



**MESSAGE FROM Dr. THE HONOURABLE  
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## ACRONYMS

<b>BCE</b>	Business Council for the Environment
<b>CASE</b>	College of Agriculture Science and Technology
<b>CFC</b>	Chlorofluorocarbons
<b>CIDA</b>	Canadian International Development Agency
<b>CITES</b>	Convention on International Trade in Endangered species of Wild Flora and Fauna
<b>CMS</b>	Centre for Marine Sciences
<b>COCZM</b>	Council on Ocean and Coastal Zone Management
<b>CPC</b>	Chief Parliamentary Council
<b>CWIP</b>	Coastal Water Quality Improvement Project
<b>ECD</b>	Environmental Control Division
<b>EIA</b>	Environmental Impact Assessment
<b>ENACT</b>	Environmental Action Programme
<b>ENGO</b>	Environmental Non-governmental Organisation
<b>GOJ</b>	Government of Jamaica
<b>GWIS</b>	Ground Water Information System
<b>ICENS</b>	International Centre for Environmental and Nuclear Sciences
<b>ISO</b>	International Organisation for Standardisation
<b>JDF</b>	Jamaica Defence Force
<b>JMI</b>	Jamaica Maritime Institute
<b>LAMP</b>	Land Administration & Management Project
<b>MIND</b>	Management Institute for National Development
<b>MLE</b>	Ministry of Land and Environment
<b>NEPA</b>	National Environment and Planning Agency
<b>NGO</b>	Non-Governmental Organization
<b>NIP</b>	National Industrial Policy
<b>NIWMC</b>	National Integrated Watershed Management Council
<b>NIWMP</b>	National Integrated Watershed Management Programme
<b>NPEP</b>	National Poverty Eradication Programme
<b>NRCA</b>	Natural Resources Conservation Authority
<b>NRCAA</b>	Natural Resources Conservation Authority Act
<b>NSDS</b>	National Sustainable Development Strategy
<b>NSWMA</b>	National Solid Waste Management Authority
<b>NWC</b>	National Water Commission
<b>PAHO</b>	Pan American Health Organization

<b>PARU</b>	Policy Analysis and Review Unit
<b>PCA</b>	Pesticides Control Authority
<b>PCJ</b>	Petroleum Corporation of Jamaica
<b>PET</b>	Polyethylene terephthalate
<b>PPP</b>	Policy, Plan or Programme
<b>PSMP</b>	Public Sector Modernization Project
<b>PSRU</b>	Public Sector Reform Unit
<b>RADA</b>	Rural Agricultural Development Authority
<b>SBAJ</b>	Small Business Association of Jamaica
<b>SEA</b>	Strategic Environmental Assessment
<b>Sida</b>	Swedish International Development Agency
<b>SOE</b>	State of the Environment
<b>SRC</b>	Scientific Research Council
<b>STATIN</b>	Statistical Institute of Jamaica
<b>TOR</b>	Terms of Reference
<b>USAID</b>	United States Agency for International Development
<b>UST</b>	Underground Storage Tanks
<b>VTDI</b>	Vocational Training Development Institute
<b>WRA</b>	Water Resources Authority

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# DEFINITIONS OF KEY TERMS

The following table provides definitions of key terms used in this policy document.

KEY TERM	DEFINITION
Agenda 21	A forty-chapter action plan emanating from the 1992 United Nations Conference on Environment and Development (UNCED) that addressed the then pressing environment and development problems and aimed at preparing the world for the challenges of the next century in order to attain the long term goals of sustainable development.
Built Environment	One which originates in or out of the actions of human beings and the sustained functioning of which is dependent on human influence. Also referred to as the anthropogenic environment.
Carrying Capacity	The number units of a population that can be supported within a given area within limits of the natural resources, and without degrading the natural, social, cultural and economic environments for present and future generations.
Detailed Analysis	An evaluation of a proposal's environmental effects and identification of required mitigation. A detailed analysis is required if the preliminary scan determines that important environmental effects are likely. A detailed analysis may involve: <ul style="list-style-type: none"> <li>▪ quantitative measures or mathematical models;</li> <li>▪ qualitative analysis, informed by professional judgment; or</li> <li>▪ a combination of both.</li> </ul>
Economic Development	The sustainable process of creating wealth through the mobilization of human, financial, physical and natural resources to generate marketable goods and services; to create economic opportunity for all citizens; to diversify the public revenue base; to stimulate investment; and to enhance the quality of life.
Economic Growth	A positive change in the level of production of goods and services by a country over a certain period of time. Technological innovation and positive external forces usually bring about economic growth.
Ecosystem	System in which the interaction between different organisms and their environment generates a cyclic interchange of materials and energy.
Environment	The environment consists of three facets – the physical, social and biological – all existing and interacting in a reciprocal relationship. The environment contains ingredients essential for life, health and human welfare. It also provides an important service for the absorption of waste products of economic and social activity – commonly referred to as a sink.
Environmental Aspect	Elements of an organization's activities, products or services which can interact with the environment.
Environmental Degradation	A reduction in the environment's capacity to produce in terms of quantity and quality of goods and services.
Environmental Effects	Any direct or indirect impingement of activities, products and services of an organization upon the environment, whether adverse or beneficial. An environmental effect is the consequence of an environmental intervention in an environmental system.
Environmental Impact Assessment	A widely used tool for identifying and mitigating adverse ecological effects of developmental proposals.
Environmental Indicator	Parameter or value derived from other parameters which point to, provides information on and / or describes the state of the environment.

<b>KEY TERM</b>	<b>DEFINITION</b>
	The term may encompass indicators of environmental pressures, conditions and responses.
Environmental Issues	Point or matters of discussion, debate, or dispute of an organization's environmental aspects.
Environmental Management	The organization of human activity in ways that are not harmful to natural processes, do not degrade attributes of the environment or prevent it from carrying out its natural functions; so that the integrity and utility of natural resources are sustained.
Environmental Problems	Arises out of a disturbance to any of the three facets of the environment (physical, biological and social).
Environmental Quality	The state of the environment (air, land, water) in comparison to that which is considered normal for that particular environment.
Environmental Statistics/Accounts	Statistics that describe the state and trends of the environment, (air/climate, water, land/soil) the biota within the media and human settlements. Environmental statistics are integrative in nature, measuring human activities and natural events that affect the environment, the impacts of these activities and effects, social responses to environmental impacts and the quality and availability of natural assets.
Environmental Sustainability	Requires that natural capital remains intact. This means that the source and sink functions of the environment should not be degraded. Therefore, the extraction of renewable resources should not exceed the rate at which they are renewed and the absorptive capacity to the environment to assimilate wastes should not be exceeded.
Mitigation	The reduction of the intensity of adverse environmental impacts.
Natural Environment	One which did not originate from human intervention and which has the capacity to exist independent of human impacts or influences
Natural Resources	Any materials or processes of the natural environment (soil, water, vegetation, wildlife and minerals) that cannot be created by man, but can be used to improve his way of life.
Plan	A plan is a statement spelling out how an organization intends to attain desired goals, specifying the intended goals, policies, strategies, programmes, projects and resources.
Policy	A policy is a formal framework to guide actions or decision-making, issued by an entity's governing body. It usually consists of defined goals, objectives and priorities which together indicate actual or proposed direction.
Policy Assessment	A process to identify and analyze the environmental effects of policies. It is also used as a generic term for the strategic environmental assessment of policies, plans and programmes.
Preliminary Scan	An initial analysis of a proposal to determine whether important environmental effects (positive or negative) are likely. The preliminary scan focuses on strategic considerations at a general or conceptual level. It is not a quantitative or detailed analysis of environmental impacts. If the scan identifies the potential for important environmental effects, then a detailed analysis is required.
Programme	A programme is a managed effort created to achieve a particular goal within or by a particular sector or area of policy.
Proposal	A policy, plan, or program, including direct budgetary transfers (grants, contributions and other subsidy payments), or other strategic-level initiative subject to SEA.
Renewable Resources	Those resources that are replenished through biogeochemical and physical cycles. There are 2 types of renewable resources inorganic and

KEY TERM	DEFINITION
	organic. Organic resources include plant and animal species. Inorganic resources include water, and certain gases e.g. oxygen.
Resource Degradation	The depletion of resources due to either direct or indirect action of man.
Small Island Developing States (SIDS)	The SIDS includes islands from the continents of Africa, Asia and the Pacific, Europe and Latin America and the Caribbean. These states and territories share a number of disadvantages including small population, a narrow range of resources, susceptibility to natural disasters, excessive dependence on international trade and vulnerability to global developments. In addition, they suffer from lack of economies of scale, high transportation and communication costs, and costly public administration and infrastructure. Jamaica is a member of SIDS.
Strategic Environmental Assessment	A systematic, proactive process for evaluating the environmental consequences of policies, plans and programme proposals in order to ensure that these environmental consequences are fully included and adequately addressed at the earliest appropriate stage of decision making, on par with economic and social considerations.
Sustainable Development	An on-going process with actions which integrate the need for social development, economic opportunity and environmental protection, to meet the needs of present and future generations.

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# **PREFACE**

*To be completed by Ann-Marie Bonner and Elizabeth Emanuel*

## 1.0 BACKGROUND

In the early 1990's policy making in the Government of Jamaica (GOJ) was described as being rushed, reactive, focused on short-term considerations and suffering from the absence of a common approach to guide analysis. In the mid -1990's, the GOJ adopted a number of measures aimed at strengthening its policy-making processes in order to address the deficiencies outlined above. Some of these measures included:

- ❑ A reform of the cabinet structure, to add new committees and focus discussion;
- ❑ The addition of annual policy and legislative agendas to the policy planning cycle;
- ❑ The issuance of guidelines for the preparation of Cabinet submissions and Ministry corporate plans;
- ❑ The introduction of accountability contracts between Permanent Secretaries and the Cabinet Secretary; and
- ❑ The strengthening of the Cabinet Office's Policy Analysis and Review Unit.

Towards the end of the 1990's there was also recognition that environmental issues were normally not incorporated in policy-making processes in GOJ. As a result, in 2001, the Cabinet Office commissioned a review of the integration of environmental considerations into the Government of Jamaica's (GOJ) decision-making machinery as a first step in developing guidelines for Strategic Environmental Assessment (SEA) of proposed government policies, plans and programmes. The report outlined both current strengths and weaknesses with respect to the incorporation of environmental issues in the decision-making processes of GOJ. It highlighted three key advantages for GOJ towards adopting a SEA process, namely:

- ❑ Changing attitudes towards environmental protection and policy coordination
- ❑ Tightening the rigour of the policy-making process
- ❑ Increasing the accountability of officials and ministers for the environmental implications of their decisions.

It was further articulated that the introduction of a SEA process would represent an explicit acknowledgment that ministries of GOJ share a responsibility for environmental protection and therefore consider the environmental implications of their policies just as they already consider all other relevant matters (e.g., financial costs; administrative feasibility; effectiveness) in their policy formulation processes.

Additionally, White Paper 56/2002 "Public Sector Modernization, Vision and Strategy" articulates that achieving national development requires a reform of policy and further states that through the White Paper the following will be done: "building sustainable development into all policies and decisions within Government and across society and making sure that they are all assessed for their potential impact on the economy, society and the environment".

## 1.1 INTRODUCTION

Strategic Environmental Assessment (SEA) is an accepted tool of environmental management for assessing the environmental implications of proposed policies, plans and programmes (PPPs). See *Appendix 1* for definitions of policy, plan and programme – the 3P's. SEA should be viewed explicitly as one of many other policy instruments which seek to promote environmental protection. SEA is undertaken as a process towards ensuring that any environmental consequence that may occur as a result of the implementation of any PPP is fully included and appropriately addressed at the earliest stage of decision-making.

SEA is not intended to replace other tools of environmental management such as the Environmental Impact Assessment (EIA), but it will complement project level assessments by providing the context for lower levels of planning and provide essential and valuable input for higher, more strategic levels of decision-making. See *Appendix 2* for a summary comparison of the SEA and EIA processes. While the GOJ has a well-defined Environmental Impact Assessment (EIA) framework and process, it needs to be recognized that the EIA methodology is only applicable to discrete projects and does not have the scope within its methodology to analyze policies, plans and programmes. EIA focuses primarily on how a proposed project should take place, as to minimize adverse environmental impacts. Although there are many benefits of EIA, the project-to-project approach does not guarantee environmental quality.

Integrating environmental issues into PPPs is an important step towards effective PPP development and implementation, as social, economic and environmental problems and solutions are all linked:

- ❑ Environmental problems have social and economic implications
- ❑ Social problems have environmental and economic implications
- ❑ Economic problems have environmental and social implications

See *Appendix 32* for an illustration.

Although decision-makers will retain the prerogative to trade off environmental values in favour of economic and/or social ones, the favourable situation would be to strike a balance between environmental, economic and social components, thereby ensuring that decisions made at the strategic level is sustainable.

