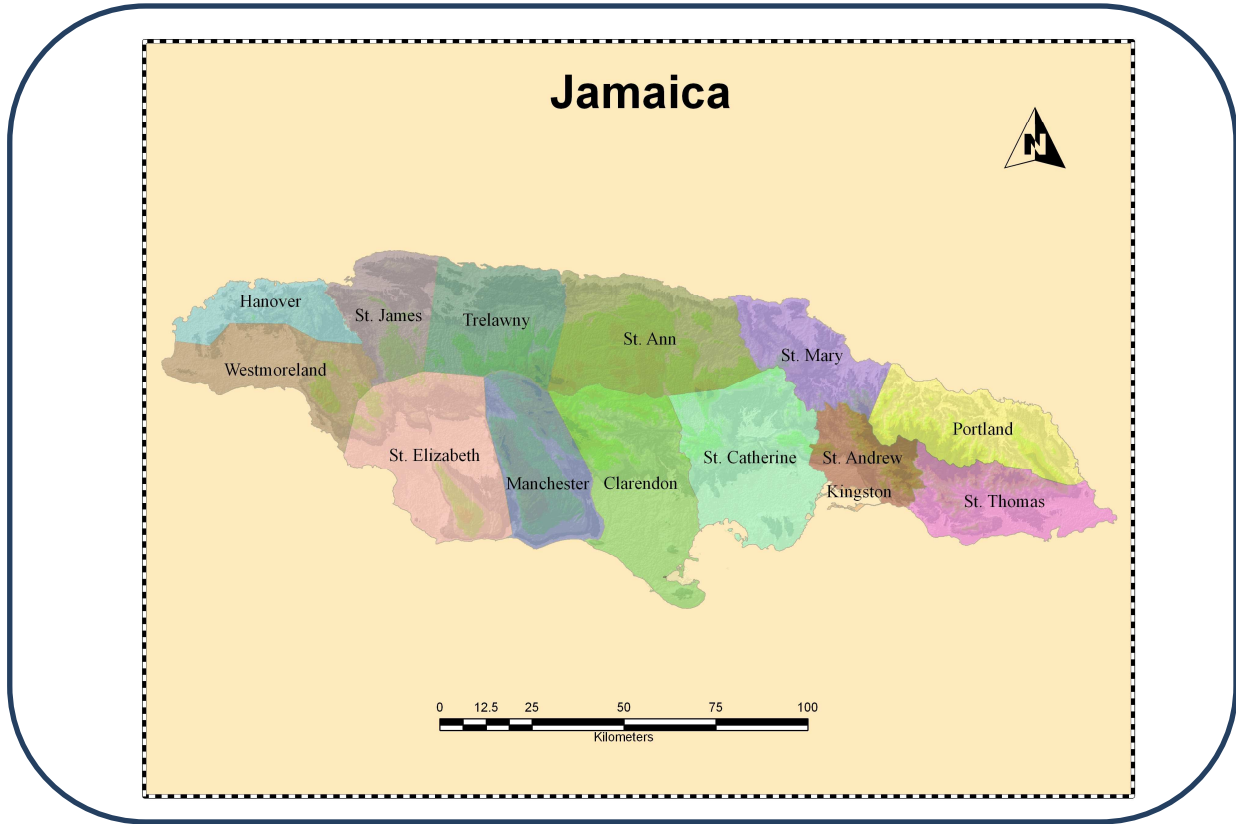# Revised Draft Action Plan for Implementing the Programme of Work on Protected Areas of the Convention on Biological Diversity



**JAMAICA**

Submitted to the Secretariat of the Convention on Biological Diversity

June 2012

# Protected area information:

## PoWPA Focal Point:

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National Environment and Planning Agency
Kingston, Jamaica
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## Lead implementing agency(ies):

National Environment and Planning Agency, Forestry Department, Fisheries Division and the Jamaica National Heritage Trust

## Multi-stakeholder committee:

There is a Protected Areas Committee (PAC) which includes representatives from government agencies responsible for protected areas (Forestry Department, Fisheries Division, National Environment and Planning Agency and the Jamaica National Heritage Trust); Ministry of Water, Land, Environment and Climate Change; Scientific Authority and The Nature Conservancy. The mandate of the PAC is to prepare a Protected Areas System Master Plan for Jamaica, in accordance with the Convention on Biological Diversity (CBD) guidelines and national needs to ensure an effectively managed and sustainably financed, ecologically representative protected areas system.

## 1. Coverage

Jamaica's current protected areas cover nearly 2,000 km$^2$ which is approximately 18% of the country's land area (Ecological Working Group 2009) as well as approximately 1,820 km$^2$ of marine area.

## 2. Description and background

Jamaica is the third largest island in the Caribbean and is approximately 145km south of Cuba and 161km west of Hispaniola (Map 1). It is located at approximately $17^022$' North latitude and $77^030$' West longitude (National Environment and Planning Agency, 2003).

The Policy for Jamaica's System of Protected Areas (1997) defines a protected area as an area of land or water that is managed for the protection and maintenance of its ecological systems, biological diversity and/or specific natural, cultural and aesthetic resources. This definition is currently under review[1]. Jamaica's protected areas include a variety of "biologically important features such as ecosystems, communities, habitat types, as well as plant and animal species" (Ecological Working Group, 2009). Protected areas include a variety of categories with different protective regimes. These areas are declared under a number of Acts, the most important of which are the Forest Act, Fishing Industry Act, Natural Resources Conservation Authority Act and the Jamaica National Heritage Trust Act (Table 1).

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[1] The draft Protected Areas System Master Plan which is currently review defines a protected are as "a clearly defined geographical area of land and or water that is dedicated to and managed for the long term conservation and sustainable use of its ecological systems, biodiversity and or specific natural, cultural or aesthetic resources".

# Location Map of Jamaica

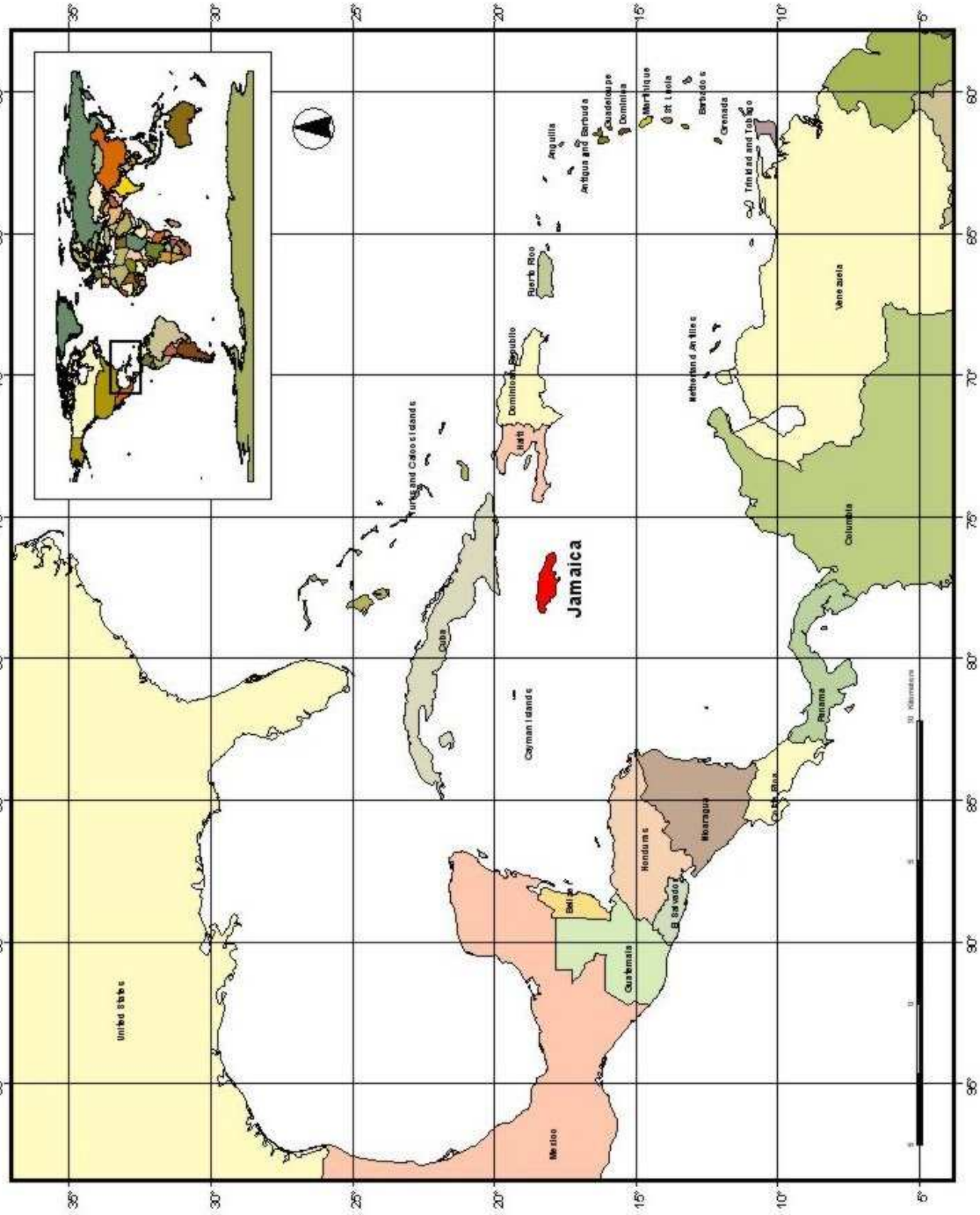Map 1



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**Table 1 Protected Areas Category/Type and Management Authority**

