

**JAMAICA'S NATIONAL PROGRAMME OF ACTION (NPA)  
FOR THE  
PROTECTION OF THE COASTAL AND MARINE ENVIRONMENT FROM  
LAND-BASED SOURCES OF POLLUTION**



**2005 to 2010**



**National Environment and Planning Agency**  
An agency of the Ministry of Land and Environment Jamaica  
**OCTOBER 2004**



# **JAMAICA**

## **National Programme of Action (NPA) For the Protection of the Coastal and Marine Environment From Land Based Sources and Land Based Activities**

**2005 to 2010**

**National Environment and Planning Agency  
10 Caledonia Avenue  
Kingston 5  
Jamaica  
OCTOBER 2004**

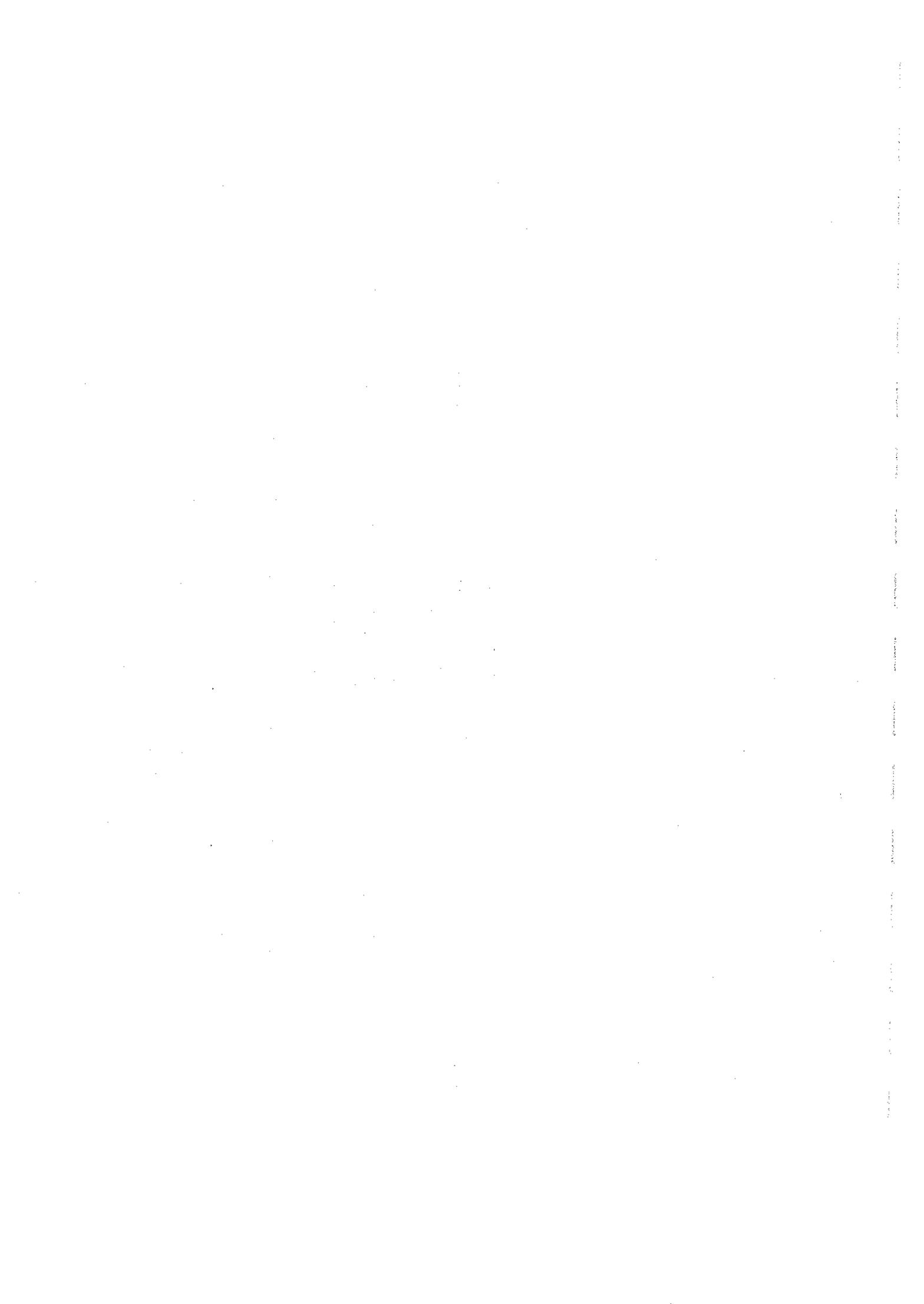
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## **FOREWORD**

### **DRAFT**

Since Jamaica adopted the Global Programme of Action (GPA) in November 1995 the country has been an active participant in follow-up activities internationally, regionally and nationally for the implementation of the Programme. Jamaica is a party to the Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, as well as a signatory to the Aruba Protocol on Land-Based Sources of Pollution.

As the GPA notes, degradation of the marine environment threatens sources of income from activities, such as tourism and fishing, as well as public health, the health of ecosystems, food security, and economic and cultural values. The Aruba Protocol is particularly important for Jamaica, as a small island developing state, highly dependent on the conservation and proper management of the natural resources for the social and economic well-being of all the population.

Our National Programme of Action identifies sewage disposal, agricultural practices, and collection and disposal of solid waste as the priority issues for attention. An integrated and strategic framework to address these issues is presented in Jamaica's National Programme of Action (NPA) for the Protection of the Coastal and Marine Environment from Land-Based Sources of Pollution.

The Government has already developed policies and programmes aimed at the effective management and protection of the island's coastal and marine environment. These include the Ocean and Coastal Zone Management Policy, the National Solid Waste Management Programme, the Forest Management and Conservation Plan, the Master Plan for Sustainable Tourism and the Kingston Harbour Rehabilitation Programme. Legislation such as the regulations on sewage and trade effluents will greatly assist in the implementation of the NPA.

The value of the NPA is that the related programmes and activities are brought together with agreed priorities and clear targets outlined. Jamaica will have made great advances towards sustainable development, if the goals of the NPA are achieved.

We must recognize that the success of the NPA is dependent on the active involvement of all stakeholders in its implementation and commit ourselves to protecting our vital natural resources.

The Hon. Dean Peart, MP  
Minister of Land and Environment

October 2004

Jamaica's NPA for the Protection of the Coastal and Marine Environment from LBS/LBA  
October 2004



## **ACKNOWLEDGEMENTS**

The National Environment and Planning Agency (NEPA) and the Ministry of Land and Environment wish to thank the many contributors to the development of the NPA especially the agencies, ministries, representatives from non-governmental organizations, the private sector, funding agencies and other workshop participants. The United Nations Environmental Programme (UNEP) through the Regional Coordinating Unit (RCU) of the Regional Seas Programme based in Kingston, Jamaica and the Advisory Committee on the Protection of the Sea (ACOPS) were instrumental in providing funding and technical assistance.

## LIST OF ACRONYMS

ACOPS	Advisory Committee on the Protection of the Seas
CIDA	Canadian International Development Agency
CWIP	Coastal Water Quality Improvement Project
EAST	Environmental Audits for Sustainable Tourism
GDP	Gross Domestic Product
GEF	Global Environment Facility
GOJ	Government of Jamaica
GPA	Global Programme of Action
ICZM	Integrated Coastal Zone Management
IDB	Inter-American Development Bank
JaNEAP	Jamaica National Environmental Action Plan
LBA	Land-Based Activities
LBS	Land-Based Sources
NEPA	National Environment and Planning Agency
NGO	Non-Governmental Organisation
NPA	National Programme of Action
NWC	National Water Commission
R2RWM	Ridge to Reef Watershed Management (Project)
UNEP	United Nations Environment Programme
UNEP-CAR/RCU	United Nations Environment Programme Regional Coordinating Unit for the Caribbean Environment Programme
USAID	United States Agency for International Development

## EXECUTIVE SUMMARY

The country being well aware of the importance of ensuring that its coastal and marine environment is protected from land-based sources and land based activities, in 1995 attended the United Nations Environment Programme (UNEP) Intergovernmental Conference to adopt a Global Programme of Action (GPA) to protect the marine environment from land-based activities. In 1999, Jamaica supported regional efforts aimed at protecting the marine environment and participated in negotiations for the Protocol Concerning Pollution from Land Based Sources and Activities (Aruba Protocol) to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention). The country initiated action to develop its NPA when a Technical Group met over two days in November 2000 to produce a preliminary draft framework for Jamaica's NPA.

Between 2003 and 2004 Jamaica's NPA was developed, with the support of the United Nations Environment Programme (UNEP), on the understanding that the process and its outputs would be used within the Wider Caribbean as a development model.

Jamaica's National Programme of Action (NPA) for the Protection of the Coastal and Marine Environment from Land-Based Sources of Pollution is intended to provide an integrated management framework. The NPA will also allow for more effective implementation of the LBS Protocol of the Cartagena Convention and all other relevant regional and global Multi-lateral Environmental Agreements (MEAs). The Overall Goal of the NPA is "*To protect Jamaica's coastal and marine environments from land based sources and land based activities (LBS/LBA) of pollution*". The supporting goals are: To protect human health; To reduce the degradation of the coastal and marine environment; To promote the conservation and sustainable use of the coastal and marine environment; To develop a framework for the acquisition, analysis and use of data for decision making in the protection of the marine environment; and To develop an institutional and planning framework to improve the planning process in order to ensure sustained economic development and the protection of the coastal and marine environment.

Three priority areas of action were identified as:

- (i) Sewage treatment and disposal.
- (ii) Agricultural practices (soil conservation, pesticides and fertilizer usage).
- (iii) Collection and disposal of solid waste.

Objectives and actions were developed for each priority source of pollution. These were formulated within the GOJ policy, legislative and institutional framework with the approach being to fulfil the gaps identified during the scoping, analysis, characterization and consultation exercises.

The basic approach to the development of the strategies for the NPA has been to:

- Expand the relevant infrastructure/programmes necessary for waste management and improvement of agricultural practices;
- Harmonise and strengthen the policy and legal framework;
- Strengthen and improve public education
- Develop human resource capacity in relevant agencies; and
- Encourage private sector investment and involvement for improvement

### **Objectives of the NPA**

*Objective A1: To review and revise as appropriate, the policy, legal and institutional framework to effectively manage the implementation and operation of sewage solutions.*

*Objective A2: To expand and improve the collection, treatment and disposal of sewage island wide.*

*Objective A3: To expand and improve public education on the effect of sewage on the environment.*

*Objective B1: To reduce and minimise soil loss and sedimentation in waterways that discharge into the coastal zone.*

*Objective B2: To reduce pesticide and fertilizer contamination of waterways that discharge into the coastal zone.*

*Objective C1: To put in place the policy, legal and institutional framework for effective management of solid waste.*

*Objective C2: To expand and improve the solid waste collection and disposal network*

*Objective C3: To expand and improve public education concerning solid waste disposal, recovery and reuse and the effect on the environment by 2004.*

### **Institutional Arrangements**

The Lead Agency for the implementation of the NPA-LBA/LBS is the National Environment and Planning Agency (NEPA), an Executive Agency, which has the responsibility to coordinate environmental management in Jamaica. There is an extensive network of organisations in the government, private sector and civil society whose input will be essential for the execution of the NPA.

NEPA in collaboration with the Ministry of Land and Environment will convene an NPA-LBS/LBA Monitoring Committee, which will meet twice annually, in March and September, to review the progress of implementation.

Inter-Ministerial oversight will come from the Natural Resource Committee (NRC) of the Cabinet, which is chaired by the Minister of Water and Housing. The Committee is intended to be the vehicle for effective inter-ministerial coordination and GOJ resource allocation.

