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**NRCA 2000  
Workshop Briefing Paper**

**Technical Report No. 3**

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*The past two decades of Jamaica's economic and environmental experiences demonstrate the vulnerabilities of a Caribbean island state grappling with internal and external natural, social, economic, and technological factors. Environmental protection and conservation of natural resources have been on the Jamaican agenda during this period. The fact is, however, that in attainment of the present, admittedly inadequate level of development, there have been mishaps in environmental transformation and distinct deterioration in environmental quality.*

*Our main economic sectors--tourism, bauxite and alumina production and agriculture- -are part of an economic and social fabric that is strongly dependent on the state of the island's natural resources, environmental and external factors. Today, new trends in public policy, institutional characteristics, involvement of Non-Governmental Organizations (NGOs) and a growing sensitivity of the private sector, all reflect aspirations for an environmentally sustainable mode of development. At the same time, however, the economic plight of a large proportion of the population and the technological disadvantages the country faces are major problems to be overcome.*

*Jamaica National Report,  
United Nations Conference on  
Environment and Development  
Rio de Janeiro, June 1992*

## **1.0 INTRODUCTION AND BACKGROUND**

### **1.1 WORKSHOP AND BRIEFING PAPER OBJECTIVES**

The Government of Jamaica (GOJ) has the responsibility for the management, conservation, and protection of the natural resources of Jamaica. To satisfy this responsibility, the Natural Resources Conservation Authority (NRCA) was established in 1991 by the NRCA Act and authorized to take the necessary steps to ensure the sustainable use of Jamaica's natural resources. Since its inception, NRCA has begun the process of establishing the mechanisms required to enable it to fulfill the mandate set forth in the Act. The breadth of this process and the need for collaboration among numerous players requires that NRCA solicit input and support from public and private sector organizations whose activities guide or affect the sustainable use of Jamaica's natural resources. To this end, NRCA has planned a workshop to solicit input from government agencies, non-governmental agencies (NGOs), and representatives from the private sector to identify and prioritize environmental areas of concern and determine appropriate strategies for addressing them.

#### **1.1.1 The Workshop**

##### **1.1.1.1 Purpose**

The workshop will seek to increase understanding of the environmental management system in Jamaica and establish the context for NRCA activities--a context which will assist NRCA to articulate its mission, clarifying the institutional context within which it must operate, identifying both constraints and opportunities for effective action, and distinguishing between the multiple levels at which NRCA may choose to direct its efforts, i.e., the policy-making level, the regulatory level, promulgating standards and guidelines, management planning and programming, environmental monitoring, and enforcement.

These levels of agency intervention are not mutually exclusive, nor is it necessary that the level of agency intervention be consistent among all substantive areas. For example, with regard to coastal resources, NRCA involvement might run the entire gamut from formulating policy down to enforcement of regulations to protect coral reefs, turtle nesting sites, and endangered species such as the West Indian Manatee. In other substantive areas, such as air pollution, NRCA's role might be limited to establishing a national air pollution policy and encouraging other organizations to participate in the formulation of air quality standards while leaving monitoring and enforcement with organizations with the appropriate technical resources. Clarifying agency roles and functions is unlikely to be settled in one workshop; therefore, the need for frequent dialogue among allied agencies involved in environmental and resources management is critical. The workshop will assist in identifying the mechanism for this continuing dialogue.

Coordinating program activities among independent but functionally allied agencies in order to achieve strategic objectives frequently depends on factors that are difficult to anticipate. Implementing a national environmental strategy involves a combination of interacting factors--the reservoir of technical and professional capabilities available to government, shifting jurisdictional responsibilities of allied agencies, the extent of public awareness and support, fluctuating levels of fiscal and monetary resources, variations in the agenda of the political directorate, and others. During the workshop, participants will examine the potential role of NRCA in light of these and other factors.

The NRCA 2000 Workshop will assist NRCA to receive valuable feedback from the agencies and organizations playing key roles in the broad spectrum of natural resource management. Through the workshop, all the players will continue to build lines of communication with one another to ensure continuity in implementing a national environmental strategy. A more in-depth discussion of the workshop format is included in Section 3.0.

#### **1.1.1.2 Participants**

The participants at the workshop will include a combination of representatives from NRCA, other GOJ agencies, NGOs, development agencies, and the private sector. During the workshop, NRCA will be assisted by a team of consultants working closely with NRCA, the U.S. Agency for International Development's Mission in Jamaica (USAID/Jamaica), and the Canadian International Development Agency (CIDA). The participant composition reflects NRCA's understanding that achieving sustainable development goals in Jamaica requires the participation and support of key organizations which have an important role to play in maintaining and improving environmental quality on the island.