## 1.2 Defining Strategic Environmental Assessment

At its core, SEA is about sound policy-making, that is, providing decision-makers with the information they need to make more informed decisions. SEA can be defined as follows:

*SEA is a systematic, proactive process for evaluating the environmental consequences of policies, plans and programme proposals in order to ensure that these environmental consequences are fully included and adequately addressed at the earliest appropriate stage of decision making, on par with economic and social considerations<sup>1</sup>.*

Concepts in the SEA definition worth highlighting and defining include:

- ❑ **Systematic** – the analysis of environment considerations should be as rigorous, thorough, meticulous and as precise as possible.
- ❑ **Proactive** – environmental considerations should be considered early in the PPP development cycle.
- ❑ **Policy, plan or programme** – SEA applies to broad government initiatives, not physical projects for which project level environmental impact assessment (EIA) techniques are more appropriate.
- ❑ **On par with economic and social considerations** – environmental factors should be given the same level of consideration as other factors as is appropriate.

See *Appendix 4* for additional definitions of SEA.

SEA has been identified as an appropriate instrument to incorporate environmental aspects into the higher level planning processes of a more strategic nature. Two of the more important benefits of SEA include:

- ❑ The promotion of integrated decision-making, thus creating a balance between environmental social and economic factors
- ❑ The facilitation of design of policies, plans and programmes that are sustainable

See *Appendix 5* for additional benefits of implementing a SEA process.

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<sup>1</sup> Francois Bregha, 2001 *Strategic Environmental Assessment of Policies, Plans and Programmes: Introduction to the Concept and Review of Selected International Practices* - ENACT Publication

## **Nature of the Problem**

### **1.3.1 Current State of Integrating Environmental Concerns into GOJ Decision-Making Processes**

The GOJ's capacity to formulate policies that integrate environmental and social considerations can be analyzed by the interplay of five principal variables: people, ideas (objectives, laws, policies), institutions, processes and information – all which influence policy making. The principal variables outlined above were applied in the review of how the GOJ currently integrates environmental issues into policy-making.

The GOJ's capacity to effectively incorporate environmental issues into its policy process exhibits both opportunities and challenges. On the plus side:

- ❑ Officials increasingly recognize the importance of the natural environment to economic development and as a result has developed an extensive policy framework to protect the environment
- ❑ Environmental considerations have been integrated in several policy areas
- ❑ A well-established process for public consultation is in place
- ❑ Reforms to improve the policy process and cabinet decision-making are currently being implemented
- ❑ More public sector officials as well as the general public are more informed of environmental issues

On the other hand, the GOJ faces many challenges with the most significant of these relating to the absence of overarching environmental objectives, weak policy development and coordination processes. It is important to note that these deficiencies will not only undermine the systematic integration of environmental considerations into government decisions, but weaken the policy process as a whole.

### **1.3.2 Current State of Jamaica's Environment**

Finding the balance between economic growth, development and environmental sustainability, though difficult, is not impossible or far-fetched. There needs to be a recognition that humans influence and are influenced by their environment and that the natural and built environments affect human well-being. Often, there is an initial impression that seems to suggest that the pursuit of economic growth and development would be incompatible with the goals of sound environmental management. However, this need not be the case, especially if certain strategies and techniques are utilized to guide the development process.

The many complexities and unique features of the Jamaican environment requires us to focus on strategies that can be utilized to ensure that the country's developmental objectives are compatible with the natural environment and in keeping with the tenets of sustainable development.

Economic activity in Jamaica is very much dependent on the environment. Economic activity is defined as the engine of growth of any economy. It is the basis for the level of well-being experienced by a society and is dependent on the environment for:

- ❑ Conservation of sources of energy and materials, where overuse or unsustainable practices can affect economic activity; and,
- ❑ Sinks for waste, as the environment has the ability to assimilate waste from production and consumption processes and other polluting activities.

The economic and social well-being of Jamaica is directly linked to the state of its natural resources and the quality of the environment. Our major economic activities (tourism, mining etc.) if not carefully undertaken, can negatively impact on the quality of the environment and natural resources. For example, the tourism sector can be negatively impacted on if the natural environment is degraded. There is the need to consider resource utilization in more sustainable terms.

Environmental issues in Jamaica are associated with:

- ❑ Freshwater resources

- ❑ Solid and liquid wastes
- ❑ Coastal zone and fisheries
- ❑ Forestry and watershed management
- ❑ Population
- ❑ Energy resources
- ❑ Biodiversity

See *Appendix 6* for Initiatives and Projects In Environment Currently Being Undertaken (2001) or Completed by 2000.

### **Freshwater Resources**

Sources of freshwater in Jamaica are:

- ❑ Surface water: rivers and streams
- ❑ Groundwater: wells and springs
- ❑ Rainwater harvesting

### **Exploitable Water Resources:**

- ❑ Surface water (reliable yield) - 665 M m<sup>3</sup> /yr (16%)
- ❑ Groundwater (safe yield) - 3,418 M m<sup>3</sup> /yr (84 %)
- ❑ Total exploitable water - 4,083 M m<sup>3</sup> /yr (100 %)

(Source: WRA)

### **Water Pollution**

- ❑ Groundwater contamination has forced the closure of approx. 25% of developed groundwater sources (WRA 1995)
- ❑ Additionally, 40% of groundwater sources are at risk from contamination (WRA 1995)
- ❑ Over 60% of available groundwater in the KMA is contaminated by high nitrate concentrations (UNCED1992)
- ❑ An estimated 104.3M m<sup>3</sup> per year of underground water has been abandoned as sources of water supply because of saline intrusion and pollution (SOE 1997)
- ❑ All major river courses receive pollutants at some point:
  - Industrial waste,
  - Sewage
  - Silt
  - Debris
  - Agricultural run-off etc.
- ❑ Aquaculture is on the increase, and has grown significantly since it began in 1976. It is a major consumer of freshwater. Nutrient rich effluent from aquaculture facilities increase the potential for water pollution and eutrophication



*Figure 1: Polluted River*

### **Water Production and Use**

- ❑ Present production from both ground and surface water resources is 23% of total exploitable water, leaving a balance of 3,163 Mm<sup>3</sup>/ yr for development (WRA)
- ❑ Approximately 62% of the NWC annual water production in 1999 was from ground water sources (SOE 2001)
- ❑ Approx. 30% of water abstracted in Jamaica is used to meet the demand for potable water (provided by: NWC, UDC and the parish councils); the remaining 70% is used for irrigation
- ❑ Water demand has increased steadily from approx. 144 million gallons/ day in 1980 to about 190 million gallons/ day in 1997 (NWC)
- ❑ Annual estimated water use projected for yr. 2000 for agricultural sector is 1,149 M m<sup>3</sup> compared to non-agricultural sector 288 M m<sup>3</sup> (WRA)

- ❑ Approx. 65% of the population is supplied via household connections; the remaining 35% obtains water from standpipes, water trucks, wayside tanks, community catchment tanks and directly from rivers and streams (NWC 2003)

### **Water Quality**

- ❑ Approximately 85% of the population receives treated water (JSLC 2001)
- ❑ Water quality is tested daily by NWC at its plants and distribution points. Potability standards are met more than 95 % of the time (SOE 2001)
- ❑ Quality of piped water is not always acceptable. In 1996 24.5% of samples tested by the Ministry of Health for faecal coliform were positive (SOE 1997)

### **Solid And Liquid Wastes**

#### **Waste Generation and Composition**

- ❑ Jamaican's are estimated to generate approximately 1 kg/per person/day of solid waste (MPM 2002)
- ❑ Total solid waste generated in Jamaica is approx. 836, 000 tonnes with households contributing 60% of the total; whilst commercial, industrial and government contributing 40%
- ❑ An estimated 70% of waste comprising the municipal solid waste stream is organic in nature and can undergo composting or biological degradation e.g. food and yard waste, paper, wood etc. (MLE 2001)
- ❑ Approx. 20% of the municipal waste stream presents non-biodegradable items such as metal, glass etc. (MLE 2001)
- ❑ Yard and food waste are the largest components of Household waste representing 55% of the total collectable amount (SOE 2001)



Figure 2: Illegal Dumping of Waste

#### **Waste Disposal**

- ❑ There are 10 official waste disposal sites across the island. There are no sanitary landfills (NSWMA Policy).
- ❑ Approx. 2,726 tonnes of municipal waste is disposed of daily at both official, and unauthorised dumpsites throughout the island. Riverton City receives approx. 60% of this.
- ❑ An estimated 400, 000 tonnes of solid waste is collected per year (SOE 2001)
- ❑ The largest percentage of solid waste that is collected is from the Kingston and St. Andrew area, which represents approximately 60% of all the waste collected islandwide.
- ❑ 1999 data shows that 70 - 75% of the residential waste generated in KMA is collected; while an average of 60% is collected in other parishes for disposal (SOE 2001)
- ❑ 20% of the country's solid waste is collected and disposed of by private contractors, many of whom create unauthorized dump sites
- ❑ Unauthorized as well as official dumpsites contribute to groundwater and surface water contamination leaching through limestone into groundwater reservoirs

#### **Hazardous Waste and Toxic Substances**

- ❑ An estimated 10,000 tonnes/ yr of hazardous waste generated (SOE 2001)
- ❑ The main types of hazardous waste generated in Jamaica include:
  - Car batteries - 120,000 discarded every year, 50% are exported
  - Waste oil – constitute an est. 80% of total hazardous wastes
  - PCBs from transformers – stored in facilities approved by NEPA
  - Solvent sludge e.g. PERC - stored in facilities approved by NEPA
  - Paint sludge

- Impregnated plastic sleeves used in banana industry (contains pesticides) exported for recycling
- Medical Waste – may contain infectious agents
- There is no designated hazardous waste disposal facility in Jamaica
- Many economic activities involve the use, handling, transport and eventual disposal of toxic substances. Many could prove harmful to human health and the environment if they are misused or improperly discarded (see table 1 below). These include:
  - Oil products
  - Pesticides
  - Paints
  - Varnishes
  - Solvents
  - Detergents
  - Various acids

### **Ship Generated Waste**

- Both freighters and passenger ships, including cruise ships leave certain amounts of garbage, sewage and various waste oil products in Jamaica (SOE 2001)
- Approx. 800 - 5,600 tonnes of solid waste is generated per day from ships (SOE 2001)
- Jamaica does not have port facilities to treat and dispose of ship-generated waste. A proposal for such a facility has been prepared (SOE 2001)

### **Sewage Treatment**

- There are currently 103 municipal sewage treatment plants in the country, 49 of which are publicly run by the NWC
- Approx. 15% of Jamaica's population is served by sewerage systems operated by the NWC (NWC)
- The remaining 75% of Jamaica's sewage wastes are disposed of through soak away systems, septic tanks, tile fields, pit-latrines etc.
- The national average for sewage generation is estimated at 455 million litres/ day
- Coliform levels at many of the operating treatment plants have often exceeded NRCA's (now NEPA's) sewage effluent standards (ECD 1997)
- Widespread discharge of high volumes of untreated sewage from on-shore, and visiting marine vessels has led to abnormal growth of algae on coral reefs
- This has assisted in diminishing their productivity and introduced human health risks
- Studies of Kingston Harbour have revealed that the major sources of pollution are sewage and industrial effluent discharged directly into the Harbour, or into the gullies and rivers that enter it



*Figure 3: Sewage Enters Kingston Harbour*

### **Coastal Zone And Fisheries**

- Approx. 65% of Jamaica's population lives within 5km of the coast (SOE 1997)
- Of the total coastline, 48% is considered usable shoreline. Public shoreline (bathing beaches and parks) occupies 2.5% of the total and fishing beaches 1.3% (SOE 2001)
- Development continues to show a preference for coastal areas
- Both physical and visual access to the shoreline is decreasing as a result of development activities
- Jamaica's 85 public bathing beaches have been experiencing increased degradation since the mid-1980's



*Figure 4: Beach in Jamaica*

- ❑ Reefs have been damaged by:
  - Overfishing; poor fishing practices
  - Inappropriate recreational practices
  - Sedimentation
- ❑ Coastal water quality remains a major concern. Rivers and coastal areas are at the receiving end of chemicals, sediment, sewage, and garbage from land-based activities

### **Fish Landings**

- ❑ Between 1985 and 1997 figures show a decline of 17.9% in fish landings,
- ❑ Between 1995 and 1997 figures show a 19% increase in imports of fish and fish products
- ❑ Coral reef fishing accounts for the largest catch category in Jamaican fisheries. Out of 7,447 tonnes of fish landed, 60% are coral reef fish (SOE 2001)
- ❑ Commercial fish farming (mariculture and aquaculture) has grown significantly over the past 2 decades, producing >25,000 metric tonnes in 1997, three times the amount of fish landed (SOE 2001)



*Figure 5: Forest in Jamaica*

### **Forestry And Watershed Management**

- ❑ Over 30% of Jamaica is classified as forest, of which 64% is unprotected (mainly privately owned and crown lands)
- ❑ Since the 1960s about 2/3rds of native forests have been destroyed.
- ❑ Woodland, scrub forest and dry limestone forests are a key component of Jamaica's forest ecology and economy
- ❑ >94% of all Jamaica's forests are disturbed
- ❑ >20% of land within forest reserves has been impacted by human activity

### **Forest Loss**

- ❑ >1/3rd of all combined protected forest and other protected areas has been significantly disturbed
- ❑ Between 1989-1998 forest loss has been approx. 0.1% per annum
- ❑ Due to the hilly topography of the island, forest loss increases land degradation and undermines capacity for agricultural production
- ❑ An estimated 80million tonnes of topsoil are lost each year
- ❑ Annual production of yam sticks has been estimated at around 15 million sticks (1996). Extensive production of yamsticks will have a negative impact on natural regeneration of forests in yam growing areas
- ❑ Siltation due to reduced tree cover has caused storage losses of 85 million gallons (22% of reservoir capacity) in Kingston



*Figure 6: Burnt Out Forest*

### **Fuelwood**

- ❑ Fuelwood is still used as a cooking fuel in rural areas, and national monthly wood consumption is estimated at 1,050 tonnes
- ❑ A 1992 study estimated charcoal demand at 37,000 tonnes per year (PCJ 1992)
- ❑ An estimated 41% of households use charcoal as a regular means of fuel for home cooking (PIOJ 1997)

### **Management Issues**

- ❑ There has been a trend towards reductions in the flow of rivers as well as an increase in the intensity of flooding.

