are the results (outcomes and impacts) of completed projects?
  - What are the aggregated results at the focal area and country levels?
  - What is the likelihood that objectives will be achieved for those projects that are still under implementation?
  - Is GEF support effective in producing results related to the dissemination of lessons learned in GEF projects and with partners?
  - Is GEF support effective in producing results that last over time and continue after project completion?
- Relevance
  - Is GEF support relevant to the national sustainability development agenda and environmental priorities, national development needs and challenges, and action plans for the GEF's national focal areas?
  - Are the GEF and its Agencies supporting environmental and sustainable development prioritization, country ownership, and the decision-making process of the country?
  - Is GEF support in the country relevant to the objectives linked to the various global environmental benefits in the biodiversity, climate change, international waters, land degradation, and persistent organic pollutant (POP) focal areas?
  - Is the country supporting the GEF mandate and focal area programs and strategies with its own resources and/or with support from other donors?
- Efficiency
  - How much time, effort, and financial resources does it take to formulate and implement projects, by type of GEF support modality?
  - What role do monitoring and evaluation play in increasing project adaptive management and overall efficiency?

- What are the roles, types of engagement, and coordination among different stakeholders in project implementation?
- What are the synergies for GEF project programming and implementation among GEF Agencies, national institutions, GEF projects, and other donor-supported projects and activities?

2.3 The Jamaican Economic, Social, and Political Context

Jamaica is a small island developing state, with a land area of 10,991 square kilometers. It is located in the western Caribbean Sea, about 145 kilometers south of Cuba and 191 kilometers west of Hispaniola. It consists of a mountainous inland area surrounded by coastal plains. The climate is tropical, mainly hot and humid, but is more temperate in the highlands. The island lies in the Atlantic Ocean hurricane belt and has been subject to significant damage and loss of life from a succession of hurricanes and tropical storms.

The estimated population as of July 2010 was 2,847,232, for a density of 252 people per square kilometer. The country is in demographic transition, with declining trends in both mortality and fertility. Just over half the population lives in urban areas, with some 650,000 people in the capital, Kingston. Other major urban areas include Spanish Town, Portmore, May Pen, Mandeville, and Montego Bay.

Jamaica is classified as a middle-income country, with an estimated 2010 per capita gross domestic product (GDP) of $8,400. The Gini coefficient, at 37.9, reflects a medium level of economic inequality. Jamaica's Human Development Index is 0.699, which places it 80th in the world, which is in the middle ranks. According to the 2009 Economic and Social Survey, the labor force in 2009 was some 1.3 million, with an estimated unemployment rate of 14.5 percent.

The national economy presents major development challenges. The real growth rate declined from 1.4 percent in 2007, to –0.6 percent in 2008, and –4.0 percent in 2009 (U.S. Department of State 2010). Remittances, tourism, and bauxite account for over 85 percent of the country's foreign exchange. This, coupled with reliance on imports—particularly of oil, food, and consumer goods—makes the economy extremely vulnerable to external shocks, as currently shown by the initial impact of the global economic crisis. The crisis has already contributed to increased inflation; falling remittances; heavily discounted tourism prices to keep market numbers stable; and sharply declining returns from bauxite, since three of the country's four bauxite/alumina companies suspended operations in 2009 (U.S. Department of State 2010). According to labor force reports, there were 14,750 job losses in other sectors from October 2008 to May 2009. These major disruptions to the economy must be placed in the context of a decline in official development assistance due to Jamaica's middle-income categorization.

The adverse economic trends have been exacerbated by the long-term problem of Jamaica's heavy indebtedness. In 2007 its debt-to-GDP ratio was 111.3 percent, which was the fourth highest in the world. This ratio had risen to around 140 percent by November 2010. Debt servicing consumed 56.5 percent of the 2009/10 national budget. Faced with this extreme financial adversity, the government made radical responses in an attempt to redress the situation. It concluded a 26-month standby structural adjustment agreement with the International Monetary Fund, which is expected to restructure the financial architecture and restore confidence in the country's long-term prospects,

thereby encouraging banking and investment support.

Pervasive weaknesses in the governance area have been the target of the Jamaican Public Sector Reform Programme. The program has had some achievements, including the creation of executive agencies and an improvement in the number of qualified technical staff. The reform has so far retained the existing ministerial structures (which are many for a country the size of Jamaica), but has redistributed portfolios among the ministries, privatized services, and created public corporations. Its main focus to date has been on cost-cutting measures. The Jamaican public sector now has more qualified personnel in a wide variety of disciplines than at any other time in its history. However, this capacity is often not used effectively because of the limited operational budgets of government bodies.

In the current decade, Jamaica's major international development partners have included such bilateral bodies as USAID, the Canadian International Development Agency (CIDA), and the U.K. Department for International Development (DFID); and such multilateral bodies as IDB, the European Commission, and the Caribbean Development Bank. Historically, bilateral donors have made larger inputs than multilateral, but their contribution began to decline sharply in 2005; by 2007, multilateral organizations made a much larger contribution. The major contributors now are the European Union, IDB, and the World Bank; the United Nations agencies are extremely small players in financial terms. The GEF has been a consistent funder in the environment field; while USAID, which was previously very active in support of biodiversity, has steadily reduced its funding in this area. After implementing earlier GEF-funded environmental projects, the World Bank has phased out of such activities, except for some regional ones, and now has no environmental specialist in its country office. IDB and the European Commission provide substantial support in Jamaica, including in the environmental area.

2.4 Jamaica's Natural Environment

Overview

Jamaica's natural environment was categorized in 2005 as extremely vulnerable when measured using the vulnerability index developed by the South Pacific Applied Geoscience Commission and UNEP. Most SIDS have been determined as being either highly vulnerable or extremely vulnerable using this index.

"The State of the Environment Report" presented by NEPA to the Council of Ministers in 2005 indicated that Jamaica's environment is under threat from various sources. It noted that the main productive sectors of tourism, agriculture, manufacturing, mining, and quarrying are all heavily dependent on the island's natural resources, such as the beaches, sea, scenic beauty, land, mountains, fresh water, and air. It pointed to a strong correlation between the state of the environment and the country's vulnerability to natural hazards. Poor environmental practices, such as improper disposal of solid waste, indiscriminate removal of forest cover, poor land use practices, and the growth of squatter housing areas, tend to exacerbate the effects of these natural disasters. This circumstance has become a concern given the increased frequency and intensity of tropical storms associated with climate change.

Jamaica's energy sector faces a number of challenges. It is characterized by an almost complete dependence on imported petroleum, high rates of energy use, inefficient electricity supply and distribution systems, and an inadequate policy and regulatory framework. Its per capita energy

consumption is high compared with that of most developing countries.

The long-term degradation of Jamaica's watersheds has resulted in downstream damage including soil erosion, flooding, and loss of homes and lives. This damage, coupled with projected increases in storms and hurricanes associated with climate change, shows that the potential for disasters has increased. Furthermore, land use planning is done with dated development plans, which are not effectively monitored or enforced. In 2001, Jamaica's Cabinet established the National Integrated Watershed Management Council to provide a considered approach to watershed issues.

In terms of overall environmental management, progress has been made with regard to the establishment of institutions; the development of policy, legislation, and standards; and the banning or phaseout of harmful substances. However, a lack of resources, improper planning for development, and a general lack of environmental awareness on the part of the population have been manifested in unsustainable consumption patterns. These and irresponsible environmental practices have hindered effective management of the island's natural resources.

Biodiversity

As summarized by the GEF (2009, 7):

> Jamaica has a diverse physical environment, with a wide range of microclimates, soils, and physical features that support a great variety of forest types, including lower montane mist, montane mist, dry limestone, wet limestone, mangrove, woodland, herbaceous swamp and marsh forest.

It is also an important refuge for long-distance migratory birds from North and Central America. It has 417 International Union for Conservation of Nature (IUCN) Red Listed species and very high levels of endemism in several vertebrate (100 percent for amphibians) and invertebrate taxa (there are over 500 endemic species of snails). There are 31 species of endemic birds (Jamaica is ranked 18th in the world in terms of the number of endemic birds) and 60 endemic species of orchid (29 percent of the total). Jamaica has seven endemic plant genera and over 900 endemic plant species.

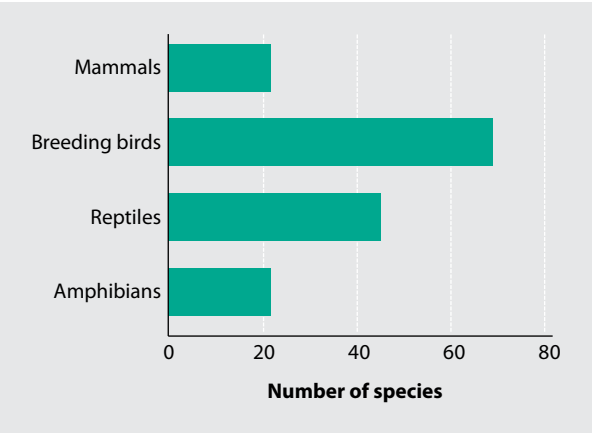
Some of the key features of Jamaican biodiversity at the species level are summarized in figures 2.1 and 2.2 and table 2.1.

The first protected areas in Jamaica were established more than 100 years ago. Between 1937 and 1975, various legislative acts led to the creation of three conservation agencies and three protected areas and forest reserves. Although enforcement was minimal, the concept of conservation was active. In the 1980s, international support increased, with the USAID project, Protected Area Resource Conservation I (PARC I). This project began to create the infrastructure necessary for a protected area system; it established the Montego Bay Marine Park and the Blue Mountain and John Crow Mountains National Parks. These were the first marine and terrestrial parks in the country (Center for Park Management 2005).

In 1991, the Natural Resources Conservation Authority Act gave the eponymous authority a mandate for the establishment, coordination, and management of the national protected area system (which did not include forest reserves, fisheries, or wildlife reserves). The next year, the PARC I project took an early step toward the development of long-term funding for the protected area system by establishing the Jamaica National Park Trust Fund. By the end of the project, two parks were evaluated as running effectively, with trained full-time staff and community participation. Accordingly, USAID agreed to finance a PARC II project,

Figure 2.1

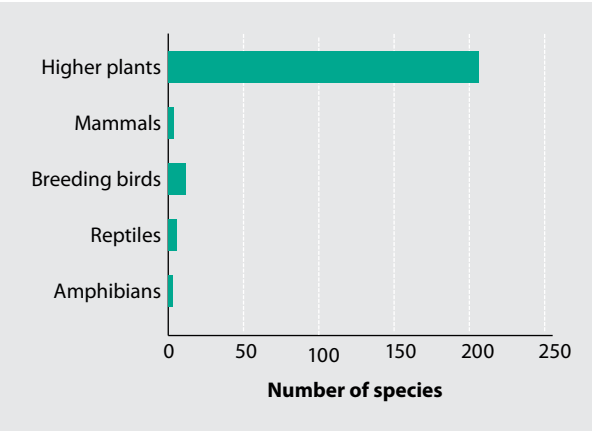
Number of Unique Animal Species in Jamaica per 10,000 Square Kilometers, 1990s



Source: http://earthtrends.wri.org/text/biodiversity-protected/country-profile-92.html.

Figure 2.2

Number of Threatened Species in Jamaica, 2002–03



Source: http://earthtrends.wri.org/text/biodiversity-protected/country-profile-92.html.

which aimed to separate the regulatory and management functions of protected areas and centralize their day-to-day management. The goal of the five-year, $7.75 million project was to continue PARC I efforts and build capacity for the system through lead institutions and the creation of clear environmental and economic management goals. PARC II suffered a series of problems, however,

Table 2.1

Number of Total and Threatened Species in Jamaica

	Number of species	
Plant/animal classification	Total	Threatened
Higher plants	3,308	206
Mammals	24	5
Breeding birds	75	12
Reptiles	49	8
Amphibians	24	4
Fish	200	1

Source: http://earthtrends.wri.org/text/biodiversity-protected/country-profile-92.html.

and many of its goals were not realized, resulting in a setback for the entire protected area system.

In 1997, the Cabinet approved a new policy for Jamaica's system of protected areas. This policy designated six types of protected areas and established goals for the system. Over the next two years, four new protected areas were declared—including Portland Bight, the country's largest protected area, which covers 187,615 hectares—and delegation of their management to NGOs was proposed. The new protected areas further stretched the already limited available resources, leaving protected area management extremely ineffective. Although the government continued to make new international commitments to environmental conservation (seven commitments between 1995 and 1998), no additional funds were allocated to the sector, and there were no coherent plans in place to allow the obligations to be met.

In 2001, the Caribbean Natural Resources Institute published its "Review of Jamaica's Protected Areas System and Recommendations on the Way Forward" (CANARI 2001). Five NGOs have received delegated management authority for a protected area, while others are looking to obtain this status. However, institutional capacity assessments

of the existing NGO partners, commissioned by the Nature Conservancy in 2004, noted that they all lacked core competencies. Currently, both the organizations and the protected area system are struggling for financial survival; sustainability is a top priority. Almost no revenue is generated within the protected area system, and fundraising efforts are only minimally coordinated.

The Jamaica protected area system today includes three marine parks, one national park, five other protected areas, two fish sanctuaries, and forest reserves covering 110,000 hectares. The protected areas relate to various IUCN categories such as wilderness reserve (for some forest reserves), habitat species management areas, and sustainable resource use areas. Overall, the system of protected areas covers nearly 2,000 square kilometers of terrestrial areas, or just over 18 percent of Jamaica's total land area.

In summary, Jamaica has a broad range of biodiversity, particularly in its forest and marine areas. It has attempted to establish systems to protect this range, but systems—and, in particular, human and financial resources—have been inadequate for the task. Currently, there is little management of biodiversity and no prospect of financial sustainability, so the sector is characterized by intermittent and localized conservation in response to time-bound project funding.

Climate Change

Jamaica's main climate change issues relate to its energy sector, which faces a number of challenges. The sector is characterized by an almost complete dependence on imported petroleum (which meets over 90 percent of the nation's energy needs), high rates of energy use, inefficient electricity supply and distribution systems, and an inadequate policy and regulatory framework. Because of the energy intensity of the important aluminium and bauxite industry in Jamaica, per capita energy consumption is high compared with that of most developing countries. Approximately 5 percent of the energy supply mix comes from renewable sources: 4 percent from hydropower and 1 percent from wind. Trends in greenhouse gas (GHG) emissions in Jamaica are shown in figures 2.3 to 2.5.

International Waters

Approximately 1,800 square kilometers of marine area, or approximately 15 percent of the country's archipelagic waters, fall under the national protected area system. These protected areas are expected to provide important ecosystem functions and services to Jamaica's economy. The headwaters of many of Jamaica's main rivers are located in the Blue Mountain and the Cockpit Country forest reserves, which are the main sources of water for Kingston and the major tourist area of Montego Bay, respectively. Jamaica's tourism industry partly relies on the scenic beauty and good coastal water quality that are provided by healthy forests and wetlands. Coral reefs are of major social, economic, and biophysical importance. Reefs act as natural barriers by protecting coastlines from erosion, are a source of food and income for local communities, and support tourism and recreational activities. A significant part of the Jamaican fishing industry relies on reefs, as well as the stocks renewed in the mangrove swamps and on the offshore cays for both commercial and artisanal fishing. Protected areas also provide spill-over effects, such as strengthening sustainable livelihood opportunities (for example, by protecting water supplies and breeding areas for valued fish species); enhancing food and nutritional security; and building resilience to the impacts of climate change, particularly on coasts. Because Jamaica is a small island, all its ecosystems are close to human activities, which makes stakeholder empowerment, awareness, and support for

Figure 2.3

Jamaica's Carbon Dioxide Emissions: Metric Tons per Capita

Source: TradingEconomics.com.

Figure 2.4

Jamaica's Nitrous Oxide Emissions: Thousand Metric Tons of Carbon Dioxide Equivalent

Source: TradingEconomics.com.

Figure 2.5

Jamaica's Methane Emissions: Kilotons of Carbon Dioxide Equivalent

Source: TradingEconomics.com.

protected area declaration and management particularly important (GEF 2009).

As detailed by the GEF (2009):

> The coastal zone includes a variety of habitats including several large wetlands, extensive mangroves, offshore cays, and coral reefs. Perhaps the most important wetland is the Black River Morass, a game reserve of approximately 20,000 hectares, which includes one of Jamaica's three Ramsar sites and has high levels of biodiversity and strong ecotourism potential, but no conservation status at this time. Offshore, the rugged topography of the sea floor gives rise to a diverse pattern of marine environments including deep water trenches, coral reefs and extensive offshore banks. Coastal wetland ecosystems play an important role in maintaining shoreline stability and preserving biodiversity, by functioning as a sediment trap and providing a habitat for wildlife, such as Trichechus manatus (West Indian Manatee).The country is home to 65 species of corals and 38 species of gorgonians. The Pedro Bank, one of the largest and most

> productive fishing grounds in the country, [is] the habitat for one of the largest global populations of Queen Conch (Strombus gigas), as well as being a regionally important seabird nesting and roosting area (for endangered masked boobies, roseate terns and others) and containing nesting grounds for endangered hawksbill and loggerhead turtles.

