Annex A

PROPOSAL SUMMARY

Project Number: CBA/JAM/SPA/09/06

1. **Project Title**: ***Increasing community adaptation and ecosystem resilience to climate change in Portland Bight***
Short Title (for communities) Community Adaptation to Climate Change in Portland Bight

2. **Project Site**: *(give exact location of project – region, village, etc)*
Portland Bight Protected Area – with special emphasis on the communities (Old Harbour Bay, Hellshire & Salt River) that depend on the three new Fish Sanctuaries (Salt Harbour, Galleon Harbour and Three Bays) (see maps – Enclosures 1-4).

3. **Proponent**: *(name of NGO/CBO, brief background information on the organization)*
Caribbean Coastal Area Management Foundation – an NGO dedicated to coastal conservation and community development. C-CAM is a registered not-for-profit, limited liability company with more than 11 years experience working in the Portland Bight Area.

4. **Project Objective:** *(state the objective of the project, from the approved concept)*
The objective of the project is to increase the resilience of vulnerable coastal communities and ecosystems in Portland Bight to climate change.

5. **Authorized Representative**: *(name and title of two or more people authorized to represent grantee in any transaction)*

NAME	POSITION	E-MAIL	TELEPHONE
Ingrid Parchment	Executive Director	iparchment@yahoo.com	(876) 383-2184
D. Brandon Hay	Science Officer	brandonhay@cwjamaica.com	(876)382-8543

6. **Cooperating Organizations**: *(name and contact information for project partners)*

NAME	POSITION/ORGANIZATION	E-MAIL	TELEPHONE
Junior Squire	Fisheries Division, Ministry of Agriculture and Fisheries	oliver_squire@yahoo.com	(876) 862-8902
Gregory Prince	Social Development Commission	prince_gregory2001@yahoo.com	(876) 986-2453
William Shagoury	Clarendon Parish Development Committee	wshagoury@yahoo.com	(876) 382-5174

Other participating organizations;
National Focal point on Climate change
National Environment and Planning Agency (NEPA)
Office of Disaster Preparedness and Emergency Management (ODPEM)
Forestry Department (FoD)
St Catherine Parish Development
Community Councils (Salt River, Cockpit, Portland Cottage, Old Harbour etc.)
Jamalco
Jamaica Coral Reef Monitoring Network

7. **Start-Up Date**: *(target date for project commencement)*
January 2010

8. **Project Period**: *(duration of project)*
18 months

9. **Total Project Cost:** *(total cost, including CBA funding and co-financing (in cash and in kind)*
US$116,600

10. **Amount Requested**: *(amount requested from CBA programme)*

US$48,000

11. **Brief Project Description** *(to become publicly accessible on the CBA website on project approval. 1-2 paragraphs.)*

Portland Bight Protected Area includes some of the best remaining examples of coastal dry forest, the longest contiguous mangrove coastline in Jamaica, and some of the most important fish nurseries in the country. It therefore has outstanding national and global importance because of its highly threatened biodiversity and ecological services. The Government of Jamaica has proposed three new Fish Sanctuaries in the area, which will be managed by Caribbean Coastal Area Management Foundation (c-CAM). C-CAM is an NGO dedicated to coastal conservation and community development that has been working in the area for more than ten years. Portland Bight is also high risk area for hurricanes, floods and tsunami, with more than 20,000 people living in the danger zones.

For all these reasons, climate change adaptation is a high priority in this area and the local community is very anxious to see measures implemented to minimize the impacts of future events. This project was designed to begin the process of climate change adaptation in the area based on community inputs, (accumulated through long-term discussions with organizations such as the Portland Bight Fisheries Management Committee, as well as a Vulnerability Risk Assessment exercise). The main focus of the project is an education programme that will engage stakeholders in the communities around the Fish Sanctuaries (including national government, local government, developers, community councils and school children) to work together to take action to minimize risks and reduce impacts. This will be supplemented by a community monitoring programme for environmental change and disaster impacts, a demonstration project for rainwater harvesting and first steps towards promoting alternative livelihoods.

1.0 RATIONALE

1.1 **Community/Ecosystem Context**

Describe the target/beneficiary community and target ecosystems. Be sure to address all of the following issues, where relevant or applicable. Also, be sure to distinguish which elements of the community will be targeted (i.e.: gender, livelihood or other groups that are particularly vulnerable).

- Number of people
- Relevant social dynamics: gender/age/ethnicity/livelihood group/class, etc
- Ecosystem type
- Potential global environmental benefits (focal area, relevant species/resources, etc)
- Describe the relationship of the community with the target ecosystem, ecosystem services, (i.e.: fresh water, storm protection, erosion control, fish habitat, ecotourism, etc)

Portland Bight Protected Area (PBPA) (Enclosure 1) includes coastline from Hellshire to Milk River on the South Coast of Jamaica. The coast is fringed with mangroves (the longest contiguous stretch of mangroves in Jamaica), seagrass beds, coral reefs and cays. These form the largest nursery in Jamaica for fish, crustaceans and mollusks (including conch, *Strombus gigas*). The beaches provide nationally significant nesting habitat for globally threatened sea turtles (principally Hawksbill *Eretmochelys imbricata*) while the many rivers that drain the hinterland provide habitat for the globally threatened American Crocodile *Crocodylus acutus* as well as endemic fish. The wetlands include habitats for the globally threatened West Indian Whistling Duck *Dendrocygna arborea.* Overlooking the coast are three tropical dry forests – Hellshire Hills, Braziletto Mountains and Portland Ridge. These are globally significant remnants of the tropical dry forest on limestone and they provide the only remaining habitat in the world for at least four globally threatened species of reptiles, including the critically endangered Jamaican Iguana *Cyclura collei* and a frog *Eleutherodactylus cavernicola*. Several other globally threatened species including Jamaica's only remaining terrestrial mammal (apart from bats) – the Jamaican Hutia *Geocapromys brownei*. There are also several caves that support distinctive fauna including bats. These areas are surrounded by agriculture (mainly sugar cane) with pockets of settlement and industry (including 3 ports). All these habitats are already apparently showing signs of stress from climate change, including increased hurricane damage, increased drought and flood cycles and increased risk of fire.

The marine ecosystems are likewise showing signs of stress, for example coral reefs have low levels of living coral combined with high overgrowth by algae and are regularly affected by bleaching events.

PBPA includes three towns (Old Harbour Bay, Lionel Town and Hayes) and about forty nine residential communities nineteen of which are directly on the coast. According to the 1991 census the population was about 48,000, with more males that females and a preponderance of young people. The target communities for this project include all the people living within the PBPA but the main focus will be on the most vulnerable settlements which are close to the Portland Cottage, Salt River, Cockpit and Old Harbour Bay, a total of about 20,000 people, whose main livelihoods depend directly or indirectly on fishing, sugar or bauxite. These areas form the hinterland for three fish sanctuaries which are in the process of being declared by the Ministry of Agriculture and Fisheries (Salt Harbour, Galleon Harbour and Three Bays). The communities are all low lying, mostly carved out of mangrove swamps and wetlands and their immediate environs. All have recent history of being affected by floods and hurricanes (including Hurricanes Ivan and Dean in 2004 and 2007 respectively) therefore there is a high level of receptivity to measures to reduce vulnerability in these areas. C-CAM is implementing several projects in these communities. The area was economically depressed before the hurricanes and conditions are likely to worsen because all the main sources of revenue and employment are in decline.

