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Antigua and Barbuda: National GEF Implementation Strategy 2012 - 2014

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Under the guidance of the Office of the GEF Focal Point

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LIST OF ACRONYMS

AOSIS	Alliance of Small Island States
BPoA	Barbados Programme of Action
BMZ	German Federal Ministry of Ecological Cooperation and Development
CBD	Convention on Biological Diversity
CEHI	Caribbean Environmental Health Institute
CCCCC	Caribbean Community Climate Change Centre
CBO	Community Based Organization
COP	Community of Practice
CWWA	Caribbean Water and Wastewater Association
CNIRD	Caribbean Network for Integrated Rural Development
CAWASA	Caribbean Water and Sewerage Association
CIMAB	Centre for Coastal and Marine Engineering and Management
CARICOM	Caribbean Community Secretariat
CBWMP	Caribbean Basin Water Management Programme Inc
CReW	Caribbean Regional Fund for Wastewater Management Project
FAO	Food and Agriculture Organisation
GEF	Global Environment Facility
GPA	Global Partnership agreement
GWP-C	Global Water Partnership – Caribbean
GIZ	German Agency for International Cooperation
GoAL-WASH	Governance, Advocacy and Leadership for Water, Sanitation and Hygiene
GHG	Greenhouse gas emissions
HCFC	Hydro chlorofluorocarbon

IWRM	Integrated Water and Resources Management
IMA	Institute of Marine Affairs
LCDs	Lesser Developed Countries
LULUCF	Land Use, Land-Use Change and Forestry
LDCF	Least Developed Countries Fund
MPA	Marine Protected Area
NPFE	National Portfolio Formulation Exercise
NGO	Non-Governmental Organisation
NAPAS	National Adaptation Programmes of Action
NAPs	National Action Plans
NBSAPS	National Biodiversity Strategies and Action Plans
NIP	National Implementation Plan
NEMS	National Environment Management Strategy
NOAA	National Oceanic and Atmospheric Administration
OECS	Organisation of Eastern Caribbean States
OAS	Organisation of American States
PISLM	Partnership Initiative on Sustainable Land Management
PRSP	Poverty Reduction Strategy Papers
SIRMM	Sustainable Island Resource Management Mechanism
SIDS	Small Island Developing States
STAR	System for a Transparent Allocation of Resources
SLM	Sustainable Land Management
SIDS DOCK	facilitating mechanism to assist SIDS develop a sustainable energy sector to provide a foundation for low carbon economic growth and adaptation to climate change
SCCF	Special Climate Change Fund

TNC	The Nature Conservancy
TNA	
UNEP	United Nations Environment Programme
UNEP CRU	UNEP Coral Reef Unit
UNDP	United Nations Development Programme
UWI	University of the West Indies
UNESCO-IHP	International Hydrological Programme
UNCCD NWA	National Watershed Alliance
UNEP CAR/RCU	Secretariat for Regional Seas Caribbean Environment Programme
WSSD	World Summit on Sustainable Development
WCR	Wider Caribbean Region
WOP	Water Operations Partnership

EXECUTIVE SUMMARY

The National Portfolio Formulation Exercise (NPFE) was prepared with financial assistance provided by the GEF using local consultants. The consultants were charged with the collection of relevant information via consultations, interviews, and document reviews. After three months the NPFE has a list of priority and associated projects that will be implemented over the next four years (Table 2).

The NPFE process also clearly identified the modalities of access, direct or indirect that Antigua and Barbuda will consider using over the next GEF cycle and will be building its capacity to meet the requirements that this approach demands.

Table 1 GEF Star Allocation 2010 -2014 Antigua and Barbuda

Focal Area	STAR GEF-5 Indicative allocation	Allocation utilized	PIFs cleared by CEO awaiting approval	Allocations remaining to be programmed
Biodiversity	*1,500,000.00*	*0*	*0*	*1,500,000.00*
Climate change	*2,000,000.00*	*0*	*0*	*2,000,000.00*
Land degradation	*940,000.00*	*0*	*0*	*940,000.00*
Total	***4,440,000.00***	***0***	***0***	***4,440,000.00***

In addition to the table above there is funding available for enabling activities and for the small grants program. These funds total just over 1.5M over the GEF-5 period. With regards Antigua and Barbuda will be developing is national small grants program. The enabling activities will be used to meet the reporting and other requirements of the Conventions (including POPS) and these will be accessed both directly and indirectly.

Table 2 Summary projects for GEF – 5

IAs	Project Name	Budget	Program area	Timing of Implementation
UNDP (National Full size Project)	*Establishment of a system of protected area for Antigua and Barbuda – demonstrating sustainable financing options.*	*2.8M*	*Biodiversity and Climate Change*	*2013 – 2017*
UNDP (Medium size Project)	*Promoting the use of Renewable energy technology and energy efficiency in Government Operations in A & B.*	*1.0M*	*Climate change*	*2013 – 2015 (18 mths)*
UNEP (Regional project)	*Implementing Integrated Land, Water & Wastewater Management in Caribbean SIDS*	*940,000.00*	*Land degradation*	*2013 – 2017*
Potential Co-financing Projects	*To be developed as the STAR PERIOD PROGRESSES.*			
CCCCC	*EU GCCA project (climate Change)*	*Project Document available from CCCCC; Formal letter of co-financing was not available in time for*	*Climate Change*	*Not sure*

		the completion of this document.		

Antigua and Barbuda will be accessing small amount of funding for the Country Support Program (9,000.00USD per annum). These funds will be used to enabling community groups and others to adequately access GEF information and to assist the GEF focal point to provide training in project development, reporting and well as monitoring project implementation

The GEF Focal Areas have consistently been designed to assist countries to implement the Rio Conventions on Biodiversity, Climate Change and Land Degradation. The NPFE of Antigua and Barbuda seeks to bring to light issues relating to these focal areas, as well as address them through projects. Each of these projects will enable Antigua and Barbuda to meet their obligations in the International community and will also provide the framework from which future projects may be replicated.

Cofinancing for the project will be provided by the Government and in some cases the private sector. There are also various bilaterial and other means via which cofinancing will be accessed. These sources of funds could not be cannot be specifically identified at the time of the preparation of this document.

The Country is looking to build its capacity to access funding directly. This will ensure that the maximum amount of funds is access by the country. This will benefit the growing private sector in this area and to provide adequate funding for the selected departments to meet the fiduciary standards of the country.

It is the intention of the Office of the Focal Point to prepare all of the projects in 2012-2013 for submission to the GEF in June and November session of the GEF Council.

INTRODUCTION – ANTIGUA AND BARBUDA

Antigua and Barbuda is a tiny twin island Small Island Developing State (SIDS) located within the Eastern Caribbean. The island, though small, has significant Biodiversity and renewable energy (wind and solar) resources. The country, like many others, has had its challenges in managing its natural resources sustainably and has joined the international community to try to place its development firmly onto a sustainable path. To this end the country has signed and ratified all of the Rio Conventions and their related Protocols.

To implement these international agreements the country has further established the institutional arrangements and in some cases the legislation for the implementation of the Conventions. Notwithstanding the economic benefits of sustainable development, and the political will demonstrated so far, the island being so small is severely constrained financially. The GEF and its resources are therefore very important to the implementation of the Conventions in Antigua and Barbuda.

ENVIRONMENTAL CONTEXT

Antigua and Barbuda has limited mineral resources and no petroleum based reserves, the country is however blessed with a rich diversity of natural resources whose interactions form the basis for the country's culture and economy. Being the largest of all the Leeward Islands in the Lesser Antilles, Antigua, and the sister island of Barbuda, are home to a number of unique species and ecosystems that makes the country a haven for visitors while providing locals with sustainable livelihoods in the area of agriculture and fisheries. The country's biodiversity is unique due to geographic isolation and environmental difference, which typically exists on islands.

A wide range of coastal and marine habitats is represented within the country including coral reefs, seagrass beds, lagoons, beaches and mangrove forests. These habitats support many globally rare fauna such as marine turtles, and corals. Given the small size of the islands these marine and terrestrial habitats are generally located in close proximity thus intimately connected to each other.

The terrestrial environments can be described as relatively depauperate in terms of absolute numbers of species, but they provide a habitat to a significant variety of restricted-range species, particularly birds.

Threats to the environment are mainly due to human activities as well as natural disasters. The loss of habitat to housing and tourism development is one of the greatest threat to biodiversity while a legacy of historically poor agricultural practices and roaming livestock is the major cause of land degradation. As with many islands species imported into the country for economic and or pest control have also taken its toll and has been credited for the extinction of many of the endemic and bird and reptile species.

Over the past ten years extreme climatic conditions such as droughts and hurricanes have wreck havoc on the coast resulting in significant erosion and loss of built structures. It is anticipated that these threats will continue to be the most significant in the management of the locally and globally important environment. Pollution also presents a continuous threat to the marine and terrestrial environment mainly as a result of excessive nutrients or sewage discharge into coastal waters. Coral reefs are severely stressed not only due to poor water quality but also due to over fishing and exposure to hurricanes.

INSTITUTIONAL ARRANGEMENTS FOR GEF PORTFOLIO IMPLEMENTATION

Antigua and Barbuda has several agencies that have been allocated responsibilities for aspects of environmental issues. Environmental Legislation is fragmented resulting in some level of fragmentation in Institutional arrangements. A large number of institutions are involved in activities associated with environmental management. These institutions include government ministries, statutory bodies, NGO's and community groups.

In 1998, the Government created a new agency, Environment Division, to coordinate the implementation of and reporting to the Conventions in Antigua and Barbuda. The Division along with the Ministry of Foreign affairs is also responsible for the negotiation of the Rio conventions. In 2003 the Division was officially made the office of the GEF Focal point.

As the GEF Focal point this agency is responsible for project development and implementation, including monitoring and evaluation (a recent development under the GEF). So far Antigua and Barbuda is one of the most successful agencies to access GEF projects. This is mainly due to the centralization of focal points (the Division is the focal point for all Rio conventions as well as POPs convention, the GEF and Adaptation fund) making it easier to coordinate the implementation of the conventions. It allows for the efficient use of resources, including human resources.

During the GEF -5 cycle it is hoped that the Environment Division will become a project-implementing agency. This will mean that the Division will only be responsible for overseeing the implementing projects. This will see a significant shift in the way the Division currently functions. During this cycle the Division will be preparing the project documents for submission in 2012 for all of the priority projects.

More information on the Division can be access from the Division's website at www.environmentdivision.info.

NGO Participation Non-Governmental Organizations (NGOs) have played an important role over the last ten years in drawing public attention to a number of important environmental issues. These include sand mining, solid waste management and the destruction of wetlands. Many civic and community groups have participated in tree planting and beach clean up activities. More recently NGOs have taken on a more substantive role by becoming involved in efforts to

improve community management of coastal natural resources, providing training to stakeholders in practices that conserve reefs, off-shore island ecosystems and mangrove wetlands. The NGOs will continue to play a substantive role in the programing of the STAR allocation for Antigua and Barbuda.

ENVIRONMENTAL AND DEVELOPMENTAL CHALLENGES

The country's natural resources were of primary importance from a reaping and cultivation perspective many decades ago. With the advent of tourism this has taken a different turn where natural resources were basically mined or replaced altogether by the construction of hotels and marinas. Over the past ten years the Government has taken several important steps towards a sustainable approach to managing natural resources while growing the economy. The major steps are the Development of the Physical Planning Act 2003 and its draft Physical Development Plan, the Development of a National Environmental Management Strategy (2005), and the most recent is the development and implementation of the GEF funded SIRMM project a major output of which is the updated National Land Use Plan. This recent plan has significant provisions for the development of a system of protected areas, including areas for the placement of wind turbines. This draft Land Use Plan was recently approved by the Country's Cabinet (November 2011) which paved the way for discussion to the Parliament. This step formally makes this new policy the basis for the environmental agenda of the country.

The Land Use Plan, when approved by the Parliament, will be available online at www.gefantigua.org and the official Government website at http://www.ab.gov.ag. The document has detailed accounts of the environmental characteristics of the country, the systems of protected areas, land degradation and climate change issues and ways to address them.

The Land Use Plan presented clearly documents the links between land degradation, Biodiversity and Climate Change on Islands. The effects of Climate Change are already evident within the island. The country is facing the burden to conserve biodiversity, water supply, forests and improve overall human development. The link between biodiversity and climate change has long been established but was never clearly documented from a developmental agenda perspective.

Biodiversity is affected by climate change, with negative consequences for human well-being. But biodiversity, through the ecosystem services it supports, also makes an important contribution to both climate-change mitigation and adaptation. Consequently, conserving and sustainably managing biodiversity is critical to addressing climate change. Climate change is already forcing biodiversity to adapt either through shifting habitat, changing life cycles, or the development of new physical traits. Conserving natural terrestrial, freshwater and marine ecosystems and restoring degraded ecosystems (including their genetic and species diversity) is essential for the overall goals of both the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change because ecosystems play a key role in the global carbon cycle and in adapting to climate change, while also providing a wide range of

ecosystem services that are essential for human well-being and the achievement of the Millennium Development Goals.

Antigua and Barbuda GEF-5 strategy is to approach the conservation and management of Biodiversity by the establishment of a protected areas system, while reducing some of the negative impacts from climate change. The projects will be designed to also promote overall national economic development in Antigua and Barbuda.

APPROACH TO THE NPFE

The NPFE was contracted out to a local consultant to prepare the document, conduct consultations, and to prepare the final list of priority projects. This exercise was scheduled to take three months however by the time the funding was arranged the consultant only had a few weeks to complete the consultations and submit the final report[1].

Consultations were held with government agencies, the Barbuda Council, private sector and NGOs. One consultation was held with teachers (see attached report in Annex 1). This was done since each of the GEF projects listed in the Annex 2 there is a public and formal education activity. It was felt that the teachers needed to have specific inputs.

The consultant conducted individual consultations with various government to further identify and clarify project concepts and to determine their capacity building and work program priorities for the next few years. With this information the consultant, along with the office of the GEF focal point, decided on the final list of projects. This list had to undergo a review process by the Ministry responsible for the Environment, and the Ministry of Finance.

The final list of projects was selected on the capacity of the Government to implement projects, the Government's priority and financial restraints, the ability of the local implementing agencies to actually implement the projects and the consistency with the ongoing GEF work in the country. The projects had to, of course, meet the objectives of the Convention and the GEF requirements.

Those project ideas that could not be accommodated are included in Annex 2. These will be used as a guide for seeking co-financing and to access funds from other sources.

Included within this process were consultations with regional organizations. Agencies such as CEHI, and OECS, CCCCC as well as UNEP CRU were consulted to determine the projects to be

[1] Further to this the final list of projects when identified had to undergo the PSIP approval process at the Ministry of finance a new requirement of that Ministry. This process ensured that the projects would receive the necessary government resources when time for implementation. This initial approval took some time since it was submitted to the Ministry over the Christmas Holidays.

implemented. This was done to determine opportunities for Co-Financing as well as to determine the need to allocate GEF – 5 funds to projects. After consultations with these agencies it was determined that the Land degradation allocations for Antigua and Barbuda would be used for a regional project being developed by the UNEP CRU and CEHI.