Progress Reports on the implementation of the NPA-LBA/LBS will be prepared by NEPA and will be presented to the NRC annually through the Ministry of Land and Environment (ML&E). In addition, progress will be reported on annually to the Cabinet and Parliament through the JaNEAP.

In addition, outcome indicators of the effect on the NPA implementation on marine species especially in the coral reef habitats will be monitored. This will be reported in the State of the Environment Report.

### **Funding**

Funding for the implementation of the NPA will be primarily from the annual government subvention to cover the financing of the corporate and operations plans of the various public sector departments. However, Jamaica has financial constraints and grant funding for projects will have to be identified and accessed. In this regard six project profiles presented in the NPA (Annex V) will be developed into full project proposals to secure support from external partners. The projects are:

<b>Project</b>	<b>Duration</b>	<b>Budget</b>	<b>Implementing Agency</b>
<b>Project 1:</b> NPA Public Awareness Campaign – Sewage and Solid Waste	3 Years	US\$ 737,000	NEPA
<b>Project 2:</b> Declaration of Additional Forest Reserves	5 Years	US\$ 935,000	Forestry Department
<b>Project 3:</b> To reduce pesticide and fertilizer contamination of waterways that discharge into the coastal zone.	3 Years	US\$ 792,720	NEPA
<b>Project 4:</b> Evaluation of Soil and Nutrient Loss from use of Practical and Inexpensive Soil Conservation Techniques in selected Watersheds.	5 Years	US\$ 1,129,700	Rural Physical Planning Division
<b>Project 5:</b> Framework for Monitoring the Status of Jamaica's Coastal and Marine Resources	5 Years	US\$ 1,210,000	NEPA
<b>Project 6:</b> Institutional Strengthening for the Jamaica Blue Flag Programme	5 Years	US\$ 750,200	NEPA & Negril Area Environmental Protection Trust

These six projects are developed to address some priority actions. However, the implementation of the NPA is a long-term process and additional activities and projects will need to be developed and financed if all the objectives of the NPA are to be realized. Project funding will be sought through the GOJ Project Cycle system with the Planning Institute of Jamaica (PIOJ) playing a major role. Private sector participation will be actively sought and promoted.

## **Conclusion**

The Government of Jamaica is committed to the formal ratification of the Protocol and to compliance to its objectives especially as outlined in the technical annexes through the continued review, development and phased implementation of the NPA.

The NPA has put forward a comprehensive five-year (2005/06 to 2009/10) programme of actions which, if effected should lead to change in behaviour among the country's population so that our coastal resources will be protected from land based sources and activities. An important feature of the NPA is the provision for "checking", as articulated in the "Plan, Do, Check, Act (PDCA)" framework, where data on the status of the marine resources will be routinely collected over the five years to determine the impact of the actions. This will enable informed decisions regarding re-prioritisation.

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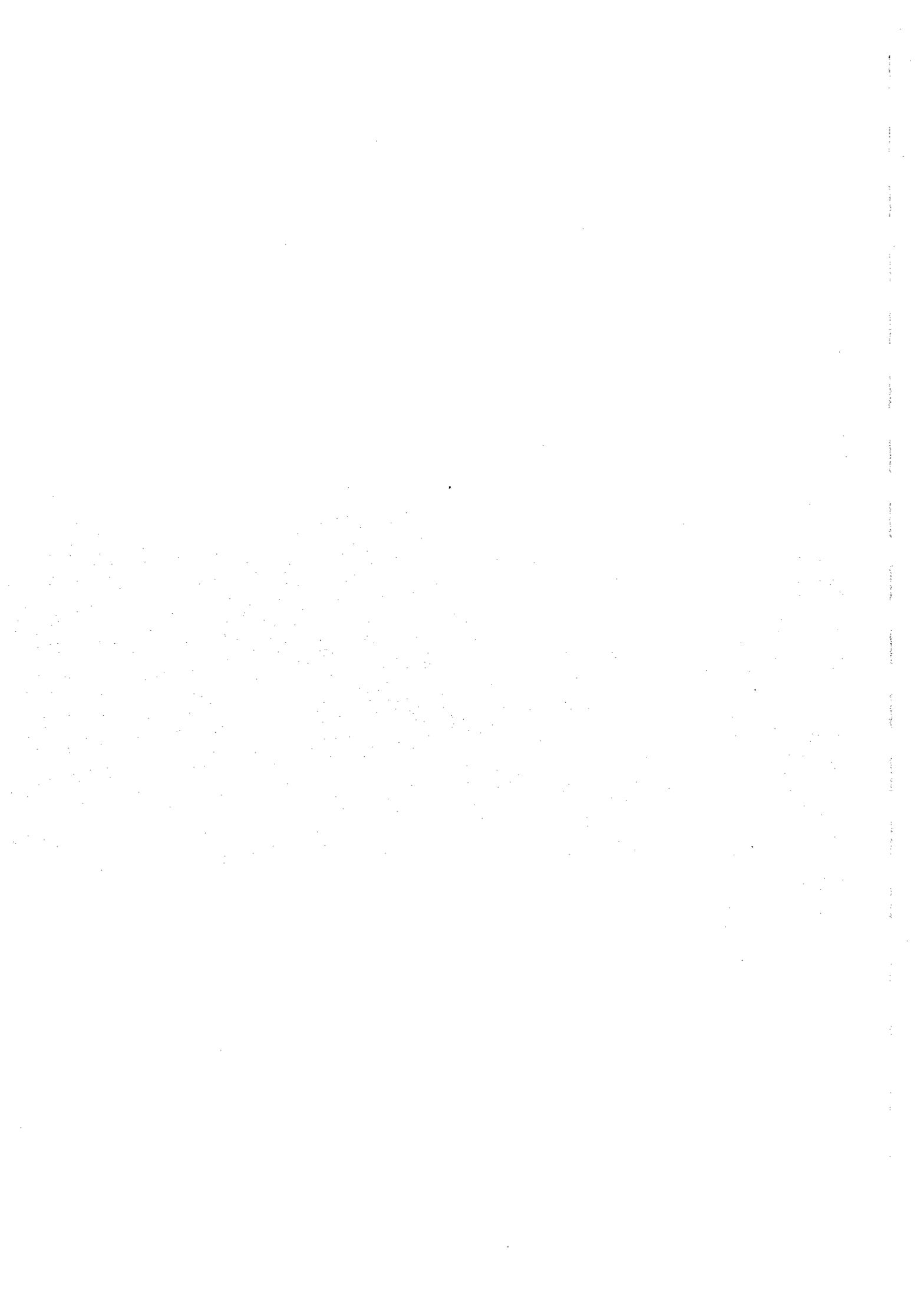


## CHAPTER 1

### INTRODUCTION



Kingston Harbour - Tyndale-Biscoe Photo.



# 1.0 INTRODUCTION

## 1.1 Background

Jamaica is the third largest of the group of islands known as the West Indies. It is located in the western Caribbean approximately 145 kilometres south of the island of Cuba and 161 kilometres west of Haiti with a land area of 10,981 square kilometres (Figure 1). An archipelago, Jamaica has stewardship over a marine space 24 times its land space, with an exclusive economic zone of approximately 235,000 square kilometres.



Figure 1: Map of the Caribbean. (Source Caribbean Plan Property List – [http://www.escapeartist.com/A\\_CPL/Caribbean\\_Map/Caribbean\\_Map.html](http://www.escapeartist.com/A_CPL/Caribbean_Map/Caribbean_Map.html))

The nature of Jamaica's coastline has given rise to the formation of a unique ecosystem of harbours, sandy beaches, rocky shores, estuaries, wetlands, and coral reefs. To a large extent the country's major cities and towns have developed along the coastline including the capital city

Kingston which sits on the seventh largest natural harbour in the world and the major tourism towns of Montego Bay, Ocho Rios, Negril and Port Antonio, all of which are located along the coastline (Figure 2). Activities within Jamaica's coastline (approximately 886 kilometers in length) are estimated to contribute to about 90% of the country's GDP.

Globally, seven out of 10 people live within 80 km of the shoreline. Almost half the world's cities with a population of over one million are sited near tide-washed river mouths. The major threats to the health, productivity and biodiversity of the marine environment result from human activities on land - in coastal areas and further inland. Some 80% of the pollution load in the oceans originates from land-based activities<sup>1</sup>. This includes municipal, industrial and agricultural wastes and run-off, as well as atmospheric deposition. These contaminants affect the most productive areas of the marine environment, including estuaries and near-shore coastal waters.

The Jamaican experience has been no different from that of the global community. The island's coastal and marine resources are under threat from factors such as, pollution and soil erosion. Management of waste water and solid waste remain a continuing challenge despite investments in sewage treatment projects in the major tourism towns of Ocho Rios, Montego Bay and Negril and the implementation of some aspects of the National Solid Waste Management Plan.

## **1.2 Reason for the development of the NPA**

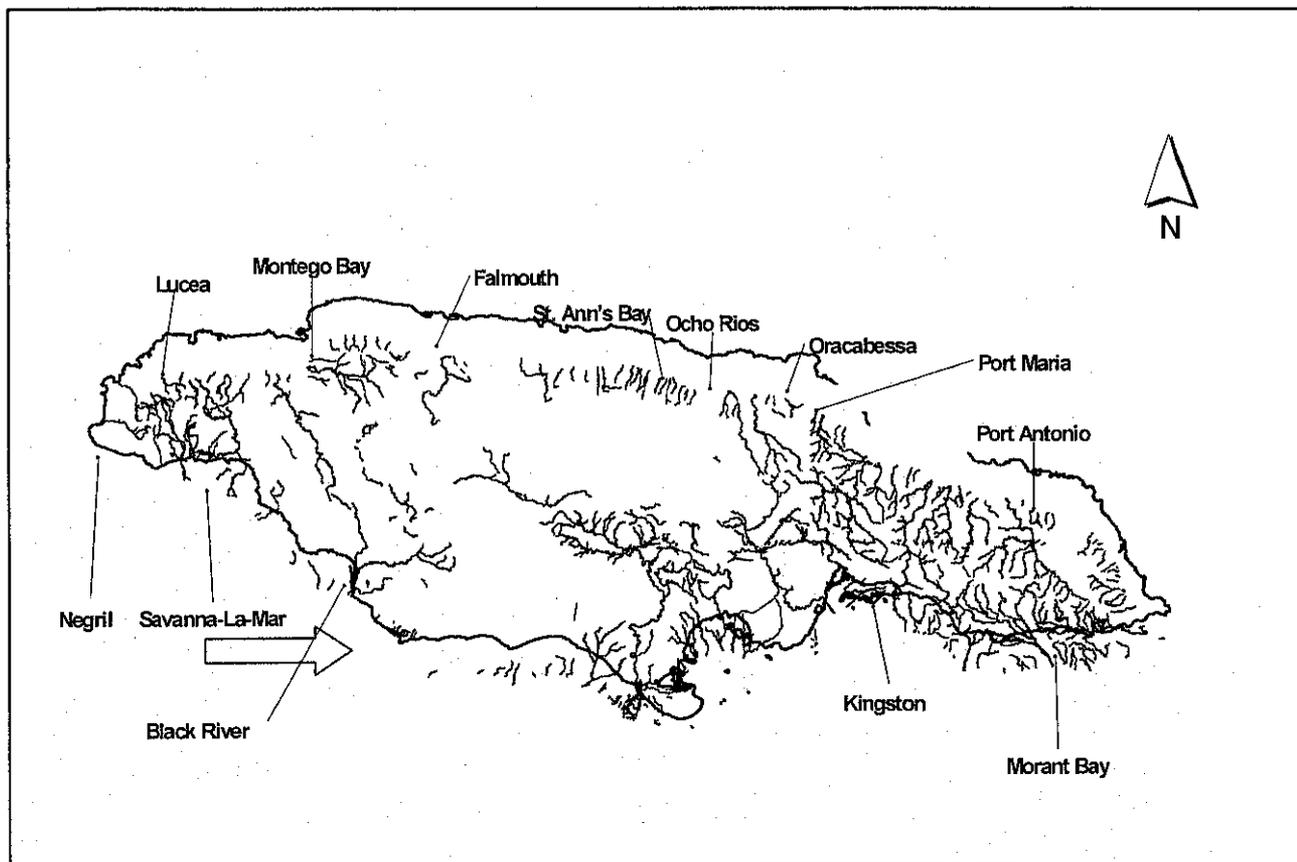
The country is well aware of the importance of ensuring that its coastal and marine environment is protected from land-based sources and land based activities. As early as 1995, Jamaica was one of the hundred and seven (107) countries, which attended the United Nations Environment Programme (UNEP) Intergovernmental Conference to adopt a Global Programme of Action (GPA) to protect the marine environment from land-based activities.