The people of the area are particularly dependent on the maintenance of natural ecosystems because of the natural services they provide. This is true for all coastal communities but in Portland Bight the linkages are particularly close. The forests of the limestone hills in the immediate vicinity sustain the aquifers that support many springs and wells, while further inland forest hills reduce the frequency of flash flooding and reduce erosion, the mangroves of the area protect the coastline and the infrastructure behind it while providing nursery habitat for fishable resources, coral reefs and seagrass beds also protect the coastline and support fisheries in several ways. As traditional sources on income decline people are increasingly looking for new ones, and C-CAM is helping them to explore sustainable nature-based alternatives including ecotourism.

Overall the high concentration of globally important species and ecosystems in the area (including sea turtles, iguanas, lizards, snakes, mammals, birds, tropical dry forests, mangroves, seagrass beds and coral reefs) and the dependence of the communities on them, combined with links to C-CAM's other work in the area (including implementation of fish sanctuaries in partnership with the Ministry of Agriculture, development of ecotourism and wetlands interpretation, and proposals for a Biosphere Reserve in the area) mean that this project has a very high potential to make a globally significant contribution to moves to address climate change.

1.2 Climate Context

Describe the climate of the region in which the target community is located. While this does not need to be overly scientific, it should include the following elements:

- A brief description of the seasonality of the climate, giving approximate times of year for warm/cool or rainy/dry seasons
- A brief description of when during the year particular climate risks are most acute (i.e.: September for hurricanes, July for drought, February for floods, etc).
- A description of **baseline** climate risks (risks that do not stem from climate change). This should include cyclical climate hazards (events that recur every few years) such as flood and drought related to ENSO or other phenomena, as well as other climate risks that are not associated with climate change.
- A description of **climate change projections** for the region, and recent manifestations of that change if applicable. This should be based on scientific assessments of climate change risks where possible. This could be based on the CBA Country Programme Strategy – consult with the CBA national coordinator. It could also be based on other documents such as the national communication to the UNFCCC, or the NAPA (where applicable)

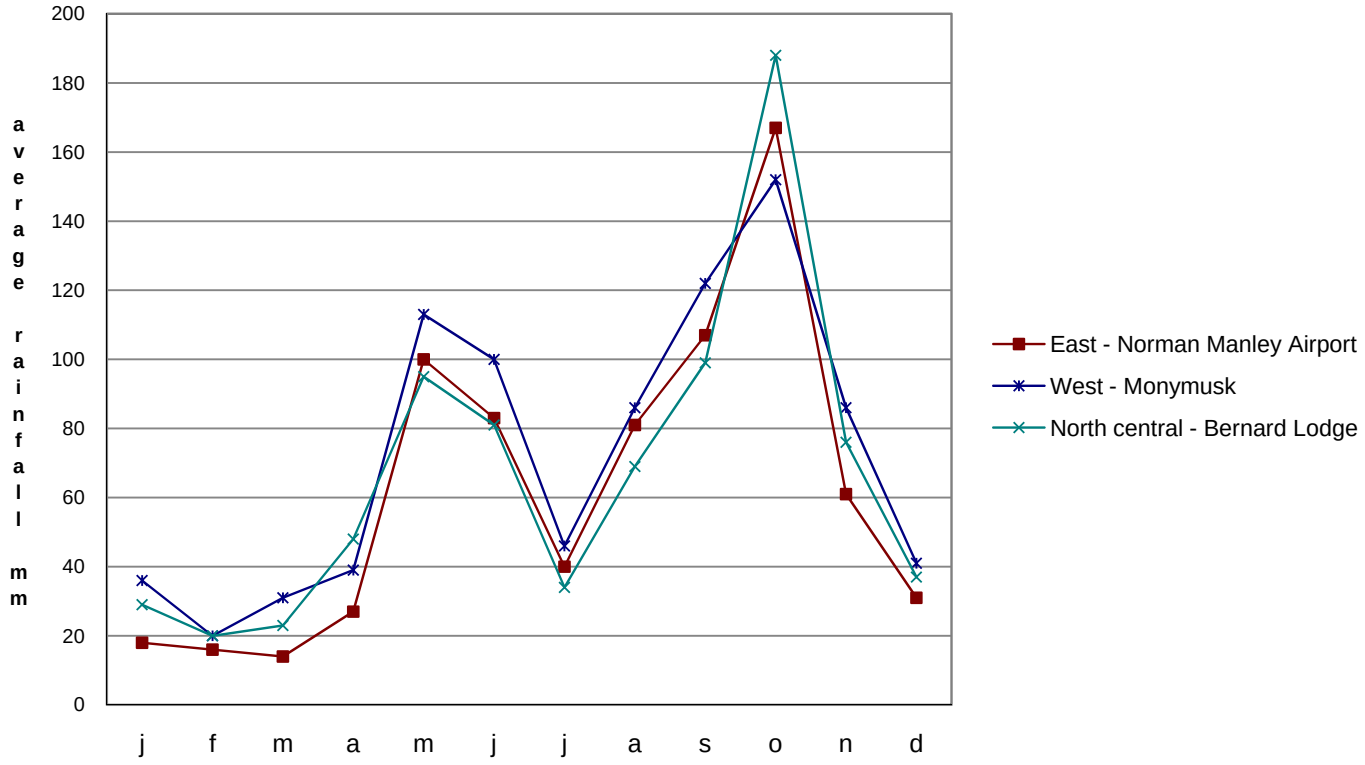
Climate of Portland Bight

The climate of Portland Bight includes two rainy seasons (May-June and September-October) (Figure 1). April to November is wetter and hotter than December to March. Storms and floods are most likely to occur from April to October, with hurricanes most frequent in July to October. Droughts (and associated fires) can occur at any time of year.

Rainfall: The pattern of average annual rainfall measured at adjacent stations is shown in Figure 1. The rainfall pattern is typical of the south coast, with peaks in May and October. There is considerable variation among years. For example, annual precipitation at Salt River ranged between approximately 600 mm in 2007 to 1700 mm in 2002 (Conrad Douglas and Associates, 2009).

Winds: Under normal conditions winds on the south coast of Jamaica are predominantly from the east or south east. Occasionally weather patterns called northern bring north winds. Winds are generally light in the morning, gradually strengthening throughout the day (A. Sutton, pers. obs.).

Figure 1: Long Term Average Rainfall for Portland Bight Protected Area



Baseline climate risks

Floods: Because of its geographic position, Portland Bight has always been vulnerable to natural disasters especially flood, hurricanes and storms. Floods can occur from three main sources: heavy rainfall in the heavily deforested upper, middle and lower watersheds causing rivers to break their banks and spread out over the flood plains of Vere and Old Harbour; storm surge associated with hurricanes; and tsunami. Floods (Figure 2) and storm surges have been recorded in several parts of Portland Bight (most recently in relation to Hurricane Dean in 2007) but there are no records of tsunami in the area.

Hurricanes and storms: Lying in the southern most part of Jamaica, historically the area has been relatively sheltered because most hurricanes tended to pass to the north (Figure 3). However since 2004 two hurricanes (Ivan 2004 and Dean 2007) passed along the south coast from east to west causing severe damage to natural and anthropogenic areas in Portland Bight (C-CAM 2005).