NPFE METHOD – PARALLEL ACTIVITIES

The NPFE process benefitted significantly from the results of the Implementation of the GEF funded SIRMM project. Specifically it benefitted from the fact that the Cabinet approved the Land Use Plan being developed under that project. This provided further policy guidance for the projects related to Biodiversity. The Land Use Plan also included the outcomes of the Protected Areas Systems Plan that was developed with the CBD under the protected areas work program. The full sized Biodiversity and Climate Change project therefore has sound political and policy footing.

The NPFE process also benefitted from the recent activity by UNDP and was funded by the GEF to complete a National system Plan for protected areas for Antigua and Barbuda. This document is still in draft but should be completed very early in 2012.

The development of projects and their draft PIF (the Ministry of Finance required detailed projects developed so they can approve before submission to the GEF) benefitted from these processes as well as the implementation of GEF funded projects.

INTRODUCTION – THE GEF

The Global Environment Facility (GEF) was established to be an independent financial organization that provides grants to Parties of the various Conventions it serves. The funds are for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. Since its establishment in 1991 as a trust fund, the GEF has allocated US $8.8 billion, supplemented by more than US $38.7 billion in co-financing, for more than 2,400 projects in more than 165 developing countries. Through its Small Grants Programme (SGP), the GEF has also made more than 10,000 small grants directly to nongovernmental and community organizations. Donors replenish the GEF on average every four (4) years and the GEF is currently in its fifth four-year phase.

The GEF serves as a financial mechanism for the following conventions: climate change (UNFCCC), biodiversity (CBD), persistent organic pollutants (POPs) and desertification (UNCCD). Although not linked formally to it, the GEF supports the implementation of the Montreal Protocol (MP) in countries with economies in transition. The disbursement of the funds must be consistent with the Country's obligation to the conventions that they are a party to and not necessarily based on national priorities. Antigua and Barbuda is qualified to access funds from the GEF for those conventions that it is a Party to.

GOVERNANCE OF THE GEF

The GEF Council is the main governing body of the GEF. It functions as an independent[2] board of directors, with primary responsibility for developing, adopting, and evaluating GEF programs. It meets twice each year for three days and also conducts business by mail. All decisions are by consensus. Supporting the Council is a secretariat, headed by a Chief Executive Officer (Mrs. Monique Barbut). Each council member may represent a country or a group of countries (called a constituency). Antigua and Barbuda belongs to a constituency of 16 countries and its current representative is Belize.

Since the formation of the GEF and during the period GEF 1 – 3 Antigua and Barbuda only received a small amount of funds for small projects called 'enabling activities'. Enabling activities are typically preparing national reports and the collection of data with small amounts of capacity building. Other sources of GEF funds were via several regional projects. Applying for GEF funding to implement national projects has always been a difficult challenge, especially for SIDS.

[2] Independent of the Convention bodies as well as the trustee which is the World Bank.

GEF IMPLEMENTING AGENCIES AND SIDS

The GEF funds are channelled via Implementing Agencies (IAs) such as UNDP, World Bank and UNEP. Until GEF -5 Countries could not approach the GEF directly for funds. The agencies are paid project fees that are to be used in the execution of their mandates. In general, larger projects generated greater administrative fees. SIDS are therefore disadvantaged since IAs are reluctant to implement projects from small countries where the amount of fees are typically small. Priorities were therefore typically given to large national projects or countries are lumped into regional projects. Even greater priority was given to projects with loan components. As a result SIDS received very little GEF funding during the first three GEF cycles. Despite these challenges, Antigua and Barbuda is the only OECS country to receive a GEF 3 national full size project.

Given the scope benefits of implementing GEF projects, many organizations in the Caribbean region do their utmost to encourage countries to sign on to regional GEF projects. This approach results in the project funds being spent at the regional or international level and there is very little being spent on project management (sometimes even the national activities that need to be done are starved of resources) within at the national level. In Antigua and Barbuda the focal point for the GEF has expressed the frustration of this approach and has taken the very unpopular position at national and regional meetings for countries to have direct access to GEF resources. With this, SIDS will have full access to all the funds necessary to assist countries to meet their legally binding commitment to the various conventions. This is important for two reasons: the fees SIDS projects generate are too small to generate interest from IAs and the STAR allocations are so small that the countries need to receive as much of it as possible to make the necessary minimum impact.

The NPFE exercise is one way that the country can also clearly outline their preferences and strategies for implementation modalities and thus send a clear signal to the GEF, IAs and other national and International stakeholders.

GEF PROGRAM AREAS

The GEF does not fund all environmental issues but instead is one of the financial mechanisms for the previously mentioned conventions. Within these conventions the COP has already identified approaches and or issues that are priorities to the implementation of the convention. These “guidance to the GEF” are communicated to the GEF secretariat via COP Decisions. These decisions are translated as best as possible to what is referred to as “GEF Program Areas” for the approval of the Council. Projects submitted to the GEF are expected to be aligned as closely as possible to the stated objectives of the various program areas. If not they are not likely to be approved.

PROGRAM AREA – BIODIVERSITY

The goal of the biodiversity focal area is the conservation and sustainable use of biodiversity and the maintenance of ecosystem goods and services. These goals as approved for the GEF-5 Biodiversity Program is consistent with the objectives of the convention (CBD) which are: *the conservation of biological diversity; the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.*

To achieve this goal, the GEF strategy encompasses five objectives:

a. Improve the sustainability of protected area systems;

b. Mainstream biodiversity conservation and sustainable use into production landscapes/ seascapes and sectors;

c. Build capacity to implement the Cartagena Protocol on Biosafety;

d. Build capacity on access to genetic resources and benefit-sharing; and

e. Integrate CBD obligations into national planning processes through enabling activities.

NATIONAL BIODIVERSITY STATUS AND GEF-5 IMPLEMENTATION STRATEGY

Antigua and Barbuda has produced one National Biodiversity Strategy and Action Plan (NBSAP) and four national reports that outline the country's strategy for the Implementation of the Convention. This NPFE process is the first of its kind that will seek to define a strategy to meet the GEF program objectives and the Objectives of the Convention at the same time prior to the submission of projects.

After review of the various national reports and NBSAP as well as after consultations Antigua and Barbuda's GEF-5 strategy includes the following:

- Use most of the STAR allocation for the further establishment and management of the Systems of Protected areas already established within the country. The detailed program will include the following elements:
    - Identification and mapping of all protected areas:
    - Improved coordination and management of protected areas among institutions across the country;

- Establishing and maintaining a system of self-financing for the parks and protected areas;
- Included within the financing options are renewable energy development and deployment that are income generating;
- Identify and use the systems of protected areas in a manner for dual purposes for climate risk reduction and, where possible, mitigation opportunities;

Based on the funds available it is expected that this activity will be a national full size project and will take the majority of the allocation with the STAR portfolio. During the consultation process a project was identified and a project concept was developed (see annex).

Other activities that will take place are:

- The updating of the NBSAP to include strategies for Biosafety and Access and benefit sharing protocols;
- Complete and submit all relevant reports to the Convention secretariat;
- The full establishment of the Biosafety Management Systems within the Country (part of a GEF 4 regional Project);
- The building of capacity for the establishment of the necessary legal and institutional arrangements for Access and benefit sharing;

At the regional level the country will be implementing the regional "Caribbean Challenge" project funded by the GEF, Implemented by the World Bank and executed by TNC. This project is expected to initiate a national trust fund for the management of protected areas. It is expected that this project will be implemented throughout the entire GEF 5 period and should complement the development and implementation of the GEF-5 portfolio.

PROGRAM AREA - CLIMATE CHANGE

GEF projects in climate change help developing countries and economies in transition to contribute to the overall objective of the UNFCCC *"to achieve [...] stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner"* (from the text of the UNFCCC, Art.2).

The GEF supports projects in:

- *Climate Change Mitigation:* Reducing or avoiding greenhouse gas emissions in the areas of renewable energy; energy efficiency; sustainable transport; and management of land

use, land-use change, and forestry (LULUCF)

- *Climate Change Adaptation:* Aiming at developing countries to become climate-resilient by promoting both immediate and longer-term adaptation measures in development policies, plans, programs, projects, and actions.

As the financial mechanism of the UNFCCC, the GEF allocates and disburses hundreds of millions of dollars per year in projects in energy efficiency, renewable energy, sustainable urban transport and sustainable management of land use, land-use change, and forestry. The GEF also manages two separate, adaptation-focused Funds under the UNFCCC — the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF), which mobilize funding specifically earmarked for activities related to adaptation, and the latter also to technology transfer.

GEF has assisted developing countries undertake "win-win" projects to reduce emissions of GHGs as well as create economic opportunities. GEF climate change programs by their very nature generally take a long-term perspective, transforming energy markets in developing countries by enabling these markets to operate more efficiently and shift away from carbon-intensive technologies. As of 2009, more than 1 billion tons of greenhouse gas emissions, an amount equivalent to nearly 5 percent of annual human emissions, have been avoided with GEF support.

THE OBJECTIVES OF THE GEF-5 MITIGATION STRATEGY ARE[3] AS FOLLOWS:

OBJECTIVE 1: PROMOTE THE DEMONSTRATION, DEPLOYMENT, AND TRANSFER OF INNOVATIVE, LOW-CARBON TECHNOLOGIES

Projects supported under this objective targets innovative technologies with potentially significant long-term impacts on carbon emissions. GEF support may involve the demonstration, deployment, and transfer of commercially available technologies that were identified as priorities by the recipient countries but have not been widely adopted in their particular markets. GEF support includes technical assistance for creating an enabling policy environment for technology transfer, North-South, and South-South technology cooperation, purchase of technology licenses, and investment in pilot projects. The GEF is also prepared to support technology centres and networks at the global, regional, and national levels. The target for this objective is the demonstration of three to four innovative technologies in 10 to 15 countries. Technologies at the diffusion stage or those in wide-scale dissemination are considered under other objectives.

[3] Taken from the GEF website www.gefweb.org.

OBJECTIVE 2: PROMOTE MARKET TRANSFORMATION FOR ENERGY EFFICIENCY IN THE INDUSTRIAL AND BUILDINGS SECTORS

Projects supported under this objective aim to step up policy interventions and scale up energy efficient investments. For industry, emphasis is placed on energy-efficient industrial production and manufacturing, particularly in small and medium enterprises (SMEs). For buildings, the GEF support covers the building envelope; energy-consuming systems; appliances; and equipment used for heating, cooling, lighting, and building operations. Emphasis is also placed on integrated and systematic approaches. Promotion of energy-efficient cook stoves will also be covered. Projects under this objective may extend to supporting the phase-out of HCFCs used in industry and buildings prior to the phase-out dates under the Montreal Protocol.

OBJECTIVE 3: PROMOTE INVESTMENT IN RENEWABLE ENERGY TECHNOLOGIES

Projects supported under this objective lead to a step change in the development and diffusion of reliable, least-cost renewable energy technologies. GEF support may cover on-grid renewable energy, decentralized production of electric power, as well as heating with indigenous energy sources, including biomass, solar, wind, hydro, and geothermal. GEF support could also cover sustainable production of biomass for biofuels, as a substitute for fossil fuels where appropriate conditions exist, as well as methane recovery from biomass wastes for power and heat generation. GEF projects can promote local SMEs to enhance their technical capacities to provide installation, operation, and management support.

OBJECTIVE 4: PROMOTE ENERGY-EFFICIENT, LOW-CARBON TRANSPORT AND URBAN SYSTEMS

This objective supports interventions for land use and transport planning, public transit systems, energy efficiency improvement of the fleet, efficient traffic control and management, transport demand management and non-motorized transport. Technological options in the transport sector, such as clean, low-carbon vehicles, may be considered in countries where such options can be expected to achieve significant reduction in GHG emissions as well as local development environmental benefits. GEF support under this objective may involve technical assistance, innovative financing mechanisms, awareness campaigns, and investments in demonstration and deployment of high-performance technologies.

OBJECTIVE 5: PROMOTE CONSERVATION AND ENHANCEMENT OF CARBON STOCK THROUGH SUSTAINABLE MANAGEMENT OF LAND USE, LAND-USE CHANGE, AND FORESTRY

This objective aims to conserve, restore, enhance, and manage carbon stocks in forest and non-forest lands, and to prevent emissions of the carbon stocks by reducing the pressure on these lands in the wider landscape. Deploying low carbon technologies may reduce demands from resources produced by land management, and simultaneously adopting and deploying new land management responses can synergistically enhance and sustain carbon sequestration and conserve stocks. GEF support could include development of national systems to measure and

monitor carbon stocks and fluxes from forest and non-forest lands, policy and institutional strengthening, local community good practices, and establishment of financing mechanisms or investment programs.

OBJECTIVE 6: SUPPORT ENABLING ACTIVITIES AND CAPACITY BUILDING

This objective aims to provide support for non-Annex 1 parties to prepare their National Communications to the UNFCCC and meet their obligations under the Convention. The GEF will also continue to fund the preparation and updating of TNAs in accordance with Convention guidance. Furthermore, the GEF can support carbon markets.

ANTIGUA AND BARBUDA'S PERSPECTIVE

Antigua and Barbuda has recently submitted its second national communication to the convention (a requirement of the Convention) and it is hoping to submit its third national communication during this GEF 5 period. The document is available on the Country's website as well as that of the UNFCCC secretariat. It outlines the national top mitigation and adaptation priorities and these have been incorporated into the NPFE. The priorities include the reduction of emissions by 25% based on 1990 levels by 2020.

Adaptation priorities are related to the stabilization of the coastal areas and risk reduction from the impacts of extreme weather events. The country is already spending significant amounts on adaptation but has not taken the steps as yet to incorporate mitigation strategies. The major limitation in this regard is the present legislation that governs the generation of electricity. The present legislation provides for a monopoly and prevents development of the necessary market systems to encourage the use of renewable energy.

The Government has however, taken some steps towards the incorporation of renewable energy into the mix with the development of a draft energy policy and highly expected policy for the local energy company to allow persons to generate their own electricity using renewables. The government has already approved tax breaks for the importation of this technology.

GEF -5 STAR CLIMATE CHANGE ACTIVITIES

Based on the Consultations with relevant stakeholders the priorities for Antigua and Barbuda in this focal area are objectives 1, 2 and 5. There are clear synergies between the priorities in this focal area and that of biodiversity. It is therefore recommended that the Biodiversity and Climate Change allocations be used together for one project. This will reduce project development and management cost and further improve the impact of the project on the ground. This potential project is listed in the Annex.

The Third National Communication will be conducted during this time and that exercise should focus on data management systems to track the impact of projects and programs on GHG

emissions. This information will be very useful for market data and for investments by financial institutions such as banks and insurance companies.

Antigua and Barbuda will be participating in the SIDS dock project (Annex 2, Project concept 3) currently being developed via the World Bank and executed by the CARICOM Climate Centre based in Belize.

PROGRAM AREA – UNCCD

The goal of the Land Degradation Focal Area is to contribute to arresting and reversing current global trends in land degradation, specifically desertification and deforestation. This will be accomplished by promoting and supporting effective policies, legal and regulatory frameworks, capable institutions, knowledge sharing and monitoring mechanisms, together with good practices conducive to sustainable land management (SLM) and the generation of environmental benefits globally while promoting national results for environmental, social and economic stability. The four main objectives contributing to this focal area's goals are:

- Maintain or improve flows of agro-ecosystem services to sustain the livelihoods of local communities;
- Generate sustainable flows of forest ecosystem services in arid, semi-arid and sub-humid zones, including sustaining livelihoods of forest-dependent people;
- Reduce pressures on natural resources from competing land uses in the wider landscape;
- Increased capacity to apply adaptive management tools in SLM.