- ❑ Each of Jamaica's 26 watershed management units have portions considered to be degraded, while 10 of these units are considered severely degraded.
- ❑ Approx. US\$1,500.00 per hectare is needed to establish and maintain forest plantation over the first 3 years
- ❑ 35,000 tourists visit the Blue and John Crow mountain National Park and spend US\$2.5M per annum with the potential to earn US\$420,000.00 per annum from fees

## **Energy Resources**

### **Consumption**

- ❑ In 1999, Jamaicans paid \$12 billion for electricity bills
- ❑ Between 1995 and 1999 oil imports totaled US\$2.03 billion
- ❑ Fuel imports consume 30% of merchandise export earnings
- ❑ 25% of fuel imports are used by JPSCo to provide electricity
- ❑ 91% of energy consumption is Petroleum based (SOE 2001)
- ❑ Transport accounts for 43.9% of energy use by sector; other sectors use 56.1% (SOE 2001)
- ❑ During the period 1991-1999 residential/ household sector was the largest consumer of electricity (SOE 2001)
- ❑ Type of fuel used for cooking for households: gas 40%, wood and charcoal 45% (SOE 2001)
- ❑ Energy intensity has increased over 6% in 20years
- ❑ In 1999 Jamaica's energy intensity was 4.1 (per capita income US\$1,511) compared to 0.9 in Barbados (per capita income US\$6,936) and 4.0 Trinidad and Tobago (US\$4,528)
- ❑ It has been estimated that a 1% reduction in energy consumption could save in excess of \$20M per annum
- ❑ A 20MW wind farm proposed for Wigton, Manchester may save 50,000 tonnes of carbon dioxide



*Figure 7: PCJ Fuel Wood Estate in Jamaica*

### **Biodiversity**

- ❑ Jamaica ranks fifth among the islands of the world with respect to endemic plants
- ❑ Jamaica has 822 endemic species of flowering plants (this represents 1/4 of total number of plant species)
- ❑ High level of endemism for many species of animals including snails, terrestrial grapsid crabs, amphibians, reptiles, and lands birds
- ❑ Majority of marine biodiversity exists in and around the deteriorating coral reef systems
- ❑ 14 animal endemic species and over 200 plant endemic species are classified as critically imperiled or especially vulnerable to extinction
- ❑ At least six species of vertebrates are thought to have become extinct in Jamaica in the last 150 years
- ❑ Jamaican wildlife now extinct includes the:
  - Caribbean monk seal
  - Jamaican rice rat (since 1900)
  - Jamaican Macaw
  - Black-capped Petrel
  - Jamaican Paraque
- ❑ Species that are currently protected by law are:
  - Birds - plain (blue) Pigeon, Golden Swallow, West Indian Whistling Duck, Ring-tailed Pigeon, Jamaican Black Bird, Black and Yellow-Bill Parrots, Sooty Tern, Brown Noddy, Masked Duck
  - Mammals - West Indian Manatee, Jamaican Hutia (coney)



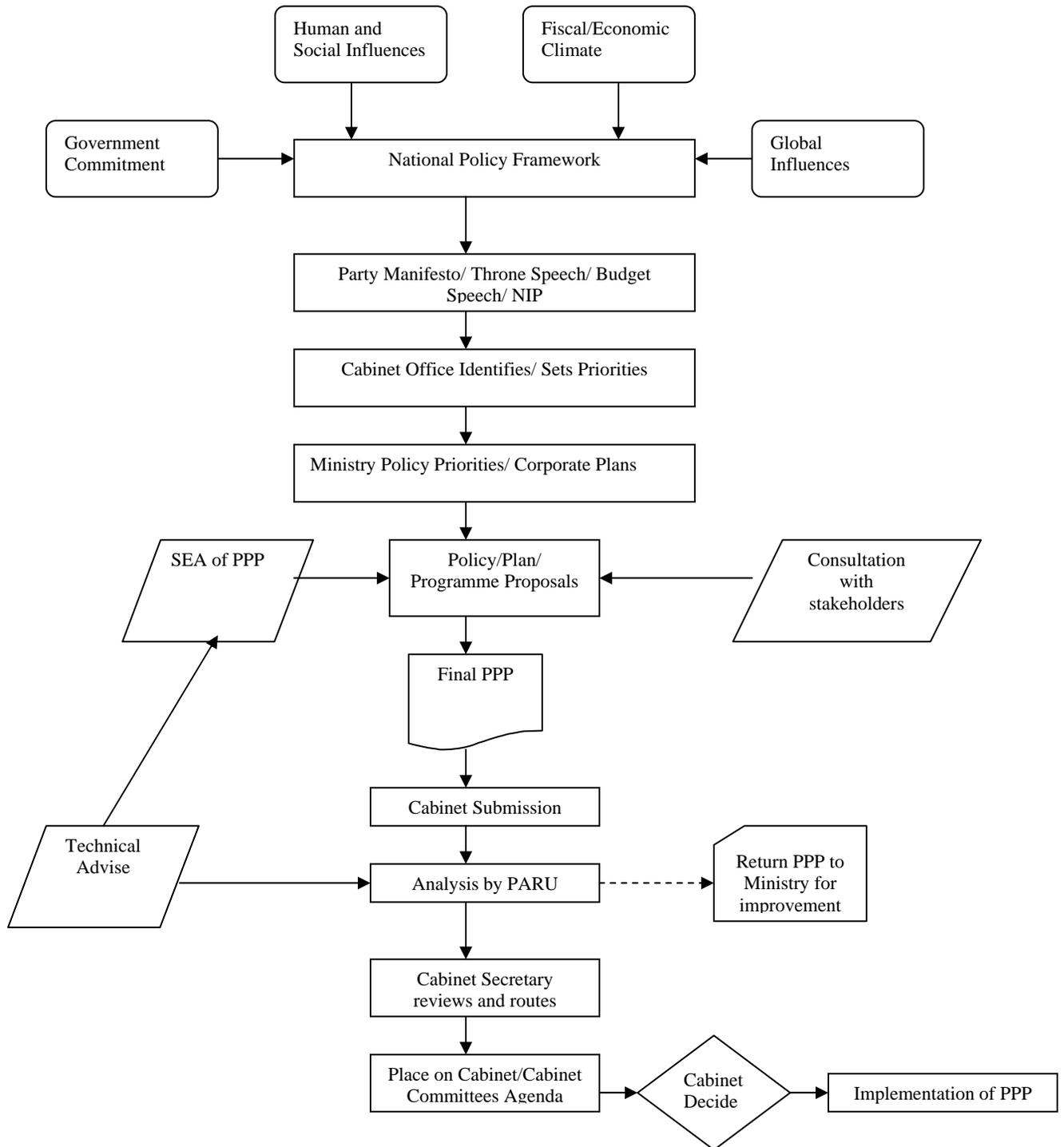
*Figure 8: Giant Swallowtail Butterfly*

- Amphibians & Reptiles - all sea turtles, Jamaican Boa, Jamaican Iguana, American Crocodile
- Invertebrates - Giant Swallow Tail Butterfly, Black Coral, White Coral

## 2.0 DEFINING THE POLICY

The SEA process fits within the national policy framework as illustrated in Figure 1 provides a road map of where the SEA process fits within the national policy-making framework.

**Figure 9: Road Map – GOJ SEA Process And The National Policy Making Framework**



The design of this SEA policy incorporates a series of issues that are presented in this Section, under 10 headings:

- ❑ **Coverage & Focus:** The ministries/agencies in the first instance required to conduct SEAs and the decisions and instruments to which SEA apply
- ❑ **Application:** Issues to which SEA apply
- ❑ **Status:** Cabinet Directive
- ❑ **Guiding Principles:** Principles underlying SEA
- ❑ **Roles and Responsibilities:** The main actors involved in the SEA process
- ❑ **Form:** Documenting SEA
- ❑ **Transparency:** The part of the process that will be opened to the public
- ❑ **Quality Control:** Enhancing the quality of SEAs over time
- ❑ **Timing:** Phasing in the SEA process within GOJ
- ❑ **Resources:** Resources required

## 2.1 SEA Policy Statement

*As part of Government of Jamaica's commitment to sustainable development<sup>2</sup>, the GOJ will ensure that all its policies, plans and programmes geared towards national development, adequately consider potential environmental effects and impacts and where these are adverse, incorporate appropriate measures to reduce or eliminate these effects and impacts.*

## 2.2 Goals of the GOJ SEA Policy

The implementation of this SEA policy is expected to fulfil the following goals:

- ❑ Improvements in the environment over time, bearing in mind that the environment provides the basis for economic and social development
- ❑ Protection and conservation of the environment to ensure adequate protection of the health and well-being of Jamaicans
- ❑ Change attitudes and practices of Jamaicans towards the environment
- ❑ Keeping within the country's carrying capacity recognizing that there are finite limits to Jamaica's ecosystem and therefore ensuring that resources are used sustainably and waste is minimized
- ❑ More informed decisions in support of development that is sustainable
- ❑ Savings in time and money by drawing attention to potential liabilities for environmental clean-up and other unforeseen concerns
- ❑ Accountability and credibility among the general public and stakeholders through the multi-stakeholder nature of the process.

## 2.3 Status of SEA

As SEA will be applied specifically within Government, the SEA process will be promulgated through a Cabinet directive. Although the process could be promulgated through legislation and an administrative guideline, the Cabinet directive combines both political commitment and process flexibility. While legislation may imply a higher degree of commitment, it does not in itself lead to higher performance, and it is also more difficult to pass than a Cabinet directive.

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<sup>2</sup> For additional information on Sustainable Development see Appendix 7

## **2.4 Coverage and Focus of SEA – The Ministries/Agencies Required To Conduct SEAS**

SEA will in the first instance be applied to only sectoral PPPs of ministries/agencies whose primary mandate is geared towards national economic development. These ministries and agencies includes:

- Finance & Planning
- Transportation & Works
- Water & Housing
- Commerce, Science & Technology
- Agriculture
- Tourism & Industry
- Urban Development Corporation
- Jamaica Promotions (JAMPRO)
- All Local Planning Authorities

For any sectoral PPP emanating from any of the above ministries/agencies that requires Cabinet Approval, it will be expected that the Cabinet Submission is accompanied by an SEA. Requiring that a Cabinet submission be accompanied by an SEA implies that environmental considerations must be taken into account in the policy development process as soon as an initiative requiring Cabinet approval is identified. Although a Cabinet submission may represent the penultimate step in developing a policy (the Cabinet decision being the last step), the identification of this decision point has shown itself to be effective in other jurisdictions in forcing the consideration of environmental factors much earlier in the process.

Annual reviews of the implementation of the SEA process will determine when and how to widen or limit the scope of applicability. In general, a screening process will be applied to decide on the need for SEA, based on the likeliness of the PPP to have significant environmental consequences.

The above discussion implies that SEA in Jamaica will initially and for the most part, be considered where the focus is on broad national policy, plans and programmes.