#### **1.1.2 The Briefing Paper**

This briefing paper provides an overview of environmental legislation and initiatives in Jamaica, a summary of major environmental issues, the goals and objectives of the workshop, and the strategies for achieving these objectives. The format of the briefing paper follows closely the structure of the workshop; therefore, the briefing paper provides the participants with an overview of the topics for discussion as well as different strategies for addressing them at the workshop. Appendix A provides a list of available reports which were reviewed in the development of this briefing paper. Many of the reports will be available for review by participants at the workshop.

### **1.2 GOVERNMENT OF JAMAICA ENVIRONMENTAL ORGANIZATIONS AND INITIATIVES**

Jamaica has a long history of passing legislation to deal with what are now referred to as environmental issues. As early as 1874, for example, the passing of the Harbours Act demonstrated a commitment to environmental conservation. The period up through the 1960s saw a passing of a number of laws chiefly geared toward regulation of natural resource exploitation. As signs of degradation became evident, however, additional legislation providing for protection and enhancement of the resource base was enacted. What resulted from this plethora of legislation was unfortunately the dispersion of responsibility for effective and sustainable resource management throughout numerous organizations and agencies--groups which often had overlapping or occasionally conflicting responsibilities.

The momentum generated by the Stockholm Conference in 1975 culminated in the formation of the Natural Resources Conservation Department (NRCD) and the Environmental Control Division of the Ministry of Health. The inclusion of these agencies on the Town and Country Planning Authority was an effort to incorporate environmental management principles in the development control process. However, the activities of these agencies were hampered by inadequate financial resources and enforcement capabilities.

With the formation of NRCA, various programs and policies are being implemented to ensure that cohesiveness, public participation, and institutional strengthening are all a part of the environmental

management framework in Jamaica. However establishing and supporting this framework, as well as reversing some of the negative trends in natural resource use, will require a substantial investment on the part of the GOJ. With the GOJ budgetary allocation to the NRCA amounting to only 1/50th of 1 percent of the total GOJ budget (compared to 0.4 percent which the United States government allocates to the U.S. Environmental Protection Agency), it is unfeasible, if not undesirable, for NRCA to assume responsibility for implementation of all programs aimed at managing the country's resources. Therefore, it is critical for NRCA, other GOJ agencies, NGOs, and the private sector to collaborate on the task of developing a system in which sustainable development practices are adopted and Jamaica's natural resources are effectively managed.

The task of developing a system that will ensure that funds allocated to environmental programs achieve the greatest results is formidable. To be sustainable, sound environmental management activities must be incorporated into the full spectrum of public and private sector activities from large-scale industrial waste to household-level water use and methods of solid waste disposal. Therefore, the development of Jamaica's environmental system should focus on (1) identifying the responsibilities of all the players in the system, (2) determining what tools and resources are required for them to fulfill their responsibilities, and (3) developing mechanisms to ensure that players do indeed fulfill their responsibilities.

NRCA is the umbrella agency for environmental protection in Jamaica, but it is not the only significant player--nor does it operate in a vacuum. Instead, the NRCA functions within a network of statutory agencies and public and private sector organizations. In this context the implementation of an effective nationwide environmental strategy requires a commitment by and cooperation among all government agencies whose activities potentially affect natural resource use and conservation. Moreover, this commitment and cooperation must flow over to NGOs, the private sector, and the public at large if national environmental objectives are to be achieved. Thus, NRCA is engaging the support and participation of all the players in environmental management to develop a system which will ensure that Jamaica's natural resources are sustained for present and future generations.

### **1.2.1 The Natural Resources Conservation Authority**

#### **1.2.1.1 Legislation (The Natural Resources Conservation Act)**

The Natural Resources Conservation Act of 1991 establishes a statutory body (NRCA) to "provide for the management, conservation, and protection of the natural resources of Jamaica." The Act also empowers NRCA to establish policies, promulgate regulations and standards, and develop and implement strategies to achieve this goal. As set forth in the Act, NRCA is the primary agency with responsibility for environmental management in Jamaica. The Authority falls within the portfolio responsibility of the Ministry of Tourism and the Environment.

#### **1.2.1.2 Mandate**

The mandate for NRCA is broad, with agency functions including the following:

- Implementation of measures necessary to ensure effective management of Jamaica's physical environment;

- Promotion of public awareness of Jamaica's ecosystems and their importance to social and economic well-being;
- Management of national parks, marine parks, protected areas, and public recreation facilities;
- Advisement to the Minister on matters of general policy related to environmental management; and
- Performance of other functions as determined by the Minister, the Act, or any other enactment.

To perform these functions, the Act empowers NRCA to engage in a wide range of activities, ranging from the promulgation of regulations and standards to the development, implementation, and monitoring of environmental management programs.