GEF STAR-5 - STRATEGY FOR LAND DEGRADATION

For this focal area the priority is to address land degradation, particularly in the watersheds of Antigua and Barbuda and the resulting impacts on the Coast areas. To this end it was decided that the allocation for Land degradation would be dedicated to any potential regional project that will address this. In regional consultations with the GEF-IWCAM project and with CEHI there is a project being developed to address this issue and it is the intention that Antigua and Barbuda will use its allocation for this regional project currently under development.

CURRENT AND PAST GEF PROJECT PORTFOLIO

Antigua and Barbuda has benefitted significantly from the GEF. Current and past projects funded by the GEF are included in table1. Below:

Table 1. Past and present projects of the GEF as well as potential Projects in the Pipeline

Implementing Agency	Name of Project	Budget	Status
UNDP	*Clearing House Mechanism Enabling Activity*	*14,000*	*Completed 2003*
UNDP	*National Biodiversity Strategy, Action Plan and First National Report to COP*	*130,000*	*Completed 2003*
UNDP	*Enabling Antigua and Barbuda to Prepare its First National Communication in Response to its Commitments to UNFCCC*	*161,000*	*Completed in 2004*
UNDP	*Demonstrating the Development and Implementation of a Sustainable Island Resource Management Mechanism in a Small Island Developing State*	*3M*	*To be completed in 2013*
UNDP	*Assessment of Capacity Building Needs and Country Specific Priorities*	*212,000*	*Completed 2002*
UNEP	*National Capacity Needs Self-Assessment for Global Environmental Management*	*193,000*	*Completed in 2005*
UNEP	*Enabling activities for the Stockholm Convention on Persistent Organic Pollutants (POPs): National Implementation Plan for Antigua and Barbuda*	*397,000*	*Completed in 2005*
UNDP	*Climate Change Enabling Activity (Additional Financing for Capacity Building in Priority Areas)*	*100,000*	*Completed in 2002*
Pipeline of projects (already endorse and those intended to endorse)			
UNEP	*Implementing Integrated Land, Water & Wastewater*	*GEF 5 Project*	

	Management in Caribbean SIDS		
UNEP	*Climate change energy efficiency meeting*		
UNEP/RCU (based in Jamaica)	*Caribbean Regional Fund for Waste Water Management (CREW) (GEF 4 project)*	*Regional Project with no national component. Overall regional value of the project is USD20M.*	
UNEP and Implemented by the University of the West Indies.	*Biosafety (regional) (GEF 4 project)*	*National Allocation is uncertain by regional amount is valued at*	

GEF STAR ALLOCATION – 2010 – 2014

The GEF allocation for Antigua and Barbuda is outlined in the table below. As of this date none of the funds have been allocated.

Focal Area	STAR GEF-5 Indicative allocation	Allocation utilized	PIFs cleared by CEO awaiting approval	Allocations remaining to be programmed
Biodiversity	*1,500,000.00*	*0*	*0*	*1,500,000.00*
Climate change	*2,000,000.00*	*0*	*0*	*2,000,000.00*
Land	*940,000.00*	*0*	*0*	*940,000.00*

degradation				
Total	*4,440,000.00*	*0*	*0*	*4,440,000.00*

Other funds are available from the General GEF trust funds for Chemicals, Montreal Protocol and Internal waters on a competitive basis. These projects are however mainly available to SIDS as regional projects. Funds available under the SCCF are generally limited but still available. Antigua and Barbuda's ability to access these funds are limited by the current energy policy climate.

SMALL GRANTS PROGRAM

The small grants program is not included within the STAR however it is worth noting that this program also has an allocation of 1M USD for the GEF 5 period. This is a significant improvement over what was available in the previous GEF periods. To facilitate this, the country is establishing a national GEF small grants program which will see the country enjoying more autonomy from UNDP which is currently managing this program from Barbados.

NATIONAL APPROACH TO GEF-STAR

In light of the above challenges the Government took an initiative to raise the profile of the Antigua and Barbuda delegation by appointing the Political Focal Point, Dr. John Ashe who is the Permanent Representative to the United Nations. Also the GEF national Operation Focal Point was also appointed as an Ambassador during the period of time for the GEF replenishment. This step resulted in a significant increase in the GEF-funded projects coming to not only Antigua and Barbuda but also to the rest of the region. Antigua and Barbuda's delegation is one of the leading countries in the SIDS to advocate for specific and concrete changes in the GEF and these changes were finally adopted in May 2010 in Uruguay. These changes included:

- Each Country will have a national allocation of funds. In GEF 1- 3 there was no allocation of funds per country so the larger 4 countries in the groups received over 60% of the funds. In GEF 4 allocations were made by groups of countries and Antigua and Barbuda was lumped into one group. In GEF 5 funds were allocated per country and this allocation is referred to as the STAR. Antigua and Barbuda's allocation for 2010 -2014 is 4.4M USD with 2 million for Climate Change, and the rest for Land Degradation and Biodiversity.

- Direct access to funds from the GEF for enabling activities and other miscellaneous funds. This means that for every dollar allocated all of it will go directly to the countries. In the case of Antigua and Barbuda this will translate into approximately USD $650,000.00 for the next four years. To do this however there is a need to make some administrative changes with the office of the GEF focal point.

- Project cycle will be cut further to about 18 months.

- The project can use up to 10% of its funds for project management, to hire a project manager, project assistant and one other staff. This includes transportation and so on.

CO-FINANCING

For every dollar received from the GEF the Government is required to match this with one dollar. This can be in kind or in cash. Most of the co-financing the Government has provided to date is in kind and some cash. To access the US $4.4 million in the GEF portfolio Antigua and Barbuda will need to raise an additional US $2 million in cash to get access. These funds can be sources from other funding sources such as the Adaptation Fund, bilateral donors and the local private sector. Other funds can come from "Fast Start Funding" from the Copenhagen Accord.

FAST START FUNDING AS A SOURCE OF CO-FINANCING

Most of the fast start funding under the Copenhagen Accord is being channelled via existing bilateral channels such as USAID and EU bilateral agencies. The Government should ensure that all relevant focal point should channel these funds towards meeting the targets and priorities set within this document. These funds are a very important part of the co-financing strategy. In recent years Government agencies have cut budgets by over 25% over the past two years and this trend is expected to continue over the GEF STAR period. With the current economic situation and budget cuts it is not likely that co-financing will come from central Government. These other possible sources are therefore very important.

Co-financing may also be needed to assist community groups to access their national allocations of 250,000.00USD per annum. This issue will be further addressed by the NGO and CBO community.

To access international funding it is really important that the Government maintains its strong international presence since Antigua and Barbuda's high per capita income makes it especially difficult to get access to grant funding. All staff travelling for negotiation meetings should be vigilant for opportunities to access technical and financial assistance.

IMPLEMENTATION ARRANGEMENTS – NATIONAL AND REGIONAL PROJECTS

Even with these giant steps forward there are more changes required to ensure that SIDS countries have better access to the GEF. It is expected that these further changes will be negotiated over time and with subsequent GEF Council meetings. With these changes the opportunities for Antigua and Barbuda to do national projects becomes entirely possible. In fact, it has always been easier and more cost effective to do national projects than a regional project. There are numerous benefits for national projects as opposed to regional projects. These are:

- Flexibility in project design and implementation. With regional projects implementation is along with the other countries and we have to all do similar activities and at the same time;

- Up to 10% of the project management fee goes to the regional agency and not the country so the country has to find its own funds for a project manager. This will be difficult for us at this time;

- Regional projects do not build the capacity in the countries to access and manage international projects; these are limited to those working in the country where the project is based. Jamaica, for example, has focused on national projects and has taken all the necessary steps to maximize the funds they receive for environmental projects.

- National consultants are more likely to be used on national projects. Regional projects do not generally choose Antiguan consultants to work on the project (I am not quite sure why that is);

If the GEF funds for this cycle are used for predominantly nationally based projects it will have a significant impact on the environmental management of the country. This will translate into to almost 6M USD being invested into the environment as well as the economy over the next four years. This will result in the creation and maintenance of a significant number of jobs. **If these funds are channelled via regional agencies this will result in the Government having to expend additional funds and not the other way around.**

The chart below was produced by the GEF evaluation office and it shows that Antigua and Barbuda has been the most successful OECS country to get funding from GEF cycles 1-4.

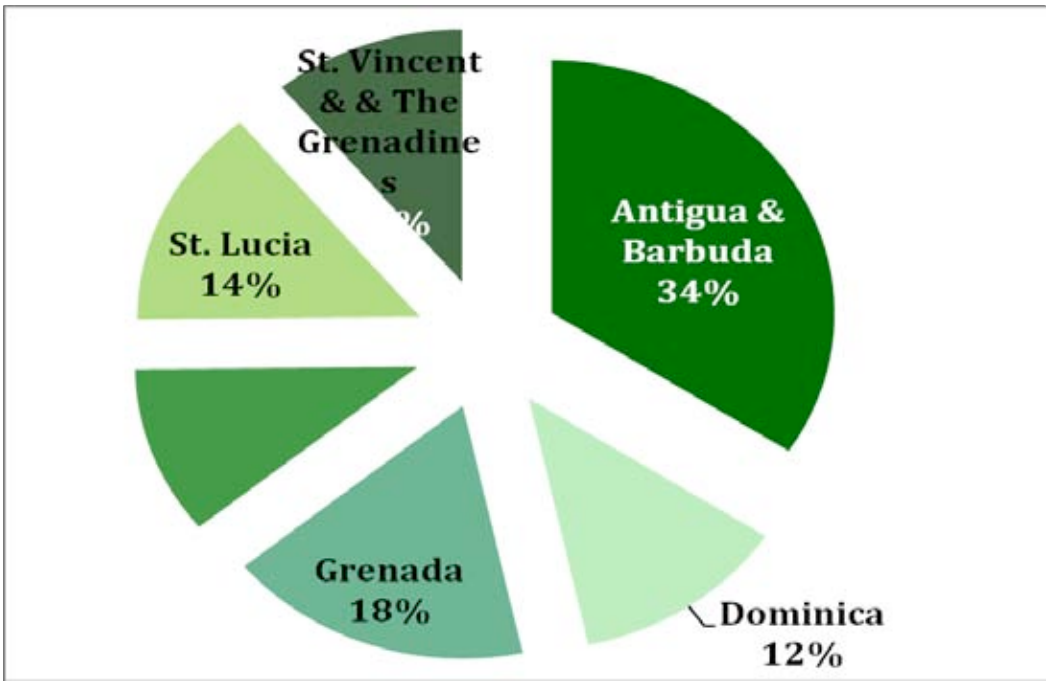

Chart of the funds disbursed so far to the OECS Countries – Source GEF evaluation Office.

The success of Antigua and Barbuda is directly linked to the high profile that the Government has associated to its lead negotiators and the supporting staff of the Environment Division and other agencies of the Government such as Fisheries, Central Board of Health, the Chemistry and Analytical Services, Planning and Finance. There are other departments such as Foreign Affairs and Trade that have made invaluable contributions to this effort. Please note that the success of this effort is tremendous when considered within the context that Antigua and Barbuda's high per capita income makes it harder to attract co-financing.

GEF AND CAPACITY BUILDING IN THE PRIVATE SECTOR

One other valuable contributor is the private sector. The Environmental Services sector is one area of the economy that will grow over the next few years. It is also one area of the economy that can, in fact, go regional and even international. To do this however will take a few years of sustained growth and the building of a strong local market base.
Some companies include:

- Environmental Solutions Antigua Limited (ESAL);
- Environmental Tourism Consulting
- Search Antigua
- GARDC (NGO)

- Total Development Solutions
- JIT Group
- FACT (Accounting Firms);
- Caribbean Water Treatment;
- As well as many individual consultants

These companies are already benefitting from the SIRMM and IWCAM projects already under implementation in Antigua and Barbuda. With respect to the SIRMM this project brings in an average of USD600, 000.00 per annum and will continue to do so until 2013. It is hoped that if Antigua and Barbuda implements its GEF portfolio as national projects this amount will double in 2011 up to 2014. If implemented as regional projects the amount entering into the economy will remain the same since regional projects do not bring funds directly into the Country.

Some companies have already invested in new technology to take advantage of these projects.
To use a regional approach would limit the opportunities for small businesses to develop. This would really be unfortunate since even though the amounts are small compared to rest of the economy they are well paying jobs and these companies can in fact expand to create even more opportunity for Antiguan companies.

In all of the years that the GEF has been around these companies, many of which are just a few years old, did not establish or grow in the years when regional projects dominated the GEF portfolio.

MODE AND GEF ACCESS: DIRECT ACCESS OR VIA IMPLEMENTING AGENCY

As mentioned earlier the GEF 5 presents countries with an opportunity to access some funds via direct access modality. After some consultations with the various agencies, the Environment Division (office of the GEF focal point), has indicated that direct access, although better for the countries, has significant obstacles. There are major challenges since the access to funds must comply with World Bank rules. These rules appear to be very difficult and time consuming to navigate particularly with respect to grants. There are plans by the GEF secretariat to move beyond this and to make the process easier. If this is accomplished the office of the GEF focal point has decided to, as much as possible, access funds from enabling activities via direct access. The only exception would be the Biodiversity enabling activity. UNEP was chosen as the Implementing Agency.

The Environment Division is also positioning itself to become a GEF project agency. This will allow the department to access funds from the GEF for actual project implementation. Steps to do this will begin early in 2012.

CONCLUSION

Antigua and Barbuda has been on a path to sustainability for over ten years and the GEF has played a major role in this effort. The STAR allocation has provided the country with a predictable allocation of funds that will allow, more so than ever before, the ability to plan and to build capacity to utilize these funds. The STAR also has other opportunities never before available to countries. Direct access is now possible and the Country has taken a decision to build the Capacity of Environment Division to directly access funds and to become a GEF executing agency.

The GEF STAR cycle has allocated 4.4M USD to Antigua and Barbuda for the period 2010 – 2014. The country has decided to utilize the principle of Sustainable Island Management to put forward three projects for this period: one full size project (Biodiversity and Climate Change); one medium Project Climate Change and; a regional project (Land Degradation). Enabling activities will be conducted during this same period and these will be accessed directly and via Implementing Agencies.

Table 2. Summary projects for GEF – 5

IAs	Project Name	Budget	Mode of Implementation	Timing of Implementation
UNDP (National Full size Project)	*Establishment of a system of protected area for Antigua and Barbuda – demonstrating a variety of sustainable financing options for all protected areas.*	*2.8M*	*Via Implementing agency UNEP*	*2013 – 2017*
UNDP (Medium size Project)	*Promoting the Use of Renewable energy technology and energy efficiency in Government Operations in A & B.*	*1.0M*	*Via UNDP*	*2013 – 2015 (18 mths)*
UNEP (Regional project)	*Implementing Integrated Land, Water & Wastewater Management in*	*940,000*	*Regional via implementing agency.*	*2013 – 2017*

	Caribbean SIDS			
Potential Co-financing Projects	*To be determine throughout the STAR period.*			
CCCCC	*EU GCCA project (climate Change)*	*Project Document available from CCCCC Formal letter of co-financing was not available in time for the completion of this document.*	*Via regional climate Change centre*	*Not sure*

ANNEX 1. LIST OF CONSULTATIONS AND REPORTS

In preparation of this report a number of consultations were held. The report of each of the meetings is attached.