## **2.5 Applicability of SEA**

SEA will be mandatory where a proposed PPP to be undertaken by the ministries/agencies outlined above:

- Will affect natural resources (e.g., increased production of timber)
- Will affect large geographical areas or involve particularly radical changes in the ecological or landscape structures or in the land use of local areas
- Will affect particularly vulnerable or sensitive areas such as coastal zones, habitats for rare or endangered species or areas of specific recreational value
- Is expected to cause considerable adverse impacts on the environment
- Is likely to affect the achievement of environmental quality goals
- Is likely to affect the number, location, type and characteristics of sponsored initiatives which could be subject to project-level environmental assessments (e.g., a tourism policy leading to the construction of new resorts)
- Will involves a new process, technology or delivery arrangement with important environmental implications
- Could result in significant interactions with the environment because of its scale or timing
- Will make it difficult to comply with, established environmental objectives, policies or guidelines
- Presents any particular risk or may be particularly harmful or irreversible, e.g. emission of heavy metals or toxic substances
- Will affect the possibilities of ensuring sustainable national development in Jamaica or preventing environmental damage

See Appendix 8 for examples of PPPs to which SEAs may be applicable. The example provided speaks exclusively to the transportation sector.

Exemptions from conducting SEA will be allowed in the following instances:

- ❑ The existence of a clear and immediate emergency
- ❑ Where a matter is of such urgency that the normal process of Cabinet consideration is shortened
- ❑ Where issues have been assessed previously because they were considered in an earlier Cabinet submission

## 2.6 Key Roles and Responsibilities

The key players in the implementation of GOJ's SEA Process and their roles and responsibilities are identified and articulated below:

- ❑ **The Cabinet Office** will have the dual responsibilities of articulating the policy and monitoring its implementation. The first role will require it to set out clear guidelines to ministries on the incorporation of environmental considerations into proposed PPP and subsequently Cabinet Submissions. The second, more difficult, role will require the Policy, Analysis and Review Unit (PARU) to ensure adherence to the process by turning back, where necessary, Cabinet submissions with inadequate SEAs. PARU will only be able to play this role if it has the explicit support of the Cabinet Secretary and Ministers of Cabinet.
- ❑ **Initiating Ministries** will be responsible for incorporating environmental considerations into their policies, plans and programmes to the standard set out by Cabinet Office. They will also be responsible for consulting other ministries and stakeholders affected by their initiatives.
- ❑ **All Ministers** will be responsible for ensuring that all PPPs submitted for Cabinet approval are assessed for their effect on the environment. In the context of their sustainable development goals, objectives and policies, individual Ministers from initiating ministries will be accountable for ensuring that assessments of relevant PPPs are conducted, and that they take into account how initiatives might contribute to, or contradict environmental and sustainable development goals.
- ❑ **The Ministry with Responsibility for the Environment** will have a lead role in establishing the environmental framework for Jamaica and promoting the application of environmental assessments to policy, plan and programme proposals. The Minister will also be responsible for advising other Ministers on the potential environmental effects of policy initiatives before Cabinet decisions are taken and for advising on environmentally appropriate courses of action. This does not constitute either a veto or an approval role. This ministry will also be tasked with determining whether the goals defined in the policy are being achieved.
- ❑ **Departmental and Agency Officials** initiating a PPP proposal to be submitted for consideration by Ministers must ensure that, when appropriate, an assessment of the environmental effects is completed. The objective is to ensure that senior managers or Ministers who approve policy initiatives are properly briefed.
- ❑ **Technical agencies**<sup>3</sup>, such as NEPA, Planning Institute of Jamaica (PIOJ), Statistical Institute of Jamaica (Statin) and individual branches in selected ministries will provide the environmental data and information needed to conduct an SEA. They therefore have an important supporting role to play that will need to be defined. Because NEPA already provides an advisory role on environmental issues to GOJ ministries, this role can be extended to SEA.

## 2.7 Guiding Principles of the SEA Process

In developing a SEA for a PPP, ministries and agencies of GOJ are to be guided by the following key principles.

- ❑ **Early Integration** - To support sound decision-making that is consistent with the principles of sustainable development, the considerations of environmental effects should begin early in the conceptual- planning stages of the proposal before irreversible decisions are made. In this way, SEA can support the analysis of options and identify issues that may require further considerations.
- ❑ **Examination of Alternatives** – Alternate ways of formulating a PPP and alternative ways of implementation should be examined. Since alternatives may raise different environmental implications, it is important to examine alternatives in the policy development process. This

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<sup>3</sup> Other Technical ministries/agencies may include Forestry Department, Mines & Geology Division; National Water Commission, Ministry of Land & Environment etc.

comparison will also help to identify how modifications or changes to the policy, plan or programme can reduce environmental, social and economic risk.

- ❑ **Flexibility** – As policy development is not a linear process, ministries and agencies will have discretion in determining how they conduct SEAs and will be encouraged to adapt and refine analytical methodologies and tools appropriate to their circumstances.
- ❑ **Self-Assessment** - Each individual ministry and agency is responsible for applying SEA to its proposed policies, plans and programmes as appropriate, determining how an assessment should be conducted, performing the assessment and reporting on the findings of the assessment.
- ❑ **Appropriate Level of Analysis** - The scope of analysis of potential environmental effects should be commensurate with the level of anticipated effects, as the relevance of environmental factors in policy-making can range from none to being at a policy’s very core. In many cases, filling out a checklist may be sufficient; in other cases, the preparation of an SEA may require detailed studies.
- ❑ **Accountability** - SEA should be part of an open and accountable decision-making process within the GOJ. Accountability should be promoted through the involvement of affected individuals and organizations, and through documentation and reporting mechanisms. Accountability will also imply that the GOJ assess the environmental impact of all new and amended policies, plans and programmes.
- ❑ **Use of Existing Mechanisms** - In conducting SEA ministries, departments and agencies should use existing mechanisms to conduct analyses of environmental effects, involve the public if required, evaluate performance and report the results. The focus is on adding value to existing procedures and minimizing the need for additional human and financial resources. It is not proposed that there be a single SEA process to be applied in all circumstances, rather, there should be principles and key elements to be integrated into current procedures for the formulation of policies, plans and programmes.
- ❑ **Partnership** - SEA should be carried out on the basis of partnership. In partnership there is no distinction between “partners”- all stakeholders involved in the partnership should have the same rights and duties. When respecting this principle, civil society, NGOs, the private sector and the general public should:
  - Be notified at the same time as other parties involved;
  - Have the same opportunities for submitting comments;
  - Have the same rights to challenge the decisions within SEA.

Stakeholder concerns are a key consideration for any environmental assessment. Making preliminary information available often facilitates public understanding of the ramifications of the proposed initiative and leads to more constructive input. Although confidentiality of some aspects of policy development may preclude full public consultation, any effort to understand stakeholder concerns will improve the quality and credibility of the SEA and the policy itself. Methods for involving the public are varied and can be tailored to the circumstances.

- ❑ **Continuous Learning and Improvement** - Lessons learnt from one SEA should be captured and incorporated into other SEA processes to improve system-wide effectiveness.

## 2.8 Form of SEA – Documenting SEAs

SEAs will be documented in a standard format decided by the Cabinet Office with the primary purpose of enabling quality control and compliance monitoring. Guidelines to be provided to initiating ministries and agencies would stipulate the inclusion of the following:

- ❑ Identification of the main environmental issues and their significance
- ❑ Statement of whether the initiative supports or detracts from existing environmental goals and international obligations
- ❑ Identification of main public concerns
- ❑ List of groups and interests who have been consulted
- ❑ Outline of mitigative measures proposed
- ❑ Outline of implementation and monitoring plan.

If an SEA is complex, a summary could be presented in the main body of the Cabinet Submission with additional information attached in an appendix.

## 2.9 Transparency – Defining Civil Society’s Involvement

The nature of the SEA will enable it to be made public after Cabinet has made its decision. This would help increase the GOJ’s accountability by allowing the public to scrutinize the environmental analysis underpinning major policy choices. Over time, such a practice could be expected to improve the quality of the SEAs done as well.

## 2.10 Quality Control – Enhancing the Quality of SEA’s Over Time

In order to ensure that SEA’s will improve the quality of decision-making, the SEAs will be prepared to a degree of quality that enables sound policy choices. To facilitate the development of good SEAs, the following conditions will prevail:

- ❑ Training in SEA for Policy Analysts to be provided by Cabinet Office<sup>4</sup>
- ❑ PARU Staff will be equipped with the capacity to challenge all SEAs received. This function will verify whether ministries have followed due process and that the SEA is of sufficient quality to allow informed decisions to be made. It has to be understood that while PARU staff is not expected to second-guess an SEA’s analysis, they should be able to ask a few penetrating questions that would enable them to ascertain the underlying quality of the analysis
- ❑ Technical support, which will take two forms:
  - The provision of SEA guidelines that would include tools such as checklists, worksheets and case studies to guide policy analysts
  - The designation of a pool of technical expertise available to ministries when they need it.
- ❑ Internal mandatory check-off will ensure that before a Cabinet Submission leaves a ministry, its quality will be checked.

## 2.11 Timing

As stated in Section 2.3 the SEA process will not be introduced system-wide at once, but will first be introduced in select ministries/agencies as articulated above. Additionally, over time the list of ministries/agencies to which SEA applies is expected to grow, the decision points to which SEA applies may increase as well as the issues triggering the need to conduct an SEA.

## 2.12 Resources & Analytical Tools

Resource materials that can be used to inform an SEA will be provided below. This is not an exhaustive list.

TITLE OF DOCUMENT	DOCUMENT CAN BE SOURCED AT:
State of the Environment Reports	STATIN & NEPA
Environmental policies and plans	Ministry of Land & Environment; NEPA
Handbook on Environment and Sustainable Development	NEPA, Management Institute for National Development (MIND) Library
GOJ Environmental Stewardship Guidelines	Cabinet Office, Ministry of Land & Environment,

Other resource material may be obtained from the world wide web and from the libraries of various ministers and agencies of GOJ such as NEPA, Forestry Department etc. that have environmental management responsibilities.

Some analytical tools that can be used to conduct the SEA can include among others:

- ❑ Formal and informal checklists

<sup>4</sup> Training in SEA for policy analysts began in 2001 under the “Holistic Governance: Sustainable Development in Action” Programme, a collaborative effort of the Cabinet Office, Management Institute for National Development (MIND), ENACT and NEPA. For additional information see *Appendix 8*.

- ❑ Public or expert consultations
- ❑ Case comparisons
- ❑ Surveys
- ❑ Cost benefit analyses
- ❑ Geographic Information Systems (GIS)
- ❑ Risk assessments

### 3.0 Process/ Steps to Conduct a SEA

The methodology for conducting the SEA is outlined below. The usual steps for conducting an SEA include;

- **Conducting A Preliminary Scan** - The preliminary scan considers the following:
  - If the proposal has outcomes that will affect natural resources
  - If the proposal has a known direct or indirect outcome that is likely to affect the achievement of the country's environmental quality goals
  - If the proposal involves a new process, technology or delivery arrangement with important/significant environmental implications
  - If the scale and timing of the proposal could result in significant interactions with the environment

If the Preliminary Scan does not identify the potential for important environmental considerations, no further analysis is required.

- **Scoping:** Its objective is to identify the main issues related to the appraised PPP. The analysis of environmental effects will take in-depth account of:
  - The scope and nature of potential effects – including cumulative effects which could result from the use of, or changes in atmospheric, terrestrial, aquatic resources, physical features/conditions or human components of the environment
  - Scope and nature of residual effects – potential environmental effects that may remain after taking into account mitigation measures
  - A classification of each effect as positive or negative
  - An analysis of both positive and negative effects
  - An estimation of the likelihood and magnitude of each identified effect.
- **Mitigation Measures** – these will identify the following:
  - Measures that could reduce or eliminate potential adverse environmental consequences of the PPP proposal
  - Recommendations that could result in changes in the proposal; conditions that may need to be placed on policies; or activities arising from the proposal or compensation measures
  - This Step also involves identifying uncertainties and determining the means to acquire more information about unknowns.

#### 3.1.1 Conducting the SEA

PPP Number: \_\_\_\_\_  
Contact Name: \_\_\_\_\_  
Ministry/Agency: \_\_\_\_\_  
E-mail: \_\_\_\_\_  
Date: \_\_\_\_\_  
Fax Number: \_\_\_\_\_  
Phone Number: \_\_\_\_\_

Proposed Policy, Plan or Programme (the proposal) \_\_\_\_\_

Project Submission date of the proposal: \_\_\_\_\_

#### Part 1

#### Conducting the Preliminary Scan

1. Type of initiative: Cabinet Submission \_\_\_\_\_
2. Other (please identify) \_\_\_\_\_

3. Can the proposal be exempted from SEA requirements for one of the following reasons? If so, please indicate the appropriate reason and provide a brief explanation in the space provided.

Sign and retain completed form on file if no further assessment is required otherwise proceed to question 3

- Response to a clear and immediate emergency (e.g. disaster relief)
- National security
- The proposal has been assessed previously
- The proposal is a matter of routine administrative, human resource, or financial procedure: there are no significant environmental implications
- The proposal is a matter of routine departmental practice (high level meetings, conferences, visits, etc.); other guidelines may apply

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4. What policy area or sector is targeted in the proposal?