| PA category/type | Quantity | Surface area, hectares* | Corresponding IUCN category | Management authority |
|---|---|---|---|---|
| Marine Park | 2 | 20,069 | II, VI | Natural Resources Conservation Authority (NRCA) but there are Memoranda of Understanding with Non-governmental Organizations (NGOs). |
| National Park | 1 | 49,520 | II, VI | NRCA has an agreement with a NGO. |
| Protected Area | 5 | 238,217 | IV, VI | • NRCA<br>• NRCA and Jamaica National Heritage Trust |
| Environmental Protection Area | 1 | 40,670 | V, VI | NRCA |
| Forest Reserve | 102 | 116,000 | I, II, IV | Forestry Department and co-management (Forestry Department and Local Forest Management Committees) |
| Forest Management Area | 2 | | V, VI | Private owners |
| Special Fishery Conservation Area[2] | 14 | 6900* | IV | Fisheries Division |
| Protected National Heritage Site | 177 | TBD | III, IV | Jamaica National Heritage Trust |
| National Monument | 19 | TBD | III, IV | Jamaica National Heritage Trust |

Source: Jamaica's National Ecological Gap Assessment Report (2009), Forestry Dept., Fisheries Division, Jamaica National Heritage Trust   *Areas to be verified.

## 3. Governance types

Protected areas are managed by the Government of Jamaica, specifically the Fisheries Division, Forestry Department, Jamaica National Heritage Trust and the NRCA/NEPA and/or through legal co-management agreements by other government entities or Non-Governmental/Community Based Organizations (Table 2).

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[2] Fish sanctuary was renamed as Special Fishery Conservation Area, in  May 2012 under the Fishing Industry  Act
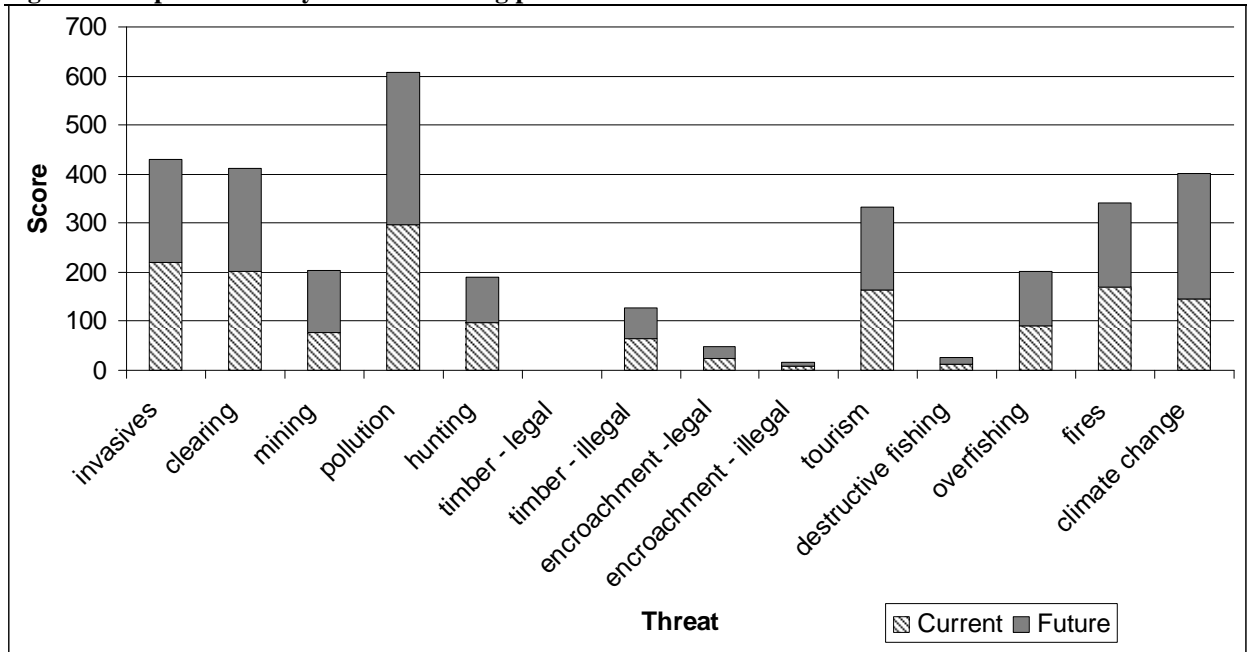
**Table 2 Types of Protected Areas and Governance**

| Types of Protected Areas | Governance Types |
|---|---|
| National Park | Co-management (Government and NGO) through MOU |
| Marine Parks | Co-management (Government and NGO) through MOU |
| Environmental Protection Area | Government |
| Protected Areas | Government[3] |
| Fish Sanctuaries | Co-management (Government and Local Fishers Entities/NGO) through MOU |
| Forest Reserves | Government |
| Forest Management Areas | Private owners |
| National Monuments | Government |
| Protected National Heritage Sites | Government |

## 4. Key threats

The National Report on Management Effectiveness Assessment and Capacity Development Plan identified fourteen (14) major threats to protected areas in Jamaica. These include invasive alien species; forest clearing for agriculture; mining and quarrying; pollution; hunting and harvesting; timber harvest (illegal); timber harvest; (legal); encroachment (legal); encroachment (illegal); tourism; destructive fishing practices (e.g. use of dynamites, poisons, spear); over fishing; fires (human-induced); and global climate change (Figure 1) (Hayman, 2007). The most critical of these threats are invasive alien species, mining, clearing forest/vegetation, hunting, pollution, encroachment-illegal, tourism, over fishing, fires, tourism and climate change (Hayman, 2007). Threats to/pressures on marine protected areas include climate change, pollution, tourism, over fishing and hunting and harvesting of *inter alia* corals, sea moss, turtles and sea fans (Hayman 2007). Protected areas that are both marine and terrestrial are affected by pressures/threats including invasive species, forest clearing, encroachment, harvesting, fires and tourism (Hayman 2007). Threats to/pressures on terrestrial protected areas include *inter alia* forest clearing, hunting, timber harvesting, invasive alien species, tourism, mining, fires and climate change.

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[3] There are currently no co-management agreements with other entities for the management of protected areas specifically declared under the Natural Resources Conservation Authority (NRCA) Act although there are co-management agreements though there are/will be agreements for the management of some Special Fishery Conservation Areas designated under the Fishing Industry Act which fall within the boundaries of larger protected areas declared under the NRCA Act.

**Figure 1Comparison of key threats affecting protected areas**



Source: National Report on Management Effectiveness Assessment and Capacity Development Plan (Hayman 2007)

# 5. Barriers for effective implementation

### Barrier 1: *Financial resources*
The three primary sources of funding for protected area management include government budgets, self generated funds and international cooperation/donors (Galindo 2009). The existing mechanisms and sources are however inadequate to meet the needs of protected areas and are not fully utilizing available funds and market-based opportunities (Galindo 2009). There is inadequate funding to support day-to-day operations and critical conservation functions such as threat abatement, ecosystem restoration, monitoring and research (Hayman, 2007). This gap at the local and national levels therefore impact on the ability of entities to effectively manage protected areas.

### Barrier 2: *Policy and Legal framework*
The legal framework for protected areas is considered to be fragmented, inconsistent and incomplete in some respects (McCalla 2004). Current legislation does not fully address the needs of the protected areas system. There is a need to amend existing and develop additional regulations for the effective management of protected areas. Areas to be addressed include private lands (e.g. compensation and incentives), conflict resolution mechanisms and sustainable financing.

### Barrier 3: *Institutional*
There is a need for more effective management structures as well as improved coordination amongst key agencies and other partners.

## 6. National Targets and Vision for Protected Areas

The vision, for the protected areas system as articulated in the draft Protected Areas System Master Plan (PASMP) (2012), is "Jamaica's protected areas are effectively managed through a system which represents the diversity of our ecosystems and local heritage, towards the achievement of our environmental, economic, cultural and social goals for the benefit of all generations".

There are thirteen goals and thirteen targets for the protected areas system which are aligned with the Convention on Biological Diversity (CBD) Programme of Work on Protected Areas (PoWPA). The goals and targets will be finalized when the process to review the draft PASMP has been completed. The goals are as follows:

- To integrate protected areas into broader land and seascapes and sectors so as to maintain ecological structure and function.
- To substantially improve site-based protected area planning and management.
- To enhance and secure the involvement of local communities and other relevant stakeholders.
- To ensure the financial sustainability of the protected areas within the national system.
- To evaluate, monitor and improve protected areas management, status and trends.
- To develop and adopt minimum standards and best practices for the national protected area system.
- To build capacity for the planning, establishment and management of protected areas.
- To prevent and mitigate the negative impacts of key threats to protected areas.
- To ensure that scientific knowledge contributes to the establishment and effectiveness of protected areas and the protected area system.
- To identify and integrate climate change adaptation and mitigation measures in protected area planning and management strategies.
- To address under-representation of marine, inland water, and terrestrial ecosystems and heritage sites in the national protected area system.
- To provide an enabling policy, institutional and socio-economic environment for protected areas.