#### **1.2.1.3 Board of Directors**

NRCA's Board of Directors is composed of 10 members who represent a broad spectrum of public and private interests, including NGOs. The Board is charged with providing direction and setting policy related to principal NRCA initiatives and other proposed schemes for environmental management. The Board meets at least once monthly and more often as specific initiatives require.

#### **1.2.1.4 Organizational Structure and Staff**

An organizational chart which illustrates NRCA's intended organizational structure is included as Appendix B. The functional arms of NRCA have been divided into two components: (1) Policy, Planning, and Assessments and (2) Environment and Resources Programmes. Under the latter component, senior directors have been assigned to each of five divisions: (1) watershed protection and management; (2) pollution control and waste management; (3) national parks, protected areas, and wildlife; (4) beaches and coastal marine systems; and (5) laboratory technical support and quality assurance. All of Jamaica's substantive environmental issues fall within one of these divisions.

NRCA currently has a staff of 60, with plans to achieve its full complement of staff (122) by 1993-1994. Although many of the director positions are vacant, NRCA has advertised these positions and recruitment is currently underway.

#### **1.2.1.5 Interagency and Ministerial Coordination**

NRCA by law is responsible for the overall formulation of national environmental objectives (including enforcement) and, together with the sector ministries and associated agencies, will determine and clarify responsibilities and activities necessary to achieve environmental objectives. NRCA will develop regulations and guidelines and make enforcement information and advice available to sectoral entities which will assist them to incorporate national environmental objectives into their activities.

Two committees have been established to facilitate inter-ministerial and agency coordination:

1. **The Inter-Ministerial Committee** is composed of cabinet ministers and will have the responsibility for ensuring that the policies, programs, and other initiatives to be supported by GOJ will be compatible with environmental goals. The committee, to be chaired by the Minister of Tourism and the Environment, will aim to ensure that cooperation exists among all ministries and agencies to reduce the potential for conflicts of interest on specific issues and inefficient use of scarce resources, particularly where there is jurisdictional overlap.
2. **The Technical Advisory Committee** is composed of senior personnel from sectoral agencies which will serve the inter-ministerial committee and the Board of NRCA on the implications of policy and program issues. This committee will be chaired by the NRCA Executive Director and will include the Ministry of Agriculture, Ministry of Tourism and the Environment, Ministry of Mining and Energy, Ministry of Construction (Works), the Planning Institute of Jamaica (PIOJ), Town Planning Department (TPD), the Environmental Control Division (ECD), and the Ministry of Health (MOH).

### **1.2.2 Other GOJ Agencies**

The capabilities and responsibilities for environmental management in Jamaica are distributed throughout many varied government agencies. A brief discussion of the principal agencies whose capabilities have significant implications for environmental management follows. A list of all government agencies involved directly or indirectly in environmental management activities is included as Appendix C.

**Environmental Control Division (ECD).** ECD is responsible for the development and application of environmental standards geared toward the protection of public health, livestock, crops, and other natural resources. ECD is also responsible for monitoring and assessment to control water quality, sewage, industrial wastewater, solid waste, occupational health and safety, air pollution, and noise.

**Town and Country Planning Authority.** This agency is responsible for the preparation of the National Physical Plan; the formulation of policy on land use and development; the preparation of land use studies, plans, and regulations; the preparation of development orders; and the coordination of the interagency review of development organizations.

**National Water Commission (NWC).** NWC is the agency responsible for the development and management of water sources and the treatment and distribution of domestic and industrial water supplies. NWC is also responsible for the collection, treatment, and disposal of domestic and industrial sewage.

**The Underground Water Authority (UWA).** UWA's primary responsibilities include the promotion of the conservation and proper use of underground water resources, the control of exploitation and the proper use of such water resources, and the collection and compilation of hydrogeological data on all wells and boreholes. UWA now includes the former Water Resources Division and as such is responsible for surface water and groundwater resource inventory, planning, allocation, and monitoring. Regulation of groundwater extraction is exercised through the issuing

of permits for well construction and water extraction. Legislation is now pending to establish a Water Resources Authority which would replace the UWA.

**Planning Institute of Jamaica (PIOJ).** PIOJ is responsible for planning the economic, financial, social, cultural, and physical development of Jamaica. PIOJ manages the GOJ's technical cooperation programs and is responsible for integrating the individual sectoral plans into the national development plan. The Institute conducts research and training and provides consulting services to government agencies. PIOJ has the responsibility for the Protected Area Resource Conservation (PARC) Project and was the implementing agency for the Tropical Forestry Action Plan.

**Forest and Soil Conservation Division (FSCD).** FSCD was initially responsible for the development and management of plantations and natural forests, forestry research, soil conservation, watershed management, extension services for farmers, stimulation of private forestry, and forest recreation management and development. In 1991, soil conservation functions were transferred to the Rural and Agricultural Development Agency (RADA).