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5. (a) Is it one known to have or likely to cause negative environmental impacts?

Yes\_\_\_\_ No\_\_\_\_ Uncertain \_\_\_\_

(b) Will any of the options presented in the proposal lead to significant positive and/or negative environmental impacts

Positive: Yes\_\_\_ No\_\_\_ Uncertain\_\_\_  
Negative: Yes\_\_\_ No\_\_\_ Uncertain\_\_\_

6. Have there been, or is there likely to be, strong public concerns expressed about possible environmental impacts of the proposal? If yes, please summarize the concerns.

Yes\_\_\_\_ No\_\_\_ Uncertain\_\_\_\_\_

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***If you have answered "No" to all questions within 5 and 6, no further assessment is required. Sign and retain a copy of the form on file. Otherwise proceed to part 2***

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

## Part 2 Scoping of Environmental Effects

7. What are the intended direct and indirect outcomes of the proposal? Refer to **Annex I** in Appendix 9.
8. List any of the outcomes identified in 7, that are expected to have associated environmental impacts, whether positive or negative.
9. What is the significance of the positive and/or negative environmental impacts? *Refer to Annex II in order to determine significance*
10. Can the environmental impacts identified in 8 be mitigated if negative, or enhanced if positive? If so, note the mitigation and/or enhancement options.
11. If mitigation and/or enhancement options are proposed, is a monitoring or follow up process recommended to ensure that measures undertaken are effective?  
Yes\_\_\_\_ No\_\_\_\_ Uncertain\_\_\_\_
12. Based on the foregoing information, is a more detailed environmental assessment warranted?  
Yes\_\_\_\_ No\_\_\_\_ Uncertain\_\_\_\_

Summarize the environmental considerations of the proposal. This statement may be used for the “Environmental Considerations” section of the Cabinet submission.

Signed: \_\_\_\_\_  
Date: \_\_\_\_\_

Completed checklists should be signed, dated and presented together with any attachments appended to the Cabinet Submission and sent to the Cabinet Office.

Copies should also be maintained in the ministry or agency files.

For additional information or assistance refer to the *Guidelines for Conducting Strategic Environmental Assessments of Policy, Plans and Programme Proposals* or contact:

- The Cabinet Office- Policy Analysis and Review Unit
- The National Environment and Planning Agency
- The Ministry of Land and Environment

## **4.0 Monitoring and Evaluation of SEA Policy**

Monitoring of this policy would be undertaken towards ensuring that the SEA is steered towards achieving its purpose and to detect any problem/s that may make it probable that the expected results will not be achieved. This monitoring will be undertaken by the Cabinet Office and will be done through periodic follow-up, whereby actual performance and results will be compared to plans. Monitoring will periodically be done during implementation, using a set of indicators listed below.

### **General Indicators to Assess the Effectiveness of SEA Policy Elements**

- Number of policies emanating from initiating ministries/agencies required to undertake SEA in fiscal year X
- % of polices mentioned above requiring Cabinet Approval
- % of policies requiring Cabinet Approval accompanied by SEA
- Quality of SEA received: Good (no further information or documentation required by ministry/agency; Fair (SEA sent back to ministry/agency between 1 – 3 times); Poor (SEA sent back to ministry/agency 4 or more times)
- % of policies requiring Cabinet Approval from initiating ministries/agencies not accompanied by SEA, but still granted approval by Cabinet

With respect to monitoring and evaluating if the policy is achieving its stated environmental quality goals, such assessments will be undertaken as part of overall assessments that are done to determine improvements in environmental quality. The Ministry with responsibility for the environment usually initiates these.

## **4.1 Policy Review**

The consequences of policy actions are never fully known in advance and for this reason, it is essential to monitor and evaluate policy actions after they have occurred. In order to ensure that desired outcomes of the SEA Policy are being achieved, the effectiveness of the policy must be assessed. This process will help to identify when a complete review or alteration is appropriate.

It is expected that after the first six (6) months of implementation, the Cabinet Office will conduct an assessment in order to identify and rectify problems that become evident at start up. Thereafter, policy reviews will take place as necessary based on results of ongoing monitoring and evaluation.

## **5.0 CONCLUSION**

Like other developing countries, Jamaica's first priority to address the economic and social hardships facing, makes it difficult to focus on integrating environmental and development considerations. Notwithstanding, the GOJ continues to demonstrate its commitment to environmental protection and as a result, Jamaica currently leads the Caribbean in environmental management. Implementing this SEA policy would further strengthen this position. For Small Island Developing States like Jamaica, implementing a SEA policy is important for the gains in economic efficiencies it is expected to achieve. The implementation of SEA in Jamaica will better facilitate the integration of the concept of sustainability into the developmental objectives of the country.

As the GOJ continues to show its commitment to sustainable development, one key area of focus is the integration of the principles of sustainable development into its policies plans and programmes. Assessing the environmental effects of proposed policies, plans and programmes is a key step toward turning commitment into action.

The implementation of a SEA Policy in Jamaica is the first of its kind in CARICOM and some of the gains achieved, the experiences and lessons learned would be able to be translated in initiatives, policies and programmes to be developed and implemented under CARICOM Single Market & Economy (CSME).

# APPENDICES

## APPENDIX 1

### Policy, Plan, Programme & Project Defined

Policy, plan and programme can be defined as follows:

**Policy** – a general course of action or proposed overall direction that a government is, or will be, pursuing and which guides ongoing decision-making.

**Plan** – a purposeful, forward looking strategy or design, often with coordinated priorities, options and measures that elaborates and implements policy.

**Programme** – a coherent organized agenda or schedule of commitments, proposals, instruments and/or activities that elaborates and implements policy.

**Project** – a proposed capital undertaking, typically involving the planning, design and construction of a plan, facility or structure.

## APPENDIX 2

### Analysis Of The SEA And EIA Processes

#### SEA And EIA – A Comparison

SEA and EIA differ fundamentally in scope and in the nature of their approach, as the framework within which SEA is carried out is much larger than EIA and allows consideration of alternatives and a better view of the “Bigger Picture”. EIA is carried out once a policy has already been decided. The EIA provides information, including direct and indirect effects about the likely environmental impacts of any individual project and can be useful in the identification of necessary mitigation, while the SEA is used in system-wide reviews. SEA addresses the limitations of project EIA, as EIAs occur at a late stage in the decision making process.

However, many of the steps employed in the SEA process are the same as in the project EIA.

COMPARATIVE CRITERIA	STRATEGIC ENVIRONMENTAL ASSESSMENT	ENVIRONMENTAL IMPACT ASSESSMENT
Application	Policies, plans and programmes	Physical/discrete projects
Legal Status	Seldom legislated	Often legislated
Stage of Decision-Making	As early as possible in the policy development process. Can frame subsequent EIAs	Usually conducted after a project design is well advanced
Scope of Analysis	Can be broad, both in time and space. Can consider cumulative, synergistic and environmental effects	Geographically specific. Focus tends to be on direct physical effects of the project.
Consideration of Alternatives	Can address whether an initiative can go forward, plus where and what type of projects should be implemented	Focus is primarily on how to design a project to reduce adverse environmental effects
Procedures	Procedures must be adapted to decision-making process within ministry	Standard government-wide procedures
Mode of Application	Self-assessment	Self-assessment with third party assessment for selected projects

A SEA answers the following questions:

- What are the potential direct and indirect outcomes of the PPP?
- How do the PPP outcomes interact with the environment?
- What is the scope and nature of the environmental interactions?
- Can the adverse environmental effects be mitigated?
- What are the overall potential environmental effects of the PPP after opportunities for mitigation have been incorporated?

EIA answers the following questions:

- What will be the key impacts on the environment?
- Who will be affected and how?  
How can the development be modified to remove or reduce these negative impacts?

## APPENDIX 3

### An Example of the Linkages Between Social, Economic and Environmental Problems & Solutions

Using poverty as an economic issue, the following shows how poverty can result in both social and environmental problems.

**Economic Issue – Poverty** (linked to economic indicators such as low average wage rate, unemployment, and a country's macroeconomic situation).

*Poverty refers to living in a state of deprivation, a condition of having insufficient resources or income. In its most extreme form, poverty is a lack of basic human needs, such as adequate and nutritious food, clothing, housing, clean water, and health services. Officially, an individual or household in Jamaica is considered poor if unable to attain a level of real consumption expenditure above an appropriate poverty line (Estimates of Poverty, PIOJ, 1998).*

#### **Social Implications of Poverty**

- Poor nutrition
- Crime and general moral degradation (engaging in more illegal activity, such as drug pushing, prostitution)
- Squatting
- Health problems from lack of water and contaminated water, inadequate sewage and solid waste disposal
- Increased vulnerability to natural weather events (especially if infrastructure poorly constructed)
- Inability to access basic social services, such as education, healthcare

#### **Environmental Implications**

- Unsustainable agricultural practices (land erosion, water pollution, land degradation, deforestation)
- Unsustainable resource use for economic gain (charcoal burning, selling coral)
- Water and land pollution (from improper sewage and solid waste disposal)
- Air pollution (from burning of solid wastes)
- Squatting (can lead to land erosion, water pollution, deforestation)

## APPENDIX 4

### Additional Definitions Of Strategic Environmental Assessment

- ❑ The analysis and evaluation of the environmental effects and implications of a proposed policy, plan or programme.
- ❑ A systematic, iterative process for evaluating the environmental consequences of proposed policy, plan and programme initiatives in order to ensure that they are fully included and adequately addressed at the earliest appropriate stage of decision-making on par with economic and social considerations.
- ❑ Sets of guiding principles and menus of analytical and consultative approaches that are applied flexibly and that are carefully tailored to the specific context of the country, including its political, socio-economic, and cultural setting. SEAs, by their nature are intended to be consultative processes, involving stakeholders both at central policy levels (government ministries, national assemblies) and civil society.
- ❑ A comprehensive framework within the decision-making process, specifically related to the assessment of impacts on the environment.
- ❑ An instrument for integrating environmental issues into the formulation of policies, plans and programmes.
- ❑ A process that helps government to assess environmental impacts of proposed development policies, plans and programs and enables policy makers to facilitate early public participation and societal dialogue in broad environmental policy-making, identify and predict cumulative impacts of broad governmental programs that may not be apparent from project level environmental impact assessment and take this information early into account in policy- making.
- ❑ A structured proactive process to strengthen the role of environmental issues in strategic decision-making.
- ❑ A process for integrating the concept of sustainable development into strategic decision-making.

## **APPENDIX 5**

### **Benefits of Implementing a SEA Process**

Benefits of Implementing a SEA include:

- ❑ The promotion of public participation and ownership of the decision-making process
- ❑ The provision of guidance on the development of mitigation proposals
- ❑ The provision of a systematic review of relevant environmental issues
- ❑ The achievement of a clearer understanding within government administrations of potential environmental effects
- ❑ The facilitation of the design of sustainable policies, plans and programmes
- ❑ Improvement of the way in which cumulative effects and global changes are dealt with
- ❑ The maintenance and enhancement of a chosen level of environmental quality, rather than on minimising individual impacts, by ensuring that environmental issues are addressed from an early stage in the process of formulating PPPs and incorporated throughout the process
- ❑ Identification of the opportunities and constraints which the environment places on development
- ❑ Highlighting trade-offs between short-term benefits and long term adverse impacts