Proposed goals, targets and activities as outlined in the draft PASMP are outlined in section 7.

# Progress in and plans for achieving the goals of the Programme of Work on Protected Areas

**Progress**: 0 = no work, 1 = just started, 2 = partially complete, 3 = nearly complete, 4 = complete

| Goals of the Programme of Work on Protected Areas | Progress 0-4 |
|---|---|
| • Progress in **establishing and strengthening national and regional systems** of protected areas (1.1) | 2 |
| • Progress in integrating protected areas into **broader land- and seascapes and sectors** so as to maintain ecological structure and function (1.2) | 2 |
| • Progress in establishing and strengthening **regional networks**, **transboundary protected areas** (TBPAs) and collaboration between neighbouring protected areas across **national boundaries** (1.3) | 1 |
| • Progress in substantially improving **site-based** protected area planning and management (1.4) | 1 |
| • Progress in preventing and mitigating the negative impacts of **key threats** to protected areas (1.5) | 2 |
| • Progress in promoting **equity and benefit-sharing** (2.1)<br>• Progress in assessing and implementing diverse protected area **governance types** (2.1) | 1 |
| • Progress in enhancing and securing **involvement of indigenous and local communities and relevant stakeholders** (2.2) | 2 |
| • Progress in providing an **enabling policy, institutional and socio-economic** environment for protected areas (3.1) | 1 |
| • Progress in assessing the **contribution of protected areas** to local and national economies (3.1) | 1 |
| • Progress in **building capacity** for the planning, establishment and management of protected areas (3.2) | 1 |
| • Progress in developing, applying and transferring appropriate **technologies** for protected areas (3.3) | 0 |
| • Progress in ensuring **financial sustainability** of protected areas and national and regional systems of protected areas (3.4) | 1 |
| • Progress in strengthening **communication, education and public awareness** (3.5) | 2 |
| • Progress in developing and adopting **minimum standards and best practices** for national and regional protected area systems (4.1) | 1 |
| • Progress in evaluating and improving the **effectiveness of protected areas management** (4.2) | 1 |
| • Progress in **assessing and monitoring** protected area status and trends (4.3) | 1 |
| • Progress in ensuring that **scientific knowledge** contributes to the establishment and effectiveness of protected areas and protected area systems (4.4) | 2 |
| • Progress in **marine protected areas** | 2 |
| • Progress in incorporating **climate change** aspects into protected areas | 1 |

# 7. Priority activities for fully implementing the Programme of Work on Protected Areas:

## 7.1 Activities 2012 - 2017

**Goal 1:**      **To integrate protected areas into broader land and seascapes and sectors so as to maintain ecological structure and function.**

**Target:**      By 2017, (percentage of) marine and terrestrial protected areas are integrated into the National Spatial Plan and ecological connectivity will be established within three sites.

**Key Indicators:**
- Number of conservation/ecological corridors identified and demarcated.
- Number of restoration and rehabilitation activities carried out for targeted habitats and ecosystems.
- Number of marine and terrestrial protected areas incorporated in the National Spatial Plan and/or Development Orders and/or Local Sustainable Development Plans

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 1.1 Evaluate national and local experiences in integrating protected areas into broader landscapes and seascapes and sectoral plans and strategies (local & other jurisdictions) to inform the revised PASMP action plan. | National Environment and Planning Agency (NEPA) | Forestry Dept. (FD), Fisheries Division, Jamaica National Heritage Trust (JNHT), Jamaica Conservation and Development Trust (JCDT), Negril Area Environmental Protection Trust (NEPT), Negril Coral Reef Preservation Society | | | | | x | Project funds will be needed for this activity |

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| | | (NCRPS), Montego Bay Marine Park Trust (MBMPT), Caribbean Coastal Area Management Foundation (CCAM) and other stakeholder who have managed protected areas | | | | | | |
| 1.2 Identify practical steps for improving the integration of protected areas into broader land- and seascapes including policy, legal, planning (e.g. National Spatial Plan, Development Orders and Local Sustainable Development Plans) and other measures. | MWLECC | FD, Fisheries Division, JNHT, NEPA, Planning Institute of Jamaica (PIOJ), Local Planning Authorities, Parish Development Committees | | | | | x | Implementa-tion of the National Spatial Plan Project is subject to the availability of funds |
| 1.3. Develop tools of ecological connectivity, such as ecological corridors, linking together protected areas where necessary or beneficial as determined by national priorities for the conservation of biodiversity (e.g. Litchfield, between Alps and Discovery Mountain) | NEPA, FD and Fisheries Division | MWLECC, National Land Agency (NLA), private landowners | | x | x | | | To be implemented under the Global Environment Facility Protect (GEF) Project *Strengthening the* |

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| | | | | | | | | *Operational and Financial Sustainability of the National Protected Area System* |
| 1.4. Rehabilitate and restore habitats and degraded ecosystems at 3 sites (Stephney- John's Vale, Falmouth and Pedro Bank), as appropriate, as a contribution to building ecological networks, ecological corridors and/or buffer zones.[4] | FD, Fisheries Division and NEPA | | | x | x | x | | To be implemented under the GEF project. |

**Goal 2:**      **To provide an enabling policy, institutional and socio-economic environment for protected areas.**

**Target**:      By 2017 review and revise policies as appropriate, including use of social and economic valuation and incentives, to provide a supportive enabling environment for more effective establishment of protected areas and management of protected areas and the protected areas system.

**Key Indicators:**
- New protected area legislation enacted including supporting regulations
- Overarching policy for the management of the National System of Protected Areas adopted
- Implementation of existing environmental and cultural heritage legislation and supporting regulations
- Number of revisions to improve protected area management incorporated into existing policies and legislation

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[4] Goal 1.Healthy, productive and biologically diverse ecosystems - Sector Plans, Vision 2030

- Number of economic development and natural resource use policies that take into account the objectives of natural and cultural heritage protected areas

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr1 | Yr2 | Yr3 | Yr4 | Yr5 | |
| 2.1 Review existing protected area categories with international classifications represented by the International Union for the Conservation of Nature (IUCN) Protected Area Management Categories. | NEPA/GEF Project | FD, Fisheries Division, JNHT | | x | x | x | x | To be implemented under the GEF project. |
| 2.2 Review the existing policies and legislation relating to PAs and develop an overarching policy and legislation for the entire protected area system including the revision of policies regarding protected areas that are the responsibility of the Forestry Department, NEPA/NRCA, Fisheries Division, JNHT | Protected Areas Committee (PAC) | FD, Fisheries Division, JNHT, NEPA, IOJ, MWLECC, MoAF, MYC | × | × | | | | To be implemented under the GEF project. |
| 2.3 Review policies, legal and institutional gaps of agencies/ Ministries (e.g. Mining and Energy, Trade, Housing, Tourism and Agriculture and Fisheries) and identify actions which will negatively affect the mandate of the agencies involved in protected area management. Recommend amendments to these policies and laws to ensure the protection and sustainable use of the natural and cultural heritage | Ministry MWLECC-Environmental Management Division (EMD) | Ministries with responsibility for mining, energy, trade, housing, tourism and agriculture | x | x | x | | | To be implemented under the GEF project. |
| 2.4 Review sectoral policies and recommend the removal of perverse incentives and inconsistencies that increase pressure on protected areas, or take action to mitigate their perverse effects. | MWLECC | AGD and Ministry of Finance | | x | | | | |
| 2.5 Review/Develop and implement policies and legislation that will protect the tangible cultural heritage of Jamaica from illegal activities | JNHT | Institute of Jamaica (IOJ), NEPA, Attorney General's Department (AGD), Ministry of Youth and Culture | x | x | x | | | To be implemented under the GEF project. |

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr1 | Yr2 | Yr3 | Yr4 | Yr5 | |
| | | (MYC) | | | | | | |
| 2.6 Develop other legislation to include private lands within the national PA system.[5] | MWLECC-EMD, MYC | Forestry Dept., NRCA/NEPA, AGD, Ministry of Agriculture and Fisheries Division (MoAF), MYC | | x | x | | | |
| 2.7 Implement new protected area legislation | FD, Fisheries Division, JNHT and NEPA | MoAF, MYC | | | x | x | x | To be implemented under the GEF Project |
| 2.8 Conduct at least two assessments of the contributions of protected areas to the country's economy and culture including assessments of marine protected areas and a comprehensive assessment for cultural sites.[6] | PIOJ, NEPA, JNHT, FD, IOJ | Windsor Research Centre, Ministry with responsibility for tourism | | x | x | x | | |
| 2.9 Assess existing conservation facilities with a view to establishing a comprehensive Conservation Unit that will train persons in the conservation of all forms of Jamaica's material culture. | JNHT and IOJ | | x | | | | | |
| 2.10 Establish a comprehensive Conservation Unit and train persons in the conservation of all forms of Jamaica's material culture. | JNHT and IOJ | Academia, MYC, Management Institute for National | | x | x | x | x | |