1. Consultations with Barbuda Council;
2. 18th Of November 2011 – Consultations and Training for Teachers;
3. First Consultation with Government Agencies, 24th October 2011:
4. Consultation with Agencies 24th of November 2011 - NODs Conference Room

CONSULTATIONS FOR BARBUDA COUNCIL

This meeting was attending by the lead consultant and the GEF focal Point. The GEF focal Point made the presentation to the council.

Proceedings:

This consultation comprised a briefing of the GEF 5 cycle with the entire Barbuda Council. The meeting is an open forum and interested persons such as fishers and farmers or other NGOs reps can attend.

The Entire Council was present at the meeting and there were over 20 other persons in attendance. The presentation included the same agenda as the other consultations. The items included background on the GEF (including the Small Grants program), the GEF STAR and Potential Projects and capacity building issues for Barbuda.

Persons were encouraged to ask questions during the presentations. The questions were generally in line with the issues Identified in the Antigua meeting. These included:

- What can the project funds pay for;
- Training for project management in Barbuda;
- Hiring of project staff;
- Accounting and reporting of funds;

Project proposals:

- The council wanted priority provided for the development of the Codrington lagoon park as a fully functionally and self sustaining park. They are of the view that if the park can generate its own revenue via tourism visits, power generation etc then these should be explored and once agreed implemented.

The meeting was concluded at Midday.

Consultation on the training for Teachers - 18th of November 2011

ENVIRONMENT CADET TEACHERS' WORKSHOP

1.0 RATIONALE

The Environment Cadet Programme was designed to introduce youth to environmental issues, with the view that they could affect change through their activism. Since its inception in 2007 the programme has impacted the lives of youth in the primary, secondary and tertiary levels. GEF has been instrumental in some aspects of its implementation over the years through the GEF funded project SIRMM (Sustainable Island Resource Management Mechanism).

The SIRMM project has facilitated programmes in the Environmental Cadet schools that focus on land degradation and biodiversity. As such, cadets, in association with SIRMM, have planted over one thousand trees in Body Ponds, one of the SIRMM Demonstration sites. The SIRMM seeks to rehabilitate the Body Ponds through the eradication of the invasive lemon grass, and rehabilitate it through the planting of fruit and other trees. The specific tree planting exercise was designed to show cadets the importance of their actions in the preservation of the environment and how their actions can have positive impact on the island's sustainability.

The Environmental Cadet Programme is facilitated by teachers within the schools who have dedicated their time to ensuring that the cadets learn about the environment. Many of these teachers, though passionate about the preservation of the environment, are not cognizant of the many issues that plague it. Indeed, since some specialise in subjects such as Mathematics or English, they have no avenue from which to learn specifically about how they can positively impact the environment.

It is with this in mind that the Environment Education unit has embarked upon a workshop which will give the teachers the necessary training and fill the gaps in their knowledge. These teachers will then be able to better disseminate information to their cadets since they would speak from a position of clear understanding.

The focus of the Environment Cadet Programme this school year (2011-2012) is on mangroves. During the workshop facilitators will discuss their composition, function and the impact that man and climate change have had on them. These discussions will be further enhanced by a field trip which will take the teachers into the North East Marine Management Area (NEMMA) where they will witness the clear benefits of the preservation of mangrove systems.

In addition, the Environment Education Officer has developed a comprehensive Environment Cadet Manual which will be used in the schools. The manual provides teachers with activities, projects and craft suggestions which can greatly enhance their sessions. The language is also very simple so that cadets may also use the manual as a guide for conducting meetings on their own. Discussions on the manual will also form an integral part of the workshop.

Finally, focus will also be given on the development and implementation of small projects within the schools. The intention is to allow teachers to capitalise on activities that may have financial opportunities, thereby benefiting their schools and their cadets.

The following therefore gives an outline of the objectives of the Environment Cadet Teachers' Workshop, the expected outcomes and gives detail about the program agenda.

2.0 OBJECTIVES

There are three main objectives for this workshop:

- To provide Environment Cadet teachers with relevant information about Mangroves and Mangrove Systems
- To expose Environment Cadet teachers to opportunities for funding
- To ensure that all Environment Cadet teachers are equipped with information on the programme, in order to better inform and instruct Cadets

3.0 EXPECTED OUTCOMES

There are a number of expected outcomes as a result of this workshop. Some are long term and may not be known until the end of the school year, whilst others will be immediately evident.

Outcome 1 – Understanding of Mangroves

By the end of Session 1cadet teachers should be able to:

- Describe mangroves and their functions
- Discuss the impact of man and climate change on mangroves
- Identify projects that cadets can implement to assist with the protection of mangroves

Outcome 2 – Understanding of Funding Opportunities, specifically the Small Grants Fund

By the end of Session 2 cadet teachers should be able to:

- Briefly explain the requirements under the Small Grants Programme
- Describe one project that may be implemented in the schools

Outcome 3 –Revived Environment Cadet programmes

Having gained ample knowledge about the programme, along with all expectations; teachers should be able to do the following upon returning to their schools:

- Implement projects within the schools which focus on mangroves and their protection
- Conduct minor field trips
- Use the Environment Cadet Manual during sessions

- Encourage cadets to use the media available to sensitise the general public about the environment and the work of the Environment Cadets

4.0 PROGRAM AGENDA

1. Welcome and Introductions – 20 mins (9:10 – 9:30)
2. Environment Cadet Manual – 45 mins (9:30 – 10:15)
   Break (10:15 – 10:25)
3. Mangroves – 1 hr 15 mins (10:30 – 11:45)
4. Projects – 45 mins (11:45– 12:30)
   Lunch – 30 mins
   Bus to Stingray City
5. Field Trip (1:30pm – 4pm)

4.1 WELCOME AND INTRODUCTIONS

Facilitator – Arica Hill

During this short session, teachers will introduce themselves and a short game will be played as an ice-breaker.

4.2 "KNOW YOUR MANUAL" – ENVIRONMENT CADET MANUAL

Facilitator – Arica Hill

This session will focus on several parts of the manual to include:

- ✓ Who is an Environmental Cadet
- ✓ Objectives of the Environmental Cadet Programme
- ✓ Rules governing the programme
- ✓ Structure of the Programme
- ✓ The Environmental Focus

The session will be concluded by teachers sitting in groups and completing the following activity which is one of the activities in the manual:

WHAT IF WE SLEPT FOR 100 YEARS?

If we slept for 100 years, what would the world look like and what would we do? Individuals or groups can dream, draw, write, act, discuss, etc. possible scenarios. Such activities help people to think of new possibilities for more sustainable relations with nature.

4.3

Facilitator – Ruleta Camacho

The following areas will be highlighted:

- Structure of mangroves (to include succession, salinity, and types of mangrove systems)
- Mangrove users (fauna and man)
- Impact of climate change on mangroves
- Impact of man (development) on mangroves

The session will conclude with discussions as to how Environmental Cadets can protect mangroves.

4.4 GEF SMALL GRANTS PROGRAMME

Facilitator – Delamine Andrew

The following areas should be discussed:

- What is the GEF Small Grants Programme?
- How can Environment Cadet Schools access funding?
- What are the requirements for accessing funding?
- What are the obligations of the applicant?

The session will conclude with teachers breaking into groups and coming up with projects to access funding.

4.5 FIELD TRIP

Facilitators – Ruleta Camacho and Tricia Lovell

The field trip will take participants into the North Sound area. Facilitators will indicate areas of significant mangrove degradation as well as areas where it has been preserved (i.e. the Narrows). In addition, facilitators will use the Environment Cadet Mangrove Fact Sheet (see below) to further concretise the importance of mangroves and its protection. At the end of the field trip teachers should feel adequately equipped to conduct minor field trips to mangroves

5.0 BUDGET

The total anticipated cost of the workshop is approximately six thousand, six hundred and fifty dollars (XCD$6,650). Below is the breakdown of costs based on the assumption that there will be thirty-five (35) participants:

ITEM	COST
Conference room, refreshment and lunch (Heritage Hotel)	3,723.83
Field trip (boat ride via Stingray City)	1,225.00
Transportation	350.00
Payment for facilitator	1,350.00
TOTAL	**6,648.83**

The following discussion looks at the preparations made for the workshop, along with a discussion of the projected outcomes.

In preparation for the workshop several meetings were held. The first meeting was held with Facilitator Ruleta Camacho to inform her of the areas that should be covered during discussion. The intention was to so educate the teachers that they would be able to discuss the topic quite extensively with their cadets. Also, by providing the correct framework cadets could devise projects which would highlight some issues that are peculiar to mangrove swamp systems.

Further discussions were held with Facilitator Delamine Andrew. In these discussions it was determined that the most important aspects were to first give teachers an understanding of how the small grants fund could benefit their programmes, and for them to brainstorm projects that could be implemented.

Finally, a site visit was conducted with Facilitators Ruleta Camacho and Tricia Lovell at Stingray City. The site visit was on boat and included the mapping of the areas which would be discussed on the field trip.

Outcome 1 – Understanding of Mangroves

The session was doubly facilitated by Senior Environment Officer Ruleta Camacho and Senior Fisheries Officer Tricia Lovell. The facilitators covered, as previously stated, the physiology of mangrove systems, their functions, and the impact of climate change and development on the systems.

The presentation highlighted areas in Antigua and Barbuda that have been degraded as a result of development, with a lively discussion of the possible impacts. Further, since teachers were able to see the area they too were able to make some recommendations for possible future projects.

Key to the discussions was the ability of the facilitators to relate mangrove systems to the focal areas of the Environmental Cadet Programme. This was important since teachers were able to see how mangroves are an excellent biodiverse area, they were also able to appreciate that land degradation has a direct impact on the mangroves and their functions. And finally, the clear link between climate change and its impacts on mangroves was highlighted. By creating these important linkages cadet teachers are better equipped to produce projects that can address any of those three areas as they relate to mangroves.

Further, since the session was interactive, teachers received clarification on issues that they had no understanding for previously. This was particularly important since it ensures that the information given to the cadets is accurate.

Outcome 2 – Understanding of Funding Opportunities, specifically the Small Grants Programme

Environment Officer Delamine Andrew conducted the session on the Small Grants Programme (SGP). In her presentation she highlighted what the GEF is and its key focal areas for this GEF

cycle. Imperative to that discussion was the fact that the Environmental Cadet Programme focuses on three of the five GEF focal areas, namely biodiversity, climate change and land degradation.

Though it was good for the teachers to have received the information, it is negligible whether they would have been able to grasp the full components of a GEF-SGP project, and therefore be able to implement it in their schools. In addition, because they had just had an extensive discussion on mangroves, teachers found it difficult to think of projects that were not mangrove related. Also, since the SGP entails quite a bit of detail, there was not ample time to adequately discuss or answer all the questions and queries put forward by the group.

It is therefore recommended that further discussions be held about the GEF-SGP at another date when teachers can be given even more details about the programme and the benefits that can be derived. However, Environment Officer Delamine Andrew expressed that she believed that the time was well spent since teachers are now aware of the SGP and have been equipped in such a manner that would fodder further discussion and debate.

Below is the format of a project that teachers may embark upon during the year that is based on their understanding of mangroves.

Outcome 3 –Revived Environment Cadet programmes

At the end of the day Environment Cadet Teachers were re-energised to begin working with their cadets. In fact, they specifically requested more training opportunities such as the one offered, so that they can be more knowledgeable about their environment. Considerations are therefore being made about a final workshop at the end of the school year to sister-island Barbuda.

The introduction of the new Environment Cadet Manual was a success, particularly for teachers new to the programme. There have been many concerns over the years that because of the teachers' busy schedules it is often difficult to come up with activities for the cadets to do during sessions.

Some teachers were, before the workshop, quite unknowledgeable about the subject area. The sessions gave them both the information and the interest to delve deeper into the issues related to mangroves. The Environmental Cadet Manual does not focus on mangroves specifically, but gives recommendations and alternate activities that cover environmental recording and investigation. By using the simple principles in those areas cadets can apply them to the monitoring of mangrove systems and devise projects to deal with the issues specifically related to them.

Some cadet teachers were also grateful for the opportunity to team up with other schools. In cases where the number of cadets is small, schools aligned themselves with larger groups. This intermingling and opportunity to meet new people should bolster the activities between the schools. Also, since the teachers had the chance to meet one another, they also were able to come

up with small competitions between themselves that would make the Environmental Cadet Programmes within their schools more visible.

CONCLUSION AND RECOMMENDATIONS

One major recommendation for the improvement of the workshop would be to conduct it earlier in the school year. Therefore, the workshop would be held in early September, and schools must be given notice of such before school ends in June. This way it is on the schools' calendars as a fixture of the programme. There were some negating factors this year, since there were a number of schools that were added this year, and others that withdrew their support. Further, some schools received new teachers for the programme very recently. These factors also contributed to the late date scheduled for the workshop.

To conclude therefore, one would assert that the Environmental Cadet Teachers' Workshop was a success since it fulfilled all the expected outcomes. The true test will be the increased visibility of the programme amongst the general public; however, the work has begun in the form of sensitising and encouraging teachers.

SAVE THE MANGROVES PROJECT

OBJECTIVES:

- Learn about the trees that live in a mangrove
- Learn about the importance of mangroves to this country
- Learn how the activities of humans have caused destruction of the mangroves
- Realize the importance of educating the public about the importance of mangroves

INTRODUCTION:

Mangroves are a group of evergreen trees/shrubs found in swamps and forests along the coastal areas in tropical and subtropical areas between 25 degrees north and 25 degrees south latitude. Mangroves make up 75% of the coastal vegetation in the tropical and subtropical regions of the world (Dawes).

The term mangrove does not refer to a specific taxonomic group of species. One description implies all halophytic (salt tolerant) species of tropical trees and shrubs representing approximately 12 families and over 50 species. All are not necessarily related, but all are adapted to living in loose wet soil, saline habitat, and periodic tidal submergence. In addition, all possess differing degrees of vivipary (live birth) with propagule (seedling) formation. In mangroves this is accomplished with seed germination while still attached to the parent tree.

The mangroves cover the coast and create an ecosystem that is essential to the overall health of the coastal community. Mangroves are unique plants because they thrive in relatively adverse conditions. Mangroves must deal with high levels of salt in the water, anaerobic soil, withstand waves breaking against the shore, and tolerate times when roots are completely exposed to the

air during low tide or completely submerged during high. These organisms are halophytes, or salt loving, but do not require salt water to survive (nhmi.org). It is believed that Mangroves have adapted to thrive in saltwater as a way to reduce competition among other plants. (Kuenzler 352).

DESCRIPTION:

In the Caribbean there are three species of mangroves that dominate the coasts; Red mangroves (*Rhizophora mangle*), Black mangroves (*Avicennia germinant*) and White mangroves (*Laguncularia racemosa)*. There is a general zonation pattern of the mangrove species in the Caribbean. Red Mangroves are found near the low tide mark and dominate the part of the coast that is most often affected by the tides, the black mangrove is abundant around areas where high tide reaches and the white mangrove is the furthest inland (Kuenzler). Each species has different morphological characteristics that help them to thrive in their environment.