**Fisheries Division.** The Fisheries Division of the Ministry of Agriculture is responsible for servicing, controlling, and developing marine fisheries through the administration of laws relating to fisheries, technical and informational services to the industry, monitoring of offshore fisheries, and conducting fisheries research. The Division's spheres of activities include training in fishing techniques, upgrading of fishing beaches, and pursuing negotiations for the expansion of Jamaica's fishing operations into waters outside of national boundaries. The Division is also responsible for the enforcement of the Fishing Industry Act and the protection of fish sanctuaries located in various coastal areas.

**Local Government.** The Parish Councils have numerous responsibilities related to environmental management, including land use and subdivision controls, solid waste management, cleansing, local physical planning, and municipal parks.

### **1.2.3 Government of Jamaica Environmental Initiatives**

#### **1.2.3.1 The Jamaica National Environmental Action Plan**

The Jamaica National Environmental Action Plan (JANEAP), drafted in 1991, sets forth GOJ's responsibilities for ensuring that environmental quality is maintained for Jamaica's citizens.

JANEAP articulates the GOJ's Mission Statement related to the environment, sets forth goals and objectives to achieve its Mission, and identifies a number of strategies aimed at addressing some of Jamaica's principal environmental concerns--namely watersheds, waste management and pollution control, coastal and marine zone management, national parks and protected areas, and wildlife and endangered species. Two critical approaches identified in JANEAP include the need for integration of economic and environmental policy and the need for greater emphasis on environmental education and public awareness.

#### **1.2.3.2 The Jamaica Five-Year Plan**

The environmental component of the Jamaica Five-Year Plan sets forth GOJ objectives and strategies for expanding national involvement in environmental affairs. In general, the

environmental component of the plan includes developing a national environmental policy, increasing coordination for environmental management through an effective overall institutional framework, integrating an environmental dimension at every level of policy development, planning, and project implementation, alleviating large- and small-scale environmental problems, and increasing financial resources for environmental management.

The strategies for achieving these objectives include placing emphasis on the sectoral benefits of efficient use of natural resources; concentrating on environmental education; investing in institutional development, including human resources, for environmental management; introducing new economic and financial mechanisms; and developing reciprocal international relationships. While the plan sets out ambitious objectives and strategies, it defers the details for accomplishing them to the various agencies which must carry them out.

### **1.2.3.3 The Environmental Foundation of Jamaica**

The Environmental Foundation of Jamaica was established under the Enterprise for the Americas Initiative as the result of debt forgiveness for PL480 loans. The Foundation will allocate funds (principally to NGOs) for various environmental projects, amounting to as much as \$US 10 million over 10 years. The Board of the Foundation will be composed mainly of NGOs, with representation from the GOJ, the United States government, and the University of West Indies. Although the Foundation is not yet legally established, it should be officially instated within the next 6 months. In the meantime, steps are being taken to develop guidelines for the disbursement of funds through the Foundation.

## **1.3 OTHER PRINCIPAL PLAYERS IN ENVIRONMENTAL MANAGEMENT**

### **1.3.1 The University of the West Indies**

The University of the West Indies (UWI) offers valuable potential for environmental education activities. In fact, many of the courses include environmental concepts and themes. As such, UWI plays an essential part in the education of Jamaica's present and future environmental managers and policy makers. Moreover, a significant amount of environmental research is conducted at UWI, notably in the Departments of Chemistry, Zoology, Botany, Physics, and Geology. For example, UWI has conducted the only substantive research on water quality and ecological conditions in Kingston Harbour. Such work reflects the high priority given to environmental issues at UWI in the past.

UWI's Department of Zoology is a major center for training in marine sciences and aquaculture in the Caribbean. In this capacity, UWI maintains one of the foremost marine laboratories at Discovery Bay, where pioneering work in coral reef biology has been undertaken since the 1960s. UWI also has a recently established chair for sustainable development. In addition, facilities such as the Center for Marine Sciences and Center for Nuclear Science offer a valuable capacity for environmental monitoring in Jamaica.

### **1.3.2 Non-Governmental Organizations**

NGOs can play a critical role in all levels of environmental management in Jamaica, from assistance with establishing enforceable standards and guidelines to implementing public awareness

and environmental education programs. There are more than 200 NGOs in Jamaica whose activities potentially affect the environmental management system.

### **1.3.3 Private Sector**

For the past 11 years, government policy has recognized the private sector as the engine of economic growth and development in an export-led and market-driven economy. There has also been a strong and consistent program of privatization of government-owned enterprises which, on occasion, has transferred major responsibilities and functions to the private sector. Consequently, its economic and social responsibilities have increased significantly.