Drought: There is evidence that the mid-summer dry spell is influenced by the El Nino Southern Oscillation (ENSO) (Allen *et al.* 2008).

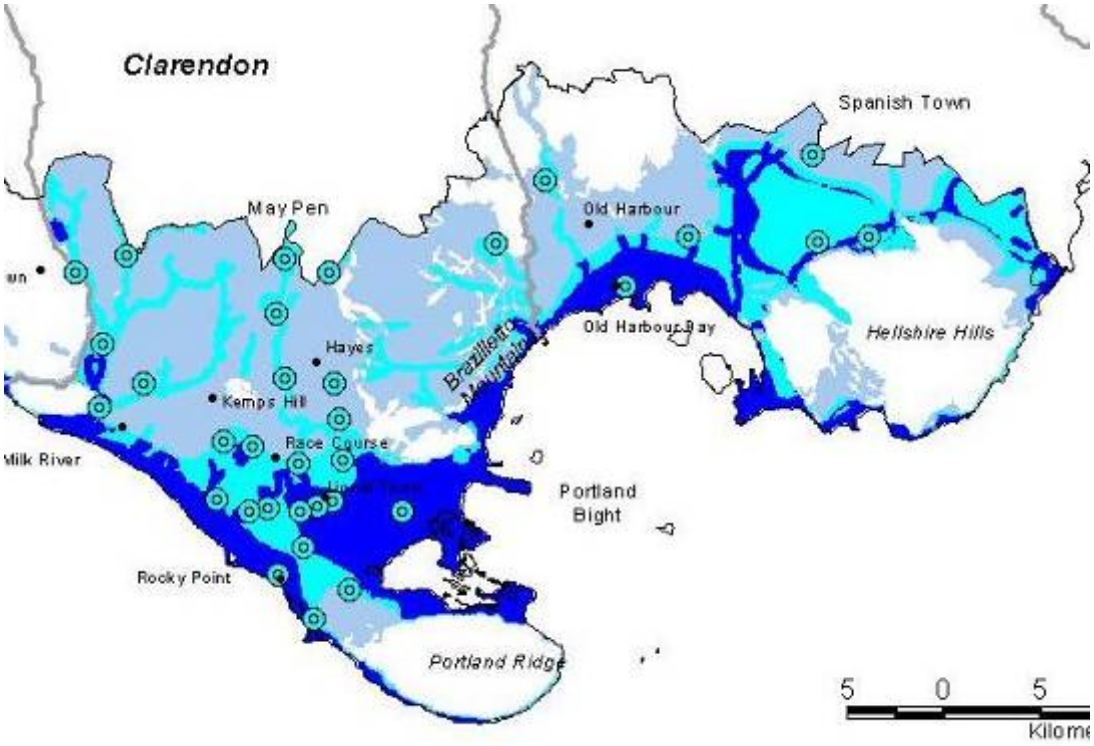


Figure 2: Flood hazard map for Portland Bight (dark blue indicates areas of highest risk, circles indicate where floods were recorded up to 2002) (Halcrow 2002)

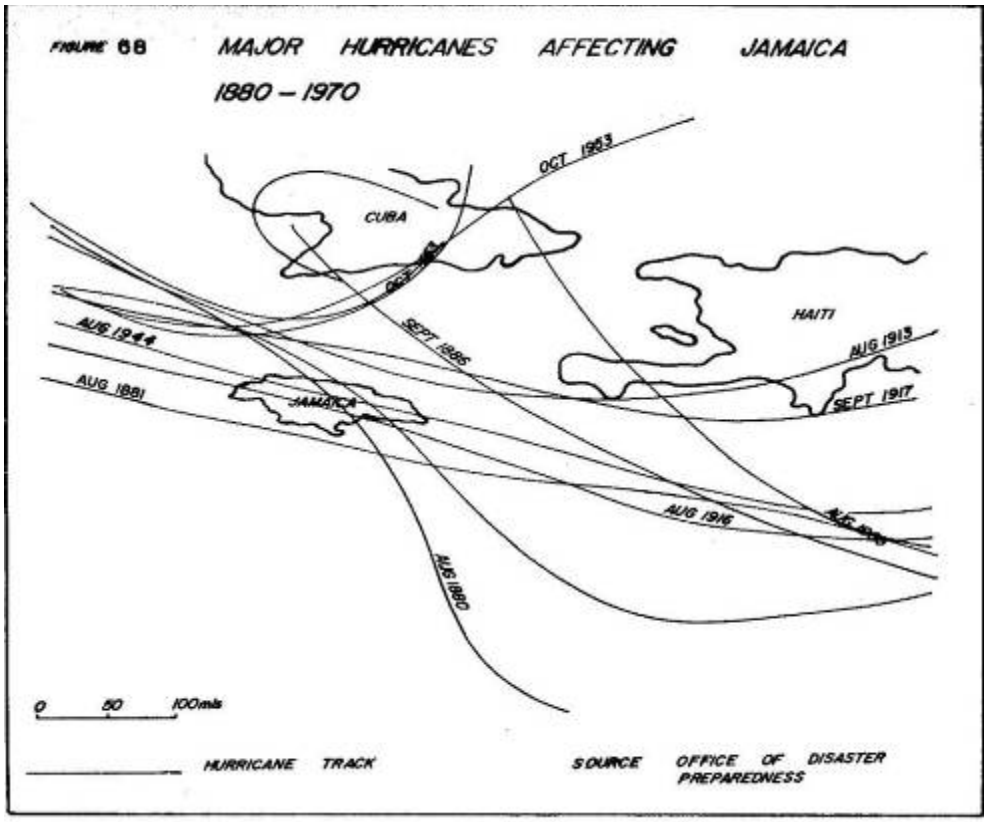


Figure 3: Tracks of major hurricanes across Jamaica 1880-1970

Climate change projections

Climate change projections for Jamaica include increased average annual temperatures (which are already being documented in Jamaica's long-term meteorological records), sea-level rise, increased frequency and intensity of hurricanes, and increased frequency of summer droughts (UNDP undated).

- **"Increases in Temperatures:** Estimates by the IPCC and scenarios of Jamaica's National Communications project that annual temperature could increase by between 1°C and 1.6°C by 2050. Further annual warming in the Caribbean by the 2080s of between 1° and 5°C (depending on the region and scenario) are also projected (Taylor, et al, 2007). Greater warming is anticipated in the northwest Caribbean territories (including Jamaica) than in the eastern Caribbean island chain. Warming of this magnitude will increase stress on coral ecosystems, resulting in increased incidence of coral bleaching. Consensus is emerging that global climate change may indeed threaten the long–term viability of coral reefs on a global basis (UNEP, 2006). Increased water stress will result from higher evaporation rates (INC, 2000), reducing available surface water and accentuating extractions from ground water sources. Pests and diseases could become more rampant with temperature changes while soil conditions could be affected as more pesticides are applied to combat these maladies" (Mahlung, 2006).

- **Increases in sea level rise**: Scenarios have also indicated that sea levels will rise, with projected increases near the global average of 0.2m -0.5m (relative to 1999 levels) by 2090 (though IPCC scenarios omit major ice-flow dynamics, and are thus considered very conservative). This could accelerate mangrove retreat, and cause 'coastal squeeze' as mangroves become trapped between rising sea levels and hard structures situated near the shoreline. Sea level rise may also prompt saline intrusion into coastal aquifers, which will reduce freshwater sources, and further compound water shortages. Incidence of coastal flooding will also increase with higher sea levels.