Red mangrove has characteristic prop roots, or stilt roots, which grow from the trunk and drop roots which stem from the branches (nhmi.org). The prop roots and drop roots serve to support the red mangrove in the loose soil and aid in respiration because much of the time these roots are exposed to the air (mangroves.nus). The prop roots contain pores called lenticels which allow oxygen from the air to diffuse into the plant. Red mangrove also has characteristic dark green leaves that come to a point at the end.

Black mangrove has a root system that consists of a series of pneumatophores, a type of aerial root, which grow up from roots growing laterally in the soil and then grow up and out of the water (nhmi.org). Because the soil in mangrove habitats is generally anaerobic the pneumatophores are advantages for respiration. Black Mangrove also has a layer of salty residue on the underside of its leaves. Glands in the leaves secret the salt and regulate salt levels in the plant.

White mangrove is most commonly found further inland and unlike the other mangrove species found in the Caribbean the white mangrove does not have a system of specialized roots, such as prop roots or pneumatophores. White mangrove does have two glands at the base of each leaf which secret salt. These glands serve a regulatory function similar to the glands on the leaves of the black mangrove.

There is actually a fourth type of Mangrove, the Buttonwood Mangrove (*Conocarpus erectus*). Often found in the upland transitional zone, the buttonwood is often associated with mangrove communities. The name buttonwood comes from the button-like appearance of the dense flower heads that grow in branched clusters, forming cone-like fruit. This plant does not reproduce via propagules, but instead producing seed cases. While the three mangrove species have leaves that occur opposite of each other, the buttonwood leaves alternate. The leaves are leathery with pointed tips and smooth edges. There are two salt-excreting glands located at the base of each leaf. Flowers appear in cone-like heads and are greenish in color.

FUNCTION AND IMPORTANCE OF MANGROVES:

The mangrove forests are an essential component of the tropical and subtropical coastlines for many reasons. The forests acts as an intermediary between the open ocean and the coast helping to prevent erosion, filter nutrients, and provide protection from severe weather. The Mangroves

trap, hold, and stabilize intertidal sediments. The root systems of the mangroves and their overall abundance are crucial to prevent erosion from waves by absorbing the impact of the waves and preventing the soil from being carried into the ocean. If the coast is eroded to much the surrounding waters could be subject to siltation which has damaging effects like the production of algae blooms. During hurricane season mangroves are vital to preserving the coast form even greater damage had the mangroves not been there to absorb the impact of the waves (Kuenzler). Without the mangroves protecting coastlines erosion would destroy the coast sweeping the soil into the ocean and later affecting the open waters. Mangroves are "land stabilizers". Black mangroves may be the best land stabilizer due to easier seedling transport, quick aerial root production, underground root systems increase sediment holding capabilities, higher tolerance to cold temperatures, better ability to inhabit "artificial" sites (dredge, fill, etc.). Red mangroves are second best and whites are the worst. During extreme storms and hurricanes mangrove forests protect landward coastal area by mitigating damage from waves, currents, and winds.

Mangrove forests also form an incredibly diverse and complex habitat. Coastal birds such as pelicans, spoonbills, and osprey use the mangroves as a nesting site and the mangroves are home to many food sources for the birds (nhmi.org). In the waters around the mangrove roots, especially the prop roots of the red mangrove, a variety of juvenile game fish can be found. Algae and marine invertebrates such as sponges, corals, and anemone can be found attached to prop roots while clams, sea snails, shrimp, and other organisms use the mangroves for shelter and a feeding ground. The mangroves are the key to major food webs in the coastal community. Researchers in the 1960s found that mangrove leaf litter is the basis for a food chain that links the entire coastal community (mangrove.org). Mangrove leaves that fall into the water are later consumed by fungi and other decomposers which are a source of food for various detritivors, such as snails and mollusks. These consumers are then eaten by secondary consumers such as small fish and crabs, and finally birds and game fish consume the smaller organisms (mangrove.org).

THE LOVE / HATE RELATIONSHIP BETWEEN MANGROVES AND HUMANS:

The mangroves and the ecosystem they create also have many uses for humans, but have tragically been exploited like so many other resources. Human impact on the mangrove ecosystem without consideration for the impact loss of mangroves has on the local environment is not an uncommon event. Mangroves are critically linked to the health of the coastal/marine environment and it is important to understand their function as well as the impact of humans on the mangrove environment.

The habitats the mangroves create have been utilized as fisheries, shrimp farms, and other forms of aquaculture (Macintosh). Some estimates say that 90% of commercial fish and 75% of game fish utilize the mangroves at some point in their lives (mangrove.org). Today sport and commercial fisherman rely on the preservation of mangroves to protect the quality of the fish in the open waters (Kuenzler). In more recent years mangrove swamps have been altered for the purposed of aquaculture such as shrimp farming. Shrimp farming can be devastating to the mangrove community because juvenile fish and invertebrates are displaced and pollution of the

water increases (Macintosh). In the case of most aquacultural ventures making money is the main motivation and adverse environmental effects are not necessarily considered.

Other than exploiting the mangrove resources, mangrove forests have been completely cleared for urban development. Often mangroves are destroyed without considering how essential they might be to the ecosystem. Human appraisals of mangrove forests have, in the past, resulted in the mangroves being considered equivalent to a wasteland (Kuenzler). The Caribbean mangroves were first used by settlers for fuel and today mangrove habitat is cleared for urban development, specifically relating to beach front property and tourism (Macintosh).

In Antigua and Barbuda, much of the original area occupied by mangroves has been destroyed as a result of development and other human actions. There is still a chance to preserve the remaining mangroves; work with your local communities to create awareness.

Activities:

- Field Trip to Cades Bay
- Identify the four different types of mangrove
    - collect the leaves and compare
    - collect the flowers and compare
- Write a poem about the importance of protecting mangroves
- Field Trip to South Coast Horizons
- Draw Mangrove trees
- Start a Public Information Campaign to:
    - educate the public about importance of mangroves, and
    - protect our remaining mangroves from further destruction.

This campaign can be in the form of posters, articles, plays etc.

CONSULTATION ON THE LAND USE PLAN –

ANNEX 2[4]. LIST OF PROJECT CONCEPTS PRESENTED AT THE CONSULTATIONS (ONLY THOSE THAT MEET THE CRITERIA ARE INCLUDED HERE)

PROJECT 1

PART I: PROJECT IDENTIFICATION

Project Title:			
Country(ies):		*GEF Project ID:5*	
GEF Agency(ies):	*UNDP*	*GEF Agency Project ID:*	
Other Executing Partner(s):		*Submission Date:*	
GEF Focal Area (s):	*Multi-focal Areas*	*Project Duration (Months)*	
Name of parent program (if applicable): • ☐		*Agency Fee ($):*	

A. FOCAL AREA STRATEGY FRAMEWORK[6]:

Focal Area Objectives	***Expected FA Outcomes***	***Expected FA Outputs***	***Trust Fund***	***Indicative Grant***	***Indicative Co-financing***

[4] The draft PIF was produced as part of this exercise since these projects cannot be included within the Document without the permission of the Ministry of finance. The project concepts had to be therefore be fairly advanced.

[5] Project ID number will be assigned by GEFSEC.

[6] Refer to the reference attached on the Focal Area Results Framework when filling up the table in item A.

				Amount ($)	***($)***
(select) BD-1			*GEFTF*		
CCM-3 (select)			*GEFTF*		
(select) CD-2			*(select)*		
(select) (select)	*Others*		*(select)*		
		Sub-Total		*4*	*4*
		Project Management Cost7	*(select)*		
		Total Project Cost		*4*	*4*

B. PROJECT FRAMEWORK

PROJECT OBJECTIVE:						
PROJECT COMPONENT	GRANT TYPE	EXPECTED OUTCOMES	EXPECTED OUTPUTS	TRUST FUND	INDICATIVE GRANT AMOUNT ($)	INDICATIVE CO-FINANCING ($)

[7] GEF will finance management cost that is solely linked to GEF financing of the project.

	(select)			*GEFTF*		
	(select)			*GEFTF*		
	(select)			*(select)*		
	(select)			*(select)*		
	(select)			*(select)*		
			Sub-Total		*4*	*!Undefined Bookmark, B_CO_04*
			Project Management Cost8	*(select)*		
			Total Project Costs		*4*	*0*

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, ($)

Sources of Co-financing	***Name of Co-financier***	***Type of Co-financing***	***Amount ($)***
National Government		*In-kind*	
National Government		*Unknown at this stage*	
(select) Private Sector		*(select)*	*1.6M*
(select)		*(select)*	

[8] Same as footnote #3.

Total Co-financing			*3,100,000.00*

PROJECT 2:

PART I: PROJECT IDENTIFICATION

Project Title:			
Country(ies):		***GEF Project ID:9***	
GEF Agency(ies):	*(select) (select) (select)*	***GEF Agency Project ID:***	
Other Executing Partner(s):		***Submission Date:***	
GEF Focal Area (s):	*Climate Change*	***Project Duration (Months)***	
Name of parent program (if applicable): • ***For SFM/REDD+*** ☐		***Agency Fee ($):***	

A. **FOCAL AREA STRATEGY FRAMEWORK**[10]:

Focal Area Objectives	***Expected FA Outcomes***	***Expected FA Outputs***	***Trust Fund***	***Indicative Grant Amount ($)***	***Indicative Co-financing ($)***

[9] Project ID number will be assigned by GEFSEC.

[10] Refer to the reference attached on the Focal Area Results Framework when filling up the table in item A.

CCM-3 (select)			*GEFTF*		
CCM-3 (select)			*GEFTF*		
(select) (select)	*Others*		*(select)*		
		Sub-Total		*4*	*4*
		Project Management Cost11	*(select)*		
		Total Project Cost		*4*	*4*

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1 The GEF focal area/LDCF/SCCF strategies:

This project is consistent with the strategy developed for a number of GEF focal areas. However, it is primarily focussed on the areas of Climate Change and Renewable Energy. More specifically, the project aims to address issues based on the following GEG objectives:

Under the Climate Change Strategic Framework

Objective 3: Promote investment in renewable energy technologies (more specifically)

1. Favorable policy and regulatory environment created for renewable energy investments

2. Investment in renewable energy technologies increased Indicator:

11 GEF will finance management cost that is solely linked to GEF financing of the project.

Volume of investment mobilized

3. GHG emissions avoided

A.1.2. For projects funded from LDCF/SCCF: the LDCF/SCCF eligibility criteria and priorities:

A.2. National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NIPs, PRSPs, NPFE, etc.:

This project is directly linked to the National Environmental Management Strategy (NEMS) for Antigua and Barbuda. The NEMS came out of the government's regional commitments to meet its objectives under the St. Georges Declaration. Endorsed in 2001, the NEMS is the blue print which is being used by the government to achieve the goals set out by the St. Georges Declaration. This project falls under a number of the principles of the NEMS. These include:

1. Principle 16 – Manage and Conserve Energy

This project is also directly related to the suggested strategies for addressing issues of climate change identified in the recently completed National Report on Climate Change.

B. PROJECT OVERVIEW:

B.1. Describe the baseline project and the problem that it seeks to address:

This project aims to meet the country's requirements under the climate change convention through ensuring the continued review and investment in renewable energy technologies in Antigua and Barbuda. It seeks to create more awareness in the younger generation and be used as a form of capacity building in the area of renewable energy and energy efficiency within the school system. The project also seeks to promote best practices in the area of energy efficiency in areas that have historically been inefficient in their energy usage. Due to the fact that government buildings are not charged for the energy consumption on a monthly basis, the usage of this energy has been less than efficient. The project aims to contribute to the overall national effort and thrust to reduce energy consumption nationally through the development of more energy efficient public buildings. This is especially important as the impacts of climate change are currently being experienced on island in various ways.

B. 2. Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

The Project will assist in moving forward in the program to implement sustainable energy management practices in Antigua and Barbuda through: (i) supporting the formulation of effective energy policies and programs for government buildings which can be used in driving similar actions in the private sector; (ii) supporting the establishment of processes to determine the most appropriate energy efficient means of addressing energy saving issues; (iii) provision of the necessary equipment and tools for more effective energy solutions and (iv) supporting the promotion of necessary information on the issue of promoting energy efficiency in the country.

The expected global benefits of the GEF Alternative include: (i) improved energy efficiency and reduction in the overall CO2 emissions in country, and (ii) promotion of the use of renewable energy technology that would be replicable elsewhere in the country.

B.3. Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF). As a background information, read Mainstreaming Gender at the GEF."

Antigua and Barbuda, like all the island states of the Eastern Caribbean is generally suffering from economic vulnerability in terms of its dependence on external economic conditions, imports (especially energy) and limited trade and export, with an inordinately high dependence on the tourism sector to sustain their GDP. Antigua is no exception and is probably more dependent on externalities than many of the other SIDS. Consequently market fluctuations and the unpredictability of climatic events and disturbances create a delicate situation that tends toward increasing economic vulnerability. This situation has led to the need for Antigua and Barbuda to seek alternative source of energy and seek effective ways of utilizing the energy sources that are available to the country. Should this be a success, it will lead to better management of the LULUCF issues in the country and ensure effective mitigation of climate change issues.

One of the biggest issues in socioeconomic development in Antigua is the development of capacity to achieve competitiveness and to maintain economic growth in the face of

external conditionalities, while at the same time striving to improve social and human development condition and to reduce poverty. In aligning themselves to meet these challenges, the productive and manufacturing sectors have not fared well, and in areas of technological and human development, islands such as the OECS countries continue to lag behind. This investment in renewable energy technology therefore is especially important as this will help to spark new areas of growth in the country.

Sustainable livelihood activities will also be encouraged as locals are encouraged to do business in areas related to the supply of renewable energy technology as well as develop their capacity in repairing these technologies and maintaining them.

B.4 Indicate risks, including climate change risks that might prevent the project objectives from being achieved, and if possible, propose measures that address these risks to be further developed during the project design:

1. *Lack of knowledge on renewable energy technology.*
2. *Non-systemic or missing legislation on renewable energy*
3. *Lack of institutional integrity and cohesion regarding renewable energy*
4. *Fiscal Policies and Financial Instruments not adequately equipped to address the issue of renewable energy*
5. *Alternative Options for Sustainable Practices and energy efficiency not established*

B.5. Identify key stakeholders involved in the project including the private sector, civil society organizations, local and indigenous communities, and their respective roles, as applicable:

Environment Division, Ministry of Education, Antigua Public Utilities Authority

B.6. Outline the coordination with other related initiatives:

This project is one in a series of projects that are currently being undertaken in relation to energy efficiency in Antigua and Barbuda. It will coordinate and complement the current undertakings from other projects that are currently being undertaken such as the development of the national energy policy and those projects that are still in the development stages.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the Operational Focal Point endorsement letter(s) with this template. For SGP, use this OFP endorsement letter).

Name	***Position***	***Ministry***	***Date (MM/dd/yyyy)***

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1 the GEF focal area/LDCF/SCCF strategies:

This project is consistent with the strategy developed for a number of GEF focal area. However, it is primarily focussed on the areas of Biodiversity and Climate change and renewable energy particularly in area of protected areas work program. More specifically, the project aims to address issues based on the following GEG objectives:

Under the Biodiversity Strategic Framework

Objective 1: Improve Sustainability of Protected Area Systems (more specifically)

Outcome 1.1: Improved management effectiveness of existing and new protected areas.