## APPENDIX 6

### Initiatives and Projects In Environment Currently Being Undertaken (2001) or Completed by 2000

Actions Currently Underway (2000 – Present)	Actions Already Undertaken
<b>FRESHWATER</b>	
<ul style="list-style-type: none"> <li><input type="checkbox"/> ICENS is expanding studies on surface and groundwater quality in Jamaica</li> <li><input type="checkbox"/> Ambient Water Quality Standards for Freshwater will be published in fiscal year 2002/2003</li> <li><input type="checkbox"/> The finalization and publication of the Coastal Recreational Water Quality Standards will be completed during the fiscal year 2002/2003</li> <li><input type="checkbox"/> The Draft Irrigation Water Standards are to be finalized and published in fiscal year 2002/2003</li> <li><input type="checkbox"/> The WRA is continuing its work on the introduction of a system of volume based water extraction charges to encourage more efficient use of water, particularly among major water users. The revenue gained is to be used to improve the monitoring of water quality and availability Economic analysis is being done as to the annual fees to be charged based on the volume of water extracted, it is expected that this will be completed by April 2003</li> <li><input type="checkbox"/> NRCA/NEPA is collaborating with the PCA and RADA to promote an Integrated Pest Management Programme which will result in a reduction of reliance on chemical pesticides in agriculture</li> <li><input type="checkbox"/> NWC is examining proposals re opportunities for private partnership in the potable water sector</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> In 2001 the WRA in collaboration with ICENS completed the first phase of a Ground Water Management Information System (GWIS). The use of GWIS will lead to the development of aquifer vulnerability maps and development of protection zones around water resources</li> <li><input type="checkbox"/> The work on the project “Mapping Vulnerability of Jamaica Aquifers” was completed in 2002</li> <li><input type="checkbox"/> The Ambient Water Quality Standards were finalized in 2001 and the standards will be published in fiscal year 2002/2003</li> <li><input type="checkbox"/> The WRA has completed the Strategy and Action Plan for the Water Resources Management Sector in 2001, which complements the National Water Policy and defines the technical, financial and legislative programmes that will move the agency forward</li> </ul>
<b>WASTE</b>	
<ul style="list-style-type: none"> <li><input type="checkbox"/> The National Solid Waste Management Authority (NSWMA) are developing proper quality control procedures for refuse disposal</li> <li><input type="checkbox"/> Through GOJ/CIDA ENACT project #6220 a waste exchange initiative will be carried out to enable waste reduction concepts and practices. Waste exchange software/hardware was purchased and data building is in progress. The waste exchange programme was transferred to the private sector, but the ability to get the private sector operation started has delayed the ability to offer this as a service to the private sector. The waste exchange web site can be found at: <a href="http://www.wastex.org.jm/">http://www.wastex.org.jm/</a></li> <li><input type="checkbox"/> Kingston Restoration Company Limited is working with downtown Kingston communities under a Sanitation and Neighbourhood Clean-up/ Maintenance Programme to improve solid waste management, sanitation and beautification within these communities</li> <li><input type="checkbox"/> The Riverton City Disposal Site to become a fully functional landfill. The following activities are in progress: <ul style="list-style-type: none"> <li>▪ Construction of bridge to provide access across the Duhaney</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> The National Solid Waste Management Act was passed in 2002 and the NSWMA set up</li> <li><input type="checkbox"/> The following civil works were completed at the Riverton City Disposal Site during 2001/2002: <ul style="list-style-type: none"> <li>▪ Construction of an access road from Spanish Town Road</li> <li>▪ Procurement of equipment</li> <li>▪ Installation of lighting facilities by Jamaica Public Service Co. Ltd.</li> <li>▪ Construction of a scale and a scale house - the scale is central to the tipping fee regime which is to be implemented by the NSWMA</li> </ul> </li> <li><input type="checkbox"/> Government, in addressing the problem of non-biodegradable waste, formed the Recycle for Life Programme in 2000 as a part of a four pronged approach to recycle PET plastics</li> <li><input type="checkbox"/> Through the GOJ/CIDA-ENACT Project #6210- EMS/Clean Technology/ISO 14000</li> </ul>

Actions Currently Underway (2000 – Present)	Actions Already Undertaken
<p>River to the Riverton Landfill;</p> <ul style="list-style-type: none"> <li>▪ Implementation of community consultation programme with a view to sensitize the citizens of the objectives of the solid waste programme; and</li> <li>▪ Establishing a formal sorting and recycling programme</li> </ul> <ul style="list-style-type: none"> <li>❑ The NWC to commission a study of the costs of sewerage services with a view to undertaking cost recovery. TOR has been developed, and sewerage service will be just one section of the study. The process to select consultants to undertake the tariff study will commence shortly</li> <li>❑ NRCA/NEPA through CWIP is assisting the NWC to develop public/private partnerships in the management of sewage works, where the IDB Kingston Water and Sanitation Project will examine the opportunity for private partnership in the water and sewage sector</li> <li>❑ NRCA/NEPA through CWIP is facilitating the analysis of tertiary treatment options for the effluent being discharged into the South Negril River, with discussions currently underway</li> <li>❑ NRCA/NEPA is developing trade effluent regulations including a discharge fee based on the polluter pays principle. Drafting instructions for the regulations are to be finalized by end of 2002</li> <li>❑ NRCA/NEPA focusing efforts on the establishment of guidelines or code of practices for storage of: <ul style="list-style-type: none"> <li>▪ Batteries;</li> <li>▪ Computer waste;</li> <li>▪ Agro-waste; and</li> <li>▪ Phosphates</li> </ul> </li> <li>❑ Environmental Foundation of Jamaica is working towards the establishment of an inventory of hazardous waste in the island. The process is expected to begin in October 2002</li> </ul>	<p>guidance documents for Jamaican businesses were produced by ENACT in 2000.</p> <ul style="list-style-type: none"> <li>▪ In 2001 EMS/Clean technology workshops were held for JMI and SBAJ.</li> <li>▪ In 2001 the Coffee Industry Board developed a Code of Practice with technical guidelines for the industry.</li> <li>▪ The information network of 12 resources was completed in 2002 and was included as a service of the BCE (EnviroNET)</li> </ul> <ul style="list-style-type: none"> <li>❑ NRCA/NEPA have completed a final draft of the Sewage Effluent Regulations in 2002 which will be discussed at about 6 public presentations</li> <li>❑ NRCA/NEPA through CWIP completed and disseminated the NWC Sewerage Policy in 2000. Connections are taking place for Ocho Rios, Montego Bay and Negril systems. Ongoing public education will be facilitated through a community liaison officer as to benefits of connecting to the system and procedures for connection</li> <li>❑ In 2000 the Environmental Foundation of Jamaica funded three projects in the area of addressing hazardous waste, namely: <ul style="list-style-type: none"> <li>▪ The ICENS lead mitigation in Kintyre St. Andrew</li> <li>▪ UWI Department of Chemistry research on Asbestos</li> <li>▪ Blue Cross lead mitigation in Frazers Content, St. Catherine</li> </ul> </li> </ul>

### COASTAL ZONE AND FISHERIES

<ul style="list-style-type: none"> <li>❑ As a necessary component of an Integrated Coastal Zone Management Plan/ Programme a Council on Ocean and Coastal Zone Management (COCZM) was formed. This council is fully operational and is exploring its future role and associated directions</li> <li>❑ CWIP continues to contribute technical support to the NCOCZM towards the development of a National Policy on Oceans and Coastal Zone Management</li> <li>❑ Actions are underway for the development of a National Policy on Ocean and Coastal Zone Management</li> <li>❑ NRCA/NEPA is continuing to monitor the quality of coastal waters and prepare annual Coastal Water Quality Reports.</li> <li>❑ Friends of the Sea is also coordinating the preparation of the Ocho Rios Marine Park Management Plan, with an active water quality monitoring programme. Ocho Rios programme has completed 11 sample runs to date, data from sampling exercise have been presented</li> <li>❑ Ministry of Land and Environment and its agency to continue focus on the rehabilitation of areas of severe degradation, such as Kingston Harbour. <ul style="list-style-type: none"> <li>▪ A loan from the IDB to the Ministry of Water and Housing and the NWC for the construction of a sewage treatment facility; and the contracting consultants are in progress. It is expected that actual construction will commence by March 2003</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>❑ Over the last two years CWIP has contributed technical support to the NCOCZM towards the development of a National Policy on Oceans and Coastal Zone Management</li> <li>❑ In 2002 the Green paper "Towards Developing a National Policy on Ocean and Coastal Zone Management" was developed and presented for comments at the National Coastal Zone Conference and through island wide public consultations</li> <li>❑ In 2002 NRCA/NEPA Coastal Water Quality Monitoring Programme in Negril was completed</li> <li>❑ In 2002 CWIP established the coastal water quality-monitoring programme in Port Antonio with the selection of CASE as the coordinating partner</li> <li>❑ Under the Ministry of Land and Environment, the Kingston Harbour Rehabilitation Programme was developed in 1997</li> <li>❑ In 2000, the NWC developed a communication support programme, where the NWC Wastewater Advisory Monitoring Committee has regular meetings and carries</li> </ul>
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Actions Currently Underway (2000 – Present)	Actions Already Undertaken
<ul style="list-style-type: none"> <li>▪ NEPA continues to work with industrial companies towards better management and improved quality of their effluent. NEPA and NWC are collaborating to define standards for effluent from industrial facilities</li> <li>❑ Through NRCA/NEPA the following beaches are to be rehabilitated: Fort Charles in Kingston, Boston Beach in Portland, Sirgarny in St. Elizabeth and Orchard Beach in Hanover. This is being done in collaboration with local and national level government partners</li> <li>❑ Centre for Marine Sciences (CMS) continues work on ecosystem studies, pollution mitigation, fisheries and mariculture <ul style="list-style-type: none"> <li>▪ CMS continues to engage in ecosystem monitoring and evaluation through graduate research projects</li> <li>▪ Coral reef monitoring continues, where CMS is involved in “Reef Check” - an international protocol for coral reef monitoring</li> <li>▪ CMS involved in a joint collaborative project “ECOCOAST-US/Jamaica Educational Cooperation for Integrated Coastal Management”</li> </ul> </li> </ul>	<p>out various activities. A manual is being developed to inform customers about sewerage services</p> <ul style="list-style-type: none"> <li>❑ Beach rehabilitation by NRCA/NEPA. Agreements were made in 2002 to transfer 25% of beach fees collected in marine protected areas to local management entities</li> </ul>
<b>FORESTRY</b>	
<ul style="list-style-type: none"> <li>❑ Forestry Department has ongoing island wide environmental education</li> <li>❑ Forestry Department is currently being strengthened as an institution, where: <ul style="list-style-type: none"> <li>▪ Four staff members are currently studying for BSc. in Forestry at University of New Brunswick</li> <li>▪ Fifty-five foresters and wardens undertook Forest Law Enforcement training</li> <li>▪ New Forest Act and regulations were explained to thirty-five resident magistrates at a retreat in 2001</li> </ul> </li> <li>❑ Forestry department continues to produce and distribute timber tree seedlings free of cost to farmers and private land owners. Technical advice is given on planting</li> <li>❑ The Forestry Department is conducting a survey and analysis of the trend and pattern of household fuel usage over the past fifteen years</li> <li>❑ The Forestry Department is developing and maintaining recreational sites at suitable locations in the forest reserves and has entered into a co-management agreement with NEPA and JCDT for recreational facilities at Holywell in St. Andrew. The Gourie recreational area is in the process of being renovated</li> <li>❑ Under the GOJ-USAID “Ridge-to-Reef” project, various activities aimed at improving environmental practices in selected watersheds is to be carried out.</li> <li>❑ NRCA/NEPA to coordinate planning, development and management of watersheds by being the executing agency for the National Integrated Watershed Management Programme (NIWMP) and by providing the Secretariat for the National Watershed Steering Committee <ul style="list-style-type: none"> <li>▪ The NIWMC became operational during the year, held seven meetings and established six sub-committees</li> <li>▪ The Sustainable Watershed Branch of NEPA was strengthened with a new manager, training initiatives, and new field equipment</li> </ul> </li> <li>❑ The Morant/Yallahs Agricultural Development project to continue in the Morant/Yallahs watershed</li> </ul>	<ul style="list-style-type: none"> <li>❑ The National Forest Management and Conservation Plan was completed and approved by the Minister of Agriculture in December 2000</li> <li>❑ Cabinet has approved the Jamaica Forest Management and Conservation Fund and the Tropical Forestry Conservation Fund in February 2002</li> <li>❑ New Forest Regulations were finalized in April 2001</li> <li>❑ Training of forestry field personnel in proper enforcement practices was conducted in 2000</li> <li>❑ Forestry department installed and improved a radio communication system in 2002</li> <li>❑ An analysis of the rate of deforestation in Jamaica between 1989 and 1998 was done in 2002, the rate was found to be 0.1% per annum. Document is being prepared for publication</li> <li>❑ In 2001 the Forestry Department developed draft local Forest Management Plans for forest areas in the Buff Bay/Pencar area.</li> <li>❑ A local Forest Management Committee was launched in December 2000. Their role is to involve the public in the management of forest in their area</li> <li>❑ In 2002 the Forestry Department submitted questions relating to the use of charcoal, fuel wood and yam sticks to STATIN to be included in the July-October 2002 Survey of Living Conditions in Jamaica. This marks the first step in the planning process of a detailed survey and analysis of the trends and pattern of household fuel usage</li> <li>❑ In 2001 the NRCA/NEPA draft Watershed Policy was amended, incorporating suggestions from members of civil society and</li> </ul>