- **Rainfall variability:** Inter-annual and intra-seasonal rainfall variability in Jamaica is set to increase, while continuing to be heavily influenced by the ENSO phenomenon. This increased variability will increase the frequency and magnitude of droughts and floods. Most of Jamaica's agriculture is rain-fed, and crop yields are consequently very dependent on reliable supply of rainfall. In particular, predictions for reduced rainfall in the June-August period will seriously affect crops which have growing seasons falling in this period.

- **Increased tropical storm activity:** With the likelihood for increases in intensity of hurricanes and other tropical cyclones (as projected by the IPCC, 2007), there are likely to be significant losses in agricultural production, and increased risk of both landslides and soil erosion. These will add to that imposed by the adverse impacts of unsustainable farming practices. Coastal erosion will also increased by changing storm activity, thereby further affecting the survival of coastal ecosystems and marine biodiversity." (UNDP, undated).

1.3 **Impacts Context**

Describe the impacts of the climate risks described above on the target ecosystem, and on the community. This should be based on scientific assessments of climate change risks and likely impacts, and can be based on assessments completed for the CPS. These should include:

- Impacts on critical ecosystems
- Impacts of ecosystem change on people's lives and livelihoods
- Distributional impacts (i.e.: which segments of the population will me most affected and why?)
- Other important impacts

Impacts of climate change on critical ecosystems: Many impacts are already starting to be observed in the PBPA. These include

- Damage to marine and wetland ecosystems and reduction of marine ecosystem services including increased frequency of coral bleaching events, damage to corals by hurricanes, and impeded recovery from hurricane damage as a result of repeated hurricane
- Severe erosion of coast lines resulting in loss of beaches (C-CAM unpublished data) severe damage to ancient stands of mangroves (C-CAM unpublished data); all of which contribute to declining fish catches, erosion of cays and associated loss of marine biodiversity generally and specifically loss of nesting habitat for sea turtles and seabirds.
- Damage to terrestrial ecosystems and reduction of terrestrial ecosystem services including major damage to tropical dry forests by hurricanes followed by fire (C-CAM unpublished data with associated damage to habitats of critically endangered species of wildlife including birds, crocodiles, lizards and snakes, with associated increased soil erosion from hills, increased salinization of coastal aquifers (also associated with over-pumping of aquifers), increased damage to coral reefs from runoff of sediments and increased fertilizers and pesticides which may be used to compensate for other losses. The forests of PBPA are in fairly large patches with some connectivity to nearby areas. Climate change combined with badly planned development could combine to reduce connectivity and thus reduce the resilience of the ecosystems in the face of rapid climate change. Overall biodiversity will decline. Very little is known of the ecological requirements and vulnerability of the endemic species of the area, so it will be difficult to plan recovery strategies.

Impact of ecosystem change on people's lives and livelihoods: Currently people's lives and livelihoods are very dependent on the surrounding environment, although the extent of this dependence is probably underestimated and the interactions are complex.

Many persons depend directly or indirectly on fishing. The availability and species composition of fishable resources will deteriorate. Already older fishers are leaving the industry because of declining productivity even as young people try to enter it to compensate for losses of other sources of income. These young people with no background knowledge or long term stake in the industry are most likely to use unsustainable practices such as dynamite. Similar patterns are observed in the forests in relation to timber harvest and charcoal burning. Alternatives such as farming may be affected as temperatures rise and summer rainfall decreases. Water is already a limiting factor to development in the area and these factors will decrease all sources of available water. Options for tourism may be limited as beaches and cays erode and access roads become even more difficult to maintain.

Other existing and proposed developments in the area including ports and heavy industry will become less viable, and may close after construction, having destroyed the natural environment and closed options for more sustainable development. Increasing unemployment may lead to increased pressure on natural resources.

Meanwhile all the 19 coastal settlements will become more vulnerable to natural disaster. Already no-build zones have been declared and it may be necessary to extend them and relocate communities with associated economic and social

disruption. Despite this new settlements are still being planned in the flood plain areas. If these are allowed to continue there will be loss of investment and further ecological damage.

Distributional impacts: All the residents, stakeholders and businesses of the area will be impacted. As usual the poor people with fewest options will be the most badly affected. Poverty will increase as traditional sources of income such as fishing and agriculture decline. This will be compounded by the global economic crisis which has reduced overseas remittances, as well as the closure of the sugar factories in the area. These same people are most likely to live in the coastal areas in weak or old structures that are particularly vulnerable to floods and hurricane damage. Middle class people who buy new houses in vulnerable new developments will also be badly affected, especially if ports and other industrial developments are impacted and there are fewer jobs available.

1.4 **Project Approach**

Describe how the project will facilitate community adaptation to the phenomena described above. Keep in mind the following criteria:

- Reiterate the baseline threats to ecosystems/GEB
- Reiterate the additional, climate change threats to ecosystems/GEB
- Describe how the project will remove baseline pressures to ecosystems/GEB through co-financing (which should be 1:1)
- Describe how the project will make ecosystems/GEB resilient to climate change, including increasing climate variability
- Describe how the project will benefit the community
- Describe how the project will have potentials for upscaling, replication, and/or policy impact
- Describe capacity constraints, awareness constraints, and what will be done to address them

A more detailed breakdown of the project's objective, outcomes, and activities will be required in table form in step 4.1.

Climate change is likely to increase temperatures, reduce summer rainfall, and increase the frequency of hurricanes, fires and floods. This will result in loss and degradation of ecosystems including tropical dry forests, wetlands (especially mangroves), coral reefs and seagrass beds. This will result in loss of habitat for biodiversity including the critically endangered species that occur in the area. There will also be loss of ecosystem services such as coastal protection, fish nurseries, recharging of aquifers, control of soil erosion, natural regeneration of forests.

The project will reduce the threats to globally endangered biodiversity, ecosystems and ecosystem services by seeking to empower communities to manage ecosystems more sustainably in the face of climate change. This will include increasing awareness of their importance and contribution to the economy, promoting sustainable use and alternatives. These activities will complement government-supported (CCAMF-implemented) activities designed to address unsustainable natural resource management practices in the region (including the establishment of Fish Sanctuaries).

- Awareness raising on climate change impacts on globally endangered biodiversity, ecosystems and ecosystem services (and hence livelihoods), and advocacy for their integration into development frameworks, including
    - For communities using innovative approaches such as involving leaflets, community theatre, radio, cable TV, competitions, blogs, etc)
    - Schools (including development of a teacher's manual, a training workshop for teachers to enable them to use the manual)
    - For local government (including meetings and presentations to parish planners, Parish Development committees and political representatives)
    - National government agencies (including a workshop on the impacts of climate change on development plans for the PBPA and surrounding areas/
    - Private sector (industry, agriculture) (including meetings and participation in workshops).

- Community capacity building for monitoring and protection of threatened ecosystems and species and the impacts of climate change
    - Development of training materials and approaches on climate change risk management (leaflets, documents, training curriculums, DVDs)

- Community assistance with monitoring of critical ecosystems (e.g. beaches, forests, reefs, mangroves, seagrass) and species.
- Manual and training for community involvement in review of Environmental Impact Assessment.