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[5] Goal 1.Healthy, productive and biologically diverse ecosystems - Sector Plans, Vision 2030
[6] Goal 1.Healthy, productive and biologically diverse ecosystems - Sector Plans, Vision 2030

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr1 | Yr2 | Yr3 | Yr4 | Yr5 | |
| | | Development (MIND) | | | | | | |
| 2.11 Conduct economic valuation of at least three protected areas in order to support planning and decision-making processes. | PIOJ/University of the West Indies (UWI)/Windsor Research Center | FD, Fisheries Division, JNHT, NEPA | x | x | x | | | |
| 2.12 Develop necessary mechanisms for organizations and institutions with responsibilities for conservation of biological diversity at the national and local level to achieve institutional sustainability. | | FD, Fisheries Division, NEPA | | x | x | x | | To be implemented under the GEF Project |
| 2.13 Cooperate with neighbouring countries (Colombia and Dominican Republic/Cuba/Haiti) to establish an enabling environment for trans-boundary protected areas and for neighbouring protected areas across national boundaries. | MWLECC, Ministry of Foreign Affairs | Fisheries Division, NEPA, Maritime Authority of Jamaica (MAJ). | x | x | x | | | |

**Goal 3:** **To substantially improve site-based protected area planning and management.**

**Target**: Ten protected areas have effective management in existence by 2020 using participatory and science-based site planning processes that incorporate clear biodiversity objectives, targets, management strategies and monitoring programmes, and a long-term management plan with active stakeholder involvement.

**Key indicators**:
- Guidelines developed for highly participatory processes used as part of site-based planning.
- Guidelines developed for management and operational plans.
- Number of management plans prepared with inputs from community consultations or other participatory mechanisms.

- Number of management plans which incorporate biodiversity conservation targets[7], socio-economic and cultural valuation? and climate change adaptation measures.
- Number of heritage site operators using updated? Heritage Site guidelines.
- Number of PA staff trained in management and conservation.

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr1 | Yr2 | Yr3 | Yr4 | Yr5 | |
| 3.1 Assess existing participatory processes and develop guidelines for highly participatory process to be used as part of site-based planning. | NEPA/GEF Project | FD, Fisheries Division, JNHT | x | x | x | x | x | To be implemented under the GEF Project |
| 3.2 Update/develop and implement management plans for 10 protected areas[8]including appropriate measurable biodiversity conservation targets[9], socio-economic and cultural valuations? and climate change adaptation measures through an approach involving community participation. | NEPA/GEF Project | FD, Fisheries Division, JNHT, Centre for Marine Sciences (CMS)-UWI, IOJ, Academia | x | × | × | x | x | To be implemented under the GEF Project |
| 3.3 Develop guidelines for management and operational plans | NEPA/GEF Project | FD, Fisheries Division JNHT, IOJ | x | x | | | | To be implemented under the GEF Project |
| 3.4 Develop, update and implement guidelines for declared Heritage Sites to be adopted by all stakeholders including NGOs and private landowners.* | JNHT | FD, IOJ, Fisheries Division, NEPA | x | x | x | x | x | |

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[7] Criteria laid out in Annex I to the Convention on Biological Diversity and other relevant criteria
[8] Goal 2. Sustainable Management and Utilization of Natural Resources – Sector Plans, Vision 2030
[9] Criteria laid out in Annex I to the Convention on Biological Diversity and other relevant criteria

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr1 | Yr2 | Yr3 | Yr4 | Yr5 | |
| 3.5 Train existing staff in skills to carry out their fundamental role in management and conservation of PAs. | FD, Fisheries Division, JNHT and NEPA | | x | x | x | x | x | |
| 3.6 Convene an Annual Protected Areas Managers Forum to facilitate joint: site-level programming, partnerships; fundraising, lobbying and training and information-sharing. | PAC | | x | x | x | x | x | |

**Goal 4:** **To enhance and secure the involvement of local communities and other relevant stakeholders.**

**Target:** Full and effective participation by 2017 of local communities and relevant stakeholders, in the management of existing, and the establishment and management of new, protected areas.

**Key Indicators**:
- Number of mechanisms in place, at site and system levels, for dialogue with local and non-governmental organizations and civil society.
- Number of protected areas that integrate the participation of local stakeholders in field management.
- There is communication with stakeholders and sectors that have an impact on protected areas.
- Number of new partnerships and co-management arrangements for protected area management established.

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 4.1 Implement specific plans and initiatives to effectively involve local communities and stakeholders at all levels of protected areas planning, establishment, governance and management, with particular emphasis on identifying and removing barriers | FD, Fisheries Division, NEPA, JNHT | | | | × | × | × | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| preventing adequate participation. | | | | | | | | |
| 4.2. Develop and implement communication programme for the Protected Areas System | NEPA/GEF Project | FD, Fisheries Division, MoAF, MWLECC, JNHT, Jamaica Information Service (JIS), NGOs | | x | x | x | x | Subject to review |

<br>

**Goal 5:**             **To ensure the financial sustainability of the protected areas within the national system.**

**Targe**t:             By 2017, financial, technical and other resources to meet the basic costs to effectively implement and manage 40% of protected areas are secured from both national and international sources.

**Key Indicators**:
- Increase in NSPA financial capacity measured by UNDP financial sustainability score card using 2009 scores as the base-line.
- Percentage of donor support that is earmarked for protected areas management in relation to total protected area resources.
- Percentage change in revenues generated from protected areas for management e.g. user fees.
- Trust Fund established, capitalized and operational.
- Increase in the number of community enterprises in protected areas over 2012 baseline.

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 5.1 Establish the baseline for revenues generated from protected areas for management. | NEPA/GEF | FD, Fisheries Division, JNHT | x | | | | | To be implemented under the GEF Project |
| 5.2 Commence implementation of priority activities in the sustainable finance plan such as: Trust Fund, user fees, business plans, international sponsors and donor agencies and development | NEPA/GEF Project, MWLECC , Ministry of | FD, Fisheries Division, JNHT | x | x | x | x | x | To be implemented under the GEF |

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| of legislation, as identified under the GEF Project. | Finance and Planning (MFP) and FD | | | | | | | Project |
| 5.3 Encourage integration of protected areas needs into national and, where applicable, regional development and financing strategies and development cooperation programmes. | PIOJ | MWLECC, MoAF, MYC, MFP | | x | x | x | x | |
| 5.4 Identify and establish positive incentives that support the integrity and maintenance of protected areas including those on private lands, and the involvement of local communities and stakeholders in conservation. | MWLECC, MoAF, MYC, NEPA/GEF Project | MFP | | | x | x | x | |
| 5.5 Develop opportunities for alternative livelihoods in protected areas that are consistent with protected area management objectives. | PAC | MWLECC, MoAF, MYC and Ministry of Tourism | | x | x | x | x | To be implemented under the GEF Project<br><br>Baseline data needed. |

**Goal 6:**     **To evaluate, monitor and improve protected areas management, status and trends.**

**Target:**     By 2017, frameworks for monitoring, evaluating and reporting protected areas management effectiveness at sites and the national system of protected areas adopted and implemented.

**Key Indicators:**
- Increase in NSPA operational sustainability measured by average METT score for 25% in approximately 30% of PAs based on the following definitions: High (75-100), Medium (55-74), Low (<55) using 2009 scores as the baseline.
- National Protected Areas Data Management System established and used by all PA managers.

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 6.1 Develop and adopt appropriate methods, standards, criteria and indicators for monitoring and evaluating the effectiveness of protected area management and governance, taking into account the IUCN-WCPA framework for evaluating management effectiveness, and other relevant methodologies, which should be adapted to local conditions. | NEPA/GEF Project | FD, Fisheries Division, JNHT | | x | x | | | To be implemented under the GEF Project |
| 6.2 Review existing protected area databases with a view to establishing a centralized national database, which is compatible with the World Database for Protected Areas (WDPA), to assist in the effective monitoring of the proposed protected areas system. | PAC | FD, Fisheries Division, JNHT, NEPA, IOJ, NGOs | | x | x | | | Linked to 11.3 and 13.2 |
| 6.3 Conduct management effectiveness evaluations of at least 25 per cent of the country's protected areas (using the 32 sites and regions in the GEF FSP as a baseline) by 2017. | NEPA/GEF | | | | | x | x | To be implemented under the GEF Project  Linked to application of METT score to all sites as |

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| | | | | | | | | part of mid project evaluation. |
| 6.4 Include information resulting from evaluation of protected areas management effectiveness to improve protected areas management and to inform national reports e.g. under the Convention on Biological Diversity. | MWLECC | FD, Fisheries Division, JNHT,NEPA, IOJ, NGOs | | x | | | x | |
| 6.5 Commence the implementation of key recommendations arising from site- level management effectiveness evaluations, as an integral part of adaptive management strategies. | FD, Fisheries Division, JNHT,NEPA | | | | | | x | |
| 6.6 Monitor and evaluate the implementation of the plan. | PAC | FD, Fisheries Division, JNHT, NEPA ,IOJ, Academia | | x | x | x | x | |
| 6.7Develop and implement prioritization and categorization models for   historical and cultural sites | JNHT | IOJ, MYC, NEPA | | | x | x | x | |

**Goal 7:** **To develop and adopt minimum standards and best practices for the national protected area system.**

**Target:** By 2017, standards, criteria, and best practices for planning, selecting, establishing, managing and governance of the national system of protected areas and relevant joint regime areas are developed and adopted.