The country's economic development is to a large extent dependent on its coastal and marine resources. All the country's major centres for commercial activity are located along the coastal rim. The tourism industry, which is the largest earner of foreign exchange and the second largest employer of labour, is to a large extent built around the beauty of the coastal environment. The fisheries industry is also of major economic importance<sup>2</sup>

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<sup>1</sup> Regional Seas, Strategies for Sustainable Development, UNEP

<sup>2</sup> Jamaica National Report to the World Summit on Sustainable Development, Johannesburg South Africa, 2002



**Figure 1: Map of Jamaica showing Major Coastal Towns.**

The management and development of coastal communities which may lead to physical alteration and destruction of habitat, the protection of human health, and the protection of marine biodiversity and the environment in general, are complex processes, involving a myriad of organisations at the national and local levels in both the public and private sectors. These organisations often have their own agendas and priorities, which may not always be in keeping with the need to protect the coastal and marine environments, which are important aspects of the country's natural resource base. The proper use and conservation of these resources are fundamental for sustainable economic development.

In addition to the organisational and institutional issues, there is a further need to harmonise policies, and develop waste treatment programmes and infrastructure. The legislative framework must also be addressed to deal with issues of integrated coastal zone management (ICZM). The financial resources to address all of the above remain inadequate and there is constant competition with other areas of national priority for funding.

A National Programme of Action (NPA) to address Land-Based Sources and Activities (LBS/LBA) of marine and coastal degradation is intended to provide a multifaceted, integrated management framework that would be a useful strategic tool that can assist Jamaica in the prioritisation of sustainable development needs and goals. The NPA will also allow for more effective implementation of the LBS Protocol of the Cartagena Convention and all other relevant regional and global Multi-lateral Environmental Agreements (MEAs). It would enable all relevant national and local actors to reduce environmental degradation and habitat damage, thereby enhancing the conservation and sustainable use of natural resources, as well as reducing threats to human and environmental health. The NPA should incorporate the principles and concepts of ICZM, which encompass a wide range of ecological, economical, cultural, social, governance, and institutional considerations. It would address the creation and strengthening of partnerships among all levels of civil society, including government, local authorities, private sector, as well as the scientific and academic institutions. It can also provide for the promotion and attainment of investment, from both domestic and foreign sources, for measures, strategies, projects and activities required for the sustainable use and protection of the marine and coastal environment and resources.

The Government of Jamaica is committed to the formal ratification of the Protocol and to compliance to its objectives especially as outlined in the technical annexes through the continued review, development and phased implementation of the NPA.

### **1.3 Goals of the NPA**

#### *Overall Goal*

**To protect Jamaica's coastal and marine environments from land based sources and land-based activities (LBS/LBA) of pollution.**

#### *Supporting Goals*

- To protect human health.
- To reduce the degradation of the coastal and marine environment.
- To promote the conservation and sustainable use of the coastal and marine environment.
- To develop a framework for the acquisition, analysis and use of data for decision making in the protection of the marine environment.
- To develop an institutional and planning framework to improve the planning process in order to ensure protection of the coastal and marine environment for sustained economic development.

## CHAPTER 2

### METHODOLOGY FOR DEVELOPMENT OF THE NPA



Parottee, South Coast - St. Elizabeth



## 2.0 METHODOLOGY FOR DEVELOPMENT OF THE NPA

### 2.1 Overview Of The Process

The process of design and development of the NPA is as important as the end result itself, in so far as it generates in all stakeholders a sense of appreciation and commitment. It is a means of internalising both the recognition of problems as well as the proposed solutions or options.

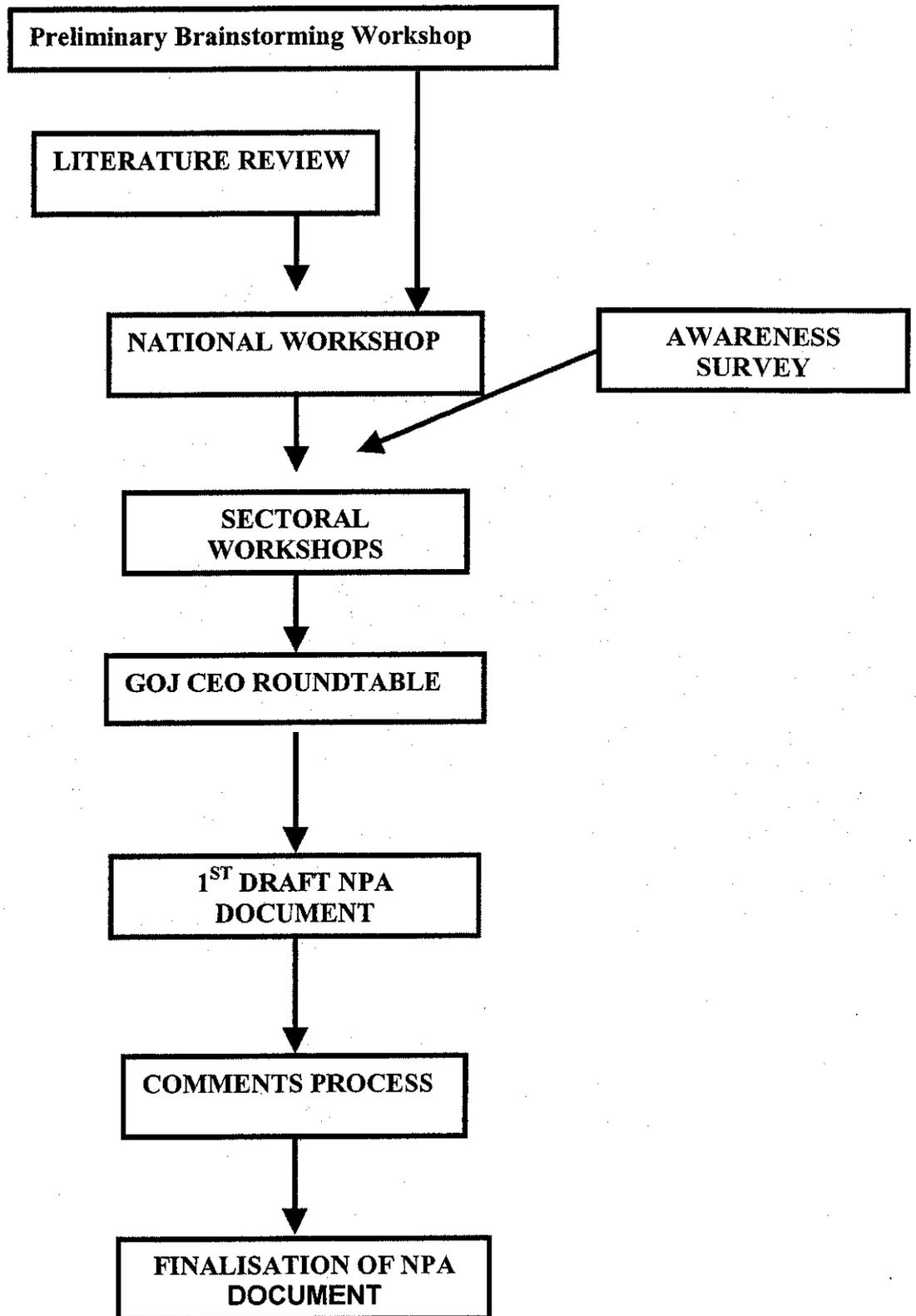
At the GPA Conference in October 1995 Jamaica declared its commitment to 'incorporate the GPA's objectives into the mainstream of appropriate national, regional and global programmes and activities'. In 1999, Jamaica supported regional efforts aimed at protecting the marine environment and participated in negotiations for the Protocol Concerning Pollution from Land Based Sources and Activities (LBS Protocol) to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention).

The country initiated action to develop its NPA when a Technical Group met over two days in November 2000<sup>3</sup> to produce a preliminary draft framework for Jamaica's NPA.

In April 2003, the task was undertaken to review all relevant literature paying particular attention to the national policy, legal and institutional framework likely to influence NPA development. This included looking at the impact of various government policies. For example, the relevant national policies, laws, and regulations related to land-based sources of pollution were assessed for completeness and appropriateness in light of the particular conditions and problems of Jamaica, and gaps and weaknesses noted. This included reviewing the Jamaica National Environmental Action Plan (JaNEAP), the Ocean & Coastal Zone Policy, Beach Policy and other related papers, reports, plans (local, national and regional), relevant legislation/policies, and current and proposed infrastructure developments/initiatives. Following this, a National Workshop, a series of sectoral workshops and a public sector Chief Executive Officer roundtable were conducted. These activities formed the basis of determining goals, priority areas of action, objectives and strategies. The report of these activities has guided the development of the NPA. Figure 2 below gives a schematic of the process.

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<sup>3</sup> Proposed Structure for the Development of a National Programme of Action of Jamaica for the Protection of the coastal and marine environment from land-based activities, UNEP, NRCA & ACOPS – November 14-16, 2000 at the Four Seasons Hotel



**Figure 2: Flow Chart Of The NPA Development Process**

## **2.2 Stakeholder Participation**

### **The Awareness Survey**

A survey instrument was developed to determine the level of awareness among the stakeholders regarding: The GPA/NPA; Pollution sources affecting the marine environment; Opportunities and Constraints of an NPA LBS/LBA; and The Role of the Private Sector.

The questionnaire was administered to all the participants prior to the start of the National Workshop. Sixty percent (60%) of the respondents were aware of the GPA/NPA, the UNEP CEP and the Cartagena Convention and Protocol. Some of the respondents noted that they had only a cursory knowledge of the issues. Interestingly, there was no awareness about the Convention and Protocol among the private sector participants. This finding pointed to the need to build awareness in this key sector whose participation in the development and implementation of the NPA is crucial. The outcome of the awareness survey would guide the design of the workshops.

### **The National Workshop**

The National Workshop was held in April 2003. The five objectives for the workshop were:

- To expose participants to the Global Programme of Action (GPA).
- To discuss the requirements of the NPA LBS/LBA.
- To share the results of the literature review on sources and activities causing marine pollution.
- To discuss the NPA LBS/LBA development process.
- To discuss and obtain feedback on the next steps.

The intention was to use the first national forum to provide all the stakeholders with sufficient background information to ensure their effective participation in the upcoming sectoral workshops. Although the issue of timing affected the number of participants who actually attended *vis. a vis* the number who were invited, the level of interaction with and among the participants was good. Increased efforts. The results of the National workshop served to guide the design and preparation for the sectoral workshops.

### **The Sectoral Workshops**

Five sectoral workshops were held during the development of the NPA, to cover the Agricultural, Petroleum & Utilities, Manufacturing, Tourism and Waste Management sectors.