The GEF focal areas of international waters and biodiversity are closely interrelated in Jamaica. The country's coastal and marine biodiversity offers potential major contributions to the global environment; these are largely addressed through Jamaica's participation in the international biodiversity agreements described in section 2.5, as well as a number of international and regional agreements specifically covering the marine environment.

Ozone-Depleting Substances

Jamaica has made significant progress in phasing out ozone-depleting substances. The Ministry of Transport and Works has changed its motor vehicle policy to restrict the importation of vehicles older than five years and has placed a ban on the importation of vehicles containing chlorofluorocarbons. The Trade (Restriction on Importation) (Chlorofluorocarbons) Order became effective July 1, 1999. NEPA has completed the preliminary drafting of the ozone act. Jamaica's National Halon Bank Management Plan was completed and submitted to UNEP for approval.

Desertification and Land Degradation

Although the country does not fall into the mainstream of countries facing desertification, it does face serious problems of land degradation; these are particularly associated with the mining industry and deforestation of parts of its uplands.

Persistent Organic Pollutants

POPs are present in Jamaica from sources of waste incineration, power generation, production of mineral products, transportation, uncontrolled combustion processes, production of chemicals, and consumer goods and landfill sites. Jamaica has sought to bring its position in line with the international community through participation in the relevant international agreements, as discussed below.

2.5 Jamaica's National Environmental Policy, Legal, and Administrative Framework

Environmental Policy Framework

The Policy for the National System of Protected Areas (1991), which is contained in Section 5 of the Natural Resources Conservation Authority Act, describes Jamaica's protected area system as having a common underlying foundation of environmental protection purposes and a standardized approach to planning and management. The goals of the protected area system are described as economic development and environmental conservation. Efforts have been made to update the system plan and begin implementation, including quality control and standards. The financial sustainability of protected areas remains a concern. Some specific wildlife management programs have been launched, including for game birds, the American crocodile, and the Jamaican iguana; some improvements in these populations have been noted.

The Jamaica National Environment Action Plan was drafted in 1995 and updated in 1999/2000, 2006, and 2009. It outlines several strategies, including environmental education, national parks, watershed management, and forestry reserves. In 2001, the Cabinet established the National Integrated Watershed Management Council to provide a considered approach to watershed issues. This included NEPA's Ridge to

Reef policy for watershed management, which was first implemented in the Great River and Rio Grande watersheds.

NEPA developed a draft environmental management systems policy and strategy, which it sent to the Cabinet in January 2001. The objectives of the policy are to articulate the government's commitment to the promotion and use of environmental management systems; to establish the roles of the government, the private sector, and communities in their use; and to put in place the necessary institutional, regulatory, and promotional measures to ensure successful uptake. The policy has undergone public consultation. Shortly afterward, a draft policy on ocean and coastal zone management (Green Paper 9/01) was issued. An earlier paper, "Towards National Biodiversity Conservation Strategy and Action Plan" (Green Paper 3/01) was Jamaica's initial response to the CBD.

Sustainable development is one of the Jamaican government's stated goals, with the objectives of effective conservation of the environment and sustainable use of natural resources.

Following the publication of "Jamaica Environment 2001—Environmental Statistics and the State of the Environment" by NEPA and the Statistical Institute of Jamaica, local sustainable development plans were produced with aid from CIDA under its Environmental Action (ENACT) program. Some of these plans were later formally adopted by parish development committees. The basis for action was the Framework for Local Sustainable Development Planning in Jamaica, which provides opportunities for "greening" both government and private sector environmental performance. This framework was published in 2006 by the Statistical Institute of Jamaica, which acts as the technical clearinghouse for environmental management systems.

The documents mentioned above have been built upon in the development of the Medium-term Socioeconomic Framework and the national Vision 2030 published by the Planning Institute of Jamaica. In addition to policy frameworks and plans, Jamaica has enacted significant legislation for the protection of the environment. The key acts and their responsible agencies are briefly reviewed below.

In the nongovernmental sector, three environmental trust funds have been created through debt-for-nature swaps. These are the Jamaica National Parks Trust Fund (now reported to be inoperational), the Forest Conservation Fund, and the Environmental Foundation of Jamaica. Funds from these trusts are granted to NGOs and community-based organizations for various environmental and child welfare projects across the island.

The major response to energy issues in Jamaica has been the development of Jamaica's national energy policy. This policy supports the national Vision 2030 and provides the enabling environment for the achievement of the national outcome of "a secure and sustainable energy supply for our country." It also provides support for the achievement of another national strategy, namely "to contribute to the effort to reduce the global rate of climate change" (Planning Institute of Jamaica 2009).

Environmental Legislative Framework

Much of the legislative framework for environmental management in Jamaica dates back to the 1950s and 1960s. Some of the most relevant acts are discussed below.

The Beach Control Act (1956) provides for the proper management of Jamaica's coastal and marine resources through the licensing of

activities on the foreshore and seabed. The act also addresses access to the shoreline and other rights associated with fishing and public recreation, and marine protected areas.

The Town and Country Planning Act (1958) is administered by NEPA and designates the government town planner and the Town and Country Planning Authority as the responsible agencies for planning control within the legislation.

The Watershed Protection Act (1963) provides for the protection of watersheds and adjacent areas, and the preservation and promotion of water resources. It makes provision for watershed conservation through improved soil conservation practices.

The Land Development and Utilization Act (1966) is also administered by NEPA; it designates the Land Development and Utilization Commission as the responsible agency for land development. Development plans for designated areas are written under this act.

The Wildlife Protection Act (1975) is concerned with the protection of particular species of fauna declared under the act. It has undergone review, particularly in the areas of increased fines and the number of animals now accorded protected status. Further amendments are being undertaken to address a variety of other issues related to the management and conservation of natural resources, and the inclusion of flora.

The Fishing Industry Act (1977) is aimed at management of Jamaica's fisheries resources and the establishment of fish nurseries and sanctuaries. Prior to this act, regulation of these areas had not kept pace with the evolution of fishing and the attendant resource management issues. The act provides an institutional framework for the management, planning, development, and conservation of fisheries resources.

The Natural Resources Conservation Authority Act (1991) provides for the management, conservation, and protection of Jamaica's physical environment through the Natural Resources Conservation Authority. Section 9 provides for the declaration of prescribed areas in which specified activities require a permit, for which applicants are obliged to provide an environmental impact assessment. **The Natural Resources (Prescribed Areas) (Prohibition of Categories of Enterprise, Construction and Development) Order of 1996** declares the entire island prescribed and lists the categories of enterprise, construction, or development that require a permit. The act also addresses sewage and trade effluent discharges. The 1991 act requires subsequent environmental regulations to incorporate the "polluter pays" principle. Although the authority's responsibilities were transferred to NEPA in 2001, the act remains the primary instrument of environmental and planning legislation pending the passing of a NEPA act.

The Forest Act (1996) and its regulations (2001) address the sustainable management of forests on lands in the possession of the Crown and vests management responsibility in the Conservator of Forests. The act provides for the establishment of forest reserves, the establishment of protected areas, the promotion of forestry research areas, reforestation initiatives, and the preparation of a forestry management plan.

The Endangered Species (Conservation and Regulation of Trade) Act (2000) is concerned with the protection of specified species of fauna; but recent review has identified the need for amendments to address the management and conservation of natural resources and the inclusion of flora. This act was promulgated to document Jamaica's obligations under the Convention for the Convention on International Trade

in Endangered Species of Wild Flora and Fauna, and governs international and domestic trade in endangered species in and from Jamaica.

The main energy legislation is the **Petroleum Act (1979)**, which formed the Petroleum Corporation of Jamaica as a statutory corporation to develop and manage Jamaica's petroleum resources and, where directed by the minister, national renewable energy resources.

Several legislative instruments are currently under preparation or awaiting enactment. These include the following:

- **The National Environment and Planning Agency Act (draft)** is intended to combine the various environment and planning laws administered by NEPA under one act.
- **The Wetlands Policy Natural Resources Conservation Authority (draft)** sets out a management strategy for the protection of wetlands. It identifies five goals that are aimed at the sustainable use of wetlands, including the development of guidelines for any development of wetlands and the preservation of biological diversity.
- **The Coral Reef Protection and Preservation Policy and Regulation (October 1997)** remains in draft form and has not yet been enacted. It recognizes that Jamaica's coral reefs are among the Earth's oldest, most biologically diverse, and species-rich ecosystems, and aims to ensure their conservation to sustain their ecological and socioeconomic functions. Also associated with this initiative is the Jamaica Coral Reef Action Plan.

Environmental Administrative Framework

Many government agencies are involved in the environment and energy sectors. The most significant of these are described below.

The **Planning Institute of Jamaica** initiates and coordinates the plans, programs, and policies for the economic, financial, social, cultural, and physical development of Jamaica; provides technical support to the Cabinet; and is the main interface with international funding agencies and donors.

The **Statistical Institute of Jamaica** collects, compiles, analyzes, and publishes statistical information regarding commercial, industrial, social, economic, and other activities, including the organization of the national census. This information is needed to identify the changing pressures of settlements and industry on the environment.

The **Office of the Prime Minister, Environment Unit**, promotes sustainable development for Jamaica by managing its environmental and natural resources through strategic planning, policy formulation and implementation, and the utilization of appropriate technology. The GEF focal point is located in this office.

NEPA was formed April 1, 2001, by the merger of the National Resources Conservation Authority, the Town Planning Department, and the Land Development and Utilization Commission. Its purpose is to promote sustainable development by ensuring the protection of the environment and orderly development. NEPA's core functions include planning and development, environmental permits and licenses, change of agricultural land use, beach use, and sewage discharge. Until a National Environmental and Planning Act is promulgated, NEPA operates under the mandate of the Natural Resources Conservation Authority Act and other core environmental legislation.

The **National Meteorological Service** maintains a continuous hurricane watch during the hurricane season and is responsible for the issuance of severe weather warnings. The service also operates an island-wide network of rainfall and

climate stations and processes the data recovered for a wide variety of needs. It houses the UNFCCC focal point.

The **Mines and Geology Division** is the government's geological research and development arm. It is charged with developing a comprehensive understanding of the geology of Jamaica and directing the orderly development of mineral resources in accordance with mining and environmental legislation. It has a modern analytical laboratory and a library, and is the sole distributor of blasting licenses.

The **Council on Ocean and Coastal Zone Management** provides a formal mechanism for integrated coastal zone management. Council participants include representatives from local government; the private sector; shipping, fishing, and marine interests; marine park management entities; and selected international/regional agencies involved in marine and ocean management.

The **Water Resources Authority** has statutory responsibility for the management, protection, and controlled allocation of Jamaica's surface and groundwater resources. Its duties include hydrologic data collection, compilation, and analysis; water resource investigation, assessment, and planning; water resource allocation; and environmental monitoring and impact assessment. The authority processes applications for the permitting of well drilling and testing and for the licensing of surface and groundwater abstraction.

The **Ministry of Mining and Energy** provides the policy framework and strategic direction for the energy sector in Jamaica including the promulgation and amendment of legislation and regulations. The ministry's Energy Division oversees the functioning of the energy sector. It monitors energy supplies and the identification of alternative energy sources, as well as energy conservation.

The **Petroleum Corporation of Jamaica**, mandated by the Petroleum Act of 1979, undertakes the development and promotion of Jamaica's energy resources, including national renewable energy resources. The corporation seeks, where necessary, business partners through joint ventures with the private sector.

The **Jamaica Public Service Company Limited (JPSCo)** is the major light and power company in Jamaica and has been so for over 85 years. It began in private hands, but became state owned in the 1970s. It was privatized again in 2001.

Global Environment Dimension

The foregoing described national efforts to manage the environment. The relationship between Jamaica and the global environment is largely defined and supported through its participation in a number of international (or, in some cases, regional) treaties, conventions, protocols, and other forms of agreement. The chronology of Jamaica's participation in such agreements is shown in table 2.2. Regarding the main focal areas of interest to the GEF—biodiversity, climate change, international waters, land degradation, and POPs—Jamaica participates in many international agreements, has taken measures to meet its obligations under these, and has achieved some results. Figure 2.6 shows the chronological relationship between GEF interventions and national policies and commitments to international conventions and agreements. The country's current and potential contributions toward global environmental benefits in the various focal areas in relation to these international commitments—and, in particular, the support received from the GEF for this—are assessed in chapters 3–6.

Table 2.2

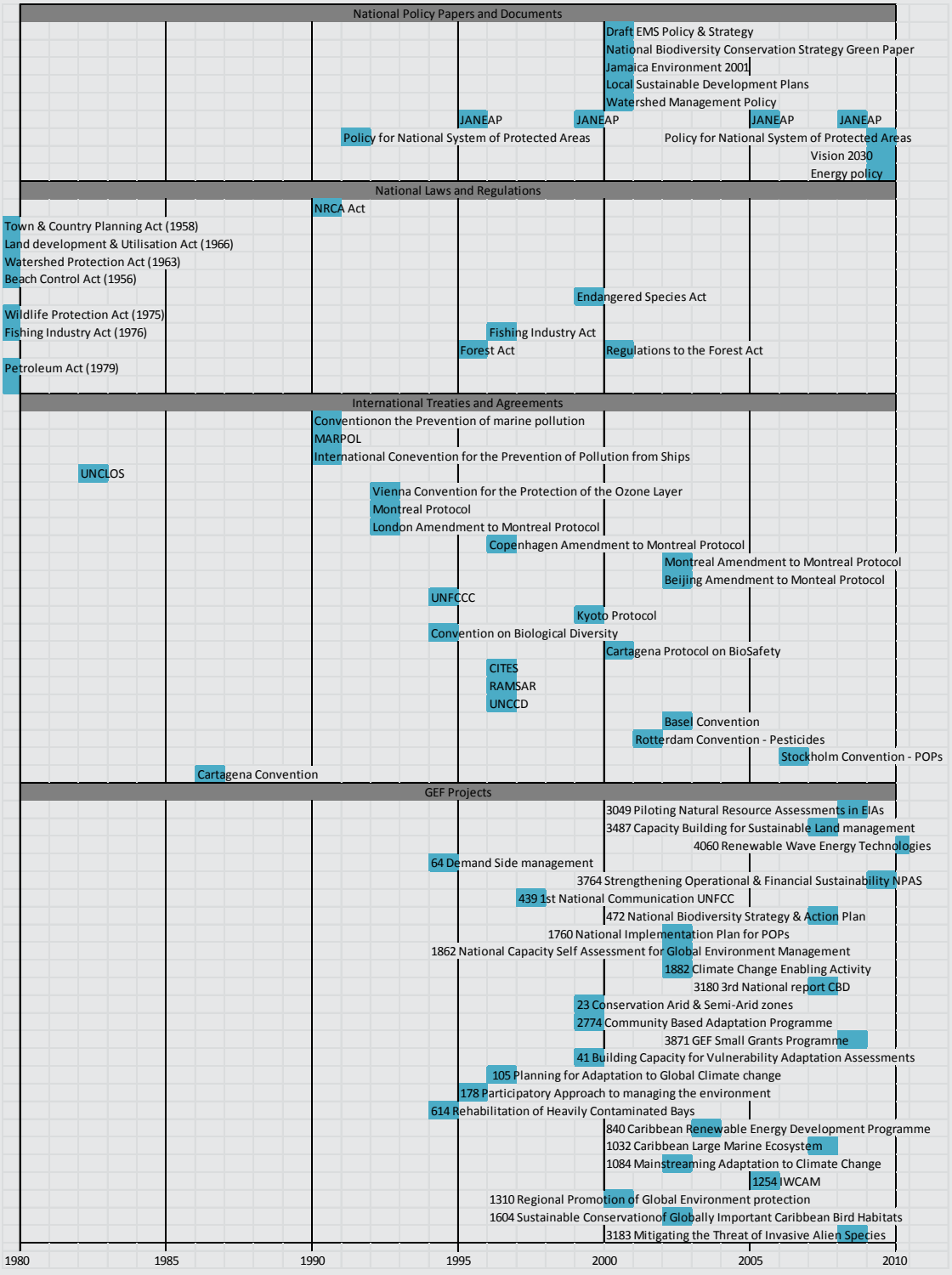
Environmental Treaties and Protocols to Which Jamaica Is a Party or Signatory

Name of treaty	Date of accession for Jamaica	Entry into force for Jamaica	National focal point
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (as amended), 1972	March 22, 1991	April 21, 1991	NEPA
International Convention on the Prevention of Pollution from Ships, 1973 (MARPOL)	June 13, 1991	September 12, 1991	Maritime Authority of Jamaica
Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973	June 13, 1991	September 12, 1991	Maritime Authority of Jamaica
United Nations Convention on the Law of the Sea, 1982 (UNCLOS)	March 21,1983	November 16, 1994	Maritime Authority of Jamaica
Vienna Convention for the Protection of Ozone Layer, 1990	March 31,1993	June 29, 1993	NEPA
Montreal Protocol on Substances That Deplete the Ozone Layer, 1987	March 31,1993	June 29, 1993	NEPA
London Amendment to the Montreal Protocol on Substances That Deplete the Ozone Layer, 1990	March 31,1993	June 29, 1993	NEPA
Copenhagen Amendment to the Montreal Protocol on Substances That Deplete the Ozone Layer, 1992	November 7, 1997	February 4, 1998	NEPA
Montreal Amendment to the Montreal Protocol on Substances That Deplete the Ozone Layer, 1997	September 24, 2003	December 22, 2003	NEPA
Beijing Amendment to the Montreal Protocol on Ozone Depleting Substances, 1999	September 24, 2003	December 22, 2003	NEPA
United Nations Framework Convention on Climate Change (UNFCCC), 1992	January 6, 1995	April 6, 1995	Meteorological Service
Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1997	June 28, 1999	February 16, 2005	NEPA
Convention on Biological Diversity, 1992	January 6, 1995	April 6, 1995	Office of the Prime Minister
Cartagena Protocol on Biosafety to the Convention on Biological Diversity, 2000	June 4, 2001		Office of the Prime Minister
Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)	April 23,1997	July 22, 1997	NEPA
Convention on Wetlands of International Importance Especially as Waterfowl Habitats (RAMSAR)	October 7, 1997	February 7, 1998	NEPA
United Nations Convention to Combat Desertification, 1994 (UNCCD)	November 12, 1997	March 10, 1998	Ministry of Water and Housing
Convention on Transboundary Movement of Hazardous Waste and Their Disposal (Basel Convention), 1989	January 23, 2003	April 23, 2003	Office of the Prime Minister
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 1998	August 20, 2002	February 24, 2004	NEPA
Stockholm Convention on Persistent Organic Pollutants, 2001	June 1, 2007		NEPA
Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, 1983 (Cartagena Convention)	May 1, 1987		Office of the Prime Minister

Source: NEPA n.d.