**Key Indicators**:
- Number of management and operational plans that incorporate best practice guidelines

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 7.1. Collaborate with relevant organizations and States in developing, reviewing and approving protected areas standards and best practices for selecting, establishing, planning, managing and governance for Jamaican protected areas and make available through the Clearing-House Mechanism. | NEPA/GEF Project, Fisheries Division, JNHT Ministry of Foreign Affairs | FD, Fisheries Division, JNHT, CMS, IOJ-Clearing House Mechanism (CHM), Academia, NGOs, Other jurisdictions | | | X | x | | Linked to activities in Goals 1 & 3 |
| 7.2 Incorporate as appropriate best practices in the development of site management and operational plans. | NEPA/GEF Project | FD, Fisheries Division, JNHT CMS IOJ, Academia, NGOs | | | | x | X | Linked to activities in Goals 1 & 3 |

**Goal 8:**        **To build capacity for the planning, establishment and management of protected areas.**

**Target:**        By 2017, capacity building programmes and initiatives are implemented to develop knowledge and skills at individual, community and institutional levels, and raise professional standards.

**Key Indicators**:
- Number of protected area staff, NGOs and CBOs trained, by type of training/number of personnel with (particular) qualification.
- Number of case studies and reports available through the Jamaica Clearing-House Mechanism

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 8.1 Develop and implement national training programme for protected area site and system managers that is appropriate for field, professional and technical staff | NEPA/GEF | FD, Fisheries Division, JNHT, NEPA | | | x | x | x | |
| 8.2 Exchange lessons learnt, information and capacity-building experiences among countries and relevant organizations, through the Jamaica Clearing-House Mechanism and other means. | IOJ-CHM | NEPA, FD, Fisheries Division, JNHT, NGOs | | x | x | x | x | Linked to 9.6 |
| 8.3 Establish effective mechanisms to document existing knowledge and experiences on protected area management, including traditional knowledge. (Mechanisms to include minutes of meetings, case studies.) | NEPA, FD, Fisheries Division, JNHT, NGOs | PAC | | | | × | × | Commences in first five-year cycle. Ongoing. |
| 8.4 Build capacity in key entities including CBOs and NGOs for economic valuation of ecosystem services.[10]* | NRCA | PIOJ, NEPA, International Expert, Windsor Research Center | | | x | x | | Funding to be sourced |

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[10] Goal 1.Healthy, productive and biologically diverse ecosystems - Sector Plans, Vision 2030

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 8.5 Assess and prioritize the enforcement capacity needs of agencies with a mandate to manage protected areas (natural and cultural resources) and identify mechanisms to address them. | PAC | Ministry of National Security, Jamaica Constabulary Force, Jamaica Defence Force and Island Special Constabulary Force | x | x | | | | |
| 8.6 Establish additional protected areas. | NRCA, FD, Fisheries Division, JNHT | MWLECC | x | x | x | x | x | Linked to activity 13.3 |

**Goal 9:** **To strengthen communication, education and public awareness.**

**Target**: By 2017 public awareness, understanding and appreciation of the importance and benefits of protected areas is significantly increased.

**Key Indicators:**
- National protected area communication plan exists.
- Number of managed protected areas with environmental awareness and communication plans.

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 9.1. Establish or strengthen and implement education and public awareness strategies and communication programmes on the importance of PAs (natural and cultural resources) in terms of their role in the biodiversity conservation of biodiversity and culture and sustainable socio-economic development targeting all | NEPA, FD, Fisheries Division, JNHT, NGOs | NGOs, JIS, Creative Production and Training Centre (CPTC), GEF Project | | X | x | x | x | Linked to all goals part of information management. |

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| stakeholders.[11] | | | | | | | | Ongoing |
| 9.2 Strengthen, and where necessary, establish information mechanisms directed at target groups such as the private sector, policy makers, educational institutions, development institutions, community-based organizations, the youth, the media, and the general public in managing protected areas.[12] | PAC | NEPA, FD, Fisheries Division, JNHT | | x | x | x | x | To be implemented under the GEF project. |
| 9.3 Identify core themes for education, awareness and communication programmes relevant to PAs.[13] | PAC | NEPA, FD, Fisheries Division, JNHT, NGOs | | x | x | x | x | To be implemented under the GEF project. |
| 9.4 Implement a KAP survey to evaluate the impacts of communication, education and public awareness programmes on biodiversity conservation and heritage protection. | NEPA/GEF Project | FD, Fisheries Division, JNHT, NGOs, JIS | | | | x | x | |
| 9.5 Develop and implement programmes to build awareness/knowledge of Archaeological and Environmental Impact Assessments. | JNHT and NEPA | FD, Fisheries Division | | x | x | x | x | |
| 9.6 Increase networking and information sharing on protected areas through the Jamaica Clearing-House Mechanism | IOJ-CHM | NEPA, FD, Fisheries Division, JNHT, NGOs | x | x | x | x | x | |

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[11] Communication, Education and Public Awareness Initiative (CEPA) under the Convention on Biological Diversity
[12] Goal 2   Sustainable Management and Utilization of  Natural Resources –Sector Plans, Vision 2030
[13] Goal 3 Effective, efficient, and accountable governance framework for environment and natural  resources  - Sector Plans, Vision 2030

**Goal 10:** **To prevent and mitigate the negative impacts of key threats to protected areas.**

**Target:** By 2017, effective mechanisms for identifying and preventing, and/or mitigating the negative impacts of key threats to protected areas are in place.

**Key indicators:**
- EIA legislation and process include biodiversity and heritage concerns.
- Number of strategies to prevent/mitigate threats to protected areas implemented.

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 10.1 Include biodiversity and heritage related issues into environmental and archaeological impact assessment legislation and/or processes and in strategic environmental assessments. | NEPA and JNHT | MYC, MWLECC, AGD, CPC, Fisheries Division and FD | | x | x | | | To be implemented under the GEF Project |
| 10.2 Include requirement for environmental and archaeological impact assessments in protected area legislation for development in all protected areas and internationally designated sites e.g. Ramsar and World Heritage Sites. | NEPA,JNHT, FD Fisheries Division Div | AGD, Chief Parliamentary Counsel, MYC, MWLECC | x | x | | | | To be implemented under the GEF Project |
| 10.3 Identify and prioritize key threats to protected areas and develop and implement strategies to prevent and/or mitigate such threats.[14] | NEPA, FD, Fisheries Division, JNHT | CMS, IOJ, Academia, NGOs | | x | × | × | × | To be implemented under the GEF project. Linked to activities in Goals 1 & 3 |

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[14] Goal 1.Healthy, productive and biologically diverse ecosystems - Sector Plan, Vision 2030

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| | | | | | | | | Ongoing |
| 10.4 Continue addressing invasive alien species | NEPA | FD, Fisheries Division, JNHT, CMS IOJ, Academia, NGOs | x | x | × | × | × | Being implemented under IAS project. Linked to activities in Goals 1 & 3 |
| 10.4 Review existing policies and legislation and amend where necessary to address key threats including inter alia the illegal exploitation of resources from protected areas, water pollution | NEPA/GEF Project | FD, Fisheries Division, JNHT, MYC, MWLECC, MoAF, AGD, Maritime Authority of Jamaica, Chief Parliamentary Counsel | x | x | | | | |

**Goal 11:** **To ensure that scientific knowledge contributes to the establishment and effectiveness of protected areas and the protected area system.**

**Target**: Scientific knowledge relevant to protected areas is further developed as a contribution to their establishment, effectiveness, and management.