Outcome 1.2: Increased revenue for protected area systems to meet total expenditures required for management.

Under the Climate Change Strategic Framework

Objective 3: Promote investment in renewable energy technologies (more specifically)

1. favourable policy and regulatory environment created for renewable energy investments
2. Investment in renewable energy technologies increased Indicator: Volume of investment mobilized; GHG emissions avoided

Under the Capacity Development Framework

Objective 2: Generate, access and use of information and knowledge (more specifically)

1. Institutions and stakeholders trained how to use different tools available to manage information
2. Stakeholders are better informed via workshops and trainings about global challenges and local actions required
3. Public awareness raised through workshops and other activities

A.1.2. For projects funded from LDCF/SCCF: the LDCF/SCCF eligibility criteria and priorities:

A.2. National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NIPs, PRSPs, NPFE, etc.:

This project is aligned with the National Environmental Management Strategy (NEMS) for Anguilla

4. Principle 7 - foster broad-based environmental education, training and awareness;
5. Principle 13 – climate change

ctly linked to the country's plan for the development of a system of protected areas. With specific reference to how the project relates to protected areas for example, the sites that are being considered as part of this project have been identified as areas critical to the effective development of a system of protected areas for Antigua and Barbuda. These areas, one in Barbuda and one in Antigua, both host a number of species of flora and fauna that are endangered or are being threatened in some way. Additionally, the project will help to make the objectives of the National Biodiversity Strategy a reality as it undertakes the designation of a new, key protected area in the country and also will see the development of more appropriate management options for the next. This project will effectively help to achieve three of the objectives outlined in the NBSAP. These include:

- Objective 1: A national system, including protected areas, for the management and conservation of biodiversity conservation is developed and established.
- Objective 2: The capacity of governmental natural resources management institutions, as well as non-governmental organizations, to support the objectives and achieve the overall aim of the BSAP is strengthened.
- Objective 4: Public awareness of environmental issues, ecological education and public participation in decision-making is strengthened.

B. PROJECT OVERVIEW

B.1. Describe the baseline project and the problem that it seeks to address:

This project aims to meet the country's requirements under the CBD Program of Work on Protected Areas (PoWPA) through ensuring the continued sustainability of the natural resources available in Antigua and Barbuda. It seeks to protect one of the country's few remaining 'virgin' ecosystems through its designation as a nationally protected area and the implementation of suitable management systems to ensure its continued development and effective management. The project also seeks to promote best practices in developing biodiversity-protected areas that have historical as well as archaeological aspects that could have significant regional and international impacts. Secondly, the project seeks to ensure the implementation of effective management systems for protected areas once they are established. In doing this, the project will also seek to address one the most critical threats to biodiversity in Antigua and Barbuda, the effective and sustainable financing of protected areas.

Based on initial research, the proposed areas that will form part of this project are thought to support rich plants and animal species populations of global and regional importance. Additionally, it is believed that there is a vast number of species perhaps yet undiscovered. These, it is felt, could be lost should efforts not be made to protect the area.

Additionally, the vegetation of the area is thought to be rich and very diverse. Already one tree species which was not previously discovered in Antigua and Barbuda has been found in the project site that is to be declared as a new protected area.

One threat currently being faced by biodiversity for Antigua and Barbuda is the lack of institutional

Land reclamation and the Intensification of Agriculture	Neighbouring lands within the area have fallen victim to indiscriminate land clearing for agriculture. The grazing of animals has also led to the destruction of many plants within the area. How much damage has been done to the area due to these practices is yet to be discovered.
Damage of Vegetation Cover	The problem of deforestation is becoming an increasingly devastating activity for many of the habitats found in Antigua and Barbuda.
Financial Availability	One of the greatest threats to the development of protected areas and their sustainability is that of appropriate funding.
Effective Legislation for protected areas management	Though new legislation is currently being developed, these have not yet been implemented. The project will also seek to ensure that such legislation is implemented by its conclusion

The root causes of the current problems are mostly institutional in nature, namely (i) the lack of protected areas management capacity, regulation, and enforcement; (ii) the inadequate community involvement and environmental/biodiversity awareness among the local communities (iii) limited economic opportunities for local communities to benefit from improved protected areas management (e.g., community-based tourism); (iv) lack of knowledge about sustainable natural resources management practices; and (v) weak legal base for the proper management of protected areas. As previously mentioned, like most areas of environmental importance in Antigua and Barbuda, the biodiversity hotspots that have been identified as part of this project have a number of species of fauna and flora that are facing extinction. In addition to those identified above, threats to their survival also include inappropriate development, natural disasters, invasive species and species removal. The project aims at addressing these issues firstly by ensuring that at least one additional area is declared as protected and secondly, through enhancing the management of a protected area that has already been declared. Additionally, the intention is to review the development of the area so that the existing conflicts between farmers and other users of both areas and the species that need to be protected can be resolved

B. 2. Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

The Project will assist in moving forward in the program to implement sustainable management of National Parks in the country through: (i) supporting the formulation of the protected areas management plan for the national park; (ii) supporting the establishment of a multi-stakeholder consultative group to oversee the development of the protected areas; (iii) provision of the necessary equipment and tools for management, resource inventory, biodiversity monitoring and tourism interpretation; and (iv) supporting the demarcation of the protected site and the construction of basic park infrastructure. The experience of the creation of this national park is the second of this nature with the first being the Codrington Lagoon National Park. It is intended to be replicated throughout Antigua and Barbuda as more areas are identified for declaration as protected areas.

The expected global benefits of the GEF Alternative include: (i) improved participatory

Antigua and Barbuda, like all the island states of the Eastern Caribbean, generally suffers from economic vulnerability in terms of its dependence on external economic conditions, imports (especially energy) and limited trade and export, with an inordinately high dependence on the tourism sector to sustain their GDP. Antigua is probably more dependent on externalities than many of the other SIDS. Consequently, market fluctuations and the unpredictability of climatic events and disturbances create a delicate situation that tends toward increasing economic vulnerability. This situation has led to the need for Antigua and Barbuda to seek alternative source of energy for the protected areas and to utilize this source as a means of financial sustainability for these areas. Should this be a success, it will not only lead to the more effective management of the island's biodiversity but also lead to better management of the LULUCF issues in the country and ensure effective mitigation of climate change issues as well as biodiversity protection.

One of the biggest issues in socioeconomic development in Antigua is the development of capacity to achieve competitiveness and to maintain economic growth in the face of external conditionalities, while at the same time striving to improve social and human development conditions and to reduce poverty. In aligning themselves to meet these challenges, the productive and manufacturing sectors have not fared well, and in areas of technological and human development, islands such as the OECS countries continue to lag behind. This is one of the reasons why funding for areas such as national parks has been very small in past years.

The reviving of the watershed areas within the protected zones and the development of sustainable financing mechanism therefore is an important way of ensuring the continued sustainable development of these zones.

With regards to the second project site, Barbuda remains much as it was over 200 hundred years ago, with a population density that is considerably lower than Antigua's. The main economic activities include sand mining, fishing and tourism, although the latter is still in its infancy. Sand mining on the sister island has reached its maximum limits however and a more sustainable way to finance the economy of Barbuda now needs to be developed and implemented.

The tourism sector has been the single most important factor in the growth of the economy of Antigua and Barbuda, and the direct and indirect contribution is currently estimated to be 81% of GDP. The importance of tourism for the island is also one reason for the new thrust in the development and sustainable financing of protected areas as this is seen as a means to encourage tourists to continue coming to the country.

Currently, financial support for environmental management is limited. While the country is still trying to recover financially from 5 devastating hurricanes within the past 10 years it has relaxed taxation to facilitate the necessary reconstruction of homes and businesses. This has left the treasury financially constrained. The Government is, therefore, finding it difficult to finance the necessary rehabilitation of lands degraded by hurricanes let alone other activities. The Forestry and Environment Division have had several delays in the reforestation programs and other activities such as the development of the national database, and the environmental capacity building activities.

There is therefore little prospect in the short term for government revenues available for natural resources management to increase significantly in the near future. It is therefore essential that

B.4 Indicate risks, including climate change risks that might prevent the project objectives from being achieved, and if possible, propose measures that address these risks to be further developed during the project design:

Lack of knowledge on the status of vital habitats.

1. Though there are declared protected areas within the country, neither a systematic monitoring nor a management system was or has been implemented to ensure the protection and sustainability of the ecosystems within these areas. Information on the existence of protected areas and statistical information on the habitats and overall biodiversity that they host is unavailable in both islands. Such information is critical if the country is to achieve its responsibilities under the CBD's PoWPA. To help address this issue, a system plan for protected areas is currently being developed. Once this system has been developed a financial mechanism to implement the plan would then need to be identified. The project is part of this process and will assist in the completion of the systems plan.

Non-systemic or missing PA legislation

2. Presently, Antigua and Barbuda has various laws for the designation of protected areas. However, there are immediate problems with how these laws were enacted and their application. The different pieces of legislation are inadequate as they are encased in a wide cross-section of existing laws as small sections on specific issues. This makes it difficult to use them to address legal issues regarding protected areas. Serious legislative gaps also exist for the protection of many terrestrial species and mangrove forests. Secondly, the legislations allow for the declaration of protected areas however there are no established regulations to govern their operation once they have been designated. During the execution of this project, legislation on protected areas will be reviewed and steps taken to get the current environmental legislation being developed to be implemented.

Lack of institutional integrity and cohesion

3. There is a lack of order in the institutional arrangements for PA in Antigua and Barbuda. This is indirectly connected to the lack of proper PA legislation. Since the legislative instruments do not provide for the establishment and management of a system of protected areas, a management authority to ensure the implementation of the acts does not exist. The overseeing of PAs in Antigua and Barbuda falls within the responsibility of the Forestry and Fisheries Division and/or the Development Control Authority. Due to the fact that the primary function of these departments may not be the protection of natural resources or the environment in general, this mandate is not efficiently carried out. Additionally, these departments do not have a budget for the management of the PAs declared under their respective legislations. As a result of this several biodiversity species are being adversely affected as their habitats are destroyed.

Fiscal Policies and Financial Instruments

4. Fiscal policies fail to address some of the fundamental concepts related to management and financing of protected areas (PA). The economy of Antigua and Barbuda is heavily dependent on

a means of avoiding further economic deterioration and promoting long-term sustainable economic growth within the PA systems created.

Contingency for Environmental Variability and Extreme Events

5. Other than prediction followed by some level of preparedness there is little that can be done at this point to lessen the direct impact from extreme events such hurricanes. However, one obvious constraint to mitigating the effects of these events is the lack of finance and infrastructural planning for protected areas.

Alternative Options for Sustainable Practices and Self-Sufficiency

6. There has been very little focus on options and possibilities for alternative technologies or to the adoption of best practices for sustainable financing of protected areas. There is a clear and urgent need to develop these within the specific context of Antigua and Barbuda and to demonstrate their efficacy on the ground. An example of one such practice to promote self-sufficiency is the use of renewable energy technologies.

Legislation, Regulation and Policy

This key issue is dealt with last as it is fundamental in influencing all of the preceding constraints in effective PA management. Weak or misdirected legislation and policy along with the absence of logical self-regulatory approaches represent overall constraints to management and fiscal support for protected areas. In order to address the issues being discussed some policy or legislation would need to be implemented to ensure that the renewable energy technology developed to assist in the financing of protected areas is implemented.

B.5. Identify key stakeholders involved in the project including the private sector, civil society organizations, local and indigenous communities, and their respective roles, as applicable:

Environment Division, Barbuda Council, Codrington Lagoon National Park, National Management Park Committee

B.6. Outline the coordination with other related initiatives:

This project is one in a series of projects that are currently being undertaken in relation to protected areas. It will coordinate and complement the current undertakings from the Sustainable Island Resource Mechanism Project and further the work done in Antigua and Barbuda on protected areas in relation to the gap analysis that has been completed and the protected areas systems plans being completed.

PROJECT 3 - REGIONAL PROJECT: (THE ENTIRE LAND DEGRADATION ALLOCATION WILL BE ALLOCATION TO THIS REGIONAL PROJECT)

PART I: PROJECT IDENTIFICATION

Project Title:	***Implementing Integrated Land, Water & Wastewater Management in Caribbean SIDS***		
Country(ies):	*Antigua/Barbuda; Bahamas; Barbados; Cuba; Dominica; Dominican Republic; Grenada; Haiti; Jamaica; St. Kitts/Nevis; St. Lucia; St. Vincent & the Grenadines; Trinidad & Tobago*	*GEF Project ID:12*	
GEF Agency(ies):	*UNEP UNDP (select) (select)*	*GEF Agency Project ID:*	*00668 (UNEP)*
Other Executing Partner(s):	*CEHI; CAR/RCU*	*Submission Date:*	*2012-02-15*
GEF Focal Area (s):	*MULTIFOCAL AREA*	*Project Duration(Months)*	
Name of parent program (if applicable): • *For SFM/REDD+* ☐		*Agency Fee:*	

[12] Project ID number will be assigned by GEFSEC.

A. FOCAL AREA STRATEGY FRAMEWORK[13]:

Focal Area Objectives	*Expected FA Outcomes*	*Expected FA Outputs*	*Indicative Financing from relevant TF (GEF/LDCF/SCCF) ($)*	*Indicative Co-financing($)*
IW-1 Catalyze multi-state cooperation to balance conflicting water uses in trans-boundary surface and groundwater basins while considering climatic variability and change	*Outcome 1.1: Implementation of agreed Strategic Action Programmes (SAPs) incorporates trans-boundary IWRM principles (including environment and groundwater) and policy/ legal/institutional reforms into national/local plans*	*Adopted national and local policy and legal reforms*		
	Outcome 1.3: Innovative solutions implemented for reduced pollution, improved water use efficiency, sustainable fisheries with rights-based management, IWRM, water supply protection in SIDS, and aquifer and catchment protection	*Types of technologies and measures implemented in local demonstrations and investments*		
	Outcome 1.4: Climatic	*Enhanced capacity for*		

[13] Refer to the reference attached on the Focal Area Results Framework when filling up the table in item A.

	variability and change as well as groundwater capacity incorporated into updated SAP to reflect adaptive management	*issues of climatic variability and change and groundwater management*		
IW-3 Support foundational capacity building, *portfolio learning,* *and targeted research needs for* *joint, ecosystem-based management* *of trans-boundary water systems*	*Outcome 3.1: Political commitment, shared vision, and institutional capacity demonstrated for joint ecosystem-based management of water-bodies and local ICM principles*	*National inter-ministry committees established; national and local IWRM Plans*		
IW-3 (select)	*Outcome 3.2: On-the-ground modest actions implemented in water quality, quantity, and coastal habitat demonstrations for "blue forests" to protect carbon*	*Demo-scale local actions*		
IW-3 (select)	*Outcome 3.3: IW portfolio performance enhanced from active learning/ KM/experience sharing*	*Active experience/ sharing/learning practiced in the IW portfolio*		

IW-2 *Catalyze multi-state cooperation to rebuild marine fisheries and reduce pollution of coasts and Large Marine Ecosystems (LMEs) while considering climatic variability and change*	*Outcome 2.1: Implementation of agreed Strategic Action Programmes (SAPs) incorporates ecosystem-based approaches to management of LMEs, ICM principles, and policy/legal/ institutional reforms into national/local plans* *Outcome 2.3: Innovative solutions implemented for reduced pollution, rebuilding or protecting fish stocks with rights-based management, ICM, habitat (blue forest) restoration/conservation, and port management and produce measureable results*	*Technologies and measures implemented in local demonstrations and investments*		
(select) LD-1 *Agriculture and Rangeland* *Systems: Maintain or improve flow of agro-ecosystem services* *sustaining the livelihoods of* *local communities*	*Outcome 1.2: Improved agricultural management* *Outcome 1.3: Sustained flow of services in agro - ecosystems* *Outcome 1.4: Increased investments in SLM*	*Output 1.2 Types of Innovative SL/WM practices introduced at* *field level* *Output 1.3 Suitable SL/WM* *interventions to increase vegetative cover in agro-*		

		ecosystems *Output 1.5 Information on SLM* *technologies and good practice* *guidelines disseminated*		
(select) LD-3 Integrated Landscapes: *Reduce pressures on natural* *resources from competing land* *uses in the wider landscape*	*Outcome 3.1: Enhanced cross-sector enabling environment for integrated landscape management* *Outcome 3.2: Integrated landscape management* *practices adopted by local communities* *Outcome 3.3: Increased investments in integrated landscape management*	*Output 3.1 Integrated land* *management plans developed* *and implemented* *Output 3.2 INRM tools and* *methodologies developed and* *tested* *Output 3.4 Information on INRM technologies and good practice* *guidelines disseminated*		

(select)				
(select) *(select)*				
Project management cost14				
Total project costs			*0*	*0*

14 GEF will finance management cost that is solely linked to GEF financing of the project.

A. PROJECT FRAMEWORK

PROJECT OBJECTIVE: TO ACCELERATE PROGRESS ON WSSD TARGETS ON IWRM/WUE PLANS AND WATER SUPPLY AND SANITATION MDGS THROUGH IMPLEMENTATION OF AN INTEGRATED APPROACH TO LAND MANAGEMENT, WATER RESOURCE MANAGEMENT AND WATER USE EFFICIENCY, INCLUDING POLICY, INSTITUTIONAL AND LEGISLATIVE REFORMS, DEMONSTRATION OF MORE EFFECTIVE TECHNOLOGIES AND METHODOLOGIES AND THE LEARNING AND EXCHANGE OF BEST PRACTICES.