## **2.3 Identification of Pollution Sources/Activities**

The identification of pollution sources/activities adopted the following methodology;

- Scoping exercise and
- Analysis of impacts/characterisation

### **The Scoping Exercise**

These methodologies provided specific tools for identifying and prioritising problems, from both environmental and socio-economic perspectives. The Scoping Exercise involved the identification of predominant issues and the main sources/causes of environmental degradation in each area/unit that would merit detailed characterisation. This took into account the relevant provisions of the Protocol to the Cartagena Convention concerning Pollution from Land-Based Sources and Activities in the Wider Caribbean Region. This exercise relied on the knowledge and judgement of the environmental regulatory agency, experts from the waste management, tourism, agriculture and local government institutions and the consultants.

No new research, assessments or diagnostics were undertaken. Instead, a review of literature including the Jamaica National Environmental Action Plan (JaNEAP 1999-2002), the State of the Environment Reports (1995 and 2001), and other available data was undertaken. The review identified watershed degradation, deforestation, land degradation in the hills, pollution of surface, groundwater and seawater, and developments on the lowlands as the major environmental problems of Jamaica.

### **Analysis of Impacts / Characterisation**

The approach in the analysis of impacts/characterisation involved determining the aspects that impacted the coastal and marine environment on the basis of sources rather than activities. In the main this was driven by a consideration of the institutional framework, which would be most appropriate for the execution of the NPA. Currently, private sector, Government Ministries and agencies such as the National Water Commission, and the Forestry Department are responsible for the management of many sources. Additionally, it was decided that information on the quality of the environment would be best articulated in terms of the impact of various sources such as:

- Sewage;
- Solid Waste;
- Agricultural run off (erosion etc.); and

- Industrial Wastewater;

In terms of physical alteration and destruction of habitat the following type of activities were identified as threats to the coastal and marine environment:

- Hotel Construction;
- Solid Waste Disposal Sites;
- Housing Development;
- Port Expansion;
- Pier Development activities;
- Mining; and
- Informal Settlements.

## **2.4 Establishment of Priority Areas of Action**

The sources and activities identified through the scoping exercise and of impacts/characterisation process were further prioritised by an evaluation of the causes of environmental degradation in severely impacted areas. Also taken into account were the relevant provisions of Annex I and Annex II of the LBS Protocol for the Wider Caribbean Region (WCR) which provides criteria for the establishment of priorities for action such as: The nature and severity of problems in terms of impacts on public health, ecosystem health, socio-economic benefits, and coastal & marine resources; Contaminants; Physical alteration; Sources of degradation; and Areas of concern, that is, areas where the effects of pollution are evident.

Based on these considerations the following were identified as priority areas of action.

- (i) Sewage treatment and disposal.**
- (ii) Agricultural practices (soil conservation, pesticides and fertilizer usage).**
- (iii) Collection and disposal of solid waste.**

In developing the NPA the criteria used for the identification of priorities were:

- The threat that land based sources and activities of pollution placed on High endemism and/or high biodiversity value and Tourism areas
- High government priorities as per the JaNEAP or other strategic environmental action programmes

The geographical scope of the NPA is the entire island. However, in the process of implementing projects focus will be placed on the:

- (i) Ecological, social, & cultural value of the impacted asset;
- (ii) Severity of the degradation;
- (iii) Location within protected area; and
- (iv) Tourism areas.

## **2.5 Contextual Framework for Objectives and Actions**

Objectives and actions were developed for each priority source of pollution. These were formulated within the GOJ policy, legislative and institutional framework with the approach being to fulfil the gaps identified during the scoping, analysis, characterization and consultation exercises.

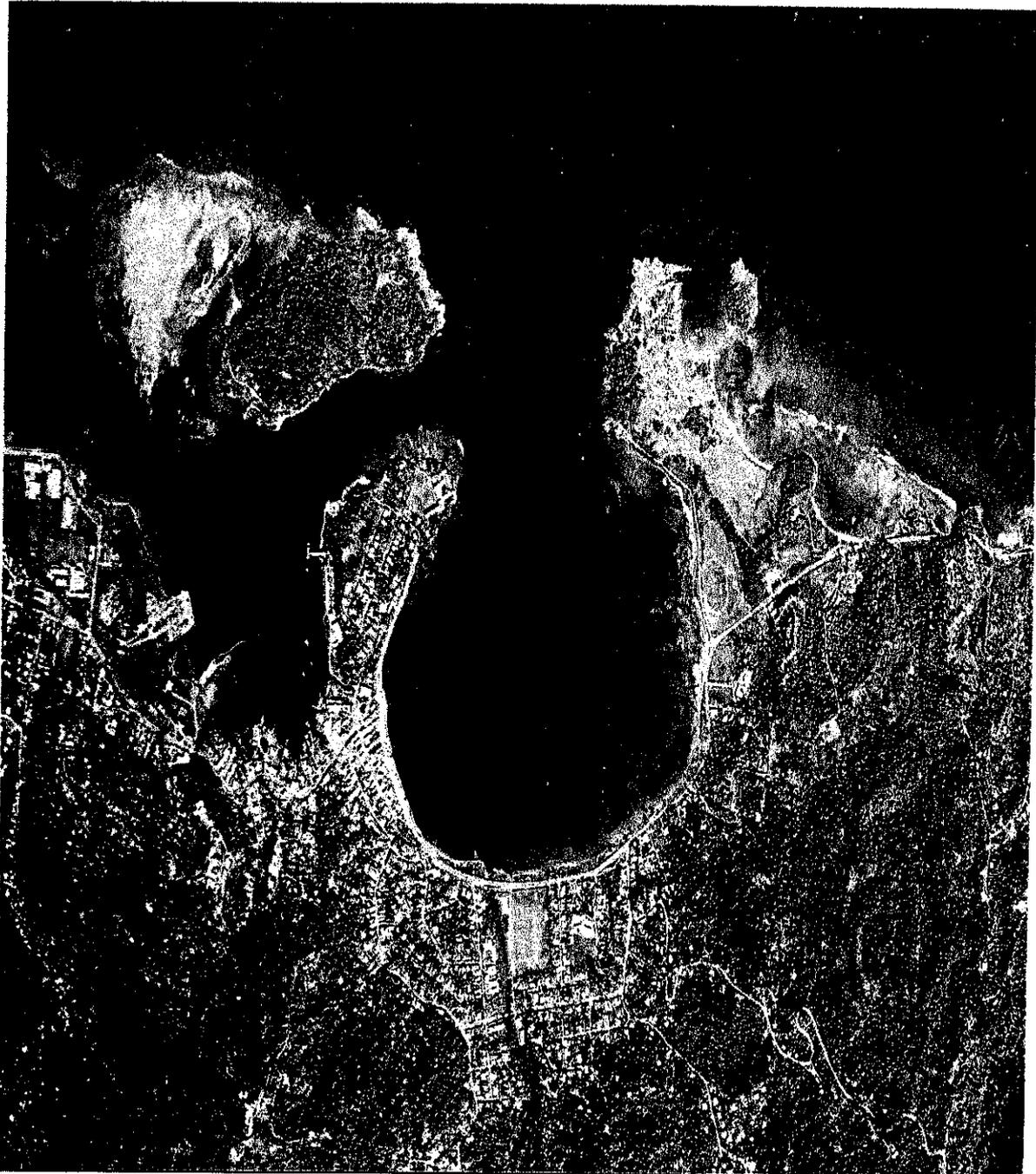
The basic approach to the development of the strategies for the NPA has been to:

- Expand the relevant infrastructure/programmes necessary for waste management and improvement of agricultural practices;
- Harmonise and strengthen the policy, legal and enforcement frameworks;
- Strengthen and improve public education;
- Develop human resource capacity in relevant agencies; and
- Encourage private sector investment and involvement for improvement.

The programme elements of each priority area of action, Sewage Management and Disposal, Agricultural Practices, and Solid Waste Management are outlined in Chapter 3.

## CHAPTER 3

### PROGRAMME ELEMENTS



**Port Antonio and Navy Island**



## 3.0 PROGRAMME ELEMENTS

### Overview

The elements for implementing the NPA will to a large extent build on existing policies, programmes, action plans (Annexes I, and II) and existing projects. The main strategy will be to integrate the execution of these activities in a way, which meets the objectives outlined for each priority area of action. The implementation of the NPA is a process, which will allow for the monitoring and evaluation of outputs as well as relevant environmental and socio-economic indicators. In this way Jamaica will be able to respond to emerging issues and adjust strategies and actions accordingly.

In many ways, Jamaica is at an advantage in developing its NPA because there is a policy, legal and institutional framework on which it can build. Annexes III and IV respectively, contains a listing of the legislative and international conventions which Jamaica must address. However, there are gaps relating to the requirements to meet these international obligations, local development planning, land use matters, waste management and other environmental concerns. These gaps have already been identified in the National Biological Diversity Strategy and Action Plan and the Ocean and Coastal Zone Management Policy.

Actions identified for implementation under the NPA is for the most part guided by project initiatives under the three USAID/GOJ funded Coastal Water Quality Improvement Project (CWIP) and the Ridge-to-Reef Watershed Management (R2RWM) Project as well as the Environmental Audits for Sustainable Tourism (EAST) Project.

The programme elements identify ongoing and upcoming project/programmes, which will help to protect the marine environment from land-based sources of pollution. Additionally, where gaps have been identified, **NPA-LBS/LBA Actions** have been identified for implementation. Where it is anticipated that the usual Government subvention would not be able to cover costs, new project concepts are identified which will be developed into fundable project proposals for external funding.

## **A. Sewage Treatment and Disposal**

**Objective A1:** *To review and revise as appropriate, the policy, legal and institutional framework to effectively manage the implementation and operation of sewage solutions.*

Jamaica has received significant assistance from The United States Agency for International Development (USAID) and the Canadian International Development Agency (CIDA) towards activities related to the policy, legislative and institutional framework related to sewage collection, treatment and disposal. In this regard regulations for sewage effluent and sewage sludge and a policy for connection to central sewage facilities are far advanced. Also, various alternatives for sewage disposal by households have been researched and pilot projects established.

The Institutional Strengthening to Support Environmental Management of Kingston Harbour Project, funded by the IDB/GOJ, has as one of its outputs a Water Quality Model. The model will be used by NEPA to provide an empirical basis for remediation activities, allowing NEPA to prioritise enforcement efforts internally as well as publicly. This model will therefore assist in enforcement of fines related to non-compliance to the new sewage effluent standards.

### **NPA-LBS/LBA Actions A.1**

1. Fast track the development of the sewage effluent and sewage sludge regulations
2. Enforce the penalties for non-compliance with the regulations.
3. Encourage compliance with sewage regulations by promoting the use of environmental management systems.
4. Revise and enforce existing legislation regarding the connection to central sewage treatment facilities.
5. Introduce a certification and licensing programme for sewage treatment plant operators.
6. Promote private sector investments in sewage solutions (construction, ownership, operation and maintenance).
7. Rigorously Monitor compliance, non-compliance with sewage effluent standards.

**Objective A2: To expand and improve the collection, treatment and disposal of sewage island wide.**

The Water Sector Policy was developed in support of the National Industrial Policy (NIP) and completed in June 2000. This policy has as an objective the sewerage of all major towns by 2020. Table 1 shows the existing facilities operated by the NWC and their status.