Actions Currently Underway (2000 – Present)	Actions Already Undertaken
	<p>comments from selected professional individuals and organizations. The amended draft will be prepared for submission as a white paper</p> <ul style="list-style-type: none"> <li>❑ Since 2001 the key accomplishments of “Ridge to Reef” project have been: <ul style="list-style-type: none"> <li>▪ Establishment of planning and monitoring mechanisms</li> <li>▪ Establishment of the National Integrated Watershed Management Council</li> <li>▪ Production of a study on Governance and watershed management</li> <li>▪ Establishment of a Great River Watershed Management Committee</li> <li>▪ Tree planting programmes</li> <li>▪ Priority projects identified and designed in the Great River</li> <li>▪ Priority interventions in the Rio Grande identified</li> <li>▪ Sanitation demonstration projects completed</li> <li>▪ Water quality monitoring programme initiated</li> <li>▪ Public awareness activities designed and implemented</li> <li>▪ Compliance and enforcement activities underway</li> </ul> </li> <li>❑ Institutional strengthening of Sustainable Watersheds Branch of NEPA</li> </ul>
<b>ENERGY</b>	
<ul style="list-style-type: none"> <li>❑ SRC has commenced the training of students of the Vocational Training Development Institute (VTDI)</li> <li>❑ Five new biogas technicians and contractors were trained in collaboration with VTDI</li> <li>❑ Steps towards the establishment of wind farms are currently underway. Wind data were recorded and an economical feasibility study was done on the proposed 20MW Wind Farm Project in Wigton, Manchester</li> <li>❑ The PCJ continues their support for Fuelwood Projects islandwide. They will also provide technical information on fuelwood production and its environmental benefits to interested parties. Two fuelwood plots are to be harvested in 2000 and 2003 and yielded data will be analysed. This project started in 1995, and five species were harvested in 2000.</li> </ul>	<ul style="list-style-type: none"> <li>❑ In 2000 SRC technically fine-tuned the biogas technology construction methods; and the principles of performance and maintenance of biodigesters</li> <li>❑ Five new biogas systems were developed in 2002 and repairs carried out on ten existing systems</li> <li>❑ In 2002 the Jamaica Solar Energy Association in collaboration with Solar Energy International hosted a one-week training workshop in “Photovoltaic Design and Installation”. The workshop was attended by twenty participants inclusive of electrical technicians and electronic engineers</li> </ul>
<b>AIR QUALITY</b>	
<ul style="list-style-type: none"> <li>❑ Government developed Stack Emission Standards for fuel combustion, waste treatment, petroleum refining and mineral processing which were finalized in September 1999. They are being applied by various sectors.</li> <li>❑ The Ministry of Industry, Commerce and Technology through the Motor Vehicle Import Policy Unit and Trade Board in collaboration with the Motor Vehicle Unit at Customs is monitoring the importation of all motor vehicles to ensure that guidelines are adhered to</li> </ul>	<ul style="list-style-type: none"> <li>❑ In 2000 the Ministry of Transportation and Works developed a Policy on Importation of Motor Vehicles and a ban has been placed on importation of motor vehicles with air-conditioning units containing CFCs</li> <li>❑ In 2002 Air Quality Regulations were developed by NRCA/NEPA and the Ministry of Land and Environment and were finalized by the Chief Parliamentary Council (CPC).</li> </ul>

Actions Currently Underway (2000 – Present)	Actions Already Undertaken
<ul style="list-style-type: none"> <li>❑ Air Quality Regulations are undergoing review (comments may be incorporated), thereafter the regulations will be gazetted</li> </ul>	<p>They are currently undergoing review</p>
<b>BIOLOGICAL RESOURCES</b>	
<ul style="list-style-type: none"> <li>❑ NRCA/NEPA in collaboration with ENGOs is reviewing the proposed drafting instructions for amendments to the Wild Life Protection Act which is to be completed by the end of 2002</li> <li>❑ NRCA/NEPA will prepare and periodically revise Species Management/Recovery Plans. Species for the recovery plan include - the Jamaican Iguana, Sea Turtles, Sooty Tern, and Manatees in Alligator Hole in Clarendon. Continual monitoring is ongoing for each species</li> <li>❑ NRCA/NEPA is monitoring for and eradicating, where necessary, invasive species (both flora and fauna) which are impacting on the natural environment</li> <li>❑ An Alien Invasive Species Working Group was established and a list of invasive species was prepared.</li> <li>❑ NEPA has prepared standardized materials transfer agreement for the use and removal from the wild of Jamaica's Flora and Fauna</li> <li>❑ Through NRCA/NEPA a Lepidoptera Working Group has been established and is working on guidelines for the establishment and operation of butterfly houses</li> <li>❑ Government to provide adequate institutional capacity and human resources within the Protected Areas Branch of the NRCA/NEPA to adequately monitor the management of protected areas: <ul style="list-style-type: none"> <li>▪ The branch structure has been expanded to include additional positions</li> <li>▪ A Management and Operations Unit has been established within the Protected Areas Branch to increase monitoring activities in protected areas</li> </ul> </li> <li>❑ NRCA/NEPA Drafting instructions for user fees were developed and submitted to Ministry of Land and Environment</li> <li>❑ The Protected Areas Branch of NRCA/NEPA continue to have negotiations relating to the terms of the delegation instrument for the management of Portland Bight Protected Area (PBPA)</li> </ul>	<ul style="list-style-type: none"> <li>❑ In 2002 the Legal Services Branch of NEPA developed delegation instruments for the management of the Blue and John Crow Mountains National Park and the Negril Marine Park by the Jamaica Conservation and Development Trust and the Negril Coral Reef Preservation Society respectively</li> <li>❑ NRCA/NEPA conducted a Rapid Ecological Assessment for Bloody Bay, Negril and Westmoreland in 2002</li> <li>❑ The Endangered Species (Conservation, Protection and Trade) Act was passed (Ministry of Land and Environment) in 2000</li> <li>❑ Green Paper #3/01 "Towards a National Strategy and Action Plan on Biological Diversity in Jamaica" was developed in 2001. Eight public consultations were held and the draft policy is expected to become a white paper by end of 2002</li> <li>❑ Regulations governing the trade of Queen Conch were prepared and signed by the Minister of Land and Environment in May 2001 and is to be amended in 2002</li> <li>❑ In 2001 the Hellshire Hills was declared a protected area with of the main goal being the continued implementation of the Jamaica Iguana Recovery Plan</li> <li>❑ The Bird Shooting Seasons of 1999, 2001, and 2002 have been monitored and annual reports have been prepared</li> <li>❑ Distribution survey as well as a ducks survey were conducted during the 2001 season</li> <li>❑ NRCA/NEPA along with the Crocodile Research and Rescue Operations Committee have implemented components of the Crocodile Action Plan including the procedures for dealing with nuisance crocodiles, warning signs and ongoing public education programmes <ul style="list-style-type: none"> <li>▪ Project proposal "Comprehensive Survey of Crocodiles" completed in 2001 and portion of funds has been received</li> <li>▪ Field survey of crocodiles in Clarendon and St. Elizabeth was done in 2000</li> </ul> </li> <li>❑ Two Protected Areas were declared - Portland Bight (April 22, 1999) and Ocho Rios Marine Park (August 16, 1999)</li> <li>❑ Justification, maps and boundary descriptions for Mason River (Clarendon and St. Ann) and Black River (St. Elizabeth) were submitted to the Ministry of Land and Environment in 2001 for declaration of both as protected areas</li> </ul>

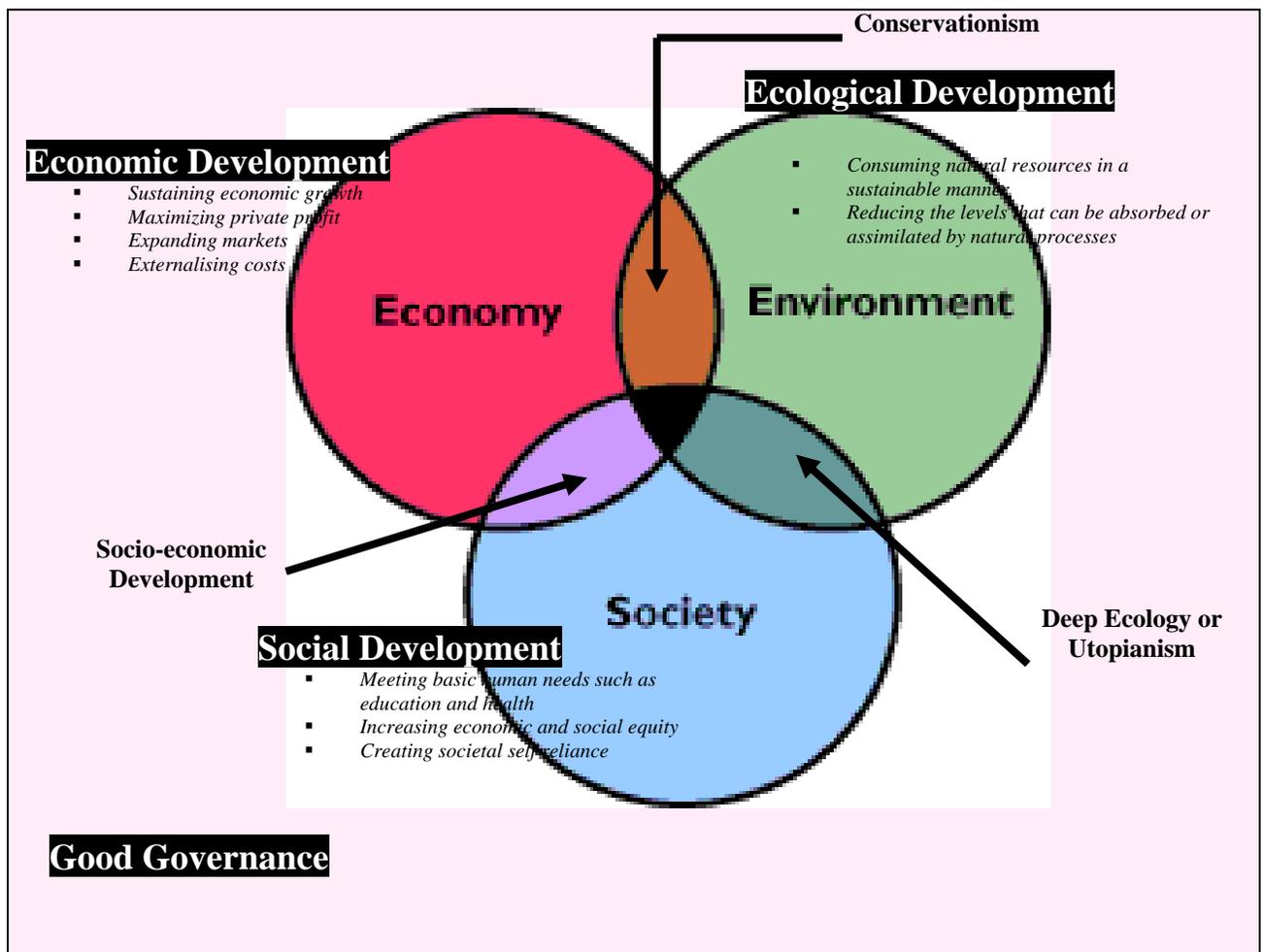
## APPENDIX 7

### Defining Sustainable Development

Sustainable Development can be defined as:

- ❑ “Integrating the needs of environmental protection, social development and economic prosperity into all decision-making to meet needs of present and future generations”. (Government of Jamaica Definition)
- ❑ “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (Bruntland Commission)

#### *Graphical Illustration of Sustainable Development*



The above illustration shows the key pillars of sustainable development as:

- ❑ Environment
- ❑ Economy
- ❑ Society
- ❑ Governance

To achieve sustainable development the key pillars must contain positive changes in indicators – that is, where a country is progressing towards the state of sustainable development, there will be:

- ❑ Good Environmental Quality
- ❑ Economic Prosperity
- ❑ High and Equitable Levels of Social Well Being
- ❑ Good Governance

The figure also highlights 3 development processes (economic development, social development and ecological development) and indicates that sustainable development is only achieved when these 3 development processes are in balance with each other, and good governance prevails. However, there are a number of other situations that can occur, namely:

- ❑ Integration of economy + society, underpinned by good governance = socio-economic development
- ❑ Integration of society + environment, underpinned by good governance = deep ecology or utopianism
- ❑ Integration of environment + economy, underpinned by good governance = conservationism

***Sustainable development = integration of environment + economy  
+ society, underpinned by good governance***

## **APPENDIX 8**

### **Examples of PPPs to which SEA is Applicable**

#### **Use of SEA in the Transportation Sector**

The following are some types of initiatives within the transport sector what may have important environmental effects and would benefit from an SEA. These include:

- ❑ PPP proposals that would lead to financial support for national, regional or local transportation systems
- ❑ Decisions that will affect the mode and/or location of new transportation services
- ❑ PPP proposals (including policies for funding or other types of incentives) affecting the level of use of different transportation modes
- ❑ Proposed legislation or regulations, for example related to aviation, the use of public transport versus the use of private vehicles or which could affect pollution control or energy consumption
- ❑ PPP proposals affecting pricing of transportation services
- ❑ PPP proposals involving economic deregulation
- ❑ Research and development programmes and incentives for transportation technology
- ❑ Research and development policies that affect environmental technologies and their application (such as emission reduction or energy efficiency)
- ❑ PPP proposals governing the transport of hazardous materials

## APPENDIX 9

### Training Programme In Strategic Environmental Assessment

Between May 2001 and November 2003, over 150 officials of the GOJ have been trained in SEA under the “Holistic Governance: Sustainable Development in Action” Training Programme. This course is a 36 hour/6-day course.