- Follow-up activities established or designed involving stakeholders in minimising impacts of climate change
  - Demonstration projects including rainwater harvesting
  - Development of follow-up projects for sustainable livelihoods and continuation of project activities.

Counterpart activities to be developed using funds from other sources will include:

- Identification of alternative livelihood options piloted to reduce reliance on climate sensitive natural resources e.g. development of nature-based and heritage-based tourism, crafts, accommodation, etc.
- Fish sanctuaries established, monitored and managed by CCAMF
- Development of ecotourism plan and feasibility studies
- Other business development and proposed small business incubator.

2.0 COMMUNITY OWNERSHIP

2.1 Project Formulation

Describe how the project was formulated, both in terms of the overall concept and in terms of its components. Describe the roles of the proponent and the role of the community, if separate.

This project was formulated by C-CAM on behalf of the communities of the area based on its long-term discussions with the community and major stakeholders through meetings of the Portland Bight Fisheries Management Council, work on the *GEF Small Grants programme – Portland Bight Sustainable Wetland Project* workshops, Portland Bight Tourism Council and the VRA meeting held 1 September 2009 and community meetings to review Environmental Impacts Assessments where issues such as flooding, loss of beaches, crocodiles near homes, development near coastline, loss of forests etc were raised. Technical comments were solicited through personal discussions with experts and a review of the project concept at a meeting of National Environment and Planning's Portland Bight Committee on 16th September 2009.

2.2 Project Implementation

Describe how the community members will be engaged continuously throughout project implementation. Community participation is important, as it will help ensure that the project takes locally important factors into account, while helping to ensure continuity of project impacts after project conclusion.

The community members, institutional and government stakeholders will be continuously engaged in the project throughout implementation. Their participation will take two forms – project oversight through the VRA process and various committees and councils and actual involvement in implementation.

Project oversight will include the continuing VRA process (with workshops scheduled for mid-term and end of project), and regular reports to standing committees including Portland Bight Fisheries Management Council meetings, Portland Bight Tourism Council meetings and meetings of the Parish Development Committees. There will also be an on-going public relations campaign to keep the stakeholders aware of the progress of the project.

Opportunities for community involvement in project implementation will include employment of community members as community educators, community monitors and the overall strengthening of relevant community organizations, specifically the fishers' organizations.

2.3 Phase-Out Mechanism, Sustainability

Describe how the project will conclude, and how project activities will be ultimately transferred to the local community. Describe how the impact will be sustainable (environmentally, financially, socially, and institutionally).

The project will be integrated with the management of the fish sanctuaries whose staff and on-going projects will adopt and continue the initiatives developed under the project. In addition, it is by no means expected that the present project will fully address all the issues related to adaptation to climate change in the area. Therefore an important output of the project will be a series of new projects developed with and involving the community and stakeholders.

3.0 PROPONENT DESCRIPTION

3.1 **Organization's background and capacity**

Describe your organization's mission, history, membership, management, organizational structure and current programmes. Describe your experience working with the target community, or with similar communities. Finally, discuss your experience and/or capacity in adaptation to climate change including variability.

Indicate the organization's total annual budget, and attach its last audited financial statement and an organizational budget, if applicable. Describe the financial system and procedures being used by the proponent/organization.

Caribbean Coastal Area Management (C-CAM) Foundation's philosophy is to promote sustainable development in the PBPA and thereby to improve the quality of life of all citizens and stakeholders, through conservation and appropriate use of natural and heritage resources.

The overall goals for the PBPA are to provide:

- Clean land, water and air
- Sustainable use of natural resources contributing to improved quality of life of residents
- Conservation of species and ecosystems
- Support for participation of informed residents, resource users and other stakeholders in decision-making and implementation, based on the best available information.

C-CAM is a limited liability company managed by a seven member Board of Directors. They include: Chairman Professor Aggrey Brown, Dr. Karl Aiken, Professor Edward Robinson, Ms. Thera Edwards, Rev David Yee Sing, Mr. Charles Ross and Mrs. Haydee Gordon. C-CAM has a highly trained and experienced staff with many years of experience working in the area:

- Executive Director: Ingrid Parchment (10 years experience in the area)
- Science Officer: D. Brandon Hay (more than 12 years experience in the area)
- Information Technology Trainer/Librarian/Cyber-centre Manager: Audrey Fowling (more than 10 years experience in the area).
- Assistant Information Technology Trainer: Viviana Hawkins (more than 2 years experience in the area)
- The staff is augmented by consultants (including Dr. Ann Sutton) and volunteers (including Raija Atkinson, UWI student).

C-CAM's philosophy is that we cannot manage the area alone. Therefore we have established several co-management councils, including Portland Bight Fisheries Management Council (PBFMC), Portland Bight Tourism Council (PBTC) and Portland Bight Citizens Council (PBCC). The Councils are designed to allow us to collaborate and partner with community groups, NGOs, business people, government departments and agencies to manage the area. C-CAM is also a member of the Clarendon and St. Catherine Parish Development Committees. This has greatly enhanced C-CAM's effectiveness in the area.

C-CAM's current programmes/projects include:

- 2007-8 on-going: Post card Project – Sterling Asset Management – J$0.8m
- 2007-9 on-going: Disaster Recovery & Preparedness- NCB Foundation - J$10m
- 2008-9 on-going: Design of a Wetlands Interpretation Center- Alcoa Foundation – US$15,000
- Operating a Resource Center including library & Cyber Center – Income approx J$800,000 PA
- Operating the Portland Bight Fisheries Management Council
- Working with the Fisheries Division to establish the operation of the Fish Sanctuaries
- Working with NEPA to have voluntary game wardens appointed and trained
- Working with the Parish Development Committees to foster sustainable development
- Working with UNESCO & other stakeholders to establish a Biosphere Reserve

C-CAM's 2008-9 budget was estimated at J$21.08m. See attachment.

The financial software used by C-CAM is Quick Books. However we also keep financial records in electronically using Microsoft Excel/Word for project reporting in the grantees required format. The data will be then be input into Quick Books for record keeping & auditing purposes. In the case of the Resource Center daily Customer log sheets are used and

most of that money is used in cash to offset operating expenses. All purchases/expenditures will are approved by the project manager and payments are made be based on receipts/invoices properly signed. If amounts are over US$2,000 or as required by the funder we seek three quotes before purchasing items. Payments are in the most part be made by cheque. Most grant funds are kept in separate bank account so that there is no co-mingling of funds.

4.0 PROJECT DESCRIPTION

4.1 Objective, Outcomes, Planned Outputs:

Using the table format, restate the project objective from the approved concept (provide an explanation for any modification), and state what outcomes will be achieved to meet this objective, what outputs will support these outcomes.

All outcomes must be:

- Compatible with the SPA – they must be actions to increase the resilience of ecosystems to the impacts of climate change, thereby benefiting the communities that rely upon them.
  - Outcomes may address baseline GEB if they are supported entirely by co-financing.
- Independently measurable.
- Clearly and directly support the objective.

Outputs are tangible things that will be done to support the outcomes. They should logically lead to the achievement of your outcomes. Note that the breakdown of outputs should be more detailed in the proposal than what was presented in the concept phase.

- Use the table format below, or an outline format.