**Key indicators:**
- Number of new national, research partnerships established.
- Number of protected areas that access and contribute to biological information through Jamaica Clearing-House Mechanism.
- Number of research projects that support the priorities of the National System of Protected Areas.

| Activities | Lead Agency | Supporting Entities | Year | | | | | Duration |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 11.1 Improve scientific and technical cooperation related to protected areas at the national and regional l level. | PAC | FD, Fisheries Division, JNHT, NEPA, CMS-UWI, IOJ, Academia, NGOs | | | × | × | × | Linked to activities in Goals 1, 3 & 5 Ongoing |
| 11.2. Promote interdisciplinary research to improve understanding of the ecological, social and economic aspects of protected areas, including methods and techniques for valuation of goods and services from protected areas | Academia/ PIOJ | FD, Fisheries Division, JNHT, NEPA, CMS-UWI, IOJ, Academia, NGOs | | | × | × | × | Linked to activities in Goals 1, 3 & 5 Ongoing |
| 11.3 Promote the dissemination of biological information from and on protected areas, through NGO and agency web sites, including through the Jamaica Clearing-House Mechanism and the protected areas database. | NEPA, FD, Fisheries Division, JNHT, NGOs, IOJ-CHM, Academia | | x | x | x | x | x | To be implemented, in part, under the GEF project. Linked to 6.2 and 13.2 |

| Activities | Lead Agency | Supporting Entities | Year | | | | | Duration |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 11.4 Promote research on cultural and historical heritage to engender increased interest in Jamaica's physical and intangible attributes e.g., through Memorandum of Understanding | JNHT/ Academia (history and archaeology) | IOJ | | x | x | | | |
| 11.5 Develop and implement national biodiversity research agenda | PAC | NEPA, FD, Fisheries Division Div., JNHT, MWLECC, IOJ, NGOs, Academia | | x | x | x | x | |

**Goal 12:** **To identify and integrate climate change adaptation and mitigation measures in protected area planning and management strategies.**

**Target**: By 2017, climate change mitigation and adaptation strategies and policies for protected areas defined, developed and implemented.

**Key Indicators:**
- Protected areas system informed by future climate change/climate variability scenarios
- Number of management plans that are informed by future climate change/climate variability scenarios.
- Mechanism exists for coordination and communication between agencies and organisations with responsibility for protected areas and with agencies with a climate change mandate.

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 12.1 Establish mechanism for coordination and communication between agencies and organisations with responsibility for | MWLECC and | NEPA, FD, Fisheries Division, JNHT, | | | × | × | × | Linked to activities in |

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| protected areas and with agencies with a climate change mandate | PAC | Meteorological Office | | | | | | Goals 1, 3 & 11 Ongoing |

**Goal 13:** **To address under-representation of marine, inland water, and terrestrial ecosystems and heritage sites in the national protected area system.**

**Target:** By 2017, conservation goals set for selected marine, fresh-water and terrestrial targets in the NEGAR met and heritage sites (see Appendix 10).

**Key Indicators:**

- Number of new protected areas declared and integrated in the National System of Protected Areas
- Number of restoration and protection strategies developed for under-represented sites.

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 13.1. Conduct assessments of marine, inland water, terrestrial areas and heritage sites to determine areas to be protected (taking into account areas identified in NEGAR). | PAC | NEPA, FD, Fisheries Division, JNHT, MWLECC, MYC, IOJ, NGOs Academia, | × | × | | | | Linked to activities in Goals 1, 3 &11 |
| 13.2 Update the protected areas database with findings from the assessment from 13.1 above. | IOJ-CHM | NEPA, FD, Fisheries Division, JNHT, NGOs, Academia | | | x | x | x | Linked to 6.2 and 11.3 |

| Activities | Lead Agency | Supporting Entities | Year | | | | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | |
| 13.3 Declare highest priority sites identified in the National Ecological Gap Assessment Report and other relevant studies. (Sites will include but not be limited to: Palisadoes-Port Royal underwater city, Pedro Bank, Black River, Glistening Waters (Falmouth) and forest reserves) [15] | FD, Fisheries Division, JNHT, NEPA | MYC, MWLECC, MoAF | x | x | x | x | x | Black River and Pedro Bank to be implemented under the GEF Project |

## 8 Action Plans (detailed steps) for completing priority activities for fully implementing the Programme of Work on Protected Areas:

Refer to section 7.

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[15] Goal 1. Healthy, productive and biologically diverse ecosystems-Vision 2030

# 9 Ecological gap assessment

Jamaica's National Ecological Gap Assessment Report (2009) was intended to achieve the following objectives:

1) "Identify where the existing protected areas fall short in adequately protecting a representative sample of all marine, terrestrial and freshwater biodiversity in the country, that is, identifying the ecological gaps.

2) Based on the identified gaps in representative protected areas, provide recommendations for bridging the gaps and implementing conservation of these areas".

This report is an integrated gap assessment report and it builds on the Jamaica Ecoregional Plan (JERP) which was comprised of gap assessments for marine, terrestrial and freshwater ecosystems. Development of the plan involved consultations with experts and stakeholders as well as technical analyses using existing research data and other information. Conservation targets[16] were identified based on criteria including "endemism, threat levels, ecological representativeness and vulnerability". The number, location and status of targets were determined by threat analyses and cost surface modeling. Specific (or adaptive) conservation goals were identified "to ensure that the number, size or extent of each target conserved is sufficient to maintain long-term ecological functionality". Marine, freshwater and terrestrial assessments also used higher percentage conservation goals for specific targets when required. The Jamaica Ecoregional Plan (JERP) proposed networks for marine, terrestrial and freshwater ecosystems which would jointly meet the Convention on Biological Diversity's "ten per cent minimum threshold for the conservation of all biodiversity targets".

Overlay analyses using the JERP conservation recommendations and a management effectiveness assessment were then undertaken to ascertain the "extent to which Jamaica's current protected areas provide adequate management and protection of the conservation targets".
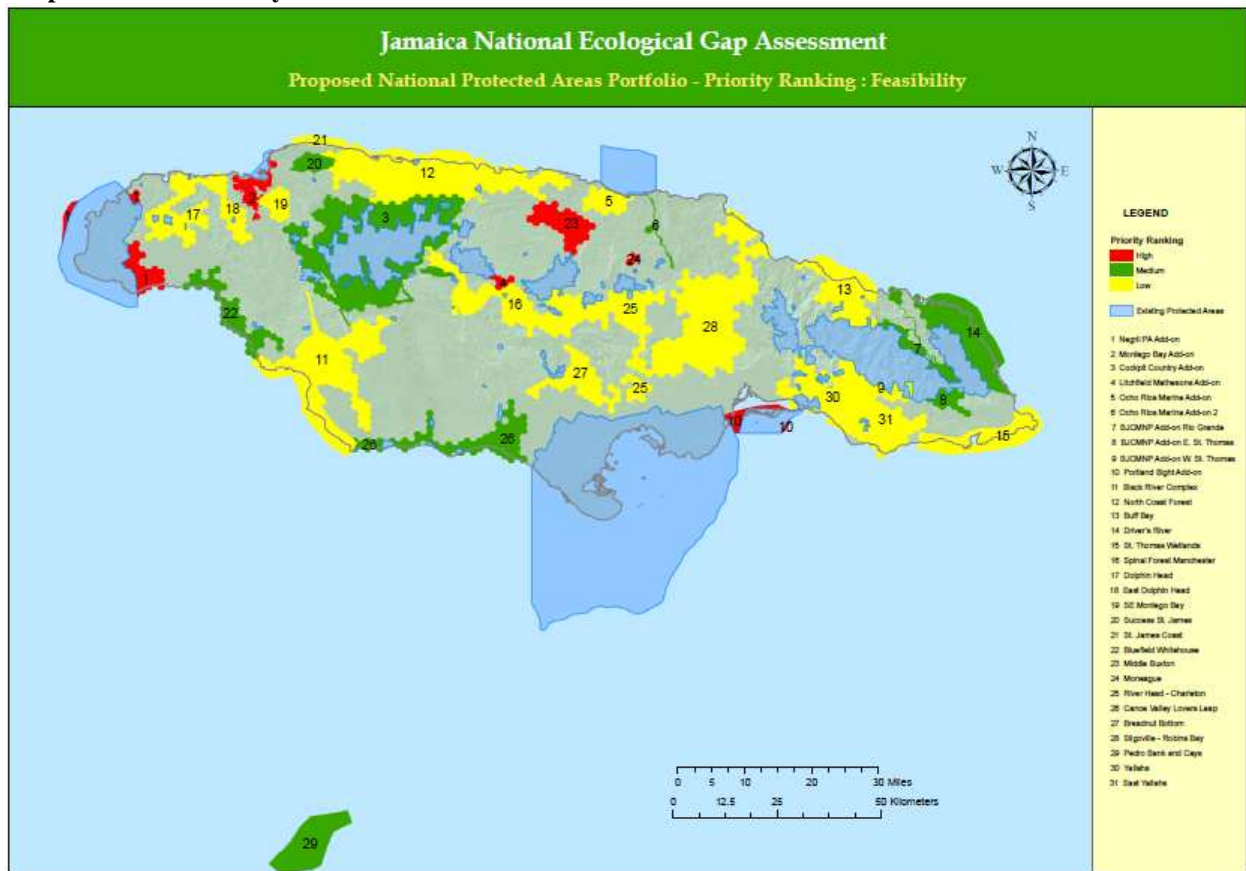
A national level gap analysis was undertaken "using overlay and spatial assessments to determine critical representation, ecological and management gaps concurrent throughout Jamaica's marine, terrestrial and freshwater ecosystems". Gaps identified include the absence of offshore banks, "highly selective representation of cays", protected area legislation does not address "seascape-scale connectivity, functions and processes that are necessary to maintain overall marine biodiversity health". Regarding terrestrial gaps, data for plants is very limited, four targets (Wet and Very Wet Forest on Alluvium, Mesic Forest on Shale and *Osteopilus marianae* (frog species)) are below the ten per cent threshold and eighty per cent of terrestrial targets did not meet adaptive goals "suggesting that most of the terrestrial targets may be highly vulnerable to existing threats and lack of connectivity". The freshwater gaps are large rivers, wetlands, ponds and lakes as well as freshwater caves eastern Jamaica and high-altitude streams in western Jamaica which are not within any protected areas.