**Table1: The status of sewage treatment facilities operated by the National Water Commission.**

Status of Plants	# Plants
Plants that currently meet the new Effluent Standards <ul style="list-style-type: none"> <li>• Ocho Rios WWTP, St Ann.</li> <li>• Negril WWTP, Westmoreland</li> <li>• Montego Bay WWTP, St. James</li> <li>• Boone Hall, KSA</li> <li>• Grove Manor, KSA</li> <li>• Knollis, St. Catherine</li> <li>• New Works, St. Catherine</li> <li>• Lime Tree Grove, St. Catherine</li> <li>• Steer Town, St Ann</li> </ul>	9
Plants that can be upgraded expanded to meet the new Effluent Standards	28
Plants for which sewer has to be re-directed to a central sewer system for proper treatment in keeping with new Effluent Standards	14
Plants that can meet the old but may not meet the new standards (can be assessed only after rehabilitation works)	15
Facilities that cannot meet any standards <ul style="list-style-type: none"> <li>• Springfield</li> </ul>	1
<b>Total</b>	<b>67</b>

In accordance with the Water Sector Policy the National Water Commission (NWC) in its Action Plan 2004 - 2007 has articulated its wastewater development plans for the next 20 years. Its objective is the sewerage of major towns, many of which are coastal towns, over the period. The plan takes into consideration the rehabilitation and expansion of existing plants as well as the building of new sewage treatment facilities. On the basis of this plan the following activities have been identified for inclusion in the NPA to protect the marine and coastal environment from LBS/LBA.

## NPA-LBS/LBA Actions A.2

1. Resuscitate and improve operational design of existing malfunctioning sewage treatment plants to make them compliant.
2. Expand the collection system for municipal sewage island-wide with focus on coastal towns with growing population.

### New sewage treatment facilities to be constructed

- Port Antonio
- Spanish Town (Private initiative)
- Kingston (Soapberry, Phase I)
- Savannah-la-Mar (Financing being sought)

With regard to the Kingston – The Soapberry Sewage Treatment Facility is to be constructed on lands adjacent to the Riverton landfill. Phase 1 of the project will be privately financed by the Urban Development Corporation (UDC), the National Housing Trust (NHT), and the National Water Commission (NWC). Construction of phase 1 is slated to commence in January 2005.

3. Improve domestic connections to existing municipal sewage treatment plants.
4. Improve human resource capacity for implementing preventive maintenance programme for sewage treatment plants through increased training programmes.
5. Identify and promote the use of sewage treatment solutions that are best practice alternatives to absorption pits, especially in coastal communities.

**Objective A3: To expand and improve public education on the effect of sewage on the environment.**

The USAID/GOJ funded projects, the Coastal Water Quality Improvement Project (CWIP), the Ridge to Reef Watershed Management Project and the Environmental Audits for Sustainable Tourism (EAST) Project have all contributed significantly to public education and awareness on the effect of sewage on the environment.

The IDB/GOJ funded Kingston Harbour Institutional Strengthening Project has a public education component designed for stakeholder awareness and development of education modules for primary and secondary school children in the KMA. One main focus will be the issue of sewage.

In addition, to the above projects there is an planned to be implemented through alliances with the Environmental Foundation of Jamaica (EFJ), CIDA and UNEP/GEF Jamaica which will develop and implement a public education programme. There is opportunity to highlight sewage management in this project.

The NPA seeks to build on these project outputs of public education and will ensure the implementation of other short to medium term projects, the outcome of which must result in the strengthening of institutional capacity to sustain the efforts.

**NPA-LBS/LBA Actions A.3**

1. Promote public education/awareness on the issue of sewage treatment and disposal to draw attention to the public and other stakeholders of their roles/potential contributions to sewage solutions.
2. Strengthen the data collection process and improve dissemination.
3. Ensure there are appropriate and relevant training courses

## **B. Improving Agricultural Practices by Conserving Soil and Reducing the Use of Pesticides and Fertilizers.**

**Objective B1: To reduce and minimise soil loss and sedimentation in waterways that discharge into the coastal zone.**

Tree planting has been identified as one of the key strategies to reduce and minimise soil loss. The Forest Management and Conservation Plan 2001 (FMCP), articulates a comprehensive eleven-point strategy to deal with forestry management. Goal 3 of this plan is to *Restore Tree Cover* by supporting *inter alia* the following activities: Reforestation by collaborating with the Bauxite sector to reforest mined lands; Establish and operate nursery system; and Mangrove protection and restoration. Additionally, There are forest areas that are Crown Lands, currently managed by the Forestry Department, which have not yet been declared as forest reserves. The establishment of forest reserves will assist the conservation of essential forest resources by providing regulatory control over its use and development. The FMCP has in part been supported by CIDA through the Trees for Tomorrow Project but its implementation has been stymied by inadequate funding. However, there are some existing project mechanisms, which may help to support some initiatives in the context of sustaining productive soils by preventing/minimising soil loss. For example:

- The Agricultural Support Services Project (ASSP) is a four-year project that commenced in 2001 and is valued at US\$ 31 million. Through its Agricultural Research Facility funding can be allocated to soil conservation efforts.
- The European Union (EU) Banana Support Programme – Water Management Project will end in the year 2008. There are opportunities to place greater emphasis on the issue of soil conservation in the remaining years.

### **NPA-LBS/LBA Actions B.1**

1. Promote tree replanting in highly degraded watershed areas.
2. Collect, analyse and disseminate data on sediment loading in critical waterways to facilitate prioritisation for mitigation activities.
3. Promote best farming practices in the cultivation of steep slopes.  
An NPA effort will be to develop a project to be implemented with the Ministry of Agriculture (MOA) to integrate and revitalise the soil conservation focus within the Ministry. The project will have a capacity building component involving training, documentation and research.
4. Declare and better manage forest reserves.

**Objective B2:** *To reduce pesticide and fertilizer contamination of waterways that discharge into the coastal zone.*

The Ministry of Agriculture is in the process of developing a policy on Integrated Pest Management. In formalizing this policy the Ministry intends to implement supporting programmes through GOJ recurrent expenditure.

The NPA endorses the "highest priority" rating given by the NSAPBD to the project idea, '*the reduction of pollution in fresh water and marine environments*'. The objective is to reduce the current level of pollution in streams, rivers and the near shore marine environment by the reduction and control of agricultural run-off and deliberate discharge of industrial waste, domestic waste (sewage) and other waste.

#### **NPA-LBS/LBA Actions B.2**

1. Review the policy and legal framework to effectively manage the importation, packaging, distribution and application of *pesticides and fertilizers*.
2. Develop innovative economic incentives to encourage beneficial actions such as the use of environmentally benign pesticides organic soil conditioners.
5. Collect, analyse and disseminate data on fertilizer and pesticide loading in critical waterways to facilitate prioritisation for mitigation activities.
6. Promote through the Industry Boards (cane, banana, citrus, coconut and coffee) in association with the Jamaica Agricultural Society the programmes for best practice for pesticides and fertilizer use.
7. Expand and improve targeted education of the agricultural sector by strengthening agricultural science and farmer education and training programmes by infusion into curricula.

## **C. Collection and Disposal of Solid Waste**

**Objective C1:** *To put in place the policy, legal and institutional framework for effective management of solid waste.*

All the objectives within this priority area will be addressed within the strategic objectives of the National Solid Waste Management Authority (NSWMA). The NSWMA was formed out of the GOJ's vision to create one entity to oversee the management of solid waste islandwide. The establishment of this Authority arose from activities carried out under Phase 1 of the National Solid Waste Management Project (NSWMP) which was funded by the GOJ/IDB to the tune of US\$ 16.5 million dollars. The elements of this project were:

- Institutional and legislative improvement;
- Upgrade of the Riverton City Dump to a sanitary landfill;
- Closure of dump sites;
- Developing a Policy on medical waste disposal;
- Site selection and design of regional landfill sites (3) and transfer stations;

The elements of the project are in keeping with the objectives and strategies of the NPA.

### **NPA-LBS/LBA Actions C.1**

1. Fast track the development of the National Solid Waste Policy
2. Review and revise if necessary the policy, legal and institutional framework
3. Enforce existing legislation.
4. Encourage compliance with legal requirements by promoting best practice and the use of environmental management systems by both public and private sector operators.
5. Develop a national solid waste management twenty-year plan.
6. Divest collection of solid wastes to the private sector and
7. Divest solid wastes disposal sites in 5 to 10 years.

***Objective C2: To expand and improve the solid waste collection and disposal network***

The collection and disposal of solid waste in Jamaica needs major improvement. While there is the infrastructure in place across the island, many urban communities are not provided with such service so there is need to expand the system of collection and disposal. The establishment of the National Solid Waste Management Authority has demonstrated the Government's commitment to improve the service provided. The proposed solid waste management twenty-year plan will address the general improvement in solid waste management and will also focus on the collection of ship generated waste, as well as, hazardous waste including medical wastes.

The requirements of the 1973 International Convention for Prevention of Marine Pollution from Ships as modified by the Protocol of 1978 (Marpol 73/78) involves the establishment of a waste reception facility for ship generated waste. In this regard there are plans to put in place such a facility at the Port of Kingston, the country's busiest port. A feasibility study for the facility was completed in March 2001. In addition, the Institutional Strengthening to Support Environmental Management of Kingston Harbour Project mentioned earlier has as a component the preparation of the documentation required to the point of tender for bidding to finance, build and operate the waste reception facility. The facility will be designed to handle liquid and solid waste. The responsibility for its construction will be a cooperative venture between the Port Authority and Shipping Association of Jamaica. There is also the opportunity for private investment.

The NSWMA has begun dialogue to acquire auto clavers/shredders for the disposal of solid waste. A new processing machine from France will make medical waste safe for disposal in ordinary landfills.

The following outlines the priority activities related to expansion and improvement of solid waste collection and disposal, to be implemented under the NPA.

### **NPA-LBS/LBA Actions C.2**

1. Focus on the collection services for informal communities situated along gullies and riverbanks.
2. Rationalise disposal site locations and improve disposal site operation island wide by 2007.
3. Close sites with coastal impacts and identify and develop alternative sites.
4. Routinely collect data on solid waste generation rates, waste composition, leachate quality, and incidents of illegal dumping in proximity to the coastal regions in order to inform decision-making.
5. Improve preventive maintenance programme by internalising the costs of waste management in the costs of goods and services.
6. Complete and implement plans for the ship generated wastes facility
7. Increase the capacity of the NSWMA to handle medical waste by 2006.
8. Put in place the necessary infrastructure for recycling and reuse of wastes

***Objective C3: To expand and improve public education concerning solid waste disposal, recovery and reuse and the effect on the environment by 2004.***

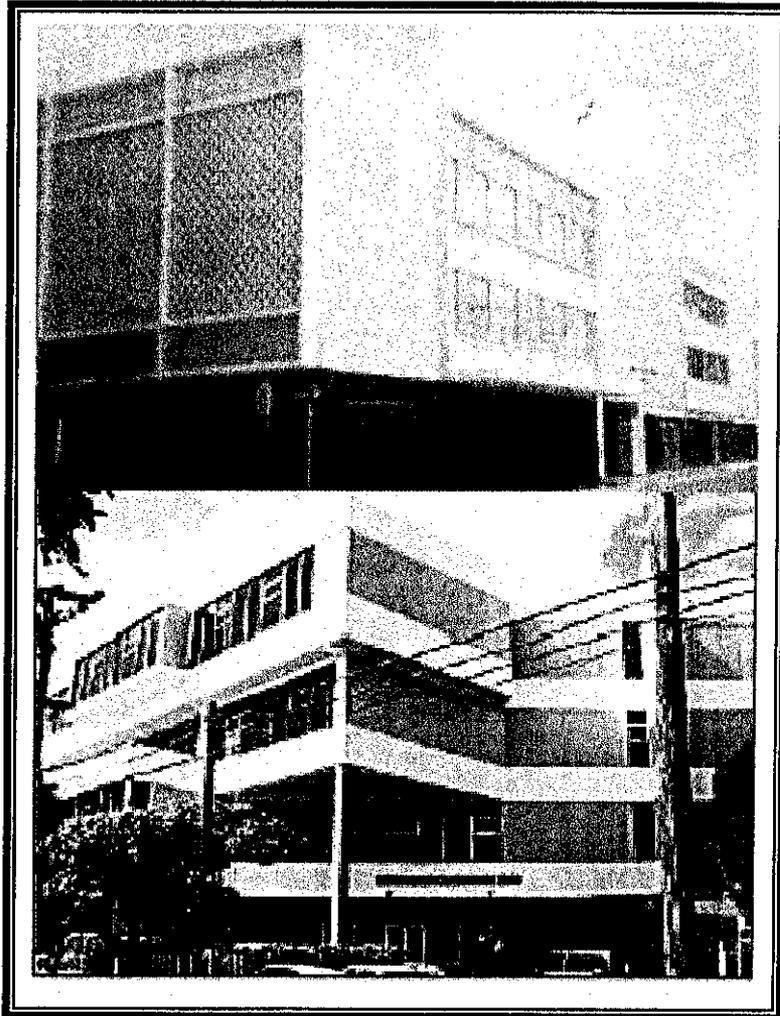
The NSWMA is already involved in public education as a clear recognition of the need for the public's cooperation in the successful public cleansing activities. However, there needs to be increased efforts to change behaviour if a culture of cleanliness in public spaces is to be instituted.