Figure 2.6

GEF Activities in Relation to National Environmental Processes



3. The GEF Portfolio in Jamaica

3.1 Portfolio of National Projects

As shown in table 3.1, the GEF portfolio of national projects in Jamaica is relatively small. Six of the seven projects completed were enabling activities, covering several focal areas and all implemented through UNDP. The only other completed activity was an early World Bank–implemented FSP in the climate change focal area, which received nearly four times as much GEF funding as all the enabling activities put together. The apparent concentration on climate change is therefore somewhat misleading, in the sense that a single project skews the distribution that was otherwise fairly even among biodiversity, climate change, POPs, and multifocal activities.

Projects currently under implementation comprise two MSPs and one FSP, all of which are implemented through UNDP. Here, biodiversity is the principal recipient of GEF funds, as the only FSP is in this area. The two MSPs are a land degradation and a multifocal project, respectively. Two more projects have been approved by the GEF Council, one of which is in its start-up phase, and the other of which is awaiting GEF Chief Executive Officer (CEO) approval. Both projects are in the climate change focal area. For the first time in Jamaica, UNEP is implementing a substantial national activity, although this is a "child" project of a much larger global activity.

It is striking that 10 of the 12 national GEF-supported projects are implemented through UNDP. After an initial project, the World Bank faded from view, in keeping with a lowered overall presence in the country, which was not in a strong position to attract new loans in view of its unsustainable debt burden. The World Bank country office has no specialist in the environment, and contacts with the GEF are mainly undertaken from Washington, D.C. IDB developed an FSP, but later withdrew from it, when the government was unable to raise the necessary cofinancing.[1]

Overall expenditures on GEF activities (including declared cofinancing) are presented in table 3.2. The figures reflect a focus on climate change—which, again, is caused by the single World Bank project in this area, which had substantial cofinancing (not all of which was ultimately used for its original purpose).

During the RAF period (GEF-4: 2006–10), biodiversity somewhat increased its prominence in the portfolio, influenced by the fact that Jamaica had a sizable individual allocation in this area; it was a member of the group allocation in the case of climate change, as is shown in table 3.3.

Under GEF-5 (2010–14), with the STAR allocation, the amounts for biodiversity and climate

[1] GEF focal point, personal communication.

Table 3.1

Jamaica's GEF-Supported National Projects by Status and Focal Area

GEF ID	Project name	Focal area	GEF Agency	Modality	GEF support (million $)	Cofinancing (million $)
	Completed (7)					
64	Demand Side Management Demonstration	CC	World Bank	FSP	3.80	8.70
439	Enabling Jamaica to Prepare its First National Communication in Response to its Commitments to UNFCCC	CC	UNDP	EA	0.23	0.12
472	Development of a National Biodiversity Conservation Strategy & Action Plan and Report to the CBD	BD	UNDP	EA	0.19	0
1760	Enabling Activities for Jamaica to Develop and Implement the National Implementation Plan for the POPs Convention	POP	UNDP	EA	0.24	0
1862	National Capacity Self-Assessment (NCSA) for Global Environment Management	MF	UNDP	EA	0.23	0.30
1882	Climate Change Enabling Activity (Additional Financing for Capacity Building in Priority Areas)	CC	UNDP	EA	0.10	0
3180	Assessment of Capacity Building Needs, Preparation of the Third National Report (CBD) and the Clearing House Mechanism	BD	UNDP	EA	0.22	0.18
	Subtotal				**5.01**	**9.30**
	Under implementation (3)					
3049	Piloting Natural Resource Valuation within Environmental Impact Assessments	MF	UNDP	MSP	0.50	0.13
3487	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Jamaica	LD	UNDP	MSP	0.50	0.49
	Strengthening the Operational and Financial Sustainability of the National Protected Area System	BD	UNDP	FSP	2.77	7.61
	Subtotal				**3.77**	**8.23**
	Council approved (2)					
4060	TT-Pilot (GEF-4): Introduction of Renewable Wave Energy Technologies for the Generation of Electric Power in Small Coastal Communities in Jamaica	CC	UNDP	MSP	0.72	1.42
4167	LGGE Promoting Energy Efficiency and Renewable Energy in Buildings in Jamaica	CC	UNEP	FSP	2.36	4.70
	Subtotal				**3.08**	**6.12**
	Total				**11.86**	**23.65**

Notes: BD = biodiversity; CC = climate change; EA = enabling activity; LD = land degradation; MF = multifocal.

change are somewhat less than Jamaica utilized during GEF-4, although funding predictability has been improved through the individual allocations in the climate change and land degradation focal areas.

3.2 Jamaica's Participation in Regional and Global Projects

In addition to its national portfolio with the GEF, Jamaica has participated in a number of regional

Table 3.2

GEF Support to National Projects in Jamaica by Focal Area and Project Status

Focal area	Completed	Ongoing	Pipeline	Total	Share (%)
	million $				
Biodiversity	0.59	10.38		10.97	31.13
Climate change	12.95		9.20	22.15	62.85
International waters				0	0.00
Land degradation		0.99		0.99	2.81
POPs	0.24			0.24	0.68
Multifocal	0.26	0.63		0.89	2.53
Total	**14.04**	**12**	**9.2**	**35.24**	**100.00**

Table 3.3

Jamaica's GEF Funding Allocation and Utilization under the Resource Allocation Framework in GEF-4

Focal area	GEF-4 indicative allocation	Allocation utilized	PIFs cleared by CEO awaiting approval	Allocation remaining to be programmed
Biodiversity	$5,150,000	$4,810,125	0	$339,875
Climate change	Group	$2,630,100	0	Group

Note: PIF = project identification form. Jamaica has an individual allocation in biodiversity; it is included in the group allocation for climate change. After the midpoint recalculation exercise, there are 112 countries in the group that can access up to $3.3 million in GEF-4, up to the limits of available funding.

Table 3.4

Jamaica's GEF Funding Allocation and Utilization under the System for Transparent Allocation of Resources in GEF-5

Focal area	GEF-5 indicative allocation	Allocation utilized	PIFs cleared by CEO awaiting approval	Allocation remaining to be programmed
Biodiversity	4,800,000	0	0	4,800,000
Climate change	2,000,000	0	0	2,000,000
Land degradation	2,090,000	0	0	2,090,000
Total	**8,890,000**	**0**	**0**	**8,890,000**

Note: PIF = project identification form.

and global projects, which are listed in tables 3.5 and 3.6. These projects have been important to the country, particularly in view of its SIDS status, with significant interest in issues concerning international waters. Jamaica's small size means that it is more attractive to some Agencies for regional activities than for national projects, which are on a relatively small scale.

Table 3.5

Jamaica's GEF-Supported Regional Projects by Status and Focal Area

GEF ID	Name	GEF Agency	Modality	Focal area	Project status
41	Building Capacity for Conducting Vulnerability and Adaptation Assessments in the Caribbean Region	UNDP	EA	CC	CEO approved
105	Caribbean Planning for Adaptation to Global Climate Change	World Bank	EA	CC	Completed
178	A Participatory Approach to Managing the Environment: An Input to the Inter-American Strategy for Participation	UNEP	MSP	MF	Completed
614	Demonstrations of Innovative Approaches to the Rehabilitation of Heavily Contaminated Bays in the Wider Caribbean	UNDP	FSP	IW	Ongoing
840	Caribbean Renewable Energy Development Programme	UNDP	FSP	CC	Completed
1032	Sustainable Management of the Shared Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions	UNDP	FSP	IW	Ongoing
1084	Caribbean: Mainstreaming Adaptation to Climate Change	World Bank	FSP	CC	Completed
1254	Integrating Watershed and Coastal Area Management (IWCAM) in the Small Island Developing States of the Caribbean	UNEP	FSP	IW	Ongoing
1310	Building Wider Public and Private Constituencies for the GEF in Latin America and the Caribbean: Regional Promotion of Global Environment Protection through the Electronic Media	UNDP	MSP	MF	Ongoing
1604	Sustainable Conservation of Globally Important Caribbean Bird Habitats: Strengthening a Regional Network for a Shared Resource	UNEP	MSP	BD	Completed
3183	Mitigating the Threats of Invasive Alien Species in the Insular Caribbean	UNEP	FSP	BD	Ongoing

Note: BD = biodiversity, CC = climate change, EA = enabling activity, IW = international waters, MF = multifocal.

Table 3.6

Jamaica's GEF-Supported Global Projects by Status and Focal Area

GEF ID	Name	GEF Agency	Modality	Focal area	Project status
23	Promoting Best Practices for Conservation and Sustainable Use of Biodiversity of Global Significance in Arid and Semi-arid Zones	UNEP	MSP	BD	Completed
2774	Community-based Adaptation (CBA) Programme	UNDP	FSP	CC	Ongoing
3514	4th Operational Phase of the GEF Small Grants Programme (RAF-1)	UNDP	FSP	MF	Completed
3871	4th Operational Phase of the GEF Small Grants Programme (RAF-2)	UNDP	FSP	MF	CEO endorsed

4. Results of GEF Support to Jamaica

GEF support in Jamaica has covered all GEF focal areas for which the country has been eligible, both through national projects and through Jamaican components of regional and global projects. The results of these activities are assessed below. A focal area approach is adopted, since this clarifies the linkages between activities, the accumulation of results, and progress along the causal chain from outputs toward long-term impacts and global environmental benefits.

The GEF has invested in three broad categories of intervention in Jamaica. The first is that of **enabling and capacity development activities**. As described in chapter 3, much of the GEF portfolio in Jamaica falls under this category. Results in this area are not easy to assess. In the short term, successful fulfillment of obligations under international conventions is a satisfactory result. In the medium term, heightened capacity—particularly of the government—to address environmental management issues is an indicator of achievement. These results are expected to promote changes in the condition of the national environment, contributing to broader changes of global significance. The time scale to reach the impacts end of this chain of results is likely to be long, and progress may not be consistent.

The second category of intervention in Jamaica has been that of **pilot and demonstration activities**. Most of these interventions have been provided under regional projects, mainly in the area of international waters; but climate change and biodiversity have also benefited from such interventions. The short-term results of these activities can mainly be identified through community-level environmental management systems. The main challenge is in sustaining these systems once project support and funding are phased out.

The third category is that of **full-size projects**. Such projects have been rare in Jamaica, as is common with SIDS, which tend to have insufficient funding access for such major activities. Investment projects may have the potential to directly generate environmental results, although the issues of scale-up and sustainability are critical for the attainment of long-term impacts.

4.1 Biodiversity

The GEF biodiversity projects in Jamaica have been broadly successful in delivering their results, much of which have enabled Jamaica to meet its obligations to global environmental conventions. Most of the completed activities have been of an enabling or pilot nature; the challenge is to sustain and scale up the results achieved. Given the limited resources available to the Jamaican government, the prospects of this happening are very slight, and collaboration among international development partners is of prime importance in

this regard in order to maximize the complementarity across their activities.

Enabling and Capacity Development Activities

The GEF supported two enabling activities in biodiversity, both of which were implemented through UNDP. The first of these was for the Development of a National Biodiversity Conservation Strategy and Action Plan and Report to the CBD (GEF ID 472) and resulted in the successful preparation of the documents required as part of the country's commitment to the CBD. The second produced an Assessment of Capacity Building Needs, Preparation of the Third National Report (CBD) and the Clearing-House Mechanism (GEF ID 3180). Results of this second project included assessment of the policies and legislation required for the preservation of indigenous (traditional) knowledge, access to genetic resources and benefit sharing, assessment of improvements in organizational and operational arrangements regarding stakeholders responsible for biodiversity management, and the Third National Report to the CBD. An additional outcome aimed at improving the capacity of the Clearing-House Mechanism; raising public awareness regarding the mechanism's role was also accomplished.

A third activity in this support category in the biodiversity area was part of a global MSP implemented through UNEP: Promoting Best Practices for Conservation and Sustainable Use of Biodiversity of Global Significance in Arid and Semi-Arid Zones (GEF ID 23). This project primarily targeted researchers. It produced documentation on successfully regarded environmental practices in developing countries. The evaluation of this project found that it had produced useful documentation, but that follow-up was needed to make this information available to a wider audience.

All three projects achieved their intended short-term results and contributed to strengthening national capacity to plan biodiversity conservation.

Pilot and Demonstration Activities

In terms of pilot and demonstration activities intended to generate direct environmental benefits and to establish approaches for replication and up-scaling, Jamaica participated in three GEF-supported regional projects, all of which were implemented through UNEP.

The first of these initiatives was the Participatory Approach to Managing the Environment: An Input to the Inter-American Strategy for Participation (GEF ID 178). This project included a substantial pilot activity in the Portland Bight Protected Area, which attempted to engage local community groups in managing a sustainable development area. The effort was evaluated as a success, but the fragility of the gains made was raised as a sustainability issue, unless follow-up support and financing for the community groups could be ensured. An FSP for nearly $4 million in GEF funding and with substantial cofunding was developed by IDB to build on the results of the Portland Bight pilot activity. However, this initiative was later dropped, as the government was not able to put together the necessary cofinancing package.[1]

The second project, Sustainable Conservation of Globally Important Caribbean Bird Habitats: Strengthening a Regional Network for a Shared Resource (GEF ID 1604), was also evaluated as a success—particularly the Jamaican pilot project in Cockpit Country. The pilot established three local forest management committees to support the creation of international bird areas; these were to be incorporated in national protected management

[1] GEF focal point, personal communication.

plans. The project also delivered a substantial body of material in the region, and specifically in Jamaica, to classify endemic bird species and their habitats. The potential environmental damage from bauxite mining in forest area bird habitats was raised to the level of a national issue as a by-product of the project. Cockpit Country had been the site of a proposed World Bank conservation FSP. This project had been dropped before the UNEP pilot began, because the government could not give assurances that bauxite mining would not be undertaken in the conservation area.

The country's third pilot and demonstration activity in the biodiversity area is the Jamaican component of the regional project Mitigating the Threats of Invasive Alien Species in the Insular Caribbean (GEF ID 3183). This project aims to address land, wetland, and marine-based species. Because it only recently began, results are not yet available.

Full-Size Projects

The only FSP in the biodiversity area provides support for Strengthening the Operational and Financial Sustainability of the National Protected Area System (GEF ID 3764). A project preparation grant (PPG) led to this FSP, which is being implemented through UNDP. The project is intended to assist NEPA and other institutions in implementing components of the master plan for the national system of protected areas. The project is at an early stage, and results have not yet emerged.

4.2 Climate Change

The climate change portfolio has been the largest in Jamaica in terms of the amount of GEF funding, although this is largely driven by one substantial FSP.

Overall, in the field of climate change, GEF support has helped Jamaica substantially increase its capacity in such fields as renewable energy, energy efficiency, climate change adaptation, and energy sector planning and management. In terms of tangible environmental benefits, the main results so far have been through the large-scale adoption of compact fluorescent light bulbs, with limited additional gains from energy efficiency measures taken by the government. The adaptation activities have enhanced capacity to understand and track the effects of climate change and to plan responses to them. Both in terms of mitigation and adaptation, the major challenge remains how the country can finance the measures necessary to further reduce GHG emissions, adapt effectively, and lower vulnerabilities associated with climate change.