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[16] A conservation target is a specific biological feature considered to be representative of Jamaica's biodiversity

Major management gaps identified include "a lack of focus on conservation actions that directly impact biodiversity such as threat abatement and enforcement" which "are fuelled by overall inadequate investment of monetary and human resources in conservation". Factors such as "complications of multiple-agency management combined with the lack of a harmonized system of classification to guide the management of protected areas are contributing to inefficiencies and shortcomings in overall performance".

An integrated protected area portfolio was created for Jamaica that achieves biological conservation goals and protects at least ten per cent of its biodiversity in keeping with the country's commitment (Map 1).

**Map 2Recommended System of Protected Areas**

# 10 Management effectiveness assessment

The National Report on Management Effectiveness Assessment and Capacity Development Plan for Jamaica's System of Protected Areas (2007) includes the results of an assessment conducted to determine how well protected areas are being managed. The assessment involved an examination of protected area pressures, threats and vulnerability as well as management effectiveness at the site level and institutional effectiveness at the system level.

The assessment conducted revealed that there are fourteen major pressures/threats[17] affecting protected areas. These include invasive alien species; forest clearing for agriculture; pollution; tourism; fires; mining and quarrying; hunting and harvesting; encroachment (illegal); timber harvesting (illegal); timber harvest (legal); overfishing; climate change; encroachment (legal); and destructive fishing practices. The first ten items listed are considered the most critical threats[18] to biodiversity. The most critical vulnerability[19] factors identified were exploitation pressure, difficulty in the recruitment and retention of employees, high market value for protected area resources; difficulty in monitoring illegal activities, easy access to and strong demand for natural resources as well as conflicting uses.

Management effectiveness at the site level was evaluated based on planning (i.e. objectives, legal security and site design), inputs (i.e. staffing, communication/information, infrastructure and finances), processes (i.e. management planning, decision making and research and monitoring) and outputs (i.e. threat prevention, site restoration, wildlife management, community outreach, visitor management, infrastructure, management planning, staff evaluation training, research and monitoring). Strengths identified include protected area siting, design and layout as well as long term legal security. The weaknesses identified are outlined in Table 3.

**Table 3 Findings: Management Effectiveness at the Site Level-Weaknesses**

| Category | Weaknesses |
|----------|------------|
| Planning | • community support for protected area objectives<br>• unsettled disputes<br>• boundary demarcation<br>• law enforcement<br>• layout and configuration<br>• zoning<br>• incompatible surrounding land use<br>• linkages to other conserved/ protected areas |
| Inputs | • staffing levels<br>• training and employment conditions<br>• means of communication between staff<br>• communication with local communities<br>• infrastructure including vehicles, field equipment and their maintenance |

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[17] Threat: any human activity that impairs biodiversity; applies to existing activities (pressures) and future activities (threats) (Hayman 2007)

[18] Critical threats are "…based on the degree of the threat across all protected areas; the degree of all types of pressures and threats and comparison of all threats across all PAs. Those with the highest scores were deemed critical." (Hayman 2007)

[19] Vulnerability: the extent to which a protected area can withstand or absorb the impacts of threats (Hayman 2007)

| Category | Weaknesses |
|---|---|
|  | • site and visitor facilities<br>• financing |
| Process | • management plans (not recent)<br>• resource inventories<br>• analysis of threats/pressures<br>• work plans with targets identified<br>• community participation<br>• research relating to monitoring and recording impacts<br>• research on ecological and social issues<br>• access to scientific research and advice<br>• identification and prioritization of research |
| Outputs | • threat prevention<br>• detection and law enforcement<br>• site restoration<br>• wildlife/habitat management<br>• visitor management<br>• infrastructure development<br>• management planning<br>• training |

Effectiveness at the system level involved a review of policy directions. Significant strengths identified related to:
- the existence of policies which foster dialogue with and the involvement of civic and environmental NGOs;
- promotion of widespread education and environmental training which is underway;
- laws relating to protected areas which complement protected area objectives and management effectiveness;
- the existence of a vision for the system; and
- on-going research though limited.

Other strengths included incorporation of environmental protection goals in some aspects of policy development and a high level of communication between government departments with responsibility for natural resources.

The most critical institutional factors identified were a need for commitment and funding, comprehensive inventory, training programmes, routine evaluation, effective law enforcement, as well as conservation mechanisms including incentives for private land users.

## 11 Sustainable finance assessment

The Sustainable Financing Plan for Jamaica's System of Protected Areas (2009) seeks to assist in building capacity to "make the best use of a variety of tools and revenue mechanisms which respond to the Jamaican situation". One definition of PA financial sustainability is "…the ability to secure sufficient, stable and long-term financial resources, and to allocate them in a timely manner and in an appropriate

form, to cover the full costs of PAs and to ensure that PAs are managed effectively and efficiently with respect to conservation and other objectives" (Galindo, 2009).

The sustainable finance planning process also assists Jamaica in meeting its commitments under the CBD PoWPA.  Goal 3.4 states "To ensure financial sustainability of Protected Areas and national and regional systems of Protected Areas." The associated target is that "By 2008, sufficient financial, technical and other resources to meet the costs to effectively implement and manage national and regional systems of Protected Areas are secured..." A number of activities are recommended including the development of sustainable finance plans.

The financial planning process included the use of a financial scorecard (which indicates current health of the system and can track progress towards financial sustainability), a financial needs assessment and the identification of sources of funding and financial projections for a ten year period.
The overall result of the application of the scorecard for Jamaica was 25%, the scores for the three key components of protected area financial sustainability being:

- legal, regulatory and institutional frameworks - 27%;
- business planning and tools for cost-effective management -10%; and
- tools for revenue generation - 36%.

The three major sources of funding for protected areas include government budgets, international donors and self generated funds. These were identified as inadequate as the financial needs of the system are not being met and full advantage is not being taken of available funding and market based opportunities. Additionally, it was recommended that there is a need to "…professionalize and develop specialized human resources in order to maintain, design and implement financial mechanisms for JPAS".

The following mechanisms are considered to be the most promising for supporting protected area conservation in Jamaica:

**Public Sources**
1.  GOJ Subvention to NEPA, JNHT, Forestry Department and Fisheries Division (it should be noted that this may not be feasible given the economic situation and the GOJ's thrust regarding the removal of agencies from the budget)
2.  Tourism Enhancement Fund
3.  Taxes on hotels, energy, aviation
4.  Tax breaks or subsidies for private conservation effort/investment
5.  Earmarking charges or penalties related to natural resource use (e.g. timber stumpage fees, park entry fees, pollution taxes)
6.  Direct public investment for PA infrastructure

**Private sources**
7.  Corporate social responsibility programme
8.  Eco-tourism enterprise
9.  Personal donations programme
10. Sponsorships /adopt a PA

11. Dedicated fund-raising campaigns or events
12. Private foundations
13. Biodiversity friendly products
14. Certified forest and fisheries products
15. Organic agriculture
16. Sustainable non-timber forest products
17. Portfolio investors (e.g. "green" funds)
18. Jamaica Protected Areas System (JPAS) Credit card

**International sources**
19. Multilateral
20. Bilateral
21. Debt for nature swaps
22. Global Environment Facility and other environmental funds

**Self- generated sources**
23. Tourism related fees (visitors, hotels, tour operators)
24. Fees for placing antennas and infrastructure in PA
25. Carbon sequestration in biomass/ Reducing Emissions from Deforestation in Developing Countries (REDD)
26. Service concessions
27. Watershed protection incentives
28. Special events like concerts and Eco challenges
29. Green seals
30. Bio-prospecting agreements
31. Tradable development rights (biodiversity offsets and easements)
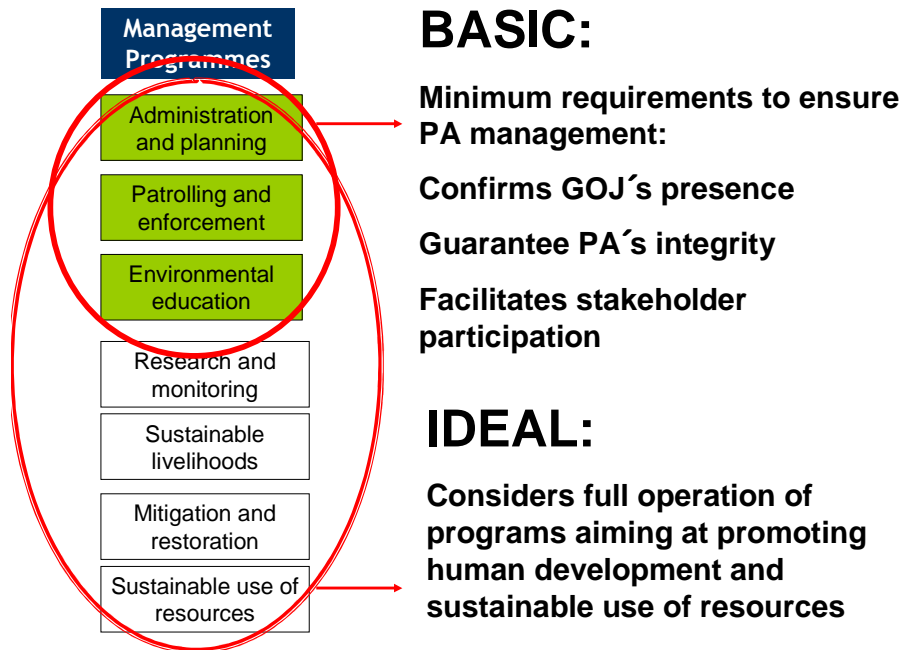32. Publicity (access, trails, material)

A rapid feasibility assessment was conducted of selected mechanisms from the above listing. The assessment considered issues such as the legal and political feasibility, the complexity of implementation and the financial return (Table 1). Mechanisms which achieved total scores of more than 8 points suggest that there is a greater likelihood of successful implementation in the short and medium term.