Based on its high natural resources demand and consumption, the private sector has the greatest potential for impacting negatively on the environment or, conversely, for conserving natural resources to sustain its operations. Private sector organizations have begun to respond to the need for sound environmental management and in some instances have substantial environmental management resources at their disposal. The Private Sector Organization of Jamaica (PSOJ), an umbrella organization for private sector entities, has an Environmental Committee in recognition of the importance of sound environmental management to the private sector in Jamaica.

### **1.3.4 Donor Assistance**

A number of foreign donors [CIDA, USAID/Jamaica, the European Economic Community (EEC), the United Nations Development Program (UNDP), the Inter-American Development Bank (IDB), the World Bank, Japan, the Netherlands, etc.] have expressed an interest in supporting environmental management in Jamaica, through both government and non-governmental implementing agencies. Many of them (USAID/Jamaica, CIDA, IDB, UNDP, and the World Bank) have given priority to supporting NRCA's institutional development. For example, UNDP, CIDA, and IDB currently fund short-term technical assistance to NRCA for organizational management review and regulatory development. USAID/Jamaica, CIDA, and IDB have formulated large-scale institutional support projects amounting to more than US\$10 million over 10 years. In addition, the donor agencies collectively plan to contribute tens of millions of US dollars in technical assistance and other support over the same period to projects whose activities will foster sound natural resource management.

## **2.0 ENVIRONMENTAL PRIORITIES**

### **2.1 THE ECONOMIC IMPACTS OF ENVIRONMENTAL MANAGEMENT**

Jamaica's economy is inextricably linked to the sustainable use of the island's natural resources. Mining (bauxite), agriculture (sugar, bananas, coffee, etc.), and tourism--sectors heavily dependent on natural resource use and conservation--account for 20 percent of the GDP in Jamaica. The economic slump during the past decades, which resulted in large part from the decrease in alumina demand worldwide, is a reminder of the fragile balance economies face when dependent on only one or a few sectors for economic stability.

With tourism expected to exceed bauxite in 1992 in generating foreign exchange earnings, the need for Jamaica to protect the ecosystems on which tourism depends is critical. Tourism generated approximately \$700 million in foreign exchange in 1990 (compared with bauxite's \$728 million) and currently provides jobs for more than 20,000 people in Jamaica. The agricultural sector is the largest employer of labor in Jamaica, accounting for approximately 25 percent of total employment. Soil erosion which results from inadequate watershed management and unsustainable agricultural practices, such as slash-and-burn land clearing, contributes to an ongoing decline in agricultural productivity and threatens the long-term sustainability of agricultural production.

GOJ must establish mechanisms to ensure the long-term sustainability of these and other activities if economic stability is to be achieved. Since the depletion and/or degradation of existing natural resources threatens long-term economic growth, environmental protection and conservation actions that help to minimize deterioration in environmental quality are in fact beneficial to the economy.

Moreover, as people continue to migrate from rural areas to urban centers, increasing pressure is placed on already degraded ecosystems. Such urban areas are plagued by problems of industrial pollution and solid waste and sewage disposal. The problems associated with rapid urban development contribute to environmental degradation and adversely affect human health and productivity, thereby reducing prospects for economic growth.

Effective management of natural resources is critical for economic growth and stability. If activities and programs are carefully planned and effectively implemented, sound resource management can actually increase the economic potential of individual sectors. For example, ecotourism, an area growing rapidly worldwide, can contribute significantly to the quality of the tourist experience in Jamaica. Although ecotourism development in Jamaica is still in its infancy, recognizing the economic potential that ecotourism activities add to the tourism sector provides an incentive for conserving fragile ecosystems which have not shown an immediate economic return in the past. As a further example, one bauxite mine in Jamaica has devised a system of drying the red mud waste produced during bauxite mining in shallow beds rather than disposing of the mud in areas where contaminant leaching might occur. This system, which has the added benefit of producing residues that can be used in construction materials, was invented in Jamaica and is now being used in other mines worldwide.

In addition, GOJ has not explored fully the range of incentives for affecting environment-related behavior. For example, government prices for use of public land, water, and other resources are far below their true value and in many cases are not enforced. Rental of beach rights to hotels is J\$100 per year. Similarly, taxes have not been used to incorporate environmental costs of economic activities, such as taxes on effluents, emissions, and waste production.

By recognizing the direct relationship between economic growth and environmental management, NRCA and other players in the environmental system in Jamaica can develop programs which not only make environmental sense but also make economic sense. Long-term economic growth depends on Jamaica's ability to wisely manage the natural resource base upon which sustainable development depends.