Enabling and Capacity Development Activities

The GEF has provided considerable support in the climate change area of an enabling and capacity development nature, both at the national and regional levels and covering both mitigation and adaptation, to Jamaica. In 2001, the GEF funded an enabling activity implemented through UNDP that helped the country complete its First National Communication to the UNFCCC (GEF ID 439). Between 2005 and 2010, support was also provided for Jamaica's Second National Communication to the UNFCCC, following a project development facility block A (PDF-A) grant. At this time, responsibility for climate change was vested in the Meteorological Service in the Office of the Prime Minister. The consultations and assessments held during this process resulted in broadening the Meeorological Service's contacts with line ministries, NGOs, and civil society organizations. This in turn led to an innovative awareness campaign with the NGO PANOS, in which climate change information and good practices were incorporated into the music of recognized reggae artists. Although the Second National Communication

to the UNFCCC was not completed in time for the 15th Conference of the Parties, the process provided inputs into the design of a proposed national climate change resilience plan. This activity can therefore be seen as effective, despite missing the target date. The work undertaken also provided background data for the development of the national energy policy. UNDP "topped up" this project with its own funds to introduce an advocacy and communication component, which previously had been lacking. This contribution helped raise national awareness regarding issues of climate change and helped prepare the national delegation to the UNFCCC Conference of the Parties.

Jamaica also has participated in several GEF regional programs to increase its capacity in the field of adaptation. The UNDP-implemented project Building Capacity for Conducting Vulnerability and Adaptation Assessments in the Caribbean Region (GEF ID 41) was a regional enabling activity. The results of this project could not be located, but it was followed by the much larger Caribbean Planning for Adaptation to Global Climate Change project (GEF ID 105), with the World Bank as GEF Agency. This project, which ran from 1997 to 2002, delivered results to the participating countries—including Jamaica—in terms of the definition and collection of data sets from which baselines could be constructed for future adaptation initiatives. It designed and established a sea level/climate monitoring network in the region, developed databases and information systems, provided an inventory of coastal resources for use in geographic information system (GIS) format and associated capacity development, helped countries identify their specific climate change issues and plans to implement responsive actions, and generally raised the profile of climate change issues throughout the region. Some weaknesses were also present, most notably the relatively low level of political buy-in to the required actions and the danger of a substantial implementation gap between the results of the research undertaken and the capacity to respond to its findings effectively.

Following this global project and a bridge initiative financed by CIDA was the Caribbean: Mainstreaming Adaptation to Climate Change Project (GEF ID 1084), which was also implemented through the World Bank. This project ran from 2003 to 2009, and resulted in enhanced capacity in the region to address adaptation issues. The Caribbean Community Climate Change Centre—one of the key outcomes arising from the earlier project—was able to take a management role on behalf of the region when the original executing agency, the Caribbean Community (CARICOM), withdrew. Jamaica benefited directly from the project through assistance in the development of its national adaptation strategy.

Pilot and Demonstration Activities

Jamaica participated in the Caribbean Renewable Energy Development Programme (GEF ID 840), which covered 13 countries and was implemented through UNDP between 2003 and 2009. The project was subject to substantial hold-ups and changes of partners, and delivered fewer results than anticipated. A set of workshops raised the level of awareness throughout the region concerning the potential of renewable energy. The most discernible result for Jamaica came from the Wigton Wind Farm demonstration project. This project delivered 20 megawatts of electricity to the national grid and was an early example of the potential for wind power, following shortly after legislative changes that had removed the monopoly of energy production in the country.

In 2009, Jamaica received a PPG to prepare a project on Renewable Wave Energy Technologies

(GEF ID 4060). This activity was approved in late 2010, so it is too early for results to have emerged. Another project developed with the support of a PPG, Promoting Energy Efficiency and Renewable Energy in Buildings in Jamaica (GEF ID 4167), was recently approved by the GEF Council. This project is the "child" of a global UNEP program in this area, and it is too early for results to be discerned from it.

Jamaica is also participating in the global Community-Based Adaptation Programme (GEF ID 2774), which will be funded through the SGP. This initiative will support small-scale projects, which will have a demonstration character, with the intention of replication on a larger scale. No projects have yet been completed under this initiative in the country.

Full-Size Projects

The Demand Side Management Demonstration project was the earliest GEF FSP in any focal area in Jamaica. Implemented through the World Bank, it ran from 1994 to 1999. An ROtI was conducted for this project as part of this CPS (see volume 2 of this report) to assess its contribution toward intended long-term results or impacts. The ROtI found that, 10 years after completion, the project has partially achieved its intended progress toward impact and the expected global environmental benefit. Initially, the project had generated a significant market share of the domestic lighting market for compact fluorescent light bulbs, thereby delivering a reduction in GHG emissions.

According to a World Bank (2006) assessment,

> the use of CFLs [compact fluorescent light bulbs] resulted in GHG emissions reductions of approximately 132 kilotons (Kt) in 1995–2004, with additional reductions of 245 Kt expected through 2010. Of this total, 91–108 Kt are attributable to JDSMP [Jamaica's Demand Side Management Demonstration project] in 1995–2004 and an additional 111–150 Kt in the period to 2010.

These estimates are detailed in table 4.1 and figure 4.1.

In addition to these results for direct global environmental benefits, the project raised capacity for and interest in energy efficiency in buildings, leading to substantial uptake in the government sector, but relatively little in the private sector. Small project activities in support of solar photovoltaic units for rural communities and solar water heaters for housing delivered very modest results. At the institutional level, the project greatly increased government awareness, interest, and capacity concerning the potential benefits of promoting energy efficiency and demand side management—which were mainly reductions in the cost of doing business for government.

In the early postcompletion period, it appeared that the project's contribution might fade away (apart from the market transformation for compact fluorescent light bulbs), as a result of the privatization of the main national energy supplier, since the new company was mainly interested in enhancing energy sales and therefore had little commitment to demand side management. However, the Jamaican government's interest revived and strengthened as part of the process of developing its national energy policy. The policy contains an energy conservation and efficiency component that explicitly refers to the Demand Side Management Demonstration project as one of its antecedents.

The issues around climate change, energy efficiency, and demand side management have also, over time, been well incorporated at all levels of the national educational system, including at the university level, which is a regional facility.

Table 4.1

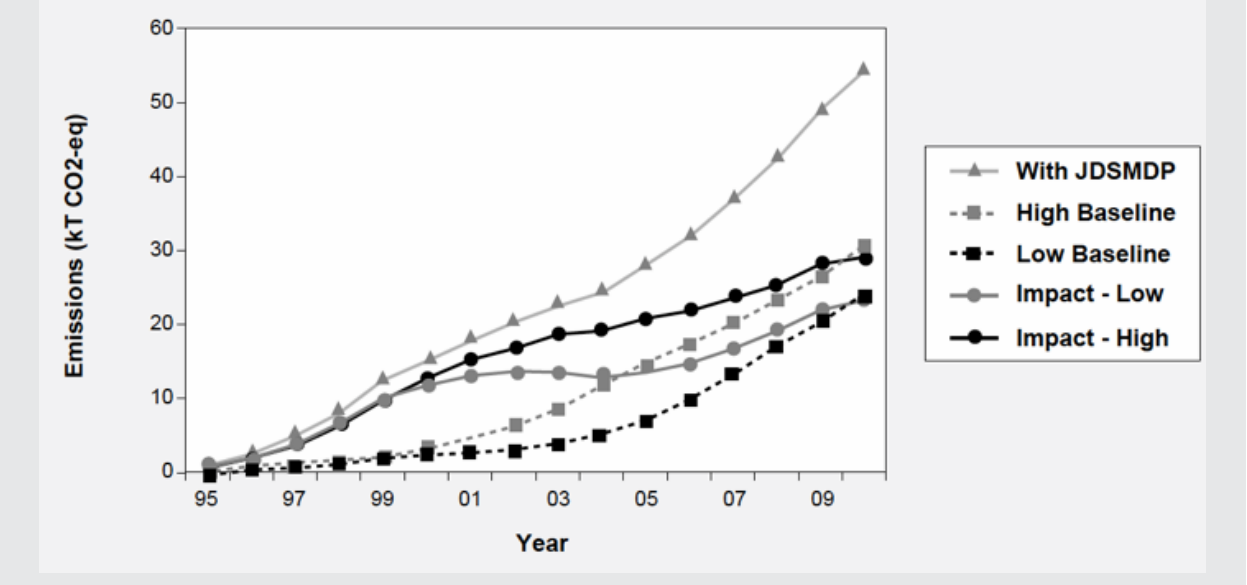
Greenhouse Gas Emissions Reductions Resulting from Use of Compact Fluorescent Light Bulbs

Year	High baseline: low-impact scenario		Low baseline: high-impact scenario	
	Estimated energy savings (GWh)	GHG emissions reduction (kt)	Estimated energy savings (GWh)	GHG emissions reduction (kt)
1995	0.6	0.7	0.6	0.7
1996	1.7	2.1	1.7	2.1
1997	3.4	4.1	3.4	4.1
1998	5.7	6.9	5.7	6.9
1999	8.6	10.3	8.6	10.3
2000	10.1	12.1	10.7	12.9
2001	11.3	13.5	12.7	15.3
2002	11.8	14.1	14.4	17.3
2003	11.6	13.9	15.8	18.9
2004	10.8	13.0	16.2	19.5
2005	11.4	13.7	17.4	20.9
2006	12.4	14.8	18.6	22.3
2007	14.0	16.8	19.9	23.9
2008	16.2	19.4	21.3	25.5
2009	18.8	22.5	23.5	28.2
2010	19.7	23.6	24.8	29.7
Total	**168.1**	**201.5**	**215.3**	**258.5**

Note: GWh = gigawatt hour, kt = kiloton.

Figure 4.1

Alternative Scenarios of Greenhouse Gas Emissions Reductions Resulting from Switch to Compact Fluorescent Light Bulbs



Source: World Bank 2006, figure 8.3.

Note: JDSMP = Jamaica's Demand Side Management Demonstration.

4.3 International Waters

Activities in the marine environment and watershed management are of critical importance to Jamaica and have received effective support from GEF activities. However, the high costs of investment proposed in Kingston Harbour were beyond national resources. Further, the community-based environmental management processes demonstrated by the IWCAM project have encountered sustainability issues in the absence of continued benefit flows to communities.

GEF support in the international waters focal area has been delivered through two projects of an enabling/capacity development/preinvestment nature and a third that had a substantial pilot activity in Jamaica.

Enabling and Capacity Development Activities

The Demonstrations of Innovative Approaches to the Rehabilitation of Heavily Contaminated Bays in the Wider Caribbean project had implementing support from both UNDP and UNEP (whose support consisted largely of sharing best practices). In Jamaica, the University of the West Indies conducted detailed research on the water quality of the Kingston Bay, building on earlier consultancy studies supported by CIDA and the World Bank. The bay was found to be in an extremely poor condition, and the study—together with substantial institutional, investment, and legal assessment—led to far-reaching proposals for infrastructure, institutional, and other environmental management activities. The estimated cost of these activities was over $200 million. The project therefore delivered good quality findings and proposals, which could not be effectively implemented by the government because of inadequate investment funds.

A second project that falls into the enabling/capacity development activities category is the Sustainable Management of the Shared Marine Resources of the Caribbean Large Marine Ecosystem and Adjacent Regions project (GEF ID 1032). This initiative commenced in 2008 and is ongoing. It is not listed in the UNDP Jamaica portfolio, since it is managed from the UNDP Regional Service Center's Energy and Environment Unit in Panama and from New York. Project activities started one year late, and an extension has been requested. There are no available results reports yet.

Pilot and Demonstration Activities

The best-known GEF-supported international waters project in Jamaica is of a pilot/demonstration nature. This initiative is the regional IWCAM project, components of which were implemented through UNDP or UNEP. The UNEP Caribbean Regional Coordination Unit in Jamaica dealt with policy, legislative, and staff aspects; the UNDP country office managed the pilot project. In Jamaica, the direct results of the project stemmed from its demonstration activities in the East Portland Watershed, which were completed in 2010.

The most substantive outcome of the project was an approach to integrated watershed management that is seen in Jamaica as effective and innovative—and as one that is likely to be replicated on a wider scale. The project demonstrated innovative watershed management practices that build local capacity and apply ecosystem principles. An integrated approach was piloted in Portland parish, reaching over 7,000 households. There were initiatives in training and infrastructure support for solid waste management, environmental monitoring, community clean-ups, awards for community and school sanitation, improved farming techniques, waste recycling, and the creation of a stakeholders group with planning and oversight functions. An environment center will be created to offer information on IWCAM initiatives

and sustain activity after the project has been completed.

It is too early to measure the project's contribution to the condition of the watershed in terms of demonstrated environmental benefits; thus, in this sense, effectiveness is difficult to verify. However, the process was valued by government partners at NEPA and the Planning Institute of Jamaica, who consider that the IWCAM experience provides a working model for Jamaica's 23 watersheds. One of the institutional results of the project is that in March 2010 a memorandum of understanding was signed by several government agencies to apply the IWCAM model in future initiatives. This is a major contribution in a critical area for the Jamaican environment; it also has the potential of feeding into disaster risk reduction. Overall, the project can be seen as very effective in its role as a demonstration approach.

The IWCAM project has strengthened NEPA's approach to policy and program implementation. The agency is now able to look at integrated watershed management from an ecosystems perspective that links conservation to a broader development context and encourages the engagement of local government, farmers' groups, community organizations, and schools. However, on the basis of a field visit made to the project area, the CPS team discovered that community impetus for environmental management is already dwindling; further, there are considerable doubts about the sustainability of necessary activities in the absence of long-term funding.

4.4 Desertification and Land Degradation

The Developing Sustainable Land Management to Address Land Degradation in Jamaica project was formulated with the assistance of a PDF-A grant. The project's start-up meeting was held in June 2010. Pilot sites have since been identified for small demonstration projects on sustainable land use and rehabilitation of degraded mining sites. These will inform the design of a national land management plan, with chances for replication on a wider scale. The project has not yet produced any results, and its effectiveness thus cannot be judged.

4.5 Persistent Organic Pollutants

The GEF supported enabling activities for Jamaica to develop and implement its National Implementation Plan for the POPs convention between 2003 and 2009 (GEF ID 1760). As a result of this GEF support, implemented through UNDP, Jamaica ratified the Stockholm Convention in 2007 and completed its National Implementation Plan; this plan is not yet legally in force.

4.6 Multifocal Activities

Enabling and Capacity Development Activities

In 2003, the GEF supported a UNDP-implemented multifocal enabling activity for Jamaica's National Capacity Self-Assessment for Global Environmental Management (GEF ID 1862). This project was executed by NEPA and identified various capacity gaps, leading to the preparation of plans for short-, medium-, and long-term activities in support of Jamaica's global commitments in biodiversity, climate change, and desertification. These plans fed into later GEF support in these areas.

Implementation of a capacity development project, Incorporating Natural Resource Tools into Environmental Impact Assessment Procedures, has been stalled by several delays, but is expected to strengthen NEPA's capacity for making informed decisions on licensing and permit applications. It

could also provide inputs for future carbon emissions and payment for environmental service initiatives that are under consideration. There are no results as yet.

Pilot and Demonstration Activities

The GEF-supported Small Grants Programme has helped many small-scale organizations pursue environmental and sustainable development objectives. In view of the scale of these activities, they can be categorized as pilot projects, since they need substantial scaling up or replication to generate progress toward global environmental benefits. For example, the Jamaica Conservation Development Trust introduced agro-forestry, organic coffee cultivation, and other income-generating activities in rural communities near the John Crow National Park in Jamaica's Blue Mountains. Such initiatives have made a small-scale contribution toward lowering the threat of biodiversity loss from logging within the protected area while encouraging local buy-in to conservation goals. This type of approach has the potential for incorporation into the management plans of other protected areas. An award for the Jamaica Association on Mental Retardation has enabled the Kingston facility to meet part of its food needs, by rehabilitating hillsides with used tires placed along contour lines and using composting techniques for horticulture. Initial attempts to sell aromatic herbs were successful, but business training is needed, as well as drip irrigation to offset seasonal drought.

Overall, there have been 75 approved SGP projects in Jamaica. Many of these cover more than one GEF focal area to some degree, although most are not designed to be fully multifocal. The breakdown by focal area of these 75 projects is as follows: land degradation (42 projects), biodiversity (31 projects), climate change mitigation (14 projects), climate change adaptation (10 projects), and multifocal (4 projects). Land degradation and biodiversity are the main areas addressed by these SGP initiatives, sometimes both in a single project.

5. Relevance of GEF Support to Jamaica

The relevance of GEF support concerns the extent to which this support helps Jamaica meet its commitments under international agreements and conventions concerning the global environment, while assisting in national environmental management, according to the policies and laws of the country. Since most international agreements relate to the major focal areas supported by the GEF, relevance is most readily addressed within this framework. As with results, it is helpful to view the GEF portfolio in terms of a progression from enabling activities and capacity development, through pilot and demonstration activities, to FSPs, although specific projects may have components that span these categories.

5.1 Biodiversity

The GEF has engaged in biodiversity activities in Jamaica since 2003 and expanded in this area as earlier major funders, such as USAID, phased out. It has collaborated consistently with NEPA, which is the main agency mandated to develop effective biodiversity conservation in the country. Apart from the national elements of regional and global activities, there has been a progression of activities—from a set of enabling activities, through an MSP, to the first national FSP—focusing on sustainability of the protected area system. GEF interventions are therefore assessed as highly relevant in helping Jamaica meet its national and international objectives in this focal area.

As discussed in section 2.4, Jamaica began to make systematic efforts to protect its biodiversity in the 1980s, initially with support from USAID. The 1991 National Resources Conservation Authority Act established a mandate for developing a protected area system, while the 1992 Jamaica National Park Trust Fund was the first attempt to sustainably finance such a system. During the 1990s, several new protected areas were declared. National efforts continued to establish and sustain national systems of biodiversity protection. However, the results of these efforts have been hampered by inadequate human and financial resources.

In terms of the major international agreements concerning biodiversity, Jamaica acceded to the CBD in 1995, the Convention on International Trade in Endangered Species of Wild Flora and Fauna in 1997, the Convention on Wetlands of International Importance Especially as Waterfowl Habitats in 1997, and the Cartagena Convention in 2001. This history clearly established the national importance of biodiversity and the country's commitment to meet the intentions of the international agreements. The GEF portfolio in this area is here reviewed to assess its relevance to Jamaica's commitment and intentions.

Enabling and Capacity Development Activities

These support activities were provided via national, regional, and global projects. The first such project was launched in 1998, with UNDP-implemented assistance for the National Biodiversity Conservation Strategy and Action Plan and the country's report to the CBD. A follow-up effort, implemented through UNDP and executed by NEPA from 2008 to 2010, helped prepare Jamaica's Third National Report to the CBD and supported the Clearing-House Mechanism. The objectives of this project were to assess Jamaica's existing capacities, needs, and priorities to fulfill its obligations under the CBD; this included

- assessing capacity needs in the areas of preservation of indigenous knowledge, access to genetic resources, and benefit sharing;
- conducting initial assessments and identifying monitoring programs, including establishing a taxonomy for biodiversity;
- increasing the capacity of the Jamaica Clearing-House Mechanism to provide relevant data to assist in the country's development of various sectors;
- sensitizing the public regarding the Jamaica Clearing-House Mechanism and its potential to assist in economic planning and hence in development; and
- developing the Third National Report to the CBD.

At the regional level, Jamaica was one of three Caribbean countries participating in a project to help conserve globally important Caribbean bird habitats. The goal of this UNEP-implemented FSP was to enhance the conservation status of globally important sites for biodiversity in the Caribbean through strengthened local and national partnerships and increasingly aware national and international networks of public and private sector stakeholders and decision makers.

Jamaica was also the only Caribbean participant in a global MSP implemented through UNEP involving sustainable use of globally significant biodiversity. Activities focused on research, workshops, networks, and information dissemination and were conducted by the University of the West Indies.

Pilot and Demonstration Activities

The Jamaica component of a regional UNEP project on invasive alien species is being implemented by the University of the West Indies. The effort covers Jamaica and has components covering both marine and terrestrial invasive alien species, as well as a focus on wetlands.

Full-Size Projects

Specific GEF support to protected area systems is a relatively recent area of activity, and one in which substantial internationally and nationally funded interventions have failed to achieve their intended objectives. In Jamaica, a critical aspect of protected areas concerns their long-term funding. In September 2010, an FSP was approved (following a PPG) by the GEF CEO with the objective of consolidating the operational and financial sustainability of Jamaica's national system of protected areas. Three main components are intended to help achieve this: strengthening planning and revenue generation, rationalizing and integrating the national system of protected areas, and increasing the effectiveness of protected area management. As discussed earlier, the country has been struggling with these issues since the 1980s, and the GEF assistance therefore builds on earlier activities and remains highly relevant.

5.2 Climate Change

National climate change mitigation activities in Jamaica have centered on issues of energy efficiency, seen primarily as a cost-saving measure, particularly for the government. Renewable energy is still a minor consideration in the country. Adaptation issues are increasingly viewed as important, particularly because of the country's high susceptibility to natural disasters.

The GEF has made relevant interventions in the field of climate change in Jamaica through national, regional, and global activities. Both mitigation and adaptation have received substantial support. Compared with biodiversity, Jamaica's focus on issues in this area is relatively recent, and GEF support has therefore been particularly relevant in raising awareness and capacity and in enabling the country to participate actively in the conventions and protocols to which it is a signatory. Jamaica acceded to the UNFCCC in 1995 and to the Kyoto Protocol in 1999.

Enabling and Capacity Development Activities

Mitigation

An early enabling activity assisted the Ministry of Water and Housing to assess GHG emissions from forestry, industrial processes, land use change, and the energy and transport sectors. Building on this support, Jamaica completed its First National Communication to the UNFCCC in 2001. Later, the country was also provided with support for its Second National Communication. By this time, responsibility for climate change was vested in the Meteorological Service of the Office of the Prime Minister. The communication included a national inventory of anthropogenic emissions by source and removal by sinks of all GHGs not covered by the Montreal Protocol. The project suggested mechanisms and priorities for improving capacity and prioritizing the activities needed to address climate change issues, both in terms of mitigation as well as adaptation and reduction of vulnerability. The incorporation of climate change into the national development policy and a sustainable program to facilitate education and public awareness of climate change were also supported. The communication was not completed in time for the UNFCCC Conference of the Parties, although most of the work had been undertaken.

In 2009, the country received a PPG to develop a project on renewable wave energy technologies, on the basis of which a UNDP-implemented MSP is now in its start-up phase. The national partners are the Ministry of Energy and Mining and the Petroleum Corporation of Jamaica. The project aims to explore possibilities for the introduction of renewable wave energy technologies for the generation of electric power in small coastal communities in Jamaica. This initiative will require coordination among government and possible private sector partners, as well as with bilateral and multilateral financing institutions.

Jamaica also participated in a regional FSP covering 13 countries to help develop renewable energy. This project received just over $4 million in GEF funding, including PDF-A and -B grants. It also had substantial cofunding, including from the German Agency for Technical Cooperation (GTZ) and national governments. It was implemented through UNDP, with CARICOM acting as the executing agency in the region. The project aimed to remove barriers to renewable energy use in the Caribbean. Through actions to overcome policy, finance, capacity, and awareness barriers, it expected to help increase the contribution of renewable energy sources to the region's energy balance. Although GEF support ended in 2009, the project continues with GTZ funding.

Adaptation

Jamaica has been party to several regional projects in the area of adaptation to climate change. An early UNDP-implemented activity aimed to build capacity for conducting vulnerability and adaptation assessments. No information could be found as to whether this activity was undertaken. However, Jamaica later participated in a World Bank enabling activity on the related theme of planning for adaptation**.** The regional agency was CARICOM, with the Organization of American States serving as executing agency. The responsible agency in Jamaica for adaptation activities is now the Meteorological Service of the Ministry of Land and Environment. Although this was a very substantial project completed more than eight years ago, the World Bank website states that no evaluation documents are available for this project.

Another World Bank–implemented regional enabling activity focused on mainstreaming adaptation aimed to facilitate an enabling environment for climate change adaptation in participating states. Its activities included building regional capacity to collect and analyze data, thus expanding the knowledge base on climate change impacts in order to assess the associated physical and socioeconomic vulnerabilities; building in-country capacity to formulate and analyze adaptation policy options and finalize sectoral adaptation; building capacity in preparation for a regional position for the UNFCCC; helping develop a regional strategy, including the preparation of business plans and mobilization of resources; supporting public education and outreach programs by strengthening information access and data resources; and fostering public awareness through technical assistance and capacity building. The project ran from 2003 to 2009, with an implementation completion report conducted in the concluding year.

Pilot and Demonstration Activities

Mitigation

A major initiative currently awaiting CEO approval is a low GHG emissions buildings project, which was expected to begin in March 2011, under the title Promoting Energy Efficiency and Renewable Energy in Buildings in Jamaica. This project involves several national partners, including the University of the West Indies, in cooperation with the Center of Excellence for Renewable Energy (a division of the Petroleum Corporation of Jamaica/Ministry of Energy), the Scientific Research Council of Jamaica, the University of Technology, the National Housing Trust, and possible private sector organizations. Although in the same field as the earlier World Bank–implemented Demand Side Management Demonstration project and some current (self-funded) UNDP activities, it takes a completely different approach. It will finance the construction of a prototype net zero energy, zero carbon "smart" building as a demonstration project, accompanied by active dissemination and training programs. Its primary goal, according to project documents, is "to build an innovative new prototype that offers radically better solutions," which

> demonstrate that tropical and sub-tropical countries are not restricted to modest, incremental improvements which will do relatively little to solve the problem of climate change, but can move directly to far superior solutions that will transform energy efficiency and productivity in tropical and sub-tropical regions. This will result in improved building practices.

The "modest improvements" referred to in a somewhat dismissive manner are exactly the type promoted by the earlier GEF-sponsored activities, which focused primarily on retrofitting existing buildings.

Adaptation

Jamaica will also participate in the UNDP-implemented global Community-Based Adaptation Programme, which, project documents note, aims at "responding to climate change one community at a time." The program is managed from New York, and funding for activities will be made available through the SGP. No projects have yet been funded.

Full-Size Projects

Climate change activities in Jamaica received early GEF support ($3.8 million) via the Demand Side Management Demonstration project, which ran from 1994 to 1999. This FSP was implemented by the World Bank in collaboration with the Jamaica Public Service Company, a government-owned body which was at that time the only power supply facility in the country. IDB was the other major international funder ($3.5 million) of this activity. The project had several components, including energy efficient lighting for homes, energy audits for government and private sector buildings, and some small add-ons at a late stage in the project in the areas of solar photovoltaic units and solar water heating.

5.3 International Waters

Jamaica's marine environment is of great importance to the island in terms of biodiversity, fisheries, and tourism. The country has substantial legislation in this area, including the Beach Control Act, the Watershed Protection Act, and the Fishing Industry Act. There are also pending policies on wetlands and coral reef protection. The country has a Council on Ocean and Coastal Zone Management. Jamaica has acceded to several international and regional agreements, including the United Nations Convention on the Law of the Sea, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, the Cartagena Convention, and the International Convention on the Prevention of Pollution from Ships.

The GEF has provided substantial support since the mid-1990s for Caribbean regional international waters activities, most of which have included Jamaica. The IWCAM project is well known in the country, by virtue of its substantial national demonstration project on watershed management. Other projects are less visible, although the Kingston Harbour project designed an institutional structure to manage the associated water body.

Enabling and Capacity Development Activities

The country has participated in international waters regional projects from an early stage. A project on heavily contaminated bays was implemented by UNDP, through the United Nations Office for Project Services (UNOPS), from 1995 to 1998. The main activity in Jamaica was to develop an institutional entity responsible for the rehabilitation and environmental management of Kingston Harbour, to design and construct a pilot wastewater treatment facility for the Kingston metropolitan area, and to support the initial operation and maintenance of the treatment facility. GEF funding for the project totaled $2.5 million. A UNEP component of the initiative consisted largely of sharing best practices, the final workshop on which was not held until 2009.

Another regional project, prepared with PDF-B support, has looked at the Caribbean large marine ecosystem. This project also is implemented through UNDP and executed by UNOPS. The specific objectives of the project are to identify, analyze, and agree upon major transboundary issues; root causes and actions required to

achieve sustainable management of the shared living marine resources in the Caribbean Sea large marine ecosystem; improve the shared knowledge base so that sustainable use and management of transboundary living marine resources will be possible; implement legal, policy, and institutional reforms regionally and nationally to achieve sustainable transboundary living marine resource management; and develop an institutional and procedural approach to large marine ecosystem–level monitoring, evaluation, and reporting for management decision making. The project is not listed in the UNDP Jamaica portfolio, since it was managed from New York and does not appear to be well known in the country.

Pilot and Demonstration Activities

The best-known GEF-supported international waters activity in Jamaica is the regional IWCAM project, which was completed in 2010. This project had a complex institutional structure. Its executing agencies were UNOPS, the Caribbean Environmental Health Institute in St. Lucia, and the Secretariat of the Cartagena Convention. UNOPS was responsible for the demonstration projects, which were implemented through UNDP. The UNEP Caribbean Regional Coordination Unit in Jamaica, with assistance from the Policy Section in Nairobi, had lead responsibility for policy and legislative reforms and for staff matters. The overall objective of the project was to strengthen the capacity of the participating countries to implement an integrated approach to the management of watersheds and coastal areas. The long-term goal was to enhance countries' capacity to plan and manage their aquatic resources and ecosystems on a sustainable basis. The project recognized the integrated and interlinked nature of watersheds and coastal areas in small islands and aimed to develop a more sectorally coordinated management approach, both at the national and regional levels, with a strong emphasis on an expanded role for all stakeholders within a participatory management framework.

The specific objective for the Jamaican component ($601,000), which was executed by NEPA, was to support a demonstration project in the East Portland Watershed with the specific objectives of developing the following:

- A model watershed area management mechanism including effective administrative procedures, monitoring and data collection, compliance and enforcement mechanisms, and removal of socioeconomic barriers through sustainable economic development
- Applicable solutions to detrimental watershed activities
- Demonstrations of alternative livelihoods and land use practices
- Identification of transfer mechanisms and replication potential

5.4 Desertification and Land Degradation

Jamaica suffers substantial land degradation issues, associated with deforestation and mineral extraction industries. It signed the United Nations Convention to Combat Desertification in 1997. The country is now receiving assistance to develop approaches to address sustainable land management and land degradation. This project is implemented through UNDP in association with the Forestry Department and aims to conduct assessment of the major factors causing land degradation in Jamaica, including socioeconomic issues, drought assessment, and policy and legislation related to land degradation; and develop and implement pilot projects to demonstrate effective approaches to combat land degradation. The

project is relevant to pressing national concerns on sustainable land management.

5.5 Persistent Organic Pollutants

GEF support in this area has enabled Jamaica to develop and begin to implement its National Implementation Plan for the Stockholm Convention. This UNDP project was executed by NEPA between 2003 and 2009. It designated a focal point for POPs in Jamaica, engaged relevant stakeholders in discussions surrounding the implementation of the convention, and established coordinating mechanisms and organizing processes for POPs activities. It oversaw preparation of the National Implementation Plan, including inventories and assessments and the setting of priorities. The plan's objectives and specific actions for POPs implementation will proceed based on the endorsement of relevant stakeholders. By the end of the project, it was intended that Jamaica would be able to ratify and implement the Stockholm Convention, which it did in 2007. The plan was completed but is not yet legally in force.

With regard to POPs, GEF support clearly has been relevant in helping Jamaica ratify the convention and develop its associated plan.

5.6 Multifocal Area Activities

Enabling and Capacity Development Activities

Jamaica has participated in several multifocal activities. An influential enabling activity was the National Capacity Self-Assessment for Global Environmental Management, which was implemented by UNDP and NEPA. It aimed to provide Jamaica with an opportunity to conduct a thorough self-assessment and analysis of national capacity needs, priorities, and constraints with respect to its efforts to meet its global environmental management objectives. This process was to take into consideration and evaluate the relevant activities and outputs of the National Communication on Climate Change, the National Strategy and Action Plan for Biological Diversity, and National Reports to the United Nations Convention to Combat Desertification. GEF support began after Jamaica signed the CBD and enabled it to prepare its strategy and action plan. The project then enabled the country to assess what additional capacity might be needed to move forward from this process.

A current UNDP-implemented MSP (executed by NEPA) aims to develop a set of natural resource valuation techniques and incorporate these into environmental impact assessment and strategic environmental assessment processes. Specifically, the project is attempting to strengthen the implementation of environmental impact assessments and contribute to the implementation of strategic environmental assessments through the development and application of natural resource valuation tools. The project has worked in parallel with the CIDA- and government of Jamaica–funded Environmental Action (ENACT) program to ensure that strategic environmental assessments are undertaken on various sectoral policies, programs, and plans.

Jamaica is also listed in GEF files as a participant in the Building Wider Public and Private Constituencies for the GEF in Latin America and the Caribbean: Regional Promotion of Global Environment Protection through the Electronic Media project (GEF ID 1310). However, the terminal evaluation for this project shows that there was no component in the country.

Pilot and Demonstration Activities

Jamaica participated in the UNEP regional project Participatory Approach to Managing the

Environment: An Input to the Inter-American Strategy for Participation, which was executed by the Organization of American States, Unit for Sustainable Development. The Jamaica pilot project aimed to promote and institutionalize citizen participation and empowerment in the decision-making process for the conservation and sustainable development of the Portland Bight Protected Area. The project intended to demonstrate that local communities could be empowered to manage their land and the resources they depend upon and become effective change agents toward sustainable development. A national NGO, Caribbean Coastal Area Management, was responsible for administering the Portland Bight sustainable development area. Its approach consisted of training and supporting stakeholder councils to gradually assume complete management responsibility within a five-year period. This project was relevant to national concerns on participatory natural resource management and relates to the later IWCAM project.

The SGP has been very active in Jamaica, with projects in such areas as biodiversity, alternative energy, and land management. Members of the country's SGP Steering Committee include representatives from the UNDP country office and the Environmental Foundation of Jamaica, where the Secretariat is housed. The core allocation for GEF-5 is $1.5 million, and the Secretariat is hoping to receive additional STAR funds after the national portfolio formulation exercise. The SGP is well known in the country and supports a range of activities relevant to community-based natural resource management.

5.7 Summary

As described here, GEF projects have been relevant to Jamaica's national policies and legislation, and to its commitments to international environmental agreements. This relevance is summarized in figure 2.6, which presents the chronology of projects and key environmental actions taken by the government of Jamaica, broken down by GEF focal area.

6. Efficiency of GEF Support to Jamaica

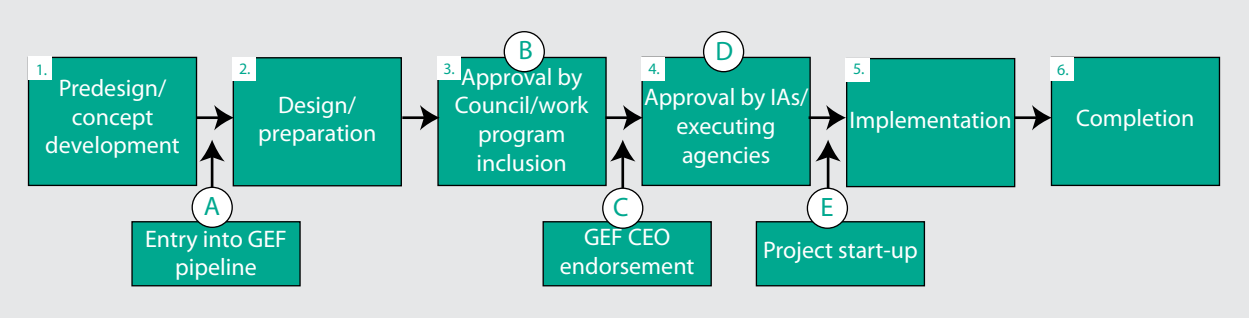
The efficiency of the overall support provided through GEF-financed activities depends on many factors, including the GEF Activity Cycle, Agency systems, government ministry and agency procedures, and the role of other stakeholders. Given all the factors that need to be taken into consideration, it can be anticipated that the overall path of a GEF project will be long and that there may be considerable variation among projects. These aspects are explored in this chapter.

6.1 The GEF Activity Cycle

A schematic view of the GEF Activity Cycle is provided in figure 6.1. As the figure shows, the majority of steps are taken before a project begins. An important element is the design/preparation stage (A). An option has always been available to obtain GEF funds to assist in this process, which may include original research and extensive consultation. Projects that have received GEF assistance for this stage (earlier called PDFs and now known as PPGs) may therefore take a long time in moving from stage A to stage B. This does not in itself reflect inefficiency, but a thorough preparation process. On the other hand, once a project has been approved by the GEF Council, the step to CEO endorsement does not appear to require substantial additional work. However, this stage of the cycle may encounter delays caused by problems regarding the availability of funds, either overall or for specific focal areas. The efficiency of the GEF Activity Cycle therefore cannot be assessed simply by comparing the durations of stages across projects. This measure is mainly informative when projects and other elements of

Figure 6.1

Key Elements of the GEF Activity Cycle



Note: IA = Implementing Agency.

the system are compared across similar activities in similar situations.

Bearing in mind the above reservations and the large amount of missing information in the GEF project information system, a brief analysis of the GEF Activity Cycle for the GEF Jamaica portfolio follows.

Given the small number of projects, particularly within each type of activity (FSP, MSP, and enabling activity; see tables 6.1–6.3, respectively), it is not possible to make any strong conclusions on the efficiency of the project cycle. It can be noted, however, that within the categories, there are substantial differences among projects. For example, looking at the two GEF-4 FSPs, the biodiversity project needed 565 days for CEO endorsement, compared to only 115 days for the climate change project. Among the enabling activities, the first biodiversity project took far longer than the others to get GEF Agency or executing agency approval. Certainly, it can be said that the limited available data do not suggest any clear systemic delays across the GEF cycle, but rather that individual projects are delayed for specific reasons or combinations of reasons. There is just as much variation moving from Stage C to D, which is the domain of Implementing and executing agencies, as from Stage B to C, which is within the GEF system.

6.2 Agency Processes

The largest part of the Jamaica national portfolio has been implemented through UNDP. After an early substantial input with the Demand Side Management Demonstration project, the World Bank's profile with the GEF in Jamaica has been greatly reduced, and its country office has no environmental specialist. The Bank's presence, however, has continued on a number of regional activities managed from Washington, D.C. UNEP has, until recently, been engaged in global and regional projects in which Jamaica has participated. IDB prepared a project, but later dropped it.

UNDP

With regard to its UNDP activities, the GEF portfolio has not operated efficiently. Many projects have experienced some form of delay, which frustrates partners and may reduce effectiveness, since projects often have to take shortcuts to try to get back on schedule. Few projects have avoided contracting delays, because of limited national and regional availability of qualified environmental expertise, as well as administrative hold-ups. For example, commencement of the Capacity Building for Sustainable Land Management project (GEF ID 3487) was delayed for two years after its approval in January 2008 because of problems in recruiting a lead expert and project manager. The recruitment process had to be conducted three times before a suitable candidate could be identified. Under such conditions, implementation can become slow and disjointed. For example, the Strengthening the Operational and Financial Sustainability of the National Protected Area System project was supposed to be implemented from September 2008 to January 2010. At the time it began, there was no head of energy and environment in the UNDP country office, which contributed to delays in the recruitment of project staff. By the end of 2009, only 30 percent of the project's budget had been spent, and an extension was requested. Delays in obtaining clearance from the National Protected Areas Committee on the terms of reference for consultant posts also held up implementation. The biodiversity add-on project was signed in May 2008; the project coordinator arrived in April 2009, and the project workplan was revised. Project activities commenced several months later, and a six-month project extension was approved until January 2010.

Table 6.1

Duration of the Activity Cycle for GEF-Supported FSPs in Jamaica

Project name	Duration between phases (days)					
	A→B	B→C	C→D	D→E	B→E	A→E
Demand Side Management Demonstration	—	—	—	134	468	—
Strengthening the Operational and Financial Sustainability of the National Protected Area System	59	565	59	—	—	—
LGGE Promoting Energy Efficiency and Renewable Energy in Buildings in Jamaica	40	115	—	—	—	—

Note: — = not available. Data are based on the received date in the GEF database, not the pipeline entry date. See figure 6.1 for stages of GEF Activity Cycle (A–E).

Table 6.2

Duration of the Activity Cycle for GEF-Supported MSPs in Jamaica

Project name	Duration between phases (days)					
	A→B	B→C	C→D	D→E	B→E	A→E
Piloting Natural Resource Valuation within Environmental Impact Assessments	—	—	351	—	—	—
LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Jamaica	—	—	—	—	—	—
TT-Pilot (GEF-4): Introduction of Renewable Wave Energy Technologies for the Generation of Electric Power in Small Coastal Communities in Jamaica	—	397	61	31	489	489

Note: — = not available. Data are based on the received date in the GEF database, not the pipeline entry date. See figure 6.1 for stages of GEF Activity Cycle (A–E).

Table 6.3

Duration of the Activity Cycle for GEF-Supported Enabling Activities in Jamaica

Project name	Duration between phases (days)					
	A→B	B→C	C→D	D→E	B→E	A→E
Enabling Jamaica to Prepare Its First National Communication in Response to its Commitments to UNFCCC	—	—	109	—	—	—
Development of a National Biodiversity Conservation Strategy & Action Plan and Report to the CBD	—	—	367	0	—	—
Enabling Activities for Jamaica to Develop and Implement the National Implementation Plan for the POPs Convention	—	—	222	0	—	—
National Capacity Self-Assessment (NCSA) for Global Environment Management	—	—	109	0	341	—
Climate Change Enabling Activity (Additional Financing for Capacity Building in Priority Areas)	—	—	—	—	—	—
Assessment of Capacity Building Needs, Preparation of the Third National Report (CBD) and the Clearing House Mechanism	—	—	—	—	—	—

Note: — = not available. Data are based on the received date in the GEF database, not the pipeline entry date. See figure 6.1 for stages of GEF Activity Cycle (A–E).

The Second National Communication on Climate Change faced delays in identifying and hiring project consultants. The late recruitment of a mitigation expert led to delays in the analysis of mitigation options and preparation of the final report, as a result of which the project had to be extended. The natural resource valuation project was scheduled to begin implementation in September 2008, but had only spent 1.3 percent of a budget exceeding $500,000 one year later. The project went through a long recruitment process for the environmental economics specialist due to the limited expertise available. The IWCAM project experienced delays in the procurement and installation of stream flow monitoring stations.

Implementation delays affect program and financial delivery. Between 2007 and 2009, the UNDP GEF portfolio substantially underspent its budget (UNDP n.d.). A number of factors contributed to this unfavorable situation: GEF funding processes appeared to be slow, the preparation of environmental projects in the UNDP system requires inputs from many staff members in different locations, both UNDP's and the government of Jamaica's procurement processes are slow, and the institutional profile of the environmental sector in the Jamaican government is complex and subject to frequent changes. Regional projects faced even greater hurdles before and during implementation.

In many cases, UNDP provides contracting and procurement services for projects. Its performance is affected by high staff workloads, slow administrative processes, and the large volume of applications that must be processed for project positions.

The main challenges to the efficiency of the UNDP GEF portfolio have included extended contracting delays caused by the limited availability of qualified environmental expertise, overly ambitious project timelines that are exacerbated by recruitment delays, and slow disbursement processes that are attributed to problems with the UNDP harmonized cash transfer mechanism.

Some of these constraints are a function of the UNDP global system and difficult for its country office to resolve. Possible options to improve the situation include the use of consultant rosters and referrals, rotation and cost sharing of specialized expertise among projects addressing common issues, or "topping up" of budget lines for international expertise when national or Caribbean-based candidates are not available. Unrealistic project timelines could be partially offset by budgeting additional time to compensate for slow recruitment and start-up processes, and by including inception phases to expedite implementation and contracting arrangements in advance.

The UNDP country office program staff members are regarded by local stakeholders as responsive and supportive. However, there appears to be a limited internal monitoring budget for GEF activities, and field visits depend on project funds or "piggybacking" on other activities. This situation seems surprising, since GEF project budgets include a provision for management, some of which is applied to services provided by global and regional levels of the UNDP GEF operation, while some applies to the national level. Within the UNDP country offices, financial records indicate that most GEF management funds are expended during the project preparation stage rather than during implementation. The combination of heavy workloads and limited staff and resources does not allow for in-depth monitoring. Nevertheless, Jamaican government and NGO partners consider UNDP monitoring of GEF activities satisfactory, and regard the UNDP team as a responsive and effective partner.

UNDP regional projects have also experienced implementing inefficiencies. The Caribbean

Renewable Energy Development Programme had a problematic institutional start-up. A succession of four different bodies was exhausted before the funding arrangements could be settled, resulting in a substantial delay in start-up. There were also delays in procurement processes. In the case of the Caribbean large marine ecosystem project, managed from the UNDP regional office in Panama, recruitment of the regional project coordinator took a year, substantially delaying the project's start.

UNEP

UNDP has not been alone in experiencing inefficiencies and delays in its GEF activities in Jamaica. For example, the UNEP regional project Sustainable Conservation of Globally Important Caribbean Bird Habitats: Strengthening a Regional Network for a Shared Resource suffered major disruptions, delays, and inefficiencies. The executing agency, BirdLife Jamaica, collapsed, and overall management was taken over by BirdLife's international headquarters in the United Kingdom. Local activities were subcontracted to several individuals and organizations, an arrangement that eventually worked reasonably well.

The Jamaica component of the regional UNEP-implemented project Mitigating the Threats of Invasive Alien Species in the Insular Caribbean has experienced major start-up delays, which seem to have largely resulted from technical disagreements between the regional management institution and the national executing partners. As a result, project components started very late or, in some cases, using the researchers' own resources.

World Bank

The World Bank–implemented project Caribbean Planning for Adaptation to Climate Change suffered from cumulative delays. At its start, there were problems in housing the project implementation unit, which eventually had to move to a different location. This delay led to funding problems, as the value of the special drawing rights declined, leaving the project with inadequate resources.

Similarly, in the case of the World Bank's Caribbean: Mainstreaming Adaptation to Climate Change project, the original executing agency dropped out, and another took over. Regional collaboration took more time than anticipated. The project had two extensions, and internal management documents noted the apparent lack of anticipation of these overruns.

Reviews of the World Bank's GEF activities in Jamaica have suggested a number of measures to respond to inefficiencies experienced in the operating environment in the region. These include the need for conservative scheduling and planned cost contingencies, particularly to take account of currency fluctuations; careful planning and realistic scheduling for the establishment of new institutions; more realistic assessment of risks to project delivery; realistic assessment of implementation capacity on the ground and adequate allowance for capacity development needs; and consistent measures to ensure government commitment. In view of the complexity of the measures that have been found necessary to deliver results, project time scales should be more realistic.

Summary of Agency Processes

It has been shown that many GEF projects, whether national, regional, or global, have suffered from delays—often extensive ones. As noted in section 6.1, it appears that there was no clear trend of delays in those parts of the cycle managed directly by the GEF, but that there were substantial differences across projects. There was also considerable variation in the time taken to gain approval

by GEF Implementing Agencies and executing agencies. At the extreme of this process, projects have been dropped altogether. Two specific examples of reasons for dropping a project at this stage have been difficulties in raising cofinancing and a breakdown in negotiations between an Agency and the government on conditionalities imposed on a project.

The main cause of inefficiencies in the Jamaica portfolio involves issues of recruitment, procurement, and capacity of institutions designated to house project personnel. Jamaica faces a range of challenges associated with SIDS operating in inflexible institutional systems designed for larger countries and portfolios. These systems require competitive processes that cannot be met in countries and regions with limited specialist environmental personnel and suppliers. This deficiency has led to delays on numerous occasions, repeated recruitment exercises, and—on some occasions—the selection of international applicants who are later found inappropriate for regional requirements.

6.3 The GEF Focal Point Process

Operations of the Focal Point

Jamaica's GEF operational focal point has no office or staff, but established a GEF support group in 2004 to help develop and review proposals. This group has broad representation, including the Planning Institute of Jamaica, NEPA, energy sector entities, and the Forestry Department. This wide range of stakeholders has helped to develop the GEF portfolio and has been particularly useful in helping prepare project proposals and apply for PPGs, which require extensive consultation, including public meetings. With the help of the support group, the focal point is able to gather all views before pushing ahead with any proposal.

The Planning Institute of Jamaica plays an important part in funding preparations, in view of its expertise in this area and its coordinating role with international agencies. The institute used to hold meetings with all donors and agencies involved in the environmental sector, but this procedure seems to have tapered off; it needs to be revived on a regular basis. The GEF is promoting the inclusion of convention focal points in the GEF planning processes, but it is not clear how far this will go. If these focal points can sign off on proposals, there will no longer be a role for the GEF focal point.

GEF focal point support funds are used to develop databases and documentation and for small consultancies.

Experience in Developing the GEF Portfolio

In the early days of GEF financing in Jamaica, the process was unstructured. Although funds were potentially available, the country had no system in place to raise the necessary cofinancing. Enabling activities were thus the mainstay of the portfolio, with some larger projects implemented through the World Bank. Gradually, as the focal point obtained more information from the GEF, she was able to put together a more structured approach.

The experience of developing a GEF portfolio has been mixed. Support from the relevant GEF Agency is very important. Cofinancing has been a major challenge, and its lack has meant that many proposed projects could not proceed. Often, a GEF project proposal is fully developed before cofinancing is sought. Issues around baselines and incremental costs have also posed many difficulties.

To date, the GEF portfolio has been developed very much on a project-by-project basis. Jamaica

has a complex institutional environment, characterized by the involvement of several GEF Agencies, numerous consultancies, and varying levels of support and engagement from a broad range of government agencies. In this context, it has been very challenging to produce proposals in a timely and effective manner. Enabling activities have not been as difficult to establish. This institutional complexity has been an important reason for the central role played by UNDP in the GEF portfolio, since its environment team is always available for engagement.

The capacity development process in the environmental sector is a long one. For example, in terms of climate change, the GEF has played an important role in the initial process of raising awareness, but there are still capacity issues to be addressed. In biodiversity, GEF project assistance to financial and operating systems will play an important role in enhancing the long-term capacity of the protected area system.

While development of a coherent GEF portfolio has been a long process, the SGP has already become an effective GEF activity, which presents an opportunity for communities to participate. The SGP also has been a major factor in raising the GEF's profile in Jamaica. The Community-Based Adaptation to Climate Change project is expected to provide a similar opportunity; it also has a practical focus and will be managed by UNDP.

The GEF in Jamaica has mainly been a positive experience. In particular, the SGP has moved the portfolio forward and established a good reputation at the community level. Few implementation projects have been completed, but when they are, they are expected to have a positive effect on environmental management and to further raise the GEF profile.

The Resource Allocation Framework and the System for Transparent Allocation of Resources

The RAF brought some structure into the GEF process and helped the focal point pull together programs in biodiversity and climate change. While Jamaica had a national allocation in biodiversity, it was part of the regional funds allocation for climate change. The processes during the RAF period were very confused and seemed to change every month, so the country did not feel able to follow what was happening. Jamaica's understanding of the GEF perspective was that it should try to do fewer, but more substantial, projects.[1]

In the post-RAF era, the country will, for the first time, have the opportunity to plan its own program, and the GEF portfolio consequently may be more country driven. There have been many ideas for GEF projects, but often they are not eligible or viable. In principle, anyone can develop a funding proposal, but in practice the cofunding rules eliminate most potential stakeholders. Any room for maneuvering is very limited in the GEF system, and there is little possibility of changing priorities or responding to specific events such as natural disasters. The Jamaica STAR allocation is $2 million per year, so there is not much to plan with and certainly little room for national discretionary use of funds. Regional projects will therefore continue to be needed to offer valuable additional possibilities. Overall, the GEF system does not seem well adapted to the needs of SIDS.

Working with GEF Agencies

The development of the GEF program has drawn heavily on UNDP. The Agency's country office makes it reachable, and its staff are able to assist the focal point by clarifying procedural and

[1] GEF focal point, personal communication.

programming issues and offering expert advice. In terms of the GEF, UNDP is the most approachable face of the international agencies in Jamaica. However, the GEF system does not always favor this approach. When the Jamaican government first considered a project on low GHG emissions buildings, it intended to work with UNDP on it, since it fitted well with other work the Agency was doing in the country. However, the focal point understood from the GEF Secretariat that this would not be funded as a national project, so the country turned to UNEP, which is understood to have a comparative advantage for regional and global projects according to the GEF system.

Challenges Facing the Focal Point

In terms of implementation challenges, hiring consultants and project staff has been very difficult, particularly with UNDP. The in-country recruitment process is often completed quickly, and the interview panel makes its recommendations promptly, but in many cases by the time the UNDP system makes its formal selection and offer letter, the potential consultants or staff are no longer available. Other donors, such as the European Commission and IDB, seem to be able to take action much more quickly in this regard.

Another major challenge is that the national-level components of regional programs have often been difficult to implement. For example, the Caribbean large marine ecosystem project suffered from weak communication and changes in key personnel; it is now virtually restarting from scratch. The expected involvement of Jamaica became unclear in this process, and there will be a meeting in Panama to try to resolve the challenges.

The first IDB proposal for a substantial national activity, following up on the IWCAM demonstration project, was caught up in the economic decline of the country. The Planning Institute of Jamaica, the government's main interface with international agencies, informed the focal point that the country could not meet the cofinancing requirement, so the project had to be dropped. The Demonstrations of Innovative Approaches to the Rehabilitation of Heavily Contaminated Bays in the Wider Caribbean project also ran into cofinancing problems, and most of its proposed investment program could not proceed.

In the case of pilot or demonstration activities, which are usually a part of regional projects, it is good that the country has been able to select its own location, as in the case of the IWCAM project. However, pilots cannot play an effective catalytic role, since there are no national resources for replication or scaling up; thus, these are completed without any follow-up.

Partnerships, Collaboration, and Synergies

The immediate counterpart for UN-implemented activities is the Planning Institute of Jamaica, while NEPA executes many of these activities. NEPA's regulatory and coordination mandate affords access to other stakeholders, and it has considerable institutional memory and project implementation experience. National partners value the role and assistance of the UNDP country office in helping them execute GEF initiatives in Jamaica. They indicated that its greatest asset is its flexibility and responsiveness to their needs.

Partnership building is an important additional benefit expected to result from participating in GEF activities. Such networking is particularly important for a relatively small program, such as that in Jamaica. In several cases, national agencies have expanded their partner networks through GEF projects. The IWCAM project has helped NEPA develop a new approach to working with government agencies, local government, and community organizations. The Meeorological

Service, which is the UNFCCC national focal point, strengthened its contacts with the Cabinet of ministers and line agencies while preparing the Second National Communication on Climate Change and, for the first time, worked directly with an NGO on climate change. UNDP has implemented its GEF activities with an inclusive approach to design and implementation; this has produced good results over time and has contributed to the quality of national environmental management, although this would be difficult to verify through evaluation.[2]

An area of less effective performance concerns interagency collaboration between UNDP and UNEP, which was found to be at a low level. The main positive example of such collaboration encountered was in the regional IWCAM project, which identified complementary roles for the two Agencies.[3] However, this collaboration was externally determined and not a result of national initiatives.

For sustainability and replication of most of the GEF-supported activities to be viable, substantial follow-up actions are needed to expand their outcomes, demonstration value, and policy effects. The CPS found that, outside of the immediate circles involved with GEF activities, these projects are not well known. This finding reinforces a similar conclusion made in an earlier UNDP environment outcome evaluation (Navajas 2010). In particular, other international development partners contacted had very limited knowledge of the GEF portfolio in Jamaica—a factor that may seriously restrict the possibilities of raising cofunding or developing partnerships. This weakness is notable in view of the extremely limited sources available to the government of Jamaica for environmental activities, even those of high national priority.

6.4. Role of Monitoring and Evaluation

Monitoring and evaluation have played a very limited role in terms of the Jamaica GEF portfolio as a whole. Agencies manage their projects on the basis of monitoring data, most of which information concerns progress against input and output targets, with some consideration of progress toward outcomes. Terminal evaluations or their equivalent are not normally undertaken for enabling activities, but are available for some MSPs and FSPs. The World Bank has also conducted a postproject impact assessment of its only national project. On behalf of the government, the Planning Institute of Jamaica monitors all donor-funded activities, including those of the GEF.

Overall, since few projects have been completed, there is little evaluation information on the portfolio. What data exist have been collected by individual Agencies and are not compiled in any coherent fashion to assess the GEF portfolio. The country, through its focal point and the Planning Institute of Jamaica, is informed of evaluation exercises and findings, but does not play a lead role in them; there is no national database of GEF activities and their results. Overall, there is no coherent national-level evaluation of GEF activities, so it is not possible for the focal point to develop a clear overview of how the portfolio is working or to derive best practices.

6.5 National Ownership

The GEF portfolio has been mainly designed by the GEF Agencies, but is relevant to national priorities. The government and other stakeholders

[2] Also see Navajas (2010).

[3] UNDP cofinances the strategic flexible funding facility with DFID, and collaboration is being sought for disaster reduction projects.

have committed to activities at various stages of design and implementation, but cannot be said to have led the process. The highest degree of partnership exists between UNDP and national partners, in view of the availability of its program officers in the country office. The focal point has provided consistent support to the portfolio development process and is beginning to move toward a more proactive role, in light of the changed emphases in the GEF system under first the RAF and now the STAR. However, the focal point has no office and minimal resources, so possibilities for an enhanced role that might promote and coordinate increased national ownership currently appear limited. On the basis of experience to date, it would thus be more appropriate to talk of national "adoption" rather than national "ownership" of the GEF portfolio in Jamaica.

Annex A. Standard Terms of Reference for GEF Country Portfolio Studies

This annex presents the terms of reference and evaluation matrix for GEF country portfolio studies. Minor editorial changes have been made.

A.1 Background

Country portfolio studies (CPSs) are an addition to the country portfolio evaluations (CPEs) that are one of the main evaluation streams of work of the GEF Evaluation Office.[1] By capturing aggregate portfolio results and performance of the GEF at the country level, they provide useful information for both the GEF Council and the countries. CPEs' relevance and utility will increase in GEF-5 with the increased emphasis on country ownership and portfolio development at the country level. The CPSs complement the CPEs and provide additional coverage of country portfolios, but have a reduced focus and scope. They are undertaken where opportunities to collaborate with independent evaluation offices of GEF partners present themselves. With a relatively lower investment in costs and efforts, the Evaluation Office will be able to study the GEF portfolio in a country where a country-level evaluation of a GEF Agency is taking place, thus reducing the evaluation burden to these countries while gaining insights and understanding through information exchange and collaboration.

This document is based on the revised standard terms of reference for CPEs approved on September 16, 2010. CPSs will be conducted fully and independently by the GEF Evaluation Office in collaboration with GEF Agency evaluation offices. Collaboration with future or ongoing evaluations conducted by GEF Agency evaluation offices will produce more informed and complete evaluations. The exchange of information will provide the evaluations with a broader context and a better understanding of priorities and how the country portfolio has evolved. This joint work will also lead to parallel reporting to the GEF Council and the Agency concerned. CPSs are limited in scope compared to CPEs, with more concrete questions, fewer number of stakeholders to be interviewed (basically the key actors participating in the GEF in the country), and limited visits to projects (one or two completed projects to verify results).

These standard terms of reference will be used to guide CPSs without having to prepare country-specific terms of reference as is done for CPEs. In addition, specific agreements will be developed between the GEF Evaluation Office and the relevant GEF Agency evaluation office to govern the collaboration between offices. Such agreements will highlight the reciprocal benefits and synergies

[1] Countries having undergone CPEs during GEF-4 are Costa Rica, the Philippines, Samoa, Benin, Cameroon, Madagascar, South Africa, Egypt, Syria, Moldova, and Turkey.

of the collaboration from the point of view of the two offices and the concerned country.

A.2 Objectives

The purpose of CPEs and CPSs is to provide the GEF Council with an assessment of how the GEF is implemented at the country level, to report on results from projects, and assess how these projects are linked to national environmental and sustainable development agendas as well as to the GEF mandate of generating global environmental benefits within its focal areas. These studies will have the following objectives:

- Independently evaluate the *relevance* and *efficiency*[2] of GEF support in a country from several points of view: national environmental frameworks and decision-making processes, the GEF mandate and the achievement of global environmental benefits, and GEF policies and procedures
- Assess the *effectiveness* and *results*[3] of completed projects aggregated at the focal area
- Provide *feedback* and *knowledge sharing* to (1) the GEF Council in its decision-making process to allocate resources and to develop policies and strategies, (2) the country on its participation in or collaboration with the GEF, and (3) the different agencies and organizations involved in the preparation and implementation of GEF-funded projects and activities

CPSs do not have an objective of rating the performance of GEF Agencies, partners, or national governments. The studies will analyze the performance of individual projects as part of the overall GEF portfolio, but without rating such projects. However, information on performance will be gathered and integrated into the general reporting of the CPE stream of evaluation work of the Office, as well as the performance stream of work.

A.3 Key Evaluation Questions

GEF CPSs are guided by the following key questions, and each case study will report only on those that are appropriate and for which sufficient information could be found (also identifying which questions were inappropriate and for which questions insufficient information was available):

- Effectiveness, results, and sustainability
  - What are the results (outcomes and impacts) of completed projects?
  - What are the aggregated results at the focal area and country levels?
  - What is the likelihood that objectives will be achieved for those projects that are still under implementation?
  - Is GEF support effective in producing results related to the dissemination of lessons learned in GEF projects and with partners?
  - Is GEF support effective in producing results that last over time and continue after project completion?
- Relevance
  - Is GEF support relevant to the national sustainability development agenda and environmental priorities, national development

[2] *Relevance:* the extent to which the objectives of the GEF activity are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donors' policies; *efficiency:* a measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results.

[3] *Results:* the output, outcome or impact (intended or unintended, positive and/or negative) of a GEF activity; *effectiveness:* the extent to which the GEF activity's objectives were achieved, or are expected to be achieved, taking into account their relative importance.

needs and challenges, and action plans for the GEF's national focal areas?

- Are the GEF and its Agencies supporting environmental and sustainable development prioritization, country ownership, and the decision-making process of the country?
- Is GEF support in the country relevant to the objectives linked to the various global environmental benefits in the biodiversity, climate change, international waters, land degradation, and persistent organic pollutant focal areas?
- Is the country supporting the GEF mandate and focal area programs and strategies with its own resources and/or with support from other donors?

- Efficiency
  - How much time, effort, and financial resources does it take to formulate and implement projects, by type of GEF support modality?
  - What role do monitoring and evaluation play in increasing project adaptive management and overall efficiency?
  - What are the roles, types of engagement, and coordination among different stakeholders in project implementation?
  - What are the synergies for GEF project programming and implementation among GEF Agencies, national institutions, GEF projects, and other donor-supported projects and activities?

Each of these questions is complemented by indicators, potential sources of information, and methods, as contained in the standard CPE evaluation matrix attached to these terms of reference. This matrix can be used to determine which questions are appropriate and for which sufficient information could be found.

A.4 Scope and Limitations

CPSs can cover GEF-supported activities in the country at different stages of the project cycle (ongoing and completed) and implemented by all GEF Agencies in all focal areas, including applicable GEF corporate activities such as the SGP. The main focus of the evaluation will be nationally implemented projects. In addition, national components of regional and global projects could be taken into consideration to present overall support and participation in the GEF, but without attempting to fully assess their aggregate relevance, results, and performance.[4] Special attention will be paid to international waters projects, which are usually regional in nature.

The main focus of CPSs will be on completed projects and partly on ongoing projects. The stage of the project will determine the expected focus (see table A.1).

Table A.1

Focus of Evaluation by Project Status

Project status	Focus		On an exploratory basis	
	Relevance	Efficiency	Effectiveness	Results
Completed	Full	Full	Full	Full
Ongoing	Full	Partially	Likelihood	Likelihood

The GEF does not have country programs, so there is no GEF framework with predetermined objectives against which to assess overall results of the GEF support.[5] The CPS will therefore con-

[4] The review of selected regional projects will feed into the aggregate assessment of the national GEF portfolio described above.

[5] Voluntary national portfolio formulation exercises (NPFEs) are being introduced in GEF-5. CPSs that will be conducted in countries having chosen to do an NPFE will use it as a basis for assessing the aggregate results, efficiency, and relevance of the GEF country portfolio.

sider the portfolio of projects and activities, their objectives, their internal coherence, and how the portfolio has evolved. The country programs of GEF Agencies, as agreed with the government and the country's national strategies and mid- and long-term goals, will be considered as a relevant framework for GEF support.

GEF support is provided through partnerships with many institutions, so it is challenging to consider GEF support separately from the contribution of partners. The CPS will not attempt to provide a direct attribution of development results to the GEF, but will try to address the contribution of GEF support to overall achievements.

The context in which these projects were developed, approved, and are being implemented constitutes another possible focus of the CPS. To the extent feasible, the study will include a brief historical presentation of the national sustainable development and environmental policies, strategies, and priorities; the legal environment in which these policies are implemented and enforced; and their relationship to GEF Agency country strategies and programs, and the relevant GEF strategies, policies, principles, programs, and projects.

The assessment of results will be focused, where possible, at the level of outcomes and impacts rather than outputs. Project-level results will be measured against the overall expected impact and outcomes from each project. Progress toward impact of one adequately mature project (that is, one completed for at least two years) will be assessed through a field review of outcomes to impacts (ROtI) study, where applicable. Expected impacts at the focal area level will be assessed in the context of GEF objectives and indicators of global environmental benefits. Outcomes at the focal area level will be primarily assessed in relation to catalytic and replication effects, institutional sustainability and capacity building, and awareness.

A.5 Methodology

CPSs will be conducted by staff of the GEF Evaluation Office and consultants based in the country or with extensive country experience (the study team), led by a task manager from the GEF Evaluation Office.[6] The consultant(s) should qualify under the GEF Evaluation Office Ethical Guidelines, and will be requested to sign a declaration of interest to indicate no recent (last three to five years) relationship with GEF support in the country. The GEF Evaluation Office will provide extensive support in preparing databases and project review protocols, identifying and providing documentation and contact with relevant institutions, as well as any necessary logistical arrangements at the local level. The GEF operational focal point in the country, although not a member of the study team, will be an essential partner in the study.

The methodology includes a series of components using a combination of qualitative and quantitative evaluation methods and tools. The CPS will to a large extent depend on existing documents that provide overviews of issues, aggregate results, or independent analysis of legal frameworks, strategies, and trends in sustainable development and the environment. The expected sources of information could include documents and articles on the following.

- *Country level:* national sustainable development agendas, environmental priorities and strategies, GEF-wide, focal area strategies and action plans, global and national environmental indicators

[6] For the study team, preference will be given to local consultants when possible.