Project Objective: *Statement to reflect the overall aim that is to be achieved.*			
Outcome 1.0: *Component of the project that if met, contributes to the Project Objective.*			
	Output 1.1: *An output that is to be developed to fulfill the outcome 1.0.*		
	Output 1.2: *Another output that fulfills outcome 1.0 but different from output 1.1*		
Example Outcome 2.0: At least 3 communities earning income from Protected Area			
	Output 2.1 Training of tour guides		

OUTCOMES	OUTPUTS
Outcome 1: **All major stakeholder groups supplied with material describing the threat posed by climate change, and the practical measures that they can take to adapt to the threats**	
	Output 1.1 Stakeholder awareness programme designed and implemented (including specific materials and approaches for all major stakeholder groups)
	Output 1.2 One technical workshop held for administrators, planners, local and national government officials, politicians, land managers, developers)
	Output 1.3 One community workshop on reviewing EIAs held
	Output 1.4 Manual for interpreting EIAs for community groups developed and presented to NEPA
	Output 1.5 Two VRA workshops held (mid term and end of project)
	Output 1.6 Teachers' guide, student booklet, teachers training workshop

	Output 1.7 Wetland interpretation centre designed and site selected (featuring climate change adaptation)
	Output 1.8 Adaptation to climate change included in management planning for fish sanctuaries
	Output 1.9 Climate change adaptation expo held
	Output 1.10 C-CAM established as first responder to disasters
Outcome 2: **Five stakeholder groups involved in monitoring impacts of climate change**	
	Output 2.1 Equipment needed for monitoring purchased (including underwater monitoring system, digital cameras, Abney level, GPS units, other)
	Output 2.2 Notice boards established on three fishing beaches
	Output 2.3 Nine community monitors hired and trained
	Output 2.4 Beach monitoring programme established and operationalized
	Output 2.5 Benthos of fish sanctuaries mapped
	Output 2.6 Photographic monitoring of terrestrial areas designed and operationalized
	Output 2.7 Community reporting system designed and on-going
Outcome 3: **At least two demonstration activities established involving stakeholders in minimising impacts of climate change**	
	Output 3.1 Rainwater harvesting demonstration project in place
	Output 3.2 Sustainable livelihoods entrepreneurship workshop held
	Output 3.3 At least 2 follow-up proposals implementing community suggestions for adaptation prepared and submitted
TOTAL	

4.2 **Timetable**

TIMELINE		2010												2011						
	MONTHS	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	
***Outcome 1*: Education and awareness: All major stakeholder groups supplied with material describing the threat posed by climate change, and the practical measures that they can take to adapt to the threats**																				
	Output 1.1 Stakeholder awareness programme designed and implemented (including specific materials and approaches for all major stakeholder groups)																			
	Output 1.2 One technical workshop held for administrators, planners, local and national government officials, politicians, land managers, developers)																			
	Output 1.3 One community workshop on reviewing EIAs held																			
	Output 1.4 Manual for interpreting EIAs for community groups developed and presented to NEPA																			
	Output 1.5 Two VRA workshops held (mid term and end of project)																			
	Output 1.6 Schools' programme including teachers' guide, student booklet, teachers training workshop																			
	Output 1.7 Wetland interpretation centre designed and site selected (featuring																			

TIMELINE		2010												2011						
	MONTHS	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	
	climate change adaptation)																			
	Output 1.8 Adaptation to climate change included in management planning for fish sanctuaries																			
	Output 1.9 Climate change adaptation expo held																			
	Output 1.10 C-CAM operating as first responder to disasters																			
***Outcome 2*: Monitoring: Five stakeholder groups involved in monitoring impacts of climate change**																				
	Output 2.1 Equipment needed for monitoring purchased (including underwater monitoring system, digital cameras, Abney level, GPS units, other)																			
	Output 2.2 Notice boards established on three fishing beaches to display climate change information																			
	Output 2.3 Six community monitors hired and trained																			
	Output 2.4 Beach monitoring programme established and operationalized																			
	Output 2.5 Benthos of fish sanctuaries mapped as baseline																			
	Output 2.6 Photographic monitoring of terrestrial areas designed and operationalized																			

TIMELINE		2010												2011						
	MONTHS	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	
	Output 2.7 Community reporting programme designed and on-going																			
***Outcome 3:* At least two follow-up activities established or designed involving stakeholders in minimising impacts of climate change**																				
	Output 3.1 Rainwater harvesting demonstration project in place																			
	Output 3.2 Sustainable livelihoods entrepreneurship workshop held																			
	Output 3.3 At least 2 follow-up proposals implementing community suggestions for adaptation prepared and submitted																			

Sections 4.3 – 4.5 Approx 1.5 Pages

4.3 **Risks and Barriers**

Barriers: Describe any barriers to implementation of project measures, and how they will be removed. Differentiate between external barriers and internal barriers (for example: national policy barriers versus local awareness barriers). Describe how the project will remove capacity constraints from key adaptation activities.

Potential barriers to implementation include lack of support from stakeholders at all levels, which might be expressed as low turnout to meetings and low levels of implementation of measures. Although this has not been a problem in the past, this project includes a larger than usual number of workshops and there is a risk of burnout. This will be addressed by making the meetings as interesting as possible, providing travel stipends where appropriate, by promoting activities using a wide variety of approaches and highlighting the benefits of participation to stakeholders. The Social Development Commission will be instrumental in generating community support and participation.

Risks: Beyond known barriers, projects may be subject to internal or external risks. These could include sub-optimal performance of a new application of a technology, or currency fluctuations that change the economics of a project. Describe potential risks that the project faces, and how these risks will be managed.

Major risks to the success of the project include the high risk of natural disasters in the area that might affect the communities' capacity to participate and C-CAM's capacity to implement the project. The project itself is designed to increase community resilience to disasters, while C-CAM will seek to increase its own resilience (e.g. by installing a generator, storm-proofing the library etc). Another major risk is that due to the global economic crisis the Government of Jamaica may not be able to provide funding to the Fish Sanctuaries at the expected level. C-CAM is actively seeking funds from all possible sources to ensure that in the event of a shortfall in government funds.

4.4 Monitoring and Evaluation Plan

This section will describe which indicators will be monitored, and when they will be measured. It is divided between the VRA (adaptive capacity), the IAS (global environmental benefits) and Adaptation Indicators (quantitative assessments of climate change adaptation). For each section, describe when indicator measurements will be reported – in the first, second, and/or final reporting periods. Note that continued funding will be contingent on M&E reporting.

VRA: Indicate when VRA meetings will be held over the course of the project, and how they will relate to plans for attainment of specific project outcomes. For example, are meetings planned after the completion of certain project activities listed in the tables above?

IAS: Indicate **which** Impact Assessment System (IAS) indicators will be measured by the project – one or more indicators in one or more Global Environmental Benefit focal areas and one or more each of the livelihood and empowerment indicators. Furthermore, indicate **how** the chosen indicators will be measured, and include a target value – what the project plans to achieve – for each indicator measured.

Keep in mind that all projects will be required to submit progress reports to access subsequent disbursements of project funds, and these reports will require measurement of IAS AND VRA indicators. Indicate **when** these measurements will take place.