**Table 4 Implementation feasibility of selected mechanisms (Galindo, 2009)**

| | Feasibility (1 low - 3 high) | | | | |
|---|---|---|---|---|---|
| | Legal | Political | Complexity | Return | Total |
| **Public** | | | | | |
| GOJ Subvention to NEPA, JNHT, Forestry Department and Fisheries Division | 3 | 2 | 2 | 3 | 10 |
| Taxes on hotels, energy, aviation | 2 | 1 | 2 | 3 | 8 |
| Tax breaks or subsidies for private conservation | 2 | 1 | 2 | 2 | 7 |
| Debt for nature swap | 3 | 2 | 1 | 2 | 8 |
| Charges or penalties related to natural resource use | 3 | 2 | 1 | 1 | 7 |
| **Private** | | | | | |
| Corporate social responsibility programs | 3 | 2 | 2 | 2 | 9 |
| Personal donations/ sponsorship programs | 3 | 3 | 2 | 2 | 10 |
| Portfolio investors (e.g. "green" funds) | 3 | 2 | 1 | 2 | 8 |
| JPAS Credit card | 3 | 3 | 2 | 2 | 10 |
| **Self generated sources** | | | | | |
| Tourism fees (visitors, hotels, tour operators) | 2 | 2 | 2 | 3 | 9 |
| Fees for antennas and infrastructure placed in PA | 2 | 2 | 2 | 3 | 9 |
| Carbon credits/ REDD | 3 | 3 | 1 | 3 | 10 |
| Service concessions | 2 | 2 | 2 | 3 | 9 |
| Watershed protection incentives | 1 | 1 | 1 | 2 | 5 |
| Publicity (access, trails, material) | 2 | 3 | 2 | 2 | 9 |
| Dedicated fund-raising campaigns or events | 3 | 3 | 2 | 2 | 10 |
| Bio-prospecting agreements | 1 | 2 | 2 | 3 | 8 |
| Tradable development rights (biodiversity offsets and easements) | 2 | 1 | 3 | 3 | 9 |

In order to ascertain the financial requirements for the protected areas system a review was conducted of the most common management programmes and basic and ideal scenarios were identified (Figure 1). General standards for protected area management were also identified, which should be considered as a point of reference, not necessarily applicable in every instance (Appendices I -IV).

**Figure 2Management programmes for each scenario (Galindo 2009)**



The proposed ten year budget for existing protected areas is outlined in Table 6 and assumes a moderate annual growth to achieve the basic management scenario by the end of the fourth year and the ideal scenario by the end of the ninth year.

**Table 5 Ten Year Budget for NEPA USD**

| | NEPA TOTAL / Years | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Human Resources | 515,258 | 772,887 | 1,030,516 | 1,288,146 | 1,288,146 | 1,446,535 | 1,653,183 | 1,859,831 | 2,066,478 | 2,066,478 |
| Operative costs | 177,634 | 266,451 | 355,267 | 444,084 | 444,084 | 920,291 | 1,051,761 | 1,183,231 | 1,314,701 | 1,314,701 |
| Equipment | 126,561 | 189,841 | 253,122 | 316,402 | 316,402 | 316,407 | 361,608 | 406,809 | 452,010 | 452,010 |
| Professional services | 41,645 | 62,467 | 83,290 | 104,112 | 104,112 | 104,112 | 104,944 | 104,944 | 104,944 | 104,944 |
| Infrastructure & transportation | 411,813 | 411,813 | 411,813 | 411,813 | 411,813 | 1,079,136 | 1,079,136 | 1,079,136 | 1,079,136 | 1,079,136 |
| Systemic costs | 79,450 | 119,175 | 158,900 | 198,625 | 198,625 | 514,763 | 588,300 | 661,838 | 735,375 | 735,375 |
| TOTAL | 1,352,361 | 1,822,635 | 2,292,909 | 2,763,183 | 2,763,183 | 4,381,244 | 4,838,932 | 5,295,789 | 5,752,645 | 5,752,645 |

# 12 Capacity needs assessment

A five-year capacity development plan was also prepared (Hayman, 2007) based on the management and institutional gaps identified. Proposed actions were identified which were organized according to 7 strategic directions namely sustainable financing, collaboration, enabling environment (policy, legal and regulatory framework); human resources management for protected areas; research, monitoring and evaluation; boundary and zoning setting; public education and awareness and infrastructural development.

# 13 Protected area valuation assessment

**Economic Valuation of Protected Areas**: Jamaica received funds through the United Nations Environment Programme (UNEP) to complete the economic valuation of 3 of the country's protected areas, an output of the CBD PoWPA. The main objectives of the project were to complete a national-

level assessment of contributions of protected areas to the country's economy, integrate the use of economic valuation and natural resource accounting into protected area national planning processes; and prepare methods, standards, criteria and indicators for evaluating effectiveness of protected area management and governance. The study that was done contributed to a national-level assessment of the socio-economic contributions of three protected natural areas (Dolphin Head Forest Reserve, Black River Morass and the Montego Bay Marine Park) to Jamaica's economy. For the Dolphin Head Forest Reserve the most valuable attributes were "Biodiversity", "Restoration of Ecologically Degraded Areas" and "Research & Education", with an estimated mean WTP of US$23, US$22, US$20.5 per year respectively. The variables "Take a Tour along the Trail Including Live Museum" and "Endemic Species" were valued at US$11.1 and US$9.4 per year, respectively. The most valuable attributes for the Montego Bay Marine Park were "Biodiversity", and "Re-training of Locals" which were worth approximately US$45.5 and US$1.05 per person, per year. For the Black River Morass, the attributes "Crocodiles", "Biodiversity" and "Research & Education" were worth an estimated US$101, US$13.5 and US$82.92 per person per year respectively. "Visiting the Black River as Part of a Tour" was valued at US$12.5 while "Retraining of Locals" was valued at US$0.42.

When these figures are conservatively applied to the population of the sampled parishes only, an estimate is obtained of the annual socio-economic benefit derived from an attribute of the Dolphin Head Forest Reserve, Black River Morass and the Montego Bay Marine Park to have an average aggregate value of at US$5.524Mn, US$13.384Mn and US$7.704Mn respectively. When these figures are applied to the national population we obtain an estimate of the minimum annual Socio-economic benefit derived from the Dolphin Head Forest Reserve, Black River Morass and the Montego Bay Marine Park of US$27.62Mn, US$66.92Mn and US$14.81Mn.

## 14 Climate change resilience and adaptation assessment

**Climate Change Adaptation and Disaster Risk Reduction**: Jamaica received a grant from the European Union through the United Nations Environment Programme (UNEP) for the implementation of a national project to address Climate Change Adaptation and Disaster Risk Reduction. NEPA will be implementing Component 2 of the project and has an objective to increase the resilience of coastal ecosystems to climate change. The following measures have been achieved to date within vulnerable locales:

- **Marine Temperature Data logger installation** and regular rotation. These have been installed as an early warning indicator for coral bleaching in relation to sea temperature increase as one of the primary stressors leading to bleaching. The data is collated, analyzed and correlated with historical coral reef monitoring data. Four data loggers have been installed in 4 protected areas: Negril Marine Park, Montego Bay Marine Park, Ocho Rios Marine Park and Portland Bight Protected Area.

- **Mangrove Restoration** in Portland Bight Protected Area, Portland Cottage. In an attempt to recreate the natural hydrological regime a tidal channel with tributaries was constructed. A fence was also erected around the main planting area to prevent feral goats from consuming the mangrove seedlings. Approximately 3,400 red and black mangrove seedlings have been planted.

- **Mooring Buoy installation** for soft and hard substrates in 3 Protected Areas. In order to decrease the pressure on heavily utilized coral reef and seagrass communities, mooring buoys have been installed to discourage anchoring which negatively impacts these communities. 21 moorings installed to date:
    - 10 in Palisadoes-Port Royal Protected Area
    - 8 in Negril Marine Park and
    - 3 in Montego Bay Marine Park

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