### **NPA-LBS/LBA Actions C.3**

1. Expand public education on the issues of solid waste collection, disposal and management.
2. Promote the practice of waste reduction, reuse and recycling

## CHAPTER 4

### THE MANAGEMENT FRAMEWORK





## 4. The Management Framework

### 4.1 The Approach

The Plan, Do, Check and Act Management Framework (Figure 3?) as articulated in the GOJ National Policy and Strategy to Promote the Use of Environmental Management Systems, will guide Jamaica's execution and review of the NPA in order to ensure accountability, flexibility and continuous improvement.

The *Plan* is the NPA document which drives the process at the macro level. The *Do* will be the actual execution of the NPA, which will involve further planning at the micro level and across sectors and organisations. The *Check* will involve to a large extent the Lead Agency, the National Environment and Planning Agency in collaboration with the Ministry of Land and Environment, which will review and monitor the NPA against the stated objectives. The *Act* will involve the process of adjusting priority areas, objectives and strategies over time.

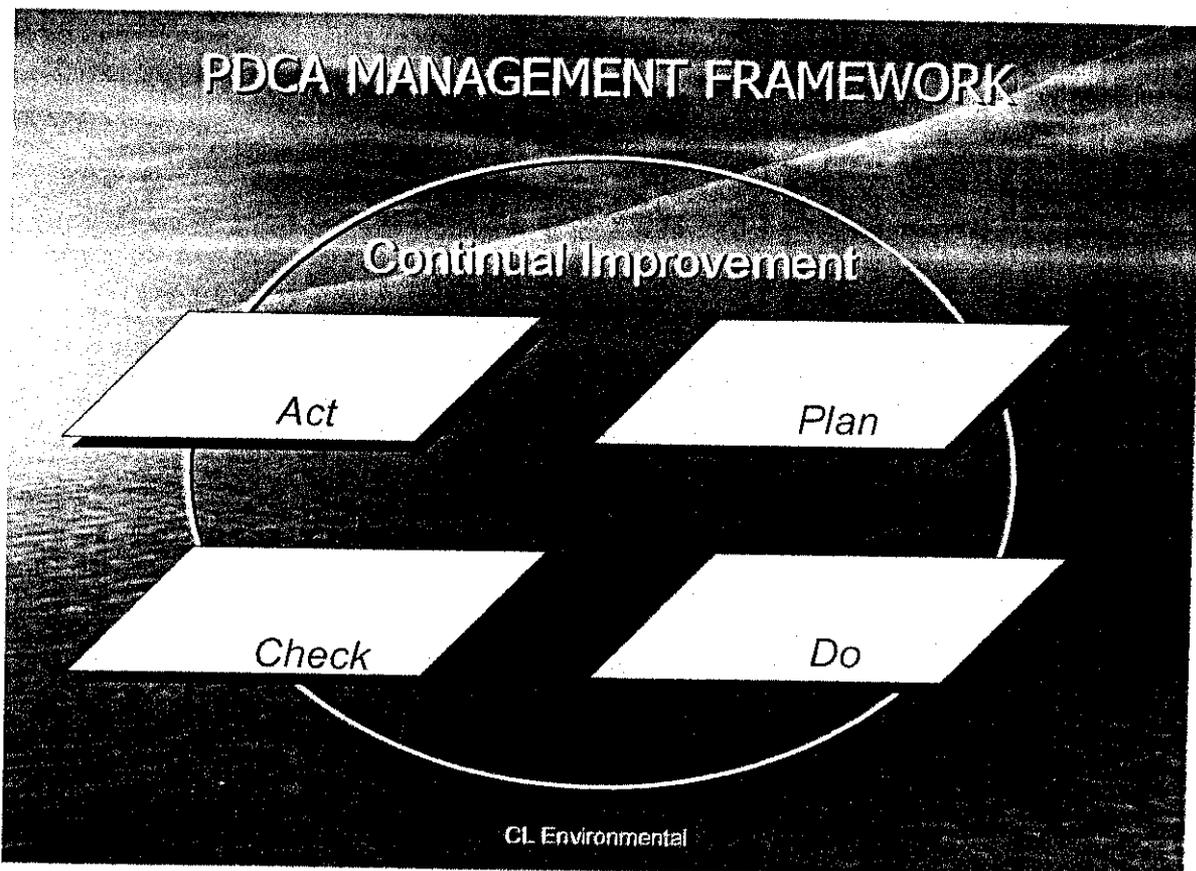


Figure 3: Plan, Do, Check and Act Management Framework

## **4.2 Institutional Arrangements**

The Lead Agency for the implementation of the NPA-LBA/LBS is the National Environment and Planning Agency (NEPA), an Executive Agency, which has the responsibility to coordinate environmental management in Jamaica.

There is an extensive network of organisations in the government, private sector and civil society whose input will be essential for the execution of the NPA. NEPA will collaborate with all stakeholders to facilitate continued dialogue and integration.

## **4.3 Monitoring and Evaluation**

The Monitoring of the NPA will:

- ✓ Facilitate accountability
- ✓ Provide an opportunity for review
- ✓ Provide the facility for re-prioritisation

NEPA in collaboration with the Ministry of Land and Environment will convene an NPA-LBS/LBA Monitoring Committee, which will meet twice annually, in March and September, to review the progress of implementation.

The membership of the NPA Monitoring Committee will be drawn from the Ministry of Land and Environment, Ministry of Health, Ministry of Water and Housing, National Water Commission, Water Resources Authority, National Irrigation Commission, National Solid Waste Management Authority, Ministry of Local Government including (Parish Councils), Urban Development Corporation, Planning Institute of Jamaica (PIOJ), and representatives from the following sectors: Maritime, Mining, Tourism, Private Sector and non-governmental organizations (NGOs).

Inter-Ministerial oversight will come from the Natural Resource Committee (NRC) of the Cabinet, which is chaired by the Minister of Water and Housing. The Committee is intended to be the vehicle for effective inter-ministerial coordination and GOJ resource allocation. The membership of the NRC is as follows:

- Minister of Land and Environment
- Minister of State (Ministry of Finance)
- Ministry of Development
- Ministry of Local Government
- Ministry of Agriculture

- Ministry of Industry and Tourism

Progress Reports on the implementation of the NPA-LBA/LBS will be prepared by NEPA and will be presented to the NRC annually through the Ministry of Land and Environment (ML&E). In addition, progress will be reported on annually to the Cabinet and Parliament through the JaNEAP.

In addition, outcome indicators of the effect on the NPA implementation on marine species especially in the coral reef habitats will be monitored. This will be reported in the State of the Environment Report.

#### **4.4 Communication/Clearinghouse Mechanism**

Through the Lead Agency, NEPA, a clearinghouse will be developed for the NPA, which will provide access to information by local organisations, regional partners, the GPA Secretariat and donor/funding agencies. The development of the clearinghouse will build on existing information technology capabilities within NEPA but will require additional financial resources to be effectively implemented.

#### **4.5 Funding**

Funding for the implementation of the NPA will be a mix of the annual government subvention to cover the financing of the corporate and operations plans of the various public sector departments. However, Jamaica has financial constraints and grant funding for projects will have to be identified and accessed. In this regard the project ideas highlighted in the NPA (Annex V) will be developed into full project proposals to secure support from external partners. Project funding will be sought through the GOJ Project Cycle system with the Planning Institute of Jamaica (PIOJ) playing a major role.

Private sector participation will be actively sought and promoted.

#### **4.6 Timeframe**

The following table outlines the timeframe within the first five years of implementation of the NPA. Many of the activities will be incorporated in corporate plans of the various organisations and within Jamaica National Environmental Action Plan (JaNEAP). Where donor funding will be required this is highlighted by reference to the project profiles developed for the NPA.

## 4.7 Schedule 2005 to 2010

Table 4.1 Summary of NPA – LBS/LBA Actions and Schedule

ACTIONS	2005/06	2006/07	2007/08	2008/09	2009/10
<b>Actions A.1</b>					
1. Fast track the development of the sewage effluent and sewage sludge regulations					
2. Enforce the penalties for non-compliance with the regulations.					
3. Encourage compliance with sewage regulations by promoting the use of environmental management systems.		Project 1: NPA Public Awareness Campaign – Sewage and Solid Waste			
4. Revise and enforce existing legislation regarding the connection to central sewage treatment facilities.					
5. Introduce a certification and licensing programme for sewage treatment plant operators					
6. Promote private sector investments in sewage solutions (construction, ownership, operation)					
7. Rigorously Monitor & collect data on compliance, non-compliance with sewage effluent standards.		Project 1: NPA Public Awareness Campaign – Sewage and Solid Waste			
<b>Actions A.2</b>					
1. Resuscitate and improve operational design of existing malfunctioning sewage treatment plants to make them compliant.					
2. Expand the collection system for municipal sewage island-wide with focus on coastal towns with growing population					
i. Port Antonio					
ii. Spanish Town (Private initiative)					
iii. Kingston (Soapberry, Phase I)					
iv. Savannah-la-Mar (Financing being sought)					
3. Improve domestic connections to existing municipal sewage treatment plants.					

ACTIONS	2005/06	2006/07	2007/08	2008/09	2009/10
4. Improve human resource capacity for implementing preventive maintenance programme for sewage treatment plants through increased training programmes.					
	Project 1: NPA Public Awareness Campaign – Sewage and Solid Waste				
5. Identify and promote the use of sewage treatment solutions that are best practice alternatives to absorption pits, especially in coastal coastal communities.					
	Project 1: NPA Public Awareness Campaign – Sewage and Solid Waste				
<b>Actions A.3</b>					
1. Promote public education/awareness on the issue of sewage treatment and disposal to draw attention to the public and other stakeholders of their roles/potential contributions to sewage solutions.					
	Project 1: NPA Public Awareness Campaign – Sewage and Solid Waste				
2. Strengthen the data collection process and improve dissemination.					
<b>Actions B.1</b>					
1. Promote tree replanting in highly degraded watershed / forest areas.					
2. Collect, analyse and disseminate data on sediment loading in critical waterways to facilitate prioritisation for mitigation activities.					
3. Promote best farming practices in the cultivation of steep slopes.					
	Project 4: Evaluation of Soil and Nutrient Loss from use of Practical and Inexpensive Soil Conservation Techniques in selected				
4. Declare and better manage forest reserves.					
	Project 2: Declaration and Rehabilitation of Additional Forest Reserves				
<b>Actions B.2</b>					
5. Review the policy and legal framework to effectively manage the importation, packaging, distribution and application of pesticides and fertilizers.					