Project Component	***Grant Type(TA/INV)***	***Expected Outcomes***	***Expected Outputs***	***Indicative Financing from relevant TF (GEF/LDCF/SCCF) ($)***	***Indicative Co-financing ($)***
C1 Development and Implementation of Integrated Targeted Demonstrations in SLM, IWRM and WUE	*TA*	*i. Barriers removed at each participating SIDS against the adoption and application of more effective technologies and methodologies to promote SLM, IWRM and WUE, in particular at selected demonstration sites.* *ii. Country-specific SLM, IWRM and WUE demonstrations as selected and adopted during the project development phase*	*Water Resource Assessment and Protection* *i. A (rapid) water and land-related diagnostic analysis for each participating SIDS conducted as part of the demonstrations* *ii. Groundwater management and surface and GW monitoring system (reuse, recharge, protection) developed at a demo site. Results of demo incorporated into national IWRM planning process.* *Watershed*	*4,500,000* *5,350,000* *(for Haiti)*	

		effectively implemented. *iii. National and/or local capacities necessary to implement SLM, IWRM and WUE practices and meet water and sanitation MDGs strengthened at each participating SIDS* *iv. Measurable stress reduction achieved at the demonstration sites, including increased availability and/or access to potable water and/or sustainable sanitation services, increased water use efficiency, reduced groundwater contamination, reduced deforestation and watershed erosion, and reduced coastal pollution and ecosystem degradation.* *v. Social and economic welfare of selected island communities*	*Management* *iii. Improvements in upstream land and water use practices result in 20% or greater reduction in erosion, land degradation and coastal sediment runoff at demo site #X* *iv. Watershed protection and restoration measures, incorporating soil fertility demonstrated at demo #X included in the national land use and IWRM planning* *Wastewater Management* *v. An artificial wetland (or other appropriate system) constructed as a wastewater purification and waste reuse (e.g. nutrients) measure at demo site #X, resulting in 20% or greater reduction in raw sewage, nutrient, and other pollutant discharges*		

		improved through improved water and wastewater management *vi. Best practices captured and lessons learned documented from each demonstration for dissemination at national, regional and global level (through C4)* *vii. Replication strategies developed from each demonstration project and, where support and finances available, implemented*	*into river and adjacent coastal zone.* *vi. Integrated wastewater management plan, incorporating biogas, developed and demonstrated at a piggery for demo #X.* *Water Supply, Water Use Efficiency and Sanitation* *vii. 20% or greater increase in water use efficiency at 1 high water consumption site through demonstration of water conservation and re-use measures; possible public-private partnerships; effective measures incorporated into national IWRM planning process; demo results incorporated into national IWRM planning.* *viii. 20% or greater*		

			increase in freshwater availability through the application of rainwater harvesting at demo site #X *ix. 20% or greater reduction in wastewater discharge through demonstration of ecosan technologies at demo site #X; reuse of 80% or more of ecosan products as fertilizer* *x. X hectares of coastal areas reforested to reduce land degradation in watersheds at demo sites in Grenada and St. Lucia*	*(refer to Haiti; Antigua interested)* *940,000* *(for Antigua/Barbuda)*	

				400,000 *(for St. Lucia)*	
C2 SLM, IWRM and WUE Monitoring, and	*TA*	*i. Regional/ national SLM*	*i. Adoption of national IW- and LD-related indicators of*		

Indicators framework			*and IWRM/ WUE indicators and long-term monitoring plan developed and agreed, on regional level in close cooperation with other regional SIDS programmes, demonstration projects, and supporting global monitoring (i.e. MDGs), gender mainstreaming and nationa*	*process, stress reduction, and environmental and socioeconomic status to monitor improvements in the management of land and water resources and wastewater. These would incorporate indicators to track SLM and IWRM implementation and to assess the short-term and long-term effectiveness of SLM, IWRM and WUE strategies in the participating SIDS;* *ii. Development and implementation of rational, simplified decision support tools to support the policy development and legislative reform processes as well as to provide a measure of success in addressing water quality and water use problems.* *iii. GEF tracking tool completed as part of annual project*		

		lly linked to nationa l plannin g and monito ring. *ii.* *ii. Strengthened national & regional capacity for IWRM monitoring*	*implementation review process*		
C3. Policy, legislative and institutional reforms and capacity building for IWRM and WUE	*TA*	*i. Enhanced coordination among relevant sectors for implementation of IWRM/WUE plans (see also C4);* *ii. Strengthened policy and legislation for the effective management of land and water resources and wastewater in Caribbean SIDS;* *iii. Harmonization of National IWRM/WUE process with relevant national plans and experience from other regional SIDS and IWRM*	*i. Strengthen National Intersectoral Committee in each country (based on the NICs established during the GEF-IWCAM Project) to ensure broad multi-sectoral participation in SLM, IWRM and Water Use Efficiency planning processes (taking into account institutional and capacity constraints, and the obvious economy of using existing multi-sectoral committees already established under other related national/regional initiatives);* *National Reviews of*		

		partnerships; with long-term sustainable implementation plan;	*water, wastewater, and land use policy, legislation and institutional arrangements followed by recommendations of necessary reforms and support with drafting legislation;*		
			ii. New or revised policies on water supply and sanitation based on the IWRM Roadmaps and developed IWRM/WUE strategies		
		iv. Strengthened regional and national institutions and other regional, national and local stakeholders for protection of land, groundwater and surface waters, sanitation and wastewater reduction as part of the implementation of IWRM/WUE plans (and	*iii. Development and initial implementation of national Integrated Water Resource Management and Water Use Efficiency strategies or plans. These strategies or plans would include the identification of long-term sustainability measures for water resource and wastewater use and management, and protection of ecosystem functions and environmental*		

		monitoring plans).	*flow (e.g. tariffs, 'beneficiary-pays' and 'polluter-pays' policies, incentives and penalties). They would also address awareness of, and access to, cost-effective and appropriate technologies;* *iv. A Programme of cross-sectoral sensitisation and awareness of SLM, IWRM and WUE strategies and requirements (to include high-level policy makers);* *v. A Programme of training and capacity building to support the implementation of SLM, IWRM and WUE plans throughout the relevant government and private sector agencies (or incorporate such plans into national development planning).*		
C4. Knowledge Exchange, best-	*TA*	*i. Network of collaboration and*	*i. Identification of best practices and*		

practices, replication and stakeholder involvement		*exchange for long-term implementation of SLM and IWRM/WUE plans and exchange of best practices and lessons learned established between other SIDS projects (Pacific and African) and other SIDS and SLM and IWRM networks and projects resulting in: Improvements in technology and land and water management methods within the countries due to efficient exchange of technologies, best practice and lessons learned;* *ii. Stakeholder engagement, public involvement, participation, and education initiatives are developed and implemented in the region through the application of appropriate mechanisms and tools* *iii. Water governance enhanced through*	*lessons from other SIDS in SLM, IWRM and WUE (i.e. Pacific and African), and other projects, particularly in relation to the selection of more suitable and applicable technologies and land and water resource management/use methodologies, including the adoption of strategies to improve agro-forestry, deal with extreme and chronic events; drought and floods and the adoption of more appropriate resource valuation and pricing policies;* *ii. Inter-regional SLM and IWRM/WUE dialogue process in partnership with the Alliance of Small Island States (AOSIS)* *iii. Innovative ICT application to provide access to training and to increase the flow of information between experts, institutions and networks and coastal players in*		

		strengthened stakeholder participation by the creation of a Community of Practice (COP) at each SIDS which promote dialogue between civil society and government *iv. More effective networking for information sharing, enhanced inter- and intra-regional knowledge sharing and learning;* *v. Gender mainstreaming achieved in development/ implementation of IWRM/WUE, ensuring women's and men's equitable access to and management of safe and adequate water, for domestic supply, sanitation, food security and environmental sustainability*	*particular communities, as well as a common pool of knowledge is created and maintained;* *iv. A Community of Practice (COP) created per SIDS for vertical as well as horizontal (multi-sectoral) information exchanges as well as debates on the needs and aspirations of people, project deliverables and environmental realities.* *v. Linkage among the COP created for information dissemination and knowledge sharing* *vi. Project participates in IW Learn activities, such as Biennial conferences, and develops a homepage according to IW: LEARN guidance etc* *vii. SIDS learning*		

			exchange at regional and global meetings (Global Oceans Forum, GPA, CWWA, CEF etc) *viii. Gender audits and analysis and training*		
4. Project management	*TA*				
	(select)				
	(select)				
	(select)				
	(select)				
	(select)				
Project management Cost15					
Total project costs				*!Undefined Bookmark, GEFAMOUNT*	*0*

B. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, ($)

15 Same as footnote #3.

Sources of Co-financing for baseline project	***Name of Co-financier***	***Type of Co-financing***	***Amount ($)***
(select)	*NOAA*	*In-kind*	
(select)	*CEHI*	*Unknown at this stage*	
(select)	*UNEP*	*In-kind*	
(select)	*UNDP*	*Unknown at this stage*	
(select)	*CWWA*	*In-kind*	
(select)	*GWP-Caribbean*	*Unknown at this stage*	
(select)	*UWI*	*Unknown at this stage*	
(select)	*CNIRD*	*Unknown at this stage*	
(select)		*(select)*	
(select)		*(select)*	
(select)		*In-kind*	
(select)		*In-kind*	
Total Co-financing			*0*

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.2. For projects funded from LCDF/SCCF: The LDCF/SCCF eligibility criteria and priorities:

A.2. NATIONAL strategies and plans or reports and assessments under relevant Conventions, if applicable, i.e. NAPAS, NAPS, NBSAPS, National Communications, TNAS, NIPS, PRSPS, NPFE, etc.:

A. PROJECT OVERVIEW:

B.1. DESCRIBE THE BASELINE PROJECT AND THE PROBLEM THAT IT SEEKS TO ADDRESS:

SIDS have particular needs and specific issues in relation to sustainable development and environment. Among these, water resource and quality and wastewater management are now critical issues to nearly all SIDS throughout the world. This has been recognized through various formal statements and commitments at a number of globally significant conferences and high-level international meetings including the 5th World Water Forum (Istanbul, 2009), the United Nations Conference on Environment and Development (Rio de Janeiro – 1992), the United Nations Conference on the Sustainable Development of SIDS in Barbados in 1994 (which adopted the Barbados Programme of Action, BPoA), and the Mauritius International Meeting (referred to as the SIDS+10 Meeting), which articulated the Mauritius Strategy in 2005.

In 2002, at the World Summit on Sustainable Development (WSSD), in Johannesburg South Africa, a number of statements were issued related to SIDS that identified priorities, and requested that global resources be targeted to address these priorities. The requirements adopted by WSSD which are most pertinent to this Concept proposal include:

(i) the need to accelerate the implementation of the Barbados Programme of Action (BPoA) (ii) the need to provide support for development and implementation of freshwater programmes and work on marine and coastal biodiversity (iii) implementation of the GPA (Global Programme of Action for the Protection of the Marine Environment from Land-based Activities) in SIDS to control and prevent waste and pollution, (iv) the need to provide support to develop capacity to reduce and manage waste and pollution and for maintaining and managing systems to deliver water and sanitation services, (v) the need to address IWRM WSSD targets, (vi) the need to develop and implement integrated land management and water-use plans and strengthen the capacity of Governments, local authorities and communities to monitor and manage the quantity and quality of land and water resources, and (vii) the need to promote programmes to enhance in a sustainable manner the productivity of land and the efficient use of water resources in agriculture, forestry, wetlands, artisanal fisheries and aquaculture, especially through indigenous and local community-based

approaches. In particular, WSSD identified the GEF as being a primary source of funding for the above initiatives.

The Caribbean Sea is an important natural resource for tourism, fisheries and general recreation. The associated coastal and marine ecosystems are extremely fragile and vulnerable to human activities, especially those that take place on land. Regional and national actions are urgently needed to protect these vital marine resources and overall public health in the Caribbean.

Directly related to the GPA but more specific to the Caribbean, is the Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region (Cartagena Convention) and its Protocol Concerning Pollution from Land-Based Sources and Activities (or LBS Protocol). The Cartagena Convention is a legally binding, regional agreement for the protection and development of the Wider Caribbean Region. It was developed by the countries of the Wider Caribbean and is the only legally binding agreement for the protection of the Caribbean Sea. The Convention was adopted in 1983 and entered into force in 1986. A total of 23 countries have ratified the Convention. The Convention includes focus on land-based sources of pollution, dumping of wastes at sea, pollution from ships, biodiversity protection, and airborne pollution among other things. To deal comprehensively with these issues, three protocols have been developed: the Oil Spills; the Specially Protected Areas & Wildlife (SPAW); and the LBS Protocol.