## **2.2 MAJOR ENVIRONMENTAL ISSUES**

The most recent and comprehensive studies undertaken on the Jamaican environment identified 10 critical environmental issues which must be addressed to realize sustainable resource use in Jamaica. A list of these studies and other documents reviewed during the preparation of this briefing paper is attached as Appendix A. The critical environmental issues identified in the documents include the following:

**Watershed degradation, including soil erosion.** Extensive removal of tree cover, especially on steep hillsides, is resulting in wide fluctuations in water supply availability, excessive soil loss, impaired agricultural productivity, sedimentation of downstream estuary and marine ecosystems, and elimination of critical habitat. Soil erosion rates in excess of 50 tons per acre have been recorded in many watersheds. All of Jamaica's watersheds have been reported to be in poor condition, with more than half in need of urgent rehabilitation.

**Coastal Zone degradation.** Coastal and marine ecosystems are being adversely changed and human health threatened as a consequence of rapid and largely unplanned urban developments associated with poorly managed liquid and solid wastes, unregulated resource extractions, and upstream watershed degradation.

**Water pollution.** Jamaica's interior and coastal water bodies are being adversely affected by the discharge of sewage and industrial effluents. Groundwater pollution occurs as a result of sewage infiltration, saline intrusion, and leakage of caustic residues at red mud disposal sites.

**Air pollution.** Stack emissions from power stations, chemical processing facilities, mining and other industrial operations, motor vehicles (mobile carriers), and unregulated burning of trash and fields are creating localized health hazards from gaseous and particulate matter in the air.

**Waste management.** Jamaica suffers from poorly executed or nonexistent programs for the disposal of fecal wastes and sewage, industrial wastes and wastewater, hospital wastes, solid waste, and hazardous and toxic substances. Poor waste management poses a threat to public and environmental health and allows the possibility of major contamination of water supplies.

**Loss of biodiversity.** Wildlife and habitat losses are occurring at an alarming rate due to urban development, mining, sugar and coffee processing, and agriculture. Minor causes of wildlife depletion include the exploitation of wildlife for sport, fishing, or trade. Development pressures from urban growth, quarrying of limestone, and other mining activities as well as watershed degradation and coastal pollution have caused serious negative impacts in areas designated, or those which could be designated, as protected areas. A loss in biodiversity has a number of negative consequences, including weakening the stability of ecosystems and jeopardizing the potential for earnings through ecotourism activities which are typically located in biologically diverse areas.

**Vulnerability of ecosystems to natural and man-made hazards.** Jamaica is vulnerable to various natural hazards and environmental emergencies that require proper planning to mitigate their effects. Where ecosystems are already seriously degraded, the potential for natural hazards to cause critical environmental degradation is magnified. In fact, entire species can be eliminated.

**Unplanned urban growth.** Rural urban drift over the past two decades has led to over-crowding in urban areas, resulting in high demand-supply ratios for basic amenities. An absence of environmental planning has resulted in pressure on natural resources and pollution from solid and liquid wastes and predisposed the population to illness from transmissible diseases.

**Unsustainable energy use practices.** Jamaica's dependency on imported petroleum energy and the present unsustainable practices used to collect wood for fuel cause significant environmental impacts in Jamaica.

NRCA is developing its institutional framework with the understanding that these and other environmental issues are inter-related. The strategies for addressing them, therefore, must be carefully coordinated and monitored to prevent conflicts of interest among the many programs aiming to solve such critical issues.

### **3.0 WORKSHOP STRATEGY**

#### **3.1 DESIRED RESULTS**

The workshop has been designed to produce the following results:

- Input for the leadership of NRCA and others from important constituencies on important strategic questions facing NRCA as it plans its immediate and long-term needs.
- A shared sense of NRCA's potential and likely areas of maximum leverage for fulfilling its mandate and purpose.
- A stronger sense of coordination and collaboration among players and potential players in the environmental planning system.
- Some support and guidance in defining the most effective direction for NRCA in the short term.
- Input for guiding GOJ allocation of resources for environmental management.

These results are ambitious, and it is unrealistic to assume that the collaboration required to develop an overall environmental management system in Jamaica can be achieved in one workshop. Therefore, the workshop should be seen as the first in a series of dialogues and meetings among all the players in the environmental community.

#### **3.2 WORKSHOP CONTENT AND FORMAT**

The workshop has been designed in three main parts intended to (1) establish a baseline on perceptions of NRCA's strengths, weaknesses, opportunities, and threats for achieving its mandate; (2) address strategic questions targeted at real environmental challenges which NRCA must confront; and (3) establish an overall picture of the organizations and resources which constitute the environmental management system. The following is a summary of each section with examples of the types of issues to be addressed.

##### **3.2.1 Determining NRCA's Comparative Advantage Analysis**

Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis is a methodology for strategic planning used by public and private sector organizations worldwide. The methodology will be applied at the workshop as a tool to analyze, from an organizational perspective, the points of maximum potential leverage of NRCA.

Participants will be asked to communicate their perceptions of the most significant strengths, weaknesses, opportunities, and threats facing NRCA as it establishes strategies to address Jamaica's most serious environmental problems.

### **3.2.2 Addressing the Fundamental Strategic Issues**

Strategic questions which arise during the first part of the workshop, as well as those presented in the briefing paper, will be addressed. Participants will be asked to consider each strategic question in terms of (1) possible alternative strategies, (2) advantages and disadvantages of each strategy, (3) various organizations' perceptions of the alternatives, and (4) recommendations to NRCA related to the strategies identified.

### **3.2.3 Creating an Effective National System--Mapping the Potential for Collaboration and Support Among the Principal Players**

Collaboration among the many players is vital to NRCA's efforts to fulfill the functions cited in the Act. Therefore, sectoral groups (e.g., NRCA board, NRCA staff, other GOJ agencies, private sector, donors, etc.) will examine their own actual and potential roles in the system and the roles of the larger organizations of which they are a part. The purpose of this activity will be to produce a preliminary map of needs and potential support. The various sectors will consider their perspectives according to a format provided, which includes (1) issues and concerns of major importance to individual sectors, (2) contributions organizations can make to forward Jamaica's environmental programs, and (3) ways in which NRCA can assist various organizations to achieve sustainable development.

This session will explore any concrete possibilities for collaboration between organizations which emerge from the discussion.

### **3.3 STRATEGIC QUESTIONS**

The following are examples of the strategic questions to be addressed in the workshop. They are provided in the briefing paper to give participants an opportunity to review the questions and consider them in some detail prior to arriving at the workshop.

1. What are the environmental issues on which NRCA should focus over the short, medium, and long terms?
  - Should NRCA target a few issues or cover a wide range of issues in less depth?
2. What role should the public play in environmental management?
  - What should be the responsibilities of NRCA, the private sector, and NGOs in promoting public awareness of environmental issues?
  - How does NRCA promote public involvement?
3. What should be the relationship between NRCA and other GOJ agencies?
  - To what extent should NRCA function as facilitator, educator, overseer, etc.
4. What measures can be taken to develop and implement a regulatory and enforcement system?
  - What is the role of NGOs and the private sector in the process?
  - What are NRCA's monitoring responsibilities?
  - How are standards developed? (Who should be involved? How are appropriate levels of resource use determined? What are the priorities and timetable for setting standards?)
5. What measures can be established to support and promote private sector involvement and compliance?
6. How should the NRCA be financed?
  - To what degree should NRCA be financed by the public or private sector?
  - From what sources should the funds be accumulated--through fees for services, funds from donor agencies, leasing facilities?

**APPENDIX A  
BACKGROUND DOCUMENTS**

**Canadian International Development Agency. 1991. Sustainable Development in Jamaica: A Programme for Environmental Action.**

**Government of Jamaica, Natural Resources Conservation Division, and U.S. Agency for International Development. 1987. The Jamaica Country Environmental Profile.**

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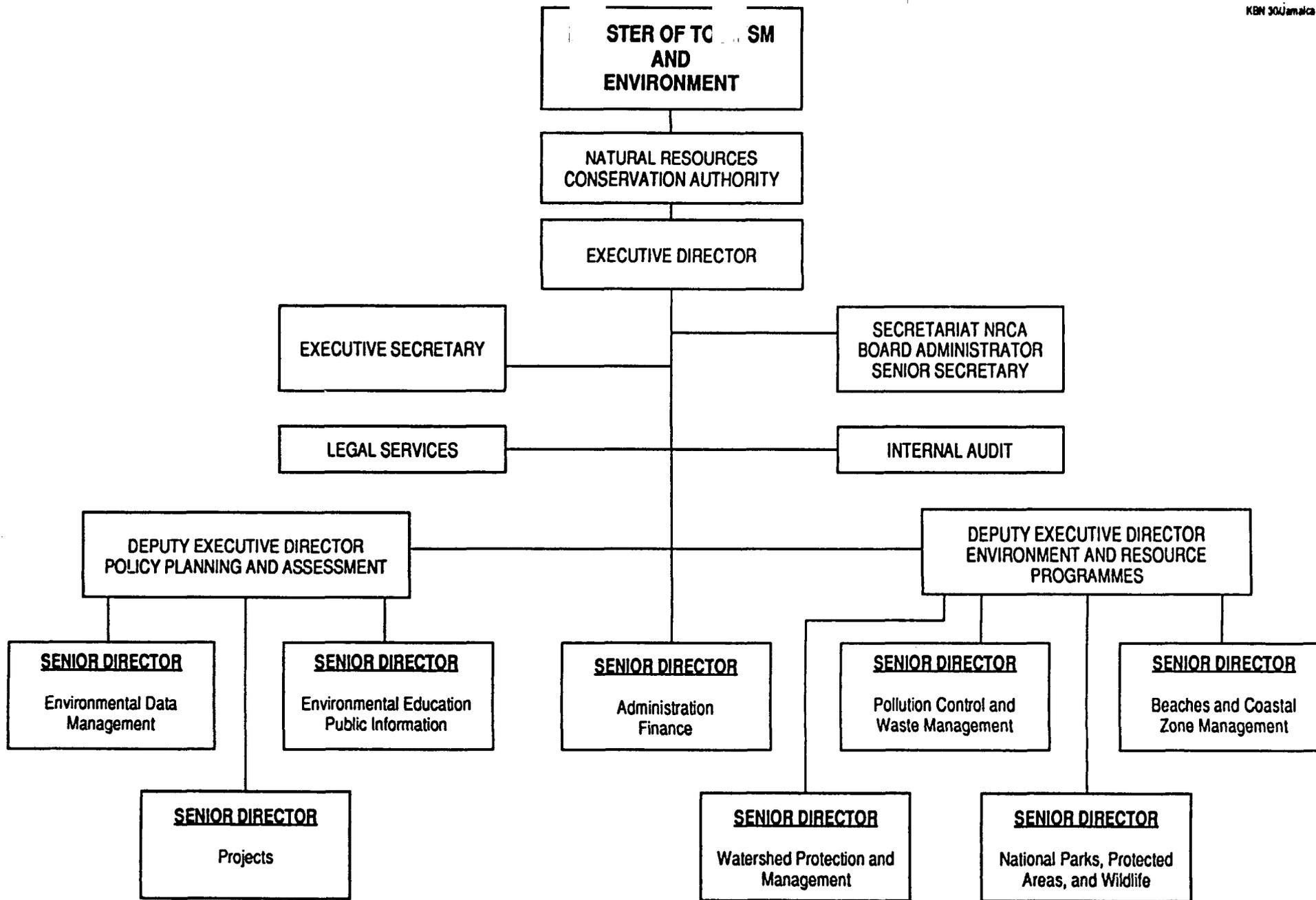
**Government of Jamaica. 1992. The Natural Resources Conservation Act.**

**Ng'weno, A. 1992. Jamaica: Sustainable Development (Draft).**

**Planning Institute of Jamaica. 1990. The Jamaica National Five Year Plan.**

**U.S. Agency for International Development. 1991. The Jamaica Environmental Strategy.**

**U.S. Agency for International Development. 1992. The Development of Environmental Organizations Project Paper (Draft).**



**APPENDIX B.  
NRCA ORGANIZATIONAL CHART**

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**APPENDIX C: GOVERNMENT OF JAMAICA ORGANIZATIONS WITH ACTIVITIES AFFECTING NATURAL RESOURCE MANAGEMENT**

<b>NATURAL RESOURCE CONSERVATION AUTHORITY</b>	
Board of Directors	
Inter-Ministerial Advisory Committee for Environment and Development	Inter-Agency Technical Advisory Committee
<b>Key Regulatory and Resource Management Agencies</b>	
Environmental Control Division, Ministry of Health Town Planning Authority/Town Planning Department Underground Water Authority National Water Commission	
<b>Collaborating Environmental Regulatory and Resource Management Agencies</b>	
Forestry Department Fisheries Development Port Authority Mines and Quarries Department	Office of Disaster Preparation Meteorological Office Survey Department Local Authorities Local Health Departments
<b>Resources Development and Sectoral Agencies</b>	
Ministry of Agriculture Ministry of Construction Ministry of Mining and Energy Ministry of Industry Rural Agricultural Development Authority Urban Development Corporation National Irrigation Commission	Jamaica Bauxite Institute Coffee Industry Development Company Forestry Industry Development Company Petroleum Corporation of Jamaica Jamaica Public Service Company Aero-21 Corporation
<b>Strategic and Cross Sectorial Agencies for Planning Development and Technology</b>	
Ministry of Finance Planning Institute of Jamaica National Planning Council	Scientific Research Council Bureau of Standards
<b>Environmental Infrastructure and Facilities</b>	
Ministry of Public Utilities and Transport Metropolitan Parks and Markets Local Authorities	
<b>Education and Training</b>	
Ministry of Education University of West Indies	College of Arts, Sciences, and Technology College of Agriculture
<b>Other GOJ Organizations</b>	
Attorney General's Department Ministry of Justice Police Department	Ministry of National Security Ministry of Foreign Affairs