ACTIONS	2005/06	2006/07	2007/08	2008/09	2009/10
<b>Actions C.2</b>					
1. Focus on the collection services for informal communities situated along gullies and riverbanks.				Project 1: NPA Public Awareness Campaign – Sewage and Solid Waste	
2. Rationalise disposal site locations and improve disposal site operation island wide by 2007.					
3. Close sites with coastal impacts and the identify and develop alternative sites.					
4. Routinely collect data on solid waste generation rates, waste composition, leachate quality, and incidents of illegal dumping				Project 1: NPA Public Awareness Campaign – Sewage and Solid Waste	
5. Improve preventive maintenance programme by internalising the costs of waste management in the costs of goods and services.					
6. Complete and implement plans for the ship generated wastes facility					
7. Increase the capacity of the NSWMA to handle medical waste by 2006.					
8. Put in place the necessary infrastructure for recycling and reuse of wastes					
<b>Actions C.3</b>					
1. Expand public education on the issues of solid waste collection, disposal and management.				Project 1: NPA Public Awareness Campaign – Sewage and Solid Waste	
2. Promote the practice of waste reduction, reuse and recycling				Project 1: NPA Public Awareness Campaign – Sewage and Solid Waste	
<b>GENERAL</b>					
1. Set up Institutional arrangements					
2. Implement coastal and marine resources monitoring programme				Project 5: Framework for Monitoring the Status of Jamaica's Coastal and Marine Resources	
3. Institutional Strengthening of the Jamaican Blue Flag Programme for Beaches and Marinas				Project 6: Institutional Strengthening for the Jamaica Blue Flag Programme	



CHAPTER 5  
CONCLUSION



Hellshire Beach, Half Moon Bay, Portmore, St. Catherine - October 2001 Carlton Campbell



Section of Dunn's River Falls - June 2003 Carlton Campbell Photo



## 5.0 CONCLUSION

The development of Jamaica's NPA has been built on existing policy, legal and institutional frameworks. There is a recognition that the existing frameworks will need to be strengthened and integrated in ways, which will allow for effective management of complex cross-sectoral issues. Although the technical environmental issues present challenges perhaps the most challenging matter will be the implementation of effective mechanisms for the cross-sectoral management framework. That is, the implementation of a cooperative, effective management arrangement, which will ensure that decision making and planning at all levels, achieve the goals of the NPA. Its effectiveness will be an important critical success factor for the NPA.

Priority areas of action were established based on the severity of the negative environmental impact on the environment. The process of developing priority actions for addressing the impact of sewage, agricultural run-off and solid waste on the coastal and marine environment has to a large extent been based on existing activities, projects or project concepts. The five-year NPA will be supported by government subvention and donor funding will be sought for the project profiles presented in Annex V.

The NPA has put forward a comprehensive five-year programme of actions which, if effected should lead to change in behaviour among the country's population so that our coastal resources will be protected from land based sources and activities. An important feature of the NPA is the provision for "checking", as articulated in the "Plan, Do, Check, Act (PDCA)" framework, where data on the status of the marine resources will be routinely collected over the five years to determine the impact of the actions. This will enable informed decisions regarding re-prioritisation.



## ANNEX I

### Policies Relevant to the NPA

NEPA's CORE BUSINESS AREA	POLICY RESPONSES	INSTITUTIONAL RESPONSIBILITY/COMMENT
<b>Land Development and Sustainable Development planning</b>	<p><b><u>CORE POLICIES REVIEWED</u></b>            National Physical Plan            Regional Framework for Planning            Land Policy</p> <p><b><u>OTHER POLICIES</u></b>            National Industrial Policy            Mining and Quarrying Policy</p>	<p>NEPA            NEPA            Ministry of Land &amp; Environment</p> <p>Ministry of Local Government            Ministry of Land &amp; Environment</p> <p>Indicates importance of incentives            Being prepared</p>
<b>Management &amp; Conservation of Environmental Resources</b>	<p><b><u>CORE POLICIES REVIEWED</u></b>            Beach Policy            Ocean and Coastal Zone Management            Protected Areas            National Strategy on Biodiversity            Watershed Policy            National Policy for the Conservation of            Sea Grasses            Mangrove and Coastal Wetlands Policy            Coral Reef Protection and Preservation            Policy            Mariculture Policy            Protected Animals in Captivity Policy</p> <p><b><u>OTHER POLICIES</u></b>            Energy Sector Policy            Water Sector Policy            National Solid Waste Policy            Policy Framework for the Management of            Plastic Packaging Material and            Hazardous Waste for Jamaica            National Forest Management and            Conservation Plan            Master Plan for Sustainable Tourism            Development</p>	<p>NEPA</p> <p>Ministry of Foreign Affairs            NEPA            NEPA            NEPA            NEPA            NEPA            NEPA            Ministry of Foreign Affairs/NEPA</p> <p>Requires NEPA's support            Requires NEPA's support            Requires NEPA's support</p> <p>Requires NEPA's support            Requires NEPA's support            Requires NEPA's support</p>
<b>ENVIRONMENTAL PROTECTION</b>	<p><b><u>CORE POLICIES REVIEWED</u></b>            Environmental Management Systems</p> <p><b><u>OTHER POLICIES</u></b>            Sewage Connection Policy</p>	<p>NEPA</p> <p>Policy being implemented by            NWC</p>

Source Policy Gap Analysis Report, March 2003

**ANNEX II**  
**List of Action Plans**

<b>Action Plans</b>
National Forestry Management and Conservation Plan, 2001
National Biodiversity Strategy and Action Plan, 2004
National Solid Waste Management Programme
Sustainable Tourism Action Plan (Master Plan)
Jamaica National Environment Action Plan 1999 – 2002 and
JaNEAP Status Reports 2000, 2001, 2002
Oceans and Coastal Zone Management Action Plan
Kingston Harbour Rehabilitation Project
Port Antonio Master Plan
Jamaica Coral Reef Action Plan
South Coast Tourism Development Plan
North East Development Plan
Water Sector Action Plan 2000
Highway 2000 Development Plan

## ANNEX III

### Relevant Legislation

Law	Authority
Natural Resources Conservation Authority Act, 1991	To protect and manage natural resources and control pollution
Watersheds Protection Act	Watersheds protection
Public Health Act	Environmental health; waste management; pollution control
Clean Air Act	Control of air pollution
Forest Act, 2001	Declaration and management of forest reserves
Solid Waste Management Act	Control of solid waste
Water Act	To establish board and water courts
Water Resources Authority Act	To protect underground resources
Beach Control Act	Control of sand removal from beaches
Wildlife Protection Act, 1945	Control hunting of wildlife/ noxious waste
Marine Park Regulations	To establish national parks and protect their resources
Mining Act	Control of mining
Petroleum Act	Control of petroleum as a hazardous substance
Quarries Control Act	Control of quarrying activities
Town and Country Planning Act	Physical planning and building control
Land Development and Utilisation Act	Land use planning and development control
	Amelioration of poor infrastructure amenities in communities
Local Improvement Act	Control and guides submission of land
Urban Development Corporation Act	Urban physical planning and development
Pesticides Act	Control of importation, use and disposal of pesticides
	Control of litter in public places
Harbours Act	Control of harbour pollution (oil spills)
Shipping Act	Control of shipping
The Aquaculture, Inland and marine Products and by-Products (Inspection, Licensing and Export Act, 1999)	
Endangered Species (Protection, Conservation and Regulation of trade) Act, 2000.	
Fishing Industry Act, 1976	

Source: NEPA

## ANNEX IV

### Existing International Environmental Agreements Relevant to the Development of Jamaica's NPA

Name	Ratification R/Accession (A)	Focal Point
United Nations Convention on Law of the Sea	March 1983 (R)	Ministry of Foreign Affairs
Convention on the Prevention of Marine Pollution by Dumping Waste (IMO)	March 22, 1991 (A)	Maritime Authority
International Convention on Oil Pollution Preparedness, Response and Cooperation	September 2000 (A)	Maritime Authority
International Convention for the Prevention of Pollution from Ships (MARPOL)	June 13, 1991 (A)	Maritime Authority
Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention)	April 1, 1987 (R)	National Environment and Planning Agency
United Nations Framework Convention on Climate Change (UNFCCC)	April 5, 1995 (R)	The Metrological Service
United Nation Convention on Biological Diversity (UNCBD)	January 6, 1995 (R)	National Environment and Planning Agency
Convention on Wetlands of International Importance (RAMSAR)	October 7, 1997 (A)	National Environment and Planning Agency
United Nations Convention to Combat Desertification/Land Degradation (UNCCD)	November 12, 1997 (A)	Ministry of Land and Environment
Convention on the Trans-boundary Movement of Hazardous Waste and their Disposal	January, 2002	Ministry of Land and Environment

**ANNEX V**  
**PROJECTS PROFILES**

**Project 1: NPA Public Awareness Campaign – Sewage and Solid Waste**

**Duration:** Three years

**Objectives**

Component 1: Sewage Disposal and its impact on the Environment [NEPA, NWC, SRC]

- Develop and disseminate general public awareness materials (brochures, stickers etc)
- Development of teaching materials for primary and secondary schools
- 8 Workshops (6 across the island & 2 Professional groups)
- Develop a database on sewage solutions used in communities, effluent quality of sewage treatment plants for incorporation into NEPA's Pollutant Release and Transfer Register and the State of the Environment Report.
- Develop and execute media campaign on sewage and alternative sewage solutions.

Component 2: Solid Waste Management [Solid Waste Management Authority and NEPA]

- Develop and disseminate general public awareness materials (brochures, stickers etc)
- Development of teaching materials for primary and secondary schools
- 20 Stakeholder Meetings (16 across the island & 4 Professional groups)
- Develop a database on sewage solutions used in communities, effluent quality of sewage treatment plants for incorporation into NEPA's Pollutant Release and Transfer Register and the State of the Environment Report.
- Develop and execute media campaign on waste disposal

<b>Budget</b>	<u>US\$</u>
Media Campaign	150,000
Public Awareness Material	100,000
20 Workshops/Community Interventions	100,000
Public Awareness Consultancy	70,000
Wastewater Consultancy	50,000
Waste Management Consultancy	50,000
Traveling and subsistence	30,000
Project Management	120,000
<b>Sub-total</b>	<b>670,000</b>
<b>Contingency (10%)</b>	<b>67,000</b>
<b>TOTAL</b>	<b>737,000</b>

\* Note Public Awareness for Agricultural Practices is incorporated in Project Nos. 2, 3 and 4

## **Project 2: Declaration of Additional Forest Reserves**

\* [This project reflects a combination of two priority projects identified in the National Strategy and Action Plan on Biological Diversity in Jamaica. July 2003]

**Lead Agency:** Forestry Department

**Supporting Government Agencies:** Ministry of Agriculture, National Environment and Planning Agency, and Ministry of Land and Environment.

**Other Partners:** Community Based Organizations, Non-Governmental Organizations

**Duration:** Five Years

**Rationale:** There are forest areas that are Crown Lands, currently managed by the Forestry Department, which have not yet been declared as forest reserves. Establishment of forest reserves will assist the conservation of essential forest resources by providing regulatory control over their use and development. Many forest reserves have suffered from the effects of illegal settlement, clearing for small-scale agriculture, and unsustainable harvesting practices. It is essential that these areas are identified and an effective reforestation/rehabilitation programme be put in place to prevent further degradation of these areas.

**Objective:** To declare as forest reserves all outstanding areas of Crown Lands not yet declared, and privately owned lands as appropriate and rehabilitate priority areas within these reserves.