The LBS Protocol is a set of procedures developed to respond to the need to protect the marine environment and human health from land-based point and non-point sources of marine pollution. The main text of the Protocol sets forward general obligations and a legal framework for regional co-operation. It provides a list of priority source categories, activities and associated pollutants of concern. The LBS Protocol provides the framework for addressing pollution based on national and regional needs and priorities. It focuses on addressing the source of pollution and includes the promotion of Environmental Impact Assessments (EIAs), application of the most appropriate technologies and best management practices. It promotes the establishment of pollution standards and schedules for implementation. A number of the participating islands have signed and/or ratified the LBS Protocol, which has recently entered into force. Signatories now have obligations to meet related to pollution discharges into the coastal areas of the region. As such, support (from the GEF) to address these obligations will be timely and critical, if the Protocol is to be meaningfully addressed.

Although the participating islands within this proposal differ in size and level of economic development, they share common environmental features that can have a profound influence on their development. In particular, these SIDS share problems related to high levels of pollution (both land-based and potentially marine), resultant contamination of already scarce water supplies, over-exploitation and poor management of water supplies and recharge

sources, especially groundwater, increasing pressure on limited agricultural production, and rapidly disappearing unique biodiversity (particularly endemic species). Also worth mentioning is the inadequate availability of clean drinking water and health problems related to unsanitary drinking water, lack of access to sustainable sanitation services, and poor waste treatment. All of these concerns, and many other closely related issues, threaten the participating SIDS in the Caribbean.

Land degradation is a major threat to biodiversity, ecosystem stability, and society's ability to function. Because of the interconnectivity between ecosystems across scales, land degradation triggers destructive processes that can have cascading effects across the entire biosphere. Loss of biomass through vegetation clearance and increased soil erosion produce greenhouse gases that contribute to global warming and climate change. The same vegetation loss can make countries less resilient to the very effects of global warming and climate change, resulting in even more erosion, landslides, and flooding.

Economic models indicate that in some parts of the Caribbean, poverty will be rising. This poverty is directly and inevitably linked to water resources and the environment, both through cause and effect. GEF is already providing assistance on relevant issues to a large number of SIDS. The continuation of support through the GEF work programme will effectively ensure that these GEF-eligible insular global SIDS will be able to build on the assistance already provided to address their more pressing issues related to sustainable development within the context of the GEF-4 Focal Area Strategies.

This PIF proposes the development of a Full GEF Multi-focal Area Project in partnership between UNEP and UNDP to address these constraints and barriers by reducing pressures on natural resources from competing land uses in the wider Caribbean landscape, and by development, adoption and demonstration of an integrated approach to natural resources management (NRM), combined with Integrated Water Resource Management (IWRM) mechanisms and Water Use Efficiency (WUE) strategies, through a process of policy and legislative reforms, institutional and human resource capacity building and on-the-ground demonstrations. The PIF seeks to address multiple global environmental benefits, including those related to the protection and sustainable use of biodiversity, protection and sustainable use of forests and international waters, and incorporating climate change mitigation and adaptation. Joint programming with the International Waters and Land Degradation Focal Areas is being pursued, in the context of integrated watershed and coastal area management, with links to groundwater recharge. Joint programming will also be sought to increase forest and tree cover and implement landscape approaches for protected area management. This effort will also take into account opportunities to develop country-level or regional programmatic approaches for NRM where they are likely to trigger transformational changes in the agriculture and forest sectors.

The PIF proposes the adoption of an integrated and participatory management approach; the development of more effective, appropriate technologies and methodologies; the adoption of

strategies to deal with extreme and chronic events; and the adoption of more appropriate resource valuation and pricing policies. Particular emphasis will be given towards the protection and rational use of water supplies, both surface and ground waters (e.g. rainwater harvesting, groundwater recharge, pricing structures, improving efficient use, watershed management, flood control, climate change adaptation, etc) and improved pollution control and wastewater management (e.g. EcoSan, constructed wetlands, etc.). Full analysis/review of the new baseline situation priority actions will be undertaken during the project preparation phase of the project.

The IWRM approach improves cross-sectoral efficiency and cooperation at all levels on sustainable water resources development and management, including specific sector interventions, supports the integration of water supply and use with the management of waste, sewage, coastal and groundwater protection, while recognizing that the protection and quality improvements of water are preconditions for sustaining both human livelihoods and natural ecosystems. Further, it assists realizing better allocation of water to different water user groups and in so doing stresses the importance of involving all stakeholders in the decision-making process. It also calls for gender mainstreaming in land and water management decision making. This approach is also recognized as a framework for the adaptation of water management to climate change and the management of floods and droughts. The importance of improved water management has been highlighted by the Water Forum of the Americas (2008/09) and further highlighted by the recent reports of the Intergovernmental Panel on Climate Change (IPCC) and others that have warned that climate change will have extensive impacts on water resources, particularly in SIDS. In the case of the Caribbean, the IWRM approach takes on added significance in the context of coastal area management and reduction of pollution from land-based sources (such as sewage and other wastewater) and activities (including watershed, agriculture and land management).

As part of the achievement of the Objectives and Outcomes of the project: **Component 1. Development of Targeted Demonstrations in SLM, IWRM and WUE** will implement or build upon a series of IWRM/WUE demonstrations within each of the SIDS that will provide real, on-the-ground solutions to common problems. Expected outputs listed in the Project Framework will individually and collectively address surface, groundwater resource and coastal waters protection, land and watershed management, wastewater management and its impacts on the coastal zone, and water supply, water use efficiency and sanitation. The effective demonstration results can be transferred and replicated throughout the 13 Caribbean SIDS, and ideally throughout other SIDS on a global basis, as appropriate. The project will develop or expand on national demonstrations around the following different entry points to demonstrate IWRM/WUE and Land Degradation (LD) strategies and practices:

1. Constructed wetlands and natural system enhancement/augmentation (e.g. mangroves)
2. Managed aquifer recharge (groundwater reuse/recharge/efficiency/protection/storage)

3. Integrated watershed management (incl. land use and coastal area protection benefits and reduction in soil erosion)
4. Ecosan and bio-digestion (e.g. zero/low water toilets, reuse of composted materials as fertilizer for agriculture, utilization of piggery waste to generate biogas etc.)
5. Rainwater harvesting and storage
6. Water use efficiency improvements in possible partnership with private sector (e.g. hotel industry; manufacturing industry) utilizing both technological & economic instruments
7. Agro-forestry in support of soil conservation and watershed protection
8. Coastal reforestation and protection through Land Degradation Reduction (e.g. in the Pearls and Conference Watersheds of Grenada)

Further details for the demonstrations will be designed based on the country specific conditions and needs and through consultative processes among stakeholders in each SIDS during the project preparation phase. Emphasis will be put upon the protection and sustainable utilization of surface and groundwater resources and protection against groundwater pollution and sea water intrusion. Also, priorities identified in earlier projects (such as GEF-IWCAM) and as part of the National Portfolio Formulation Exercises (NPFE) will be given particular emphasis with the aim to strengthen the adaptation capacity of the SIDS through the better management of the land and water resources. In particular, for demo types 2, 3, 5 and 6 above, climate change considerations will be incorporated based on available climate change scenarios for the concerned SIDS. During the project preparation phase, maximum synergies will be sought by coordinating activities at the demonstration level with other WatSan and LD initiatives supporting SIDS. Tables 1 and 2 in the Annex provide the major concerns and issues arising from various national reports produced by the participating SIDS and the status of participating SIDS in relation to IWRM and WUE policy and reform, respectively.

Component 2. National (SLM, IWRM & WUE) Monitoring, and Indicators framework will develop further and apply regional/national IW related indicators (process, stress and environmental/socioeconomic status), many of which have been identified and agreed during previous projects, as part of the monitoring and evaluation plan, not just for the project but for the long term mechanism to assess the effectiveness of SLM, IWRM and WUE in the participating SIDS. These will be developed in close cooperation with the other partner SIDS projects (Pacific and African), will be in line with internationally recommended indicators for IWRM and related initiatives (e.g. GWP, GIWA, UN-Water, TWAP) and will provide the mechanism to track project impact on the LBS Protocol (to the Cartagena Convention), UNFCCC, UNCCD and MDGs and WSSD targets.

The project will also strengthen the scientific basis for effective monitoring and assessment in the LD Focal Area, including tools and indicators for multi-scale application, by developing improved methods for multi-scale assessment and monitoring of land degradation trends, and for impact monitoring of GEF investment in SLM. This will build on existing

GEF-financed initiatives to fully integrate methods for establishment of project baselines, identifying measureable indicators, and subsequent monitoring.

The monitoring mechanism developed will include climate considerations and gender mainstreaming in participating SIDS. Feedback will be incorporated from other regional and nationally related projects developing indicators and monitoring and evaluation plans and regional agreements (i.e. GEF-IWCAM and TDA and SAP process in CLME, among others) and will work closely with all national stakeholders to ensure that the monitoring and data analysis approach developed feeds in from existing research and databases, to support national priorities, plans and strategies, and where capacity gaps are identified, that appropriate capacity is built upon for the long term monitoring of IWRM/WUE and SLM. As such this component also works closely with the demonstration projects developed and implemented under Component 1 and previous demonstration projects (such as from GEF-IWCAM), the policy, legislation and institutional reforms and capacity building activities under Component 3, and the knowledge, exchange, best practices and stakeholder involvement of Component 4.

Component 3. Policy, legislative and institutional reforms and capacity building for IWRM, WUE, and SLM addresses the policy, legislation, institutions and capacity needs to enable Caribbean SIDS to develop and implement IWRM and WUE plans and enhance the enabling environment in the agro-forestry sector for the long term achievement of the Millennium Development Goals and WSSD targets. Policy, legislation and institutional reforms will be developed and adopted that address the lack of financing and policy and the lack of coordination among sectors identified in many of the participating countries. Particular focus will be (in parallel with the demonstration projects) on policy tools and guidelines for the protection of surface and ground-waters (also from extreme events, drought and projected climate change), for sustainable sanitation, and for sustainable agriculture by exploring best practices and lessons learned generated under Component 4. Tools and guidelines will be adopted for the future sustainable use of water resources and forests, waste-water collection and treatment solutions, protection from drought, whilst ensuring efficient use of water for the economic requirements of each participating country (i.e. household, urban, industry and agriculture), and alternative solutions for more effective uses of water and promoting sustainable development and reduced poverty. This will require coordination amongst the relevant national sectors and the strengthening and expansion of National Intersectoral Committees in the countries, the harmonization with national plans, and the implementation of programmes of cross-sectoral sensitization and awareness raising along with training and capacity building in the identified national institutions and private sector (closely linked to the Stakeholder Involvement Plan under Component 4).

Component 4. Knowledge Exchange, best-practices, replication and stakeholder involvement will aim to provide support, from a global to a local level for countries to have the capacity, tools and knowledge to meet WSSD and MDG targets on IWRM, water supply and sanitation and SLM. The project will utilize existing networks of IWRM, SLM and

SIDS, to identify and share best practices and lessons from other SIDS in IWRM, WUE and SLM, particularly in relation to the selection of more suitable and applicable technologies and practices and water resource management/use methodologies. Inter-regional dialogue will be established with other global initiatives (e.g. in partnership with AOSIS), and learning exchange study visits and/or twinning activities between SIDS or groups of participating SIDS and other regions will be established (in particular the African and Pacific SIDS projects). At the national level, consultative dialogue as the mechanism for engaging, integrating and capacitating NICs in IWRM, WUE and SLM will be established. A stakeholder identification and analysis process will be utilized in planning and preparation for consultative dialogues to ensure that engagement of relevant policy, sectoral, local community and expertise (scientific, technical, etc.) is representative and inclusive. This may include the implementation of approaches to increase stakeholder involvement with an emphasis on the community level, which will ensure input from local communities and associated structures (for instance fishers associations, farmers associations, NGOs, CBOs and local government), provide an information sharing platform where such input can be augmented, discussed and debated, and 'top down, bottom up' information sharing can be promoted and developed. Most importantly, a multi-sectoral Community of Practice (CoP) could be established along the vertical axis of society that includes all stakeholders, including different levels of government, in discussing issues, solutions and generally sharing information and insight, through dialogue between civil society and government. The project will participate and contribute to GEF IW:LEARN (portfolio learning), and will also contribute to regional and global meetings such as the Global Oceans Forum, GPA, CWWA, CEF and the World Water Forum, amongst others. Finally gender mainstreaming will be achieved in the development/ implementation of IWRM/WUE and SLM across all Components (indicators identified in Component 2) to include gender audits, analysis and training[16] to ensure women's and men's equitable access to and management of safe and adequate water, for domestic supply, sanitation, food security and environmental sustainability.

B. 2. DESCRIBE THE INCREMENTAL (GEF TRUST FUND) OR ADDITIONAL (LDCF/SCCF) ACTIVITIES REQUESTED FOR GEF/LDCF/SCCF FINANCING AND THE ASSOCIATED GLOBAL ENVIRONMENTAL BENEFITS (GEF TRUST FUND) OR ASSOCIATED ADAPTATION BENEFITS (LDCF/SCCF) TO BE DELIVERED BY THE PROJECT:

BASELINE

Currently, many Caribbean SIDS are party to Regional Water initiatives (such as the Global Water Partnership – Caribbean and the Caribbean Water & Sewerage Association).

[16] In possible partnership with the Gender and Water Alliance?

Nevertheless, after the closure of the GEF-IWCAM project, very few of the participating SIDS will be receiving much additional donor support directly related to IWRM planning or water use efficiency issues. This is notwithstanding efforts being made to activate a CARICOM Consortium on Water, designed to coordinate the activities of regional organizations working in the area of IWRM. Most of the countries have been supported in IWRM planning or awareness-raising, and they recognize their national problems vis-à-vis water resource management within the watershed and coastal area landscape. Previous support from the GEF has led to definition of some potential solutions. Many of the islands have developed some type of action plans and strategies in relation to sustainable development issues and/or biodiversity management and conservation issues. Some have gone further and produced specific plans and strategies to address IWRM, water use management, wastewater and sewage management, drainage management etc. and some have identified or adopted authorities or other dedicated bodies to take responsibility for these issues. However, there are a number of constraints that are preventing the effective implementation of such strategies and the functioning of the responsible agencies, which include financial constraints (where policy and finances are prioritized towards development to resolve serious issues of human development and international debt); absence of legislation, limited capacity, awareness, access to more realistic, cost-effective and practicable technologies and methodologies for mitigating the priority issues and no long-term strategy to address the repercussions of extreme events (droughts, hurricanes and flooding) and to act on chronic impacts such as saltwater intrusion.

One hundred and fifty years of low technology agriculture - slash and burn, down slope tilling, absence of contour and excessive land clearing – on Caribbean islands has left indelible scars on the landscape, and negatively influenced the lives of inhabitants. Efforts to reduce the impact, protect watersheds, and conserve endangered biodiversity while supporting traditional livelihood patterns have been frustrated by a weak legislative system, limited economic incentives, and a general lack of capacity at the institutional, systemic and individual level.

Inappropriate cropping systems (sugar cane until the 1990’s in some islands followed by even more intensive banana cultivation, shifting cultivation and overgrazing of livestock), and the expansion of agriculture into forested and marginal lands, are the most significant examples of unsustainable agriculture. In addition to the actual loss of soil, degradation is also related to the loss of soil fertility due to intensive farming systems, loss of soil physical structure due to soil compaction, and poor use of agricultural chemicals.

Attempts have been made in the late 1970s through to the 1980s to implement soil conservation measures on some farmlands. This sometimes corresponded to a period of expansion of banana cultivation from larger estates in the less vulnerable areas to smaller fragmented holdings located on hillsides. Distribution of tree crops to hillside farