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**FIRST MEETING: “TOWARDS AN EFFECTIVE ENVIRONMENTAL
MANAGEMENT”**

***SYNOPSIS OF THE EXECUTIVE PROFILE OF ENVIRONMENTAL
MANAGEMENT: Caribbean Subregion***

WORKING PAPER

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(Original document in English)

Introduction

This Executive Profile of Environmental Management for the Caribbean Sub-Region was prepared for the Inter-American Development Bank (IDB) Regional Policy Dialogue. The Regional Policy Dialogue is an initiative by the IDB to promote the establishment of regional networks in which IDB borrowing member countries can share experiences and formulate regional responses to common policy issues. For the purposes of this analysis, the Caribbean sub-region (hereafter referred to as "the Caribbean" or "the sub-region") contains eight countries. These countries are: Bahamas, Barbados, Dominican Republic, Guyana, Haiti, Jamaica, Suriname, and Trinidad and Tobago.

Basic Socioeconomic Data for the Caribbean Sub-Region

	Population	Population Growth (%)	Urban Population (%)	Area (km ²)	Per Capita GDP (US\$)
Bahamas	302,000	1.3	88.5	13,880	14,900
Barbados	268,000	0.5	50.0	430	9,700
Dominican Republic	8.6 million	1.8	65.0	48,730	2,313
Guyana	863,000	0.8	38.2	215,000	831
Haiti	8 million	2.0	35.7	27,750	475
Jamaica	2.6 million	0.8	56.1	10,990	2,654
Suriname	415,000	0.4	74.2	163,000	1,154
Trinidad and Tobago	1.3 million	0.6	74.1	5,130	5,462

World Bank. All data from 2000, except Suriname per capita GDP, which is from 1996.

This Profile provides an overview of environmental management priorities, achievements, and challenges in the sub-region. It also provides some recommendations for sub-regional initiatives that could be pursued through the Dialogue. Throughout this paper, environmental management issues are divided into three categories: natural resources management, urban environmental management, and environment and competitiveness.

ENVIRONMENTAL MANAGEMENT PRIORITIES

There is a significant amount of variation among the countries in the Caribbean sub-region. Despite these variations, all of these countries are facing a surprisingly similar set of environmental management priorities.

Environmental Management Priorities in the Sub-Region

Natural Resources Management	<ul style="list-style-type: none"> – Watersheds – Coastal and Marine Ecosystems – Biodiversity – Other (Forests and Mining)
Urban Environmental Management	<ul style="list-style-type: none"> – Solid Waste – Wastewater – Other (Air Pollution and Agricultural)

	Chemicals)
Environment and Competitiveness	– Adaptation to a New Paradigm

Natural Resources Management Priorities

Watersheds. Loss of forest cover, unsustainable agricultural practices, fires, mining activities, and other developments in the upper watersheds are contributing to watershed degradation that has significant implications for future development in the sub-region. The most significant implications of watershed degradation in the sub-region are the threat to drinking water supplies and coastal ecosystems.

Depletion of upper watersheds exacerbates seasonal wet-dry variation while limiting groundwater recharge. In Haiti, for example, it is estimated that infiltration rates for rainwater have been reduced from 40 percent to 10 percent (Ministry of the Environment, 1999). The silt and pollution resulting from activities in the upper watershed have a significant impact on the efficiency and effectiveness of waterworks. Countries that rely on surface water must rely on increasingly heavier levels of treatment to produce potable water. There are serious concerns about the impacts of pollution and saline intrusion on precious groundwater resources. There are indications that groundwater supplies in several countries are under threats from sewage and leaking underground storage tanks. Over abstraction of groundwater combined with sea level rise could lead to significant saline intrusion.

Coastal and Marine Ecosystems. The economy of the Caribbean sub-region depends very heavily on coastal and marine resources. Coastal areas in the Caribbean are coming under extreme pressure due to unmitigated development, pollution, over-exploitation of resources, and growing conflicts between competing resource uses.

Coral reefs in the Caribbean are under significant threat. It is estimated that the wider Caribbean region contains 12 percent of the world's coral reefs and that two-thirds of Caribbean reefs are under medium to high risk (UNEP, 1999). In many parts of the sub-region coral reefs are severely damaged or are in danger of being lost. For example, the coral cover on the reefs along the north coast of Jamaica is reported to have declined from 52 percent to 3 percent over the period from the late 1970s to early 1990s (Hughes, 1994). The threat to coral systems is particularly troubling since there is growing reason to believe that reefs are an integral part of the global marine ecosystem.

Biodiversity. The Caribbean sub-region is of extreme significance to global biodiversity conservation. There is significant national and regional endism in the region. Conservation International has identified the area of the Caribbean from Southern Florida to Trinidad as of the five “hottest of the hotspots” for global biodiversity conservation. Guyana and Suriname are part of the Guianas Forest Ecoregion, which has been recognized internationally for its conservation importance.

Coastal and marine ecosystems in the Caribbean are also of global significance. One recent study by UNEP estimates that the area of the entire world's coral is only 284,000 square kilometers (significantly less than the combined area of Guyana and Suriname), yet this area

contains up to 70 percent of all of the fish stocks in the world. Some scientists estimate that less than 10 percent of the species living on coral reefs have been identified. This means that coral reefs may be just as important as rainforests as a source for new chemicals to benefit humankind. For example, the drug AZT, which is used to treat HIV and AIDS, is derived from chemicals extracted from a sponge, which lives on a Caribbean reef. More than half of all new cancer drug research focuses on marine organisms (UNEP, 2001).

Biodiversity in the Caribbean is under tremendous pressure due to habitat destruction, overexploitation and harvesting of species, and pollution. The implications of biodiversity loss to the Caribbean sub-region include loss of existing tourism and exploitative activities, as well as the opportunity costs of foregoing potential new exploitative and non-exploitative activities such as tourism and new biological and chemical discoveries.

Known Total and Endemic Species in the Caribbean Sub-Region

	Mammals		Birds		Reptiles		Amphibians		Higher Plants	
	Total	Endemic	Total	Endemic	Total	Endemic	Total	Endemic	Total	Endemic
Bahamas	12	3	88	3	35	17	2	0	1,218	118
Barbados	6	0	24	0	9	3	1	0	572	3
Dominican Republic	20	0	136	0	117	34	35	15	5,657	1,800
Guyana	193	1	678	0	n/a	2	n/a	14	6,409	n/a
Haiti	3	0	75	1	108	35	56	27	5,242	1,623
Jamaica	24	2	113	26	36	27	24	21	3,308	923
Suriname	180	2	603	0	151	0	95	8	5,018	n/a
Trinidad and Tobago	100	1	260	1	70	3	26	3	2,259	236

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Other Issues. While not of the highest priority in the sub-region as a whole, mining and the management of forests as commercial resources are of particular concern for some countries.

Urban Environmental Management Priorities

Solid Waste. Most of the countries in the Caribbean sub-region lack proper sanitary landfill facilities. Solid waste collection is a significant problem for many urban and rural areas. Concern with solid waste management in the Caribbean is compounded by the lack of hazardous waste management facilities in the sub-region.

The implications of the solid waste for development in the sub-region are significant and numerous. First, the lack of adequate solid waste facilities can present a significant short- and long-term environmental and public health threat. Burning of open dumps is a significant source of air pollution in several countries. Many present dump sites are situated on swamps or unstable soils, raising concerns about long-term contamination of groundwater and surface water. Access to many dump sites is minimally controlled, creating opportunities for scavenging that raises significant potential public health concerns. Second, improperly managed wastes—even non-toxic wastes—can contribute to significant environmental problems. In addition to its

aesthetic impacts, litter is known to exacerbate drainage problems, particularly in urban areas. Litter and large debris clog channels and drains, greatly contributing to flooding. Inappropriately managed solid waste also creates habitat for disease vectors such as vermin and mosquitoes.

Wastewater. Wastewater is a significant source of pollution in the Caribbean, with sewage being the single greatest source of concern. PAHO has estimated that only between 2 and 16 percent of the population of CARICOM countries is served by properly functioning sewage systems. Even where sewer systems exist, the treatment plants are frequently not working. Sewage from several major cities in the sub-region is currently discharged untreated into the environment. Many rural communities in the Caribbean are served by non-sewer systems such as septic systems and pit latrines. For example, it is estimated that only 36% of Jamaica's 1.3 million rural population had access to water toilets, with the remainder using pit latrines and other systems. (IDB, 2001). If not maintained properly, these systems can also contribute to surface and groundwater contamination. Furthermore, in many countries of the Caribbean, gray water (i.e., non-toilet wastewater from sinks, tubs, and laundry) is diverted from septic and sewage systems and is discharged directly into the environment.

Sewage can contaminate bathing areas and public water supplies. In several countries in the Caribbean, potable water supplies are under threat from sewage contamination. Contamination caused by sewage poses a very significant threat to coral reefs and other ecosystems. In addition to sewage, there are significant concerns with localized impacts of commercial and industrial effluent.

Other Issues. While not of the highest priority in the sub-region as a whole, air pollution is a significant concern in several countries. The principle cause of concern with regard to air pollution is motor vehicles, although other important sources include power generation, industry, and landfill fires. Another important issue in the Caribbean is agricultural chemical use. Very little documentation exists, but there are concerns about the toxicity, quantity, application, and disposal of agricultural chemicals.

Environment and Competitiveness

Adaptation to a New Paradigm. The biggest priority for the environment and competitiveness is adapting to a new paradigm in which environmental management is becoming more relevant to competitiveness. Increasingly, environmental management is becoming a threshold of entry into international trading systems, with countries, companies, and customers all imposing their own environmental management requirements and expectations on trading partners, suppliers, and service providers. At the same time, environmental management presents competitiveness opportunities in such areas as sustainable tourism, organic farming, certification, and long-term cost savings.

In reviewing these priorities it is important to consider two things. First, with the exception of the competitiveness issue, the cause and impact of these priorities are principally local, not global. There is no external force to blame for these issues, and the greatest impacts of these issues will be felt first at the local level. Countries therefore need to look internally for solutions. Second, these issues are common to all countries irrespective of their economic base or

development situation. Every country in the sub-region—rural or urban, industrialized or agrarian, commercial or tourist, middle income or lower income—faces these issues. No country can say, “That’s not our problem.” This commonality creates a sense of urgency for all countries in the sub-region, but it also presents great opportunities for sharing of information and human resources within the sub-region.

ACHIEVEMENTS IN ENVIRONMENTAL MANAGEMENT

Although some laws and agencies have existed for decades, it is only in the past 10 years or so that environmental management has started to receive serious attention in the Caribbean—and it is only in the past 5 years or so that environmental management efforts have begun to develop momentum. Because responses to environment management needs have started to gain momentum in the Caribbean only recently, it is difficult, and perhaps even premature, to identify many specific environmental management achievements. It is more appropriate to look for clear signs of progress.

General Achievements

Legal and Institutional Framework. The most significant sign of progress in the Caribbean in the past 5 years has been the establishment of national legal and institutional frameworks for environmental management. All of the countries in the sub-region have a lead agency for environmental management and most have established framework legislation, regulations, or standards. Although these new frameworks are largely untested, they form an important platform for future achievement.

Human Resources. There has been significant progress in the development of an environmental management human resource base in the Caribbean. There is now a cadre of experienced environmental management professionals in public and private organizations in the Caribbean.

Public Awareness and Participation. Awareness of and concern for environmental issues has increased significantly in the sub-region. The policy development and environmental impact assessment (EIA) processes have introduced new levels of public awareness and participation, offering opportunities for public input through consultations and formal notice-and-comment proceedings.

Services Sector. The growth of the sub-regional consulting and contractor environmental services sector presents has created a capacity to meet environmental management needs from within the region. The services sector provides a career path that can attract people into the environmental sector, while retaining expertise in the sub-region.

Natural Resources Management Achievements

Regulatory. Examples of some early regulatory accomplishments in the sub-region include the establishment of coastal zone management programs in Barbados and Jamaica. The Barbados program in particular has been successful in establishing the basis for an integrated approach to coastal zone management. Another important sign of progress is forest and biodiversity

conservation programs in Suriname and Guyana. Both of these countries have established significant new reserve areas for conservation and research.

Non-Regulatory. Co-management is a process in which natural resource users or NGOs are given management responsibility for natural resources. Co-management represents a cost-effective and sustainable alternative to government management of these resources. Although experience with co-management in the Caribbean has been limited, there have been some encouraging experiments in the sub-region.

Urban Environmental Management Achievements

Regulatory. The establishment and implementation of EIA procedures in Bahamas, Barbados and Jamaica has had a positive impact on development projects there. New EIA processes in Trinidad and Tobago and Guyana will begin to have a greater impact on development projects in those countries. Several countries have established new pollution control requirements and standards, but it is generally still too early to assess the performance of those new requirements.

Non-Regulatory. Jamaica and Trinidad and Tobago have both implemented some community-based projects to address solid waste and environmental contamination issues. Barbados is making significant investments to improve its sewerage systems.

Environment and Competitiveness Achievements

Many companies in the Caribbean sub-region have begun to implement environmental management systems. These systems vary from ISO14001-based systems to the Green Globe certification program for hotels. It appears that many firms have adopted management systems to save money and to brand themselves as environmentally friendly. This is particularly encouraging, because it debunks the prevailing notion that environmental management and economic development are competing interests.

CHALLENGES IN THE SHORT, MEDIUM AND LONG-TERM

There are a number of challenges that countries in the sub-region must overcome to address the environmental management priorities.

General Challenges

Integration. Environmental management is still seen as separate from and subservient to socio-economic development interests. This lack of integration limits the degree to which environmental issues are considered—and, consequently, limits the resources that are available for environmental management.

Information. There is a lack of good information about the status of the environment in the Caribbean, and a further lack of information about the clear human health and economic consequences of environmental degradation. Better information is needed for effective planning and regulation, and to promote greater integration and public involvement.

Land Use Planning. Planning is of critical importance in the Caribbean, where land is scarce, populations are growing, and ecosystems are fragile and threatened. To date, however, the Caribbean has not benefited from strong planning. In many respects, planning is seen as impeding development, not supporting it.

Land Tenure. Land tenure is also a significant challenge to environmental management in many countries. In many countries in the sub-region, governments own significant portions of land that they do not have the resources or political will to control. Many people in the sub-region who occupy government or former government lands do not enjoy clear title to land. This frustrates long-term investment in land utilization choices that may be more sustainable.

Public Awareness. Although public awareness of environmental issues has increased significantly, there is still little environmental ethic in the Caribbean. The low level of public commitment to environmental management means that environmental issues are easily marginalized.

Institutional Development. Despite the successes in human resources development, there remain some critical challenges to meet the human resource demands of environmental management in the sub-region. However, the human resource issue needs to be seen as part of a larger institutional development issue. Unlike many other parts of the public service, environmental agencies are competing directly with the private sector for a limited human resource base. Public agencies need to develop working conditions that promote the retention of qualified staff. Recognizing that resources will always be limited, agencies also need to come to see themselves as facilitators of environmental management, employing both regulatory and non-regulatory approaches.

Financing. Many of the financing problems in the region are resource allocation issues that can be addressed through improved integration. However, the solid waste and wastewater sectors in particular present some serious financing challenges beyond resource allocation.

Global Issues and Multi-Lateral Agreements. The issues of global climate change, biodiversity, transboundary shipments of waste, marine pollution and ship-generated wastes, and trade-related environmental issues are all significant issues of concern for Caribbean countries. Multi-lateral agreements that address these issues present funding opportunities and opportunities to exert control over issues over which the countries in the sub-region have little direct control. However, these agreements can also create potential constraints on development in the sub-region while creating significant implementation costs. Furthermore, a focus on global issues can perpetuate a notion that environmental management is an externally driven problem, and, as a consequence, the solutions must also be external. Caribbean countries must address global issues and find meaningful ways to participate in multi-lateral agreements. However, the causes and solutions of the priority environmental management issues in the sub-region are predominantly local. Governments in the sub-region need to stay focused on these priorities, while recognizing that donor funding to address these issues will be limited.

Natural Resources Management Challenges

Land use planning and integration are the most significant challenges to the natural resources management priorities of watersheds, coastal and marine ecosystems, and biodiversity. Other important challenges include institutional capacity, land tenure, and public awareness and education.

Urban Environmental Management Challenges

Land use planning, institutional capacity, public awareness, and integration are also significant challenges to the urban environmental management priorities of solid waste and wastewater. Small and medium-sized enterprises also present a special challenge. The awareness of and capacity for environmental management in these firms is limited, while regulation of these companies can consume significant resources. Another important challenge to addressing the urban environmental management priorities financing. The costs of solid waste and sewerage projects can be prohibitive.

Environment and Competitiveness Challenges

There are several challenges that the sub-region faces in adapting to the new paradigm of environment and competitiveness. One challenge is simply overcoming organizational inertia to appreciate that environmental management—both as a challenge and an opportunity—is now an established part of the trade and business reality. Another challenge is the lack of information, resources, and capacity within small and medium-sized companies to adapt to this new reality.

Long-Term Issues

Some of the longer term issues facing the Caribbean include:

Climate Change. The countries of the Caribbean are vulnerable to global climate change. Sea level rise, sea temperature rise, and greater extremes in weather conditions all could have serious implications for development in the sub-region. It is important that countries in the sub-region participate in efforts to reduce and stabilize greenhouse gas emissions, particularly where such participation will provide opportunities for foreign direct investment and technology transfer that will have immediate local environmental and economic benefits. It is also important that countries in the sub-region incorporate climate change into their planning processes, and build capacity for adaptation.

Urbanization. With the exception of Haiti and Guyana, the majority of the populations in all countries in the sub-region live in urban areas. Urbanization has increased significantly over the past 20 years in all of the countries in the sub-region, and can be expected to continue. Urbanization concentrates pollution and creates significant environmental health challenges. It also presents significant public service challenges, as the basic design and infrastructure of the urban areas in the region was not designed for large concentrated populations.

Energy. It is estimated that electricity demand in the Caribbean will increase by 3.2 percent to 6.7 percent per year over the next 10 years (UNEP, 1999). This rising energy demand has the potential to create additional environmental stresses through air and water pollution.

Economic Transformation and Diversification. All of the island states in the sub-region are highly dependent on their natural resources, yet those natural resources are limited and threatened. The challenge facing the countries in the sub-region is to pursue an economic development path that is consistent with the limits of the natural resource base. One component of this path lies in the pursuit of more sustainable exploitative and non-exploitative natural resource-based activities. However, another big component of this path lies in diversifying the economies of the sub-region to reduce their direct reliance on natural resources through a focus on services and information technology.

DIALOGUE OPPORTUNITIES

There are a number of opportunities for the IDB and the member countries to use the Regional Policy Dialogue to address the environmental management priorities of the sub-region. These opportunities include:

Sub-Regional Networking. There is a tremendous opportunity to establish a practical and sustained network at a technical level to provide clear mechanisms for sharing information, experience, and technical expertise. This networking could occur through conferences, technical exchanges, and Internet-based communication.

Baseline and Economic Studies. There is a great opportunity to develop baseline studies on the state of the Caribbean environment at a sub-regional level, and to translate that information into basic economic and human terms. A sub-regional study that presents case studies of a cross section of issues in the sub-region would provide important information to policymakers and technicians in a more cost-effective manner than exhaustive country-by-country studies.

Non-Traditional Education. There are significant opportunities to experiment with non-traditional environmental education that takes a social marketing approach to behavior change. Some of these things can be done on a regional basis.

Experimentation with Non-Traditional Mechanisms. Experimenting with non-traditional mechanisms such as market-based instruments, public disclosure, and certification and branding on a sub-regional basis would limit risks while providing broad base of experience upon which to draw lessons and best practices.

Co-management and Community-Based Pilot Projects. Given that resources are limited and that there is a need to promote greater ownership of environmental management in society as a whole, governments in the Caribbean need to give serious consideration to delegating responsibility for environmental management to NGOs, community groups, public/private partnerships, and the private sector. Privatization and/or community ownership of sewage and solid waste systems can relieve government's burden while promoting investment. Co-management of watersheds and protected areas can also reduce government's burden while

providing important experience to strengthen NGO and local community cohesion and capacity. By acting as facilitators, governments can leverage resources while further integrating environmental management into the mainstream of development.

Management Systems and Environmental Branding. Governments in the region should encourage and facilitate the adoption of environmental management systems by the private sector. Environmental management systems have proven to be very effective internationally in promoting compliance and improved environmental performance. Through the Multi-Lateral Investment Fund (MIF), the IDB is already financing one project in Jamaica that will assist small and medium sized enterprises in adopting environmental management systems. IDB should continue to work with sub-regional governments, trade associations, and NGOs to develop and support projects that promote the implementation of environmental management systems on a national and sub-regional basis. IDB should also work with the private sector to develop environmental branding opportunities similar to Green Globe and Blue Flag for the tourism and manufacturing sectors in the sub-region.

Economic Reform and Good Governance. The World Bank has referred to national economic policies as, “pollution’s hidden half.” Continuing to support democracy, economic reform, and economic development are some of the most effective ways in which IDB can support environmental management in the sub-region. The IDB should continue to support the reduction of barriers to trade, privatization of state industries, the development of stock markets, the elimination of subsidies, and transparency in government decision-making. While not sufficient in and of themselves, all of these measures enable improved environmental management.