- *GEF Agency level:* country assistance strategies and frameworks and their evaluations and reviews

The following are primary documents to be reviewed during the CPS:

- *Project level:* project documents, project implementation reports, terminal evaluations, terminal evaluation reviews, reports from monitoring visits, and any other technical documents produced by projects
- *Evaluative evidence:* at the country level from other evaluations implemented either by the GEF Evaluation Office, by independent evaluation units of GEF Agencies, or by other national or international evaluation departments

Moreover, evaluative information will be sought in the country through the following:

- Interviews with selected GEF stakeholders, including the GEF operational focal point and other relevant government departments, civil society organizations, and academia (including both local and international NGOs with a presence in the country), selected GEF Agencies, the SGP, and the national UN conventions' focal points
- Interviews with selected GEF beneficiaries and supported institutions, municipal governments and associations, and local communities and authorities
- Field visits to selected project sites, using methods and tools developed by the GEF Evaluation Office such as the ROtI and the Terminal Evaluation Verification Guide, depending on the maturity of the portfolio
- National consultation workshops conducted by or in collaboration with the relevant GEF Agency evaluation unit

Where feasible, indicators will be used to assess the relevance and efficiency of GEF support using projects as the unit of analysis (that is, linkages with national priorities, time and cost of preparing and implementing projects, etc.) and to measure GEF results (that is, progress toward achieving global environmental impacts) and performance of projects (such as implementation and completion ratings). Available statistics and scientific sources, especially for national environmental indicators, will also be used. Where sufficient data and findings are available, triangulation will be applied in the analysis to verify and validate findings.

The CPSs will include visits to selected project sites. The criteria for selecting the sites will be finalized during the implementation of the study, with emphasis placed on completed projects and those clustered within a particular geographic area given time and financial resource limitations both ongoing and completed projects. The task manager will decide on specific sites to visit based on the initial review of documentation and balancing needs of representation as well as cost-effectiveness of conducting the field visits.

A.6 Process and Outputs

Countries for CPSs are selected based on opportunities for collaboration with GEF Agency evaluation units. The study team will complete the following tasks, with support from the GEF Evaluation Office:

- Decide on specifics of collaboration with the relevant GEF Agency evaluation unit.
- Secure government support, in particular from the GEF operational focal point, in collaboration with the GEF Agency evaluation unit.
- Collect information and review literature to extract existing reliable evaluative evidence.

- Prepare specific inputs to the CPS, including:
  - the *GEF portfolio database*, which describes all GEF support activities within the country, basic information (GEF Agency, focal area, implementation status), project cycle information, GEF and cofinancing financial information, major objectives and expected (or actual) results, key partners per project, etc.;
  - the *country environmental legal framework*, which provides a brief historical perspective of the context in which the GEF projects have been developed and implemented. This historical perspective will be accompanied by a timeline diagram that shows how GEF support relates over time to the development of the national environmental legislation and policies, as well as to the international environmental agreements signed by the country; and
  - a description of the country's contribution to the GEF mandate of achieving *global environmental benefits* in its focal areas, based on the most readily available indicators, such as main species and percentage of land under protected status for biodiversity, GHG emissions for climate change, and others used in projects documents.
- Conduct at least one field study (ROtI, or field verification of terminal evaluation) of a completed national project, selected in consultation with the Office staff, which will contribute to strengthen the information gathering and analysis on results, as appropriate.
- Conduct the evaluation analysis and triangulation of collected information and evidence from various sources, tools, and methods.
- Prepare draft report and presentation for consultation/workshop jointly with the relevant GEF Agency evaluation unit. Workshop participants include government and other national stakeholders, project staff, donors, GEF Agencies, and civil society. Stakeholder feedback will be sought on the main CPS findings, conclusions, and preliminary recommendations. The workshop will also be an opportunity to verify errors of facts or analysis in case these are supported by adequate additional evidence brought to the attention of the evaluation team.
- Prepare final CPS report, which incorporates comments received through consultations/workshop with national stakeholders.

The GEF operational focal point will be requested to provide support to the CPS such as suggestion on key people to be interviewed, facilitation of communication with relevant government departments, support for the agenda of the evaluation, field visits and meetings, and suggestions on main documents. GEF Agencies will be requested to provide support to the CPS regarding their specific projects or activities supported by the GEF, including suggestions on key project and Agency staff to be interviewed, participation in interviews, arrangement of field visits to projects, and provision of project documentation and data.

The main output of the CPS will be a report consisting of a systematic treatment of all the key questions that could be answered, including data, analysis, and evaluative judgments. The GEF Evaluation Office will bear full responsibility for the content of the report. Government and national stakeholders will be able to review and comment on a draft prior to finalization. The GEF Evaluation Office will take sole responsibility for including the data, analysis, and judgments in the annual country portfolio evaluation report and will make the CPS available to the GEF Council and the general public through the GEF website.

A.7 Key Milestones

The study will be conducted between [month/year] and [month/year]. The key milestones of the CPS are presented below.

A.8 CPS Report Outline

The CPS report should be a stand-alone technical document organized along the following general table of content. It should ideally be circa 25 pages.

- Chapter 1. Main Conclusions and Recommendations
  - Background and Objectives
  - Scope and Methodology
  - Conclusions (Relevance, Efficiency, Results and Effectiveness)
  - Recommendations
- Chapter 2. Study Framework and Context
  - Methodology and Limitations
  - Key Questions
  - Global Environmental Benefits Description
  - Country Environmental Legal Framework
  - The GEF Portfolio
- Chapter 3. Results of GEF Support
  - Global Environmental Impacts by Focal Area and in Multifocal Area Activities
  - Achievements in Supporting National Priorities, including Capacity Building
  - Catalytic and Replication Effects
- Chapter 4. Relevance of GEF Support
  - GEF Support and National Sustainable Development and Environmental Priorities
  - GEF Support and Global Conventions and Other International Agreements
  - Country Ownership
- Chapter 5. Efficiency of GEF Support
  - Time, Effort, and Money
  - Roles and Responsibilities, and the GEF Focal Point Mechanism
  - Coordination and Synergies
- Annexes
  - Terms of Reference
  - Evaluation Matrix
  - Interviewees
  - Sites Visited
  - GEF Portfolio in [country]
  - Bibliography

Table A.2

Evaluation's Key Milestones

Milestone	Deadline
1. Preparatory work, preliminary data gathering	
2. Literature review, data gathering	
3. Finalization of the GEF country portfolio database	
4. Country environmental legal framework	
5. Global environmental benefits description	
6. Field studies	
7. Data collection/interviews and project review protocols, portfolio overview	
8. Consolidation and triangulation of evaluative evidence	
9. Presentation of key findings through joint consultations/workshop with stakeholders	
10. Draft CPS report sent out to stakeholders	
11. Incorporation of comments received in a final CPS report	
12. Final CPS report	
13. Country response to the CPS	

STANDARD EVALUATION MATRIX

Key question	Indicators/basic data	Sources of information	Methodology
Is GEF support effective in producing results …			
… at the project level?	Project outcomes and impacts	Project staffs and beneficiaries, national and local government representatives	Focus groups and individual interviews
		ROtI studies	ROtI methodology
	Existing ratings for project outcomes (i.e., self-ratings and independent ratings)	Project-related reviews (implementation reports, terminal evaluations, TE reviews, etc.)	Desk review, project review protocols
	Changes in global benefit indexes and other global environmental indicators	Evaluative evidence from projects and donors, Global Environmental Benefits Assessment	Literature review, meta analysis of evaluation reports
… at the aggregate level (portfolio and program) by focal area?	Aggregated outcomes and impact from above	Project staffs and beneficiaries, national and local government representatives	Focus groups and individual interviews
		ROtI studies	ROtI methodology
		Project-related reviews (implementation reports, terminal evaluations, TE reviews, etc.)	GEF Portfolio aggregate analysis
	Catalytic and replication effect	Data from overall projects and other donors	Desk review
		ROtI studies	ROtI methodology
		Project staffs and beneficiaries, national and local government representatives	Focus groups and individual interviews
	Contribution by the GEF	Data from overall projects and other donors	Desk review
		ROtI studies	ROtI methodology
		Project staffs and beneficiaries, national and local government representatives	Focus groups and individual interviews
… at the country level?	Aggregated outcomes and impact from above	Project-related documentation (project documents and logframes, implementation reports, terminal evaluations, TE reviews, etc.)	GEF portfolio aggregate analysis, desk review
	Overall outcomes and impacts of GEF support	Project staffs and beneficiaries, national and local government representatives	Field visits, focus groups and individual interviews
	Catalytic and replication effect	Data from projects financed by other donors and or by the government. ROtI studies	Desk review, ROtI methodology
… related to the dissemination of lessons learned in GEF projects and with partners?	Project design, preparation and implementation have incorporated lessons from previous projects within and outside GEF	Project-related reviews (implementation reports, terminal evaluations, TE reviews, etc.), ROtI studies, project staffs and beneficiaries, national and local government representatives	Desk review, ROtI methodology, GEF portfolio and pipeline analysis
		NGO staffs, Project staff and beneficiaries, national and local government representatives	Focus groups and individual interviews
… which last in time and continue after project completion?	Availability of financial and economic resources	Project-related reviews (implementation reports, terminal evaluations, TE reviews, etc.), NGO staffs, Project staffs and beneficiaries, national and local government representatives, ROtI studies	Desk review, focus groups and individual interviews, project review protocols, ROtI methodology, GEF portfolio analysis
	Stakeholders' ownership, social factors		
	Existence of a techical know how		
	Environmental risks		
	Existence of an institutional and legal framework	Country legal environmental framework	Literature review, timelines, historical causality, etc.

Key question	Indicators/basic data	Sources of information	Methodology
Is GEF support relevant to…			
… the country's sustainable development agenda and environmental priorities?	GEF support is within the country's sustainable development agenda and environmental priorities	Relevant country level sustainable development and environment policies, strategies and action plans	Desk review, GEF portfolio analysis by focal area, Agency, modality and project status (national)
		Project-related documentation (project document and logframe, implementation reports, terminal evaluations, TE reviews, etc.), PMIS, Agencies' project databases	
	Level of GEF funding compared to other ODA in the environmental sector	Available databases (international as WB, OECD, etc., and national, i.e. dept. of statistics, other)	
	GEF support has country ownership and is country based (i.e., project origin, design and implementation)	Government officials, agencies' staff, donors and civil society representatives	Stakeholder consultation (focus groups, individual interviews)
		Country Legal Environmental Framework	Literature review, timelines, historical causality, etc.
… the country's development needs and challenges?	GEF supports development needs (i.e., income generating, capacity building) and reduces challenges	Relevant country level sustainable development and environment policies, strategies and action plans	Desk review, GEF portfolio analysis by focal area, Agency, modality and project status (national)
	The GEF's various types of modalities, projects and instruments are in coherence with country's needs and challenges	Project-related documentation (project document and logframe, implementation reports, terminal evaluations, TE reviews, etc.), PMIS, Agencies' project databases	
		Government officials, agencies' staff, donors and civil society representatives	Stakeholder consultation (focus groups, individual interviews)
		Country Legal Environmental Framework	Literature review, timelines, historical causality, etc.
… national GEF focal area action plans?	GEF support linked to the national environmental action plan (NEAP); national communications to UNFCCC; national POPs; National Capacity Self-Assessment (NCSA); adaptation to climate change (NAPA), etc.	GEF-supported enabling activities and products (NCSA, NEAP, NAPA, national communications to UN Conventions, etc.)	Desk review
		Small Grant Programme country strategy	
		Government officials, agencies' staff, donors and civil society representatives	Stakeholder consultation (focus groups, individual interviews)
… global environmental benefits (i.e. biodiversity, GHG, international waters, POPs, land degradation, etc.)?	Project outcomes and impacts are related to the RAF Global Benefit Index (for biodiversity and climate change) and to other global indicators for POPs, land degradation and international waters	National Conventions action plans, RAF, BD scorecard, etc.	Desk review, project field visits, project review protocols
		Country Legal Environmental Framework	Literature review, timelines, historical causality, etc.
	GEF support linked to national commitments to Conventions	Project-related documentation (project document and logframe, implementation reports, terminal evaluations, TE reviews, etc.), PMIS, Agencies' project databases	GEF portfolio analysis by focal area, Agency, modality and project status (national)
		Government officials, agencies' staff, donors and civil society representatives	Stakeholder consultation (focus groups, individual interviews)
		Global Environmental Benefits Assessment	Literature review
… GEF mandate and focal area programs and strategies?	GEF activities, country commitment and project counterparts support GEF mandate and focal area programs and strategies (i.e., catalytic and replication, etc.)	GEF Instrrument, Council decisions, focal area strategies, GEF4 programming strategy.	Desk review, GEF portfolio analysis by focal area, Agency, modality and project status (national)
		Project-related documentation (project document and logframe, implementation reports, terminal evaluations, TE reviews, etc.), PMIS, Agencies' project databases	
		GEF Secretariat staff and technical staff from GEF Agencies	Interviews
		Global Environmental Benefits Assessment	Literature review
		Country Legal Environmental Framework	Literature review, timelines, historical causality, etc.

Key question	Indicators/basic data	Sources of information	Methodology
Is GEF support efficient?			
How much time, money and effort does it take to develop and implement a project, by type of GEF support modality?	Process indicators: processing timing (according to project cycle steps), preparation and implementation cost by type of modalities, etc.	Project-related documentation (project documents and logframes, implementation reports, terminal evaluations, TE reviews, etc.), PMIS, Agencies project databases, RAF pipeline	Desk review, GEF portfolio analysis, timelines
	Projects drop-outs from PDF and cancellations	GEF Secretariat and Agencies' staff and government officials	Interviews, field visits, project review protocols
	GEF vs. cofinancing	National and local government officials, donors, NGOs, beneficiaries	
What are the roles, engagement and coordination among various stakeholders in project implementation?	Level of participation	Project-related reviews (implementation reports, terminal evaluations, TE reviews, etc.)	Desk review and meta analysis of evaluation reports, interviews and field visits
	Roles and responsibilities of GEF actors	Project staff, government officials	
	Coordination between GEF projects		
	Existence of a national coordination mechanism for GEF support	GEF Secretariat staff and technical staff from GEF Agencies	Interviews, field visits, institutional analysis
Are there synergies among GEF Agencies in GEF programming and implementation?	Acknowledgement between GEF Agencies of each other's projects	Project-related reviews (implementation reports, terminal evaluations, TE reviews, etc.)	Desk review and meta analysis of evaluation reports, interviews and field visits
	Effective communication and technical support between GEF project agencies and organizations	GEF Agency staff, national executing agencies (NGOs, other)	
Are there synergies between national institutions for GEF support in programming and implementation?	Acknowledgement between institutions of each other's projects	Project-related reviews (implementation reports, terminal evaluations, TE reviews, etc.)	Desk review and meta analysis of evaluation reports, interviews and field visits
	Effective communication and technical support between national institutions	Project staff, national and local government officials	
Are there synergies between GEF support and other donors' support?	Acknowledgement between institutions of each other's projects	Project-related reviews (implementation reports, terminal evaluations, TE reviews, etc.)	Desk review, focus groups and individual interviews, and field visits
	Effective communication and technical support between institutions	NGO staffs and donors' representatives	
	Complementarity of GEF support	Evaluations of other donors' funded projects	Meta analysis fo evaluation reports

Annex B. Interviewees

Minh Pham, Resident Coordinator, UNDP

Akiko Fujii, Deputy Resident Representative, UNDP

Machel Stewart, Programme Advisor—Poverty, UNDP

Margaret Jones Williams, Programme Advisor—Environment & Energy, UNDP

Nicole Brown, Programme Assistant—Environment & Energy, UNDP

Alan Ross, Disaster Risk Reduction Consultant, UNDP

Andrea Sheppard-Stewart, External Cooperation Division, Planning Institute of Jamaica

Delores Wade, External Cooperation Division, Planning Institute of Jamaica

Leonie Barnaby, Senior Director and GEF Focal Point, Office of the Prime Minister, Environmental Management Division

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Donna Blake, Jamaica Country Representative, The Nature Conservancy

Fitzroy Vidal, Senior Director, Energy Division, Ministry of Energy & Mining

Yvonne Barrett-Edwards, Director, Energy Division, Ministry of Energy & Mining

Marilyn Headley, CEO & Conservator of Forests, Forestry Department

Nelsa English-Johnson, Project Manager, Invasive Alien Species Project, NEPA

Charles Bromfield, SGP Grantee/Consultant, Jamaica Maritime Institute Trust Fund

Eron McLean, Director Corporate Planning and Administration, Caribbean Maritime Institute

Mona Webber, Head, Life Sciences, University of the West Indies

Dayne Buddo, Researcher, University of the West Indies

Kurt McClaren, Researcher, University of the West Indies

Byron Wilson, Researcher, University of the West Indies

Bert Smith, Director, Legal Affairs, Maritime Authority of Jamaica

Selvyn Thompson, Watershed Officer, NEPA

Janet Bailey, Fairy Hill Community Group

Monica Robinson, Long Bay Community Group

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Patrick Cargill, Driver's River Community Group

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Rohan Longmore, Economist, World Bank Jamaica

Althea Spence, Operations Analyst, World Bank Jamaica

Jerome Smith, Director, Natural Resources, and CBD focal point, Office of the Prime Minister, Environmental Management Division

Annex C. Sites Visited

Integrating Watershed and Coastal Area Management, Driver's River Watershed Pilot Project

Invasive Alien Species Marine Laboratory, Discovery Bay

SGP Projects:

Jamaica Maritime Institute Trust Fund—Wind Energy Project, Kingston

Biodiversity Preservation through Seven Rivers Herbs and Spices Project

Sweetwater Agricultural Cooperative Biodiversity Project

Mafoota Agricultural Cooperative Biodiversity Project

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