### **Specific Activities:**

- Identification of Crown Lands not yet declared forest reserves;
- Assessment of areas to be declared as protected including assessment of privately owned unprotected natural forests;
- Survey and demarcation of the areas;
- Declaration of outstanding forested Crown Lands and privately owned natural forests as appropriate as forest reserves;
- Preparation of guidelines for declaring forest reserves;
- Identification and assessment of degraded areas; prioritisation of degraded areas;
- Preparation of Management Plan (including rehabilitative programme) for each forest reserve with clearly defined roles and responsibilities including signing of co-management agreements where appropriate.
- Implementation of rehabilitative programmes.

OUTPUT	Year 1	Year 2	Year 3	Year 4	Year 5
Crown lands and private forests reviewed	X	X	--		
Lands surveyed and demarcated	X	X	--		
Guidelines for declaring forest protected areas developed	--	X	--		
Outstanding areas declared	X	X	X		
Legal instruments prepared	--	--	X		
Co-management agreements prepared	--	X	X		
Survey, assessment, identification and prioritisation of degraded areas	X	X	X	X	X
Community consultation held	--	X	X	X	--
Rehabilitative programme developed and implemented	--	--	X	X	X

Budget	US\$
Legal Consultancy	150,000
Boundary Surveys and Demarcation	100,000
Community Consultations	100,000
Rehabilitative Programme	200,000
Traveling and subsistence	100,000
Project Management	200,000
<b>Sub-total</b>	<b>850,000</b>
<b>Contingency (10%)</b>	<b>85,000</b>
<b>TOTAL</b>	<b>935,000</b>

### **Project 3: To reduce pesticide and fertilizer contamination of waterways that discharge into the coastal zone.**

\*[This project concept is similar to one of the High Priority Projects: *Reduction of Pollutants in Freshwater and Marine Environments* in the National Strategy and Action Plan on Biological Diversity in Jamaica. July 2003]

**Lead Agency:** National Environment and Planning Agency

**Collaborating Institutions:** Ministry of Agriculture, Water Resources Authority, Ministry of Health, and Ministry of Land and Environment, University of the West Indies.

**Other Partners:** Community-based organizations, Bauxite Companies, Sugar Companies, Coffee farmers and large-scale farmers.

**Duration:** Three Years

**Objective:** To reduce the current level of pollution in streams and rivers and the marine environment, by reduction and control of agricultural run-off into these environments.

**Rationale:** High levels of agro-chemical residues and waste from agro-industries contribute to degradation of the aquatic environment and reduction of habitat quality for the organisms that live in these systems. In addition persons who depend on these systems for potable water sources are affected.

**Objectives:**

- Chemical analysis of selected rivers and streams and near-shore sites;
- Development of bio-monitoring indicators and methodology;
- Preparation of a monitoring programme for chemical levels in conjunction with analysis of biological effects;
- Development of Database and format for monitoring reports
- Environmental assessment of agricultural systems
- Establishment of a Voluntary Certification Programme

<b>OUTPUT</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Survey and analysis of rivers, streams and coastal sites conducted	x		
Effluent disposers (point sources) identified and licensed	x		
Environmental Audits (Major pollution sources assessed)	x	x	
Water Quality Monitoring programme developed and implemented	x	x	X
Environmental Management Systems (including organic systems for farms) developed and implemented		x	X
Voluntary Certification Programme established		x	X

<b>Budget</b>	<u><b>US\$</b></u>
Water Quality Specialist	90,000
Pollution Prevention Consultancy (Agri-Systems)	150,000
Environmental Auditor	100,000
Certification Programme	200,000
Traveling and subsistence	60,000
Project Management	120,000
<b>Sub-total</b>	<b>720,000</b>
<b>Contingency (10%)</b>	<b>72,000</b>
<b>TOTAL</b>	<b>792,720</b>

## **Project 4: Evaluation of Soil and Nutrient Loss from use of Practical and Inexpensive Soil Conservation Techniques in selected Watersheds.**

**Lead Agency:** Rural Physical Planning Division

**Supporting Government Agencies:** Rural Agricultural Development Authority (RADA), Forestry Department (FD) and Water Resource Authority (WRA).

**Other Partners:** National Irrigation Commission (NIC) and the National Environment and Planning Agency (NEPA).

**Duration:** Five Years

### **Goal and Objectives:**

The overall goal is to help farmers reduce the loss of valuable soil and nutrients in runoff from the uplands (> 300 m above mean sea level), thereby decreasing degradation and contamination of the lower areas of the watersheds, coastal and marine environment.

### **Objectives:**

- ❖ Testing and recommending practical and inexpensive soil conservation measures to farmers.
- ❖ Measurement of soil loss from the selected systems of soil conservation and untreated plots.
- ❖ Determining the nutrient loss in samples collected from soil water runoff.
- ❖ Increasing farmers' awareness to the effectiveness of these measures in reducing soil loss and damage to the land and marine environment through field demonstrations, brochures, the electronic and print media.

### **Rationale**

The awareness of significant soil loss due mainly to accelerated soil erosion particularly in the uplands of Jamaica dates back to the 1930's. However, although many schemes, programmes and projects were designed and implemented since 1947, none except the partially completed Evaluation of Simple Soil Conservation Techniques and Nutrient Loss in The Rio Cobre Watershed (ESSCTAN), has comprehensively addressed the effects of improper land use and the appropriate and practical measures to be employed to prevent further degradation and nutrient loss while maintaining sustainable occupation of the land. Furthermore there is a paucity of up to date data on soil and nutrient loss for the different watershed areas. This project will be designed on the principles and methodology of the previous ESSCTAN project to provide the required data to fill the existing information gap and to heighten the awareness of farmers to the simple but effective soil conservation measures which can significantly reduce soil erosion.

## Specific Activities

The specific activities will include:

- ❖ Selection of experimental sites, crops and personnel for data collection.
- ❖ Procurement of equipment, computers and one terrain vehicle.
- ❖ Procurement of materials for field trials and laboratory analyses.
- ❖ Design and lay out of experimental plots.
- ❖ Establishment of crops and maintenance of the plots.
- ❖ Data Collection and analyses.
- ❖ Transfer of information to Extension Personnel and farmers through field demonstrations, brochure and the electronic and print media.
- ❖ Preparation of Manuals for primary, secondary and tertiary curricula

## Duration

The project life is expected to be five years to facilitate complete data collection, analyses and report compilation in at least six major watersheds.

## Schedule:

Output	Yr 1	Yr2	Yr 3	Yr 4	Yr 5
• Development of practical conservation methods.	x	x	x	x	x
• Dissemination of information to farmers through field demonstrations, brochures, electronic and print media.		x	x	x	x
• Available up to date data on soil and nutrient loss.		x	x	x	x
• Production of a Soil Conservation Manual.		x	x	x	x

## Budget

US\$

Computers (2)	3,000
Terrain Vehicle (1)	30,000
Equipment [Rain Gages (6), Tensionmeters (4), Infiltrometer (2), etc.]	150,000
Materials (metal sheets, lab chemicals, planting materials etc.)	50,000
Labour (Establishing 6 experiments, data collection etc.)	60,000
Compilation and printing of the Soil Conservation Manual	24,000
Public Education Material [primary, secondary and tertiary]	100,000
Workshops/Field Days	100,000
Community Animation	50,000
Project Technicians (2) [\$8000x5x2]	80,000
Specialist on Agric. Systems Engineering	80,000
Traveling and subsistence	100,000
Project Management	200,000
Sub-Total	<b>1,027,000</b>
Contingency 10%	102,700
<b>Total</b>	<b>1,129,700</b>

## Project 5: Framework for Monitoring the Status of Jamaica's Coastal and Marine Resources

**Lead Agency:** National Environment and Planning Agency

**Supporting Agencies:** University of the West Indies

**Duration:** Five Years

### Goal:

The goal is design and implement a monitoring programme to track the effectiveness of the NPA implementation.

### Rationale

Often programmes are implemented without due attention being paid to their effectiveness. While outputs may be successfully achieved it is important to know what impacts, if any may be attributed to them. The significant policy, legislative, public awareness & community outreach, and mitigation activities slated for implementation in the NPA should lead to some improvement in the status of the Island's coastal and marine resources. A comprehensive monitoring programme will provide the decision-facilitating data necessary to effectively use the "Plan, Do, Check, Act (PDCA)" approach of the NPA implementation.

### Specific Activities

- ❖ Develop national coastal and marine indicators
- ❖ Develop a coastal and marine resources database
- ❖ Develop and maintain a website clearing house within NEPA to provide access to information on the status of Jamaica's coastal and marine resources.

### Duration

Five years

### Schedule:

Output	Yr 1	Yr2	Yr 3	Yr 4	Yr 5
• Develop national coastal and marine indicators	x				
• Develop a coastal and marine resources database	x	x			
• Develop website clearing house within NEPA		x	x	x	x
• Survey and input data	X	x	x	x	x
• Website management		x	x	x	x

<b>Budget</b>	<b>US\$</b>
Equipment (IT and Survey)	250,000
Surveys/Assessments (Develop & Implement Methodologies)	300,000
Database Specialist	150,000
Website Management	200,000
Project Management	200,000
	<b>Sub-Total</b>
	<b>1,100,000</b>
Contingency 10%	110,000
	<b>Total</b>
	<b>1,210,000</b>

## **Project 6: Institutional Strengthening for the Jamaica Blue Flag Programme**

**Lead Agency: National Environment and Planning Agency & Negril Area Environmental Protection Association**

**Supporting Government Agencies:** Ministry of Industry & Tourism – Tourism Product Development Company (TPDCo.)

**Other Partners:** Various Non-Governmental Organizations

**Duration:** Five Years

### **Goal and Objectives:**

The overall goal is to strengthen the institutional arrangements for the Blue Flag Programme in Jamaica.

### **Objectives:**



### **Rationale**

The Blue Flag Programme is newly being established in the Caribbean Region. Jamaica is one of the four countries which have facilities awarded the Blue Flag in 2004. The National Environment and Planning Agency has been the Interim National Operator, however, in keeping with the requirement of the Foundation for Environmental Education (FEE), the international organization responsible for the programme, a non-governmental organization – the Negril Area Environmental Association (NEPT) has been selected as National Operator. NEPA will continue to work with NEPT in a transitional phase for three years until NEPT has put in the necessary structures and is able to effectively manage the programme.

### **Specific Activities**

The specific activities will include:

- ❖ Hiring staff to run the programme for five years (staff costs will be absorbed by NEPT at end of project)
- ❖ Contracting a business development officer to work for three years to develop the Blue Flag programme into a business enterprise
- ❖ Island-wide Public/Environmental Awareness Programme
- ❖ Capacity building of NEPT and NGOs that are local coordinators for the programme.

**Duration:** Five Years.

**Schedule:**

Output	Yr 1	Yr2	Yr 3	Yr 4	Yr 5
• Contract Staff	x				
• Purchase vehicle/ equipment etc	x	x			
• Business Development Officer	x	x	x		
• Public Awareness and Advertising campaign	x	x	x	x	x
• Workshops/Meetings/Training	x	x	x	x	x
• Capacity Building	x	x	x	x	x

**Budget:**

Item	US\$
Blue Flag Programme Manager	130,000
Administrative Assistant	42,000
Beach/Marina Inspector	100,000
Business Development Officer	32,000
Accountant	40,000
Public Awareness and Advertising Campaign	50,000
Workshops/Meetings/Training	80,000
International / regional workshops	20,000
Stationery & Office Supplies	16,000
Equipment (Computer / Water Quality etc.)	40,000
Vehicle & Maintenance	32,000
Traveling (island-wide site visits/accommodation)	100,000
Sub-Total	<b>682,000</b>
Contingency 10%	68,200
<b>Total</b>	<b>750,200</b>