4.4.1 Initial VRA Analysis

The VRA analysis is a key component of the project planning phase, and is reported in the project proposal.
Use the data recorded on the sides and bottom of the H-forms, as well as community discussions from the exercise to construct a narrative that describes issues and context raised by the meeting. Be sure to include:

- Composition of the meeting
- Common themes in the answers to the questions that make up the VRA
- Differences in perception between different sub-groups (eg: gender, livelihood type, etc)
- Other contextual information brought out by the VRA process

Also, be sure to record the scores given by the community to the questions, and record them in a table such as the one provided.

The first Portland Bight VRA workshop was held in at C-CAM's office in Lionel Town, Clarendon on 1 September 2009 (see attachment). It was attended by 14 persons who are resident in the area plus C-CAM staff, a consultant and a VRA expert from UNDP. Community members were agreed that the level of disasters that they are already experiencing is almost more than they can bear, and certainly beyond the capacity of the government to respond to adequately. They ranked the current situation as very bad. However they were optimistic that the proposed project would make a positive change in the situation. They suggested that it should focus on environmental education, monitoring, sustainable livelihoods and land use planning (including effective enforcement).

Vulnerability Reduction Assessment Report – First Portland Bight Workshop 1 September 2009	
Question 1: How vulnerable are livelihoods and welfare in Portland Bight to hurricanes and storms at present	1.0 (very bad)
Question 2: How would an increase in hurricanes and storms affect livelihoods and welfare in Portland Bight?	1.0 (very bad)
Question 3: What stops people from taking measures to reduce the impacts of hurricanes and storms?	2.4 (bad)
Question 4: How vulnerable are peoples' livelihoods and welfare to drought in Portland Bight?	2.1 (bad)
Question 5: How would an increase of droughts affect livelihoods and welfare in Portland Bight?	1.0 (very bad
Question 6: What stops people from taking measures to reduce impacts of drought on livelihoods and welfare in Portland Bight?	3.1 (moderate)
VRA Score	**1.8 (very bad)**

The next VRA workshop is scheduled for the mid-term September 2010 by which time all educational and community-based programmes should be underway. The final VRA workshop will take place one month before the end of the project in May 2111.

IAS: Indicate **which** Impact Assessment System (IAS) indicators will be measured by the project – one or more indicators in one or more Global Environmental Benefit focal areas and one or more each of the livelihood and empowerment indicators. Furthermore, indicate **how** the chosen indicators will be measured, and include a target value – what the project plans to achieve – for each indicator measured.

N.b. proposed indicators are shown in bold, with the expected numbers in italics.

IMPACT ASSESSMENT (IAS) INDICATORS
Global Environment Benefits - Biodiversity indicator:

A. BIOPHYSICAL INDICATORS

Climate Change (CC)

1. N**umber of local policies informed in climate change focal area.** ***Project will inform Clarendon and St. Catherine Development Orders currently under development***

B. LIVELIHOOD INDICATORS

Livelihoods (LH)

1. **Number of households who have benefited from SGP project.** ***10 households receive rainwater harvesting systems as demonstration projects***
2. **Number of individuals who have benefited from SGP project.** ***50 people in 10 households benefit from rainwater harvesting. 20 persons express interest in alternative livelihoods.***

C. EMPOWERMENT INDICATORS

Empowerment

1. **Number of CBOs/NGOs participated/involved in SGP project.** ***10 organizations participate.***
2. **Number of women participated/involved in SGP project.** ***50 women participate***
3. **Number of persons from vulnerable groups (youth/elderly/disabled/poor) participated/involved in SGP project.** ***1000 children participate***
4. **Total additional in cash or in kind support obtained for new initiatives and opportunities through SGP project (in US dollars).** ***US$20,000 raised.***

UNDP ADAPTATION INDICATORS

HEADING	INDICATORS	HOW MEASURED	WHEN MEASURED	
			MIDDLE	END
2. Adaptive capacity fostered among natural resource dependent communities through awareness building, enhanced access to climate change and scenario information, and improved access to alternative resources	2.2 Population covered by awareness building programmes to increase understanding of risks associated with climate change among general public and key stakeholder groups.	Number of people attending workshops (Target 500) Number of copies of materials distributed (Target 1000) Number of times project featured in mass media (Target 5) Number of teachers trained to uses teacher's manual (Target 10) Number of items of items posted on website for download (Target 5)	X	X
4. Sustainable community management of natural resources in the face of climate change promoted	4.2 Number of measures deployed as part of sustainable resource management activities	Management plans for three fish sanctuaries including climate change adaptation measures (Target 3) Sustainable livelihoods workshop held (Target 1) C-CAM functioning as first responder to disasters in southern Clarendon (One storage container in place and stocked)	X	X

4.5 **Project Management**

4.5.1 Management Structures

4.5.1 Describe the management structures and functions of the proponent under this project. Who will be responsible for executing project activities and who will that person be working with? Include the name of project manager/coordinator and attach brief resume/CV.

The project will be managed by Ingrid Parchment, Executive Director, C-CAM. She will also be responsible for accounting for the expenditure of funds of the project. Ann Sutton, consultant will be responsible for executing project activities with support from Edward Robinson, consultant, as well as a part-time project officer (who will assist with note-taking, setting up meetings/workshops, purchasing of equipment etc.) to be hired under the project. We will also be working with volunteers, fishers and community persons who will be trained and hired as contract workers or receive stipend to do monitoring, provide boat services and other services as required. C-CAM will provide in-kind contribution from D. Brandon Hay (Fish sanctuary manager) as well as conservation officers to be hired as part of the Fish Sanctuary project. C-CAM will also provide cash matching funds through support for outcomes that are already included in projects funded by Alcoa Foundation and Environmental Foundation of Jamaica.

4.5.2 Relationship and Responsibilities of Proponent and Project Partners

4.5.2 Describe the relationship of any partnering organizations, if applicable, including the responsibilities of each partner and how they will work together with proponent to achieve the project objective. Include technical assistance required and how it will be provided.

The Social Development Commission, Clarendon & St. Catherine will be assisting with mobilizing community participants for workshops and other activities. They will also assist with disseminating information generated during the project.

The Clarendon Parish Development Committee will provide a forum for information to be shared with community members through their various meetings. They will also assist with disseminating information generated during the project.

The Fisheries Division has committed to funding the operations of the three fish sanctuaries which will enhance the monitoring activities proposed under the project. They will also provide data collected on the status of fisheries. They will also provide publicity material that will enhance the community education component. They will also assist with disseminating information generated during the project.

Christian Aid has provided us with some material on climate change include a practical guide for community persons and students. They have agreed that we can use/reproduce any of that material we feel is appropriate as long as we acknowledge their input.