Target Groups	Course Objectives	Benefits To Organization	Content
<ul style="list-style-type: none"> <li>▪ Policy analysts</li> <li>▪ Officers responsible for formulating and managing policies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recognition of the need to include environmental considerations into the policy and programme decision making process and not only to specific physical projects</li> <li>▪ Ability to set overarching environmental quality goals to guide policy making</li> <li>▪ Formulation of sustainable development strategies</li> <li>▪ Ability to manage resources for multiple uses (integrated resource management)</li> <li>▪ Ability to incorporate environmental considerations into procurement policies and within government agency operations</li> </ul>	<ul style="list-style-type: none"> <li>▪ Improvements in government’s decision making processes so that consideration of socio-economic and environmental issues is fully integrated at the policy, planning and management levels... towards enabling the country to achieve the progressive integration of economic, social and environmental issues into the pursuit of development that is sustainable</li> </ul>	<ul style="list-style-type: none"> <li>▪ Understanding SEA</li> <li>▪ Using SEA as a tool in policy development</li> <li>▪ Understanding Sustainable Development and the interrelationships among factors</li> <li>▪ Jamaica’s Policy Framework for protecting the environment and managing natural resources</li> <li>▪ Analysis of existing laws and policies of the GOJ</li> </ul>

## APPENDIX 10

### Assessing the Environmental Impacts of the PPP

#### Annex I<sup>5</sup>

##### Determination of the Existence of Environmental Impacts

To complete Annex 1 please refer to additional information/environmental indicators provided in *Appendix 14*.

1. Does the proposal have an outcome that can affect the supply, use and or management of natural resources or the health or quality of ecosystems?  
Yes \_\_\_\_\_ No \_\_\_\_\_
2. Will implementation of the proposal involve the release of a significant amount of waste to air, land and/or marine environment?  
Yes \_\_\_\_\_ No \_\_\_\_\_
3. Does the proposal involve new or existing processes or technology with important environmental implications?  
Yes \_\_\_\_\_ No \_\_\_\_\_
4. Have similar policies, plans or programmes in the past resulted in environmental impacts?  
Yes \_\_\_\_\_ No \_\_\_\_\_
5. Will the proposal positively or negatively affect the achievement of environmental quality goals or objectives as outlined in other sustainable development strategies as appropriate?  
Yes \_\_\_\_\_ No \_\_\_\_\_

**If you have answered “yes” to any of the above, the proposal can be considered to have an environmental impact(s)**

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<sup>5</sup> To complete Annex 1, please refer to information provided in Appendix 11.

## Annex II

Please utilize the ranking system when completing question 9.

N.B.

- The rank of each impact is noted after the dash
- Assumption: The higher the number the greater the impact

<b>POTENTIAL ENVIRONMENTAL IMPACT:</b>		
<b>ASPECTS</b>	<b>IMPACTS</b>	<b>ADDITIONAL INFORMATION</b> (additional information is to be provided for each of the impacts identified)
Frequency - will the effect be a one-time only occurrence	Repeated impact: ____ (2) One time: ____ (1)	
Duration <sup>6</sup> - Would it be short or long term	Long: ____ (3) Medium: ____ (2) Short term: ____ (1)	
Location	Impact restricted to one area: ____ (1) Not localized: ____ (2)	
Magnitude	Is an ecosystem being completely destroyed: ____ (2) Is an ecosystem being partially destroyed Inconvenience created: ____ (1)	
Timing	Effect on the environment occurs at a time that is sensitive to a particular environmental feature e.g. lobster breeding season: ____ (2) No effect: ____ (1)	
Ecological context	Endangered species impacted: ____ (3) Impact on abundant species: ____ (2) No impact on species: ____ (1)	
Risk - is there a high level of risk associated with the effect, such as exposure of humans to contaminants or pollution, or a risk of accident	Level of risk associated with the effect: High: ____ (3) Medium: ____ (2) Low: ____ (1)	
Irreversibility	Probability that effects will be irreversible: impact can be remediated with ease: ____ (1) Ecosystem component lost: ____ (2)	

<sup>6</sup> Short term- to 0-1 years, medium term- 2-5 years and long term- above 5 years

<b>POTENTIAL ENVIRONMENTAL IMPACT:</b>		
<b>ASPECTS</b>	<b>IMPACTS</b>	<b>ADDITIONAL INFORMATION</b> (additional information is to be provided for each of the impacts identified)
Cumulative nature	Likely hood that the effect will combine with other effects, in a way that can threaten a particular environmental component: Very likely: ____ (2) Not Likely: ____ (1)	

*\* Complete more than one table if multiple environmental impacts have been identified.*

## Appendix 11

### Environmental Quality Indicators

The environmental indicators provided in the table below will assist in the completion of Annex 1. In completing Annex 1, particularly questions 1 to 3, ministries/agencies can focus on the list of environmental issues and determine if their PPP will have a positive or negative (+ or -) change in the corresponding environmental indicators.

Environmental Issues	Environmental Indicators
<b>Biodiversity</b>	
Change in Biodiversity	Changes “+ or –“ in the variety of biota and ecosystems – including factors such as: <ul style="list-style-type: none"> <li>▪ Diversity and distribution of fishes in coastal waters</li> <li>▪ Area of threatened ecosystems organised by type</li> <li>▪ Numbers of endangered species</li> <li>▪ Number of water bodies that have lost half or more of their native fish populations</li> </ul>
Ecosystem Health	Changes “+ or –“ in the overall health of ecosystems including forests, wetlands, coastal waters, etc.
Exotic Species	Introduction of non-native species into an ecosystem - including factors such as: <ul style="list-style-type: none"> <li>▪ Total number of exotic species in the country</li> <li>▪ The area and growing stock of native and exotic species</li> <li>▪ Number of harmful exotic species introduced into the country each year</li> </ul>
Genetic Diversity	Changes “+ or –“ in the genetic variety within specific species or for ecosystems as a whole
Habitat Change	Changes “+ or –“ in the conversion of one type of ecosystem; alteration of specific characteristics of an ecosystem - including factors such as: <ul style="list-style-type: none"> <li>▪ The conversion rate of one land ecosystem type to another</li> <li>▪ Area of wetlands lost per year</li> </ul>
Species Extinction	The complete elimination of species - including factors such as: <ul style="list-style-type: none"> <li>▪ Percentage of marine mammals such as manatees that are stable or increasing</li> <li>▪ Threatened species as a percentage of total endemic species</li> </ul>
<b>Climate</b>	
Desertification	Changes “+ or –“ in the conversion of ecosystems into barren land - including factors such as: <ul style="list-style-type: none"> <li>▪ Area of land affected by desertification</li> <li>▪ Land area converted to desert each year</li> <li>▪ Fuel wood consumption per capita</li> <li>▪ People living below the poverty line in non-fertile areas</li> </ul>

Environmental Issues	Environmental Indicators
Drought	Percentage of decline in rainfall and water resources - including factors such as: <ul style="list-style-type: none"> <li>▪ Frequency or intensity of droughts</li> <li>▪ Frequency of rainfall</li> <li>▪ Total precipitation per annum</li> </ul>
Global Climate Change	The country's contribution to large-scale changes to the global climate.
<b>Environmental Degradation</b>	
Acidification	Percentage increase in build-up of excess sulphuric and nitric acids into soils, water and air - including factors such as: <ul style="list-style-type: none"> <li>▪ Area of land with high pH resulting from excess sulphuric and nitric acid</li> <li>▪ Emissions into air of sulphur oxides and nitrous oxides</li> <li>▪ Percentage reductions in the emissions of sulphur oxides and nitrous oxides</li> </ul>
Air Quality	Changes "+ or -" in the build-up of pollutants in air - including factors such as: <ul style="list-style-type: none"> <li>▪ Measured concentrations of harmful chemicals and ambient toxins in the air</li> <li>▪ Ambient concentrations of sulphur dioxide, carbon dioxide and nitrous oxides in urban areas</li> <li>▪ Amount of lead emissions</li> <li>▪ Percentage of people exposed to high concentrations of health damaging air pollutants</li> <li>▪ Amount of particulate emissions</li> <li>▪ Number of people living in areas that do not meet national air quality standards</li> <li>▪ Amount of volatile organic compound (VOC) emissions</li> </ul>
Contamination of Biota	Changes "+ or -" in the quantities and levels of pollutants, toxins and heavy metals in biota - including factors such as: <ul style="list-style-type: none"> <li>▪ Quantities of chemical contaminants in land and marine biota</li> <li>▪ Impacts on marine biota as a result of pollutants</li> <li>▪ Number of diseases and illnesses due to toxins</li> </ul>
Contamination of Soil	Changes "+ or -" in the quantities and levels of pollutants, toxins and heavy metals in soil - including factors such as: <ul style="list-style-type: none"> <li>▪ Area of land contaminated by hazardous wastes</li> <li>▪ Tonnes of toxins released into soil per year</li> </ul>
Contamination of Water	Changes "+ or -" in the quantities and levels of pollutants, toxins and heavy metals in water and sediments – including factors such as: <ul style="list-style-type: none"> <li>▪ Number of fish kills in coastal water per year</li> <li>▪ Quantities of heavy metal discharges to coastal waters</li> </ul>

Environmental Issues	Environmental Indicators
	<ul style="list-style-type: none"> <li>▪ Areas of land with contaminated ground water</li> </ul>
Environmental Technology	Rate of introduction of environmental of environmentally safe or benign technology - including factors such as: <ul style="list-style-type: none"> <li>▪ Number of people employed in the area of bio-technology</li> <li>▪ Amount of money spent in the area of bio-technology</li> <li>▪ Total expenditure on environmental technology</li> </ul>
Eutrophication	Changes “+ or –“ in the levels of nutrients in water - including factors such as: <ul style="list-style-type: none"> <li>▪ Amount of bio-chemical oxygen demand, nitrogen, and phosphorous loadings in coastal waters, from point and non-point sources</li> <li>▪ Amount of atmospheric nitrogen absorbed into water bodies</li> </ul>
Water Quality	Changes “+ or –“ in the quantities of pollutants, toxins and heavy metals in water - including factors such as: <ul style="list-style-type: none"> <li>▪ Amount of and concentration of faecal coliform in fresh water bodies</li> <li>▪ Number of water systems classified as safe for fish harvest</li> <li>▪ Percentage of seas, rivers, lakes, etc that need pollution control actions as determined by the environmental agency</li> <li>▪ Number of people living in areas that do not meet safe drinking water standards</li> <li>▪ Number of people without access to sufficient and safe drinking water</li> </ul>
Man-Made Disasters	Percentage destruction of public and private infrastructure and property by man-made disasters
Natural Disasters	Percentage destruction of public and private infrastructure and property by floods, storms, earthquakes, and other natural disasters - including factors such as: <ul style="list-style-type: none"> <li>▪ Human and economic loss due to natural disasters</li> <li>▪ Number of urban areas located on floodplains, experiencing a major flood, at least once per decade</li> </ul>
Toxic Chemical Releases	Changes “+ or –“ in the quantities and levels of pollutants, toxins and heavy metals into water, air, or soil - including factors such as: <ul style="list-style-type: none"> <li>▪ Length of shoreline and coastal resources at risk from oil spills</li> <li>▪ Quantities of oil and grease discharged to coastal waters</li> <li>▪ Number of oil and chemical spills annually</li> <li>▪ Quantities of pollutant discharges from industrial, municipal and power generating facilities</li> </ul>
Land Use	
Arable Land	Changes “+ or –“ in the amount of land suitable for agriculture
Deforestation	Percentage loss of forest land due to logging, disease, or infestation
Recreational Land	Changes “+ or –“ in the amount of land available for

<b>Environmental Issues</b>	<b>Environmental Indicators</b>
	recreation, including land within urban ecosystems
Traffic Congestion	Changes “+ or –” transportation infrastructure sufficient to handle traffic volume
Urban Well Being	Changes “+ or –” in the economic and social resource base for specific areas within the urban ecosystem
Urbanisation	Percentage of land converted to urban land
<b>Resources</b>	
Declining Fisheries	Changes “+ or –” in the stocks and productive capacity of river and marine fisheries
Energy Resources	Changes “+ or –” in the stocks and use of energy resources, such as coal, oil, natural gas, etc
Mineral Reserves	Changes “+ or –” in the stocks and use of metal and mineral reserves
Renewable Resources	Changes “+ or –” in the stocks or productive capacities of renewable resource reserves
Soil Quality	Changes “+ or –” in the productive capacity of soil
Water Resources	Changes “+ or –” in the stock, capacity, or use of water resources