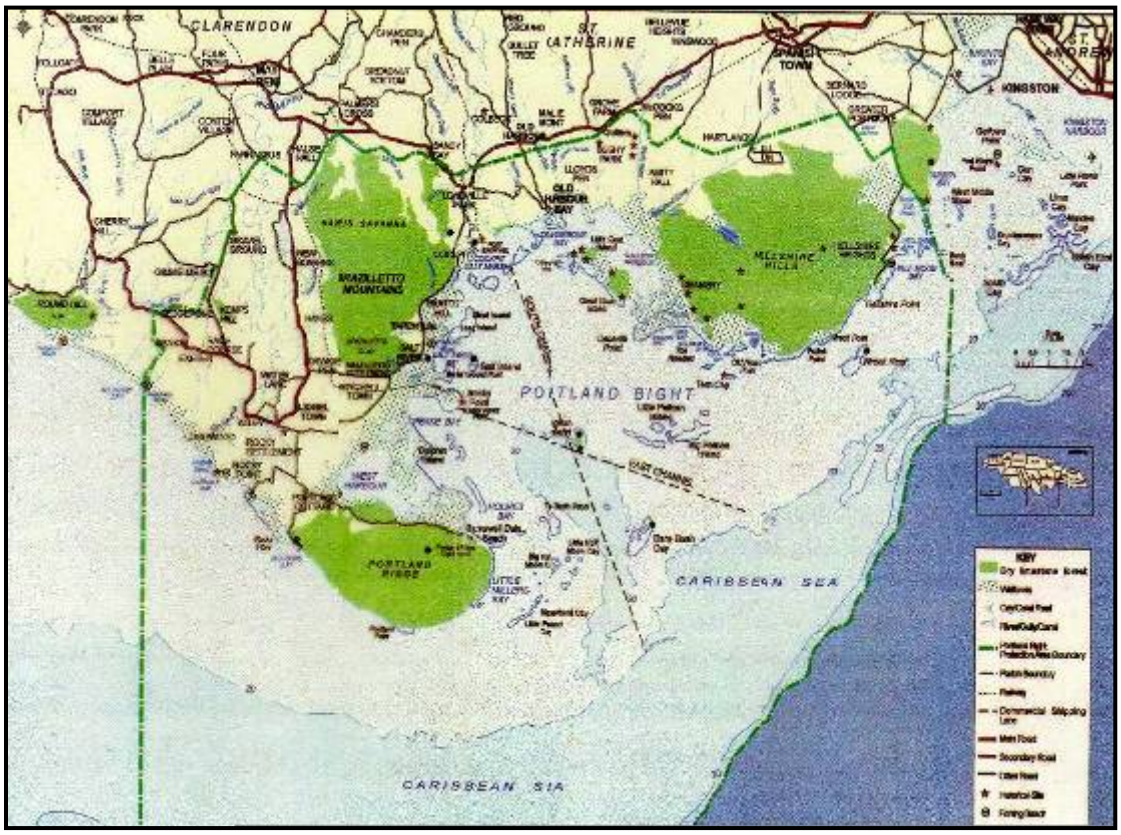
The NCB Foundation grant allowed us to produce and disseminate a community disaster preparedness handbook which will be given out to community members that they will have for future reference.

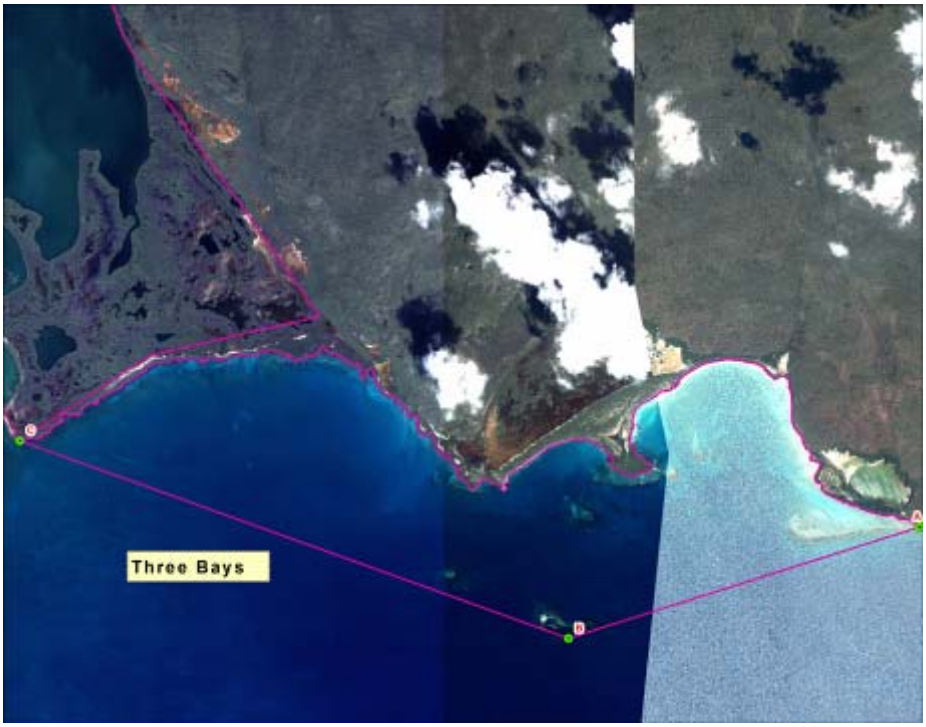
The Alcoa Foundation Grant has allowed us to proceed to Phase II of the establishment of the Wetlands Interpretation Centre which will allow us to continue the education process into the future. The Tourism Enhancement Fund has agreed to look at assisting with the final phase of that project.

6.0 EXHIBITS/ATTACHMENTS

6.1 **Mandatory**

a.) Location map (Project Site). This may be a very rough sketch over a country map (may be the same map used in the project concept).
Portland Bight Protected Area




Three Bays


Salt Harbour

b. Latest audited financial statements if any **OR** explanation of why no audited statement is available.

See attachment for audited financial statements for 2006 & 2007

a.) Brief curriculum vitae or résumé of project manager/coordinator and person in charge of accounting for the funds. Letter from a partnering organization if one will assist in accounting for funds.

See attachment for resume for Ingrid Parchment

b.) Document/letter showing proof of approved co-financing
See attachment for letters of support

c.) Photographs of community project development meeting and of the project area

Figure 1: Some of the participants at the Portland Bight VRA workshop 1 Sep 2009

Figure 2: Hurricane damage to mangroves in Salt River

Figure 3: A mangrove lagoon in Salt Harbour area

Figure 4: Lionel Town street scene

Figure 5: Dry Limestone Forest in Portland Bight

Figure 6: House totally destroyed by Hurricane Ivan, Portland Cottage, Portland Bight

6.2 **Optional**

a) Topical outline of training modules or other capacity building activities
b) Organizational Chart of NGO/CBO

c) Other information you think would improve your proposal

Literature cited

Allen, T., Curtis, S, Gamble, D. 2008. Remote climate forcings of Jamaica's mid-summer dry spell and vegetative response. American Geophysical Union, Fall Meeting 2008, abstract #A13A-0211 http://adabs,harvard.edu/abs/2008AGUFMA13A0211A

C-CAM 2005. Post-hurricane GIS modeling in Portland Bight after Hurricane Ivan. Report prepared for Canadian International Development Agency.

Halcrow 2002. South Coast Sustainable Development Project. Tourism Product Development Company, Kingston.

UNDP. Undated. CBA Country Programme Strategy Jamaica. UNDP Jamaica.

ADDENDUM

UNDP/GEF SMALL GRANTS PROGRAMME: proposed verifiable indicators
Increasing community adaptation and ecosystem resilience to climate change in Portland Bight
17th December 2009

N.b. proposed indicators are shown in bold, with the expected numbers in italics.

A. BIOPHYSICAL INDICATORS

Climate Change (CC)

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B. LIVELIHOOD INDICATORS

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3. **Number of persons from vulnerable groups (youth/elderly/disabled/poor) participated/involved in SGP project.** ***1000 children participate***
4. **Total additional in cash or in kind support obtained for new initiatives and opportunities through SGP project (in US dollars).** ***US$20,000 raised.***

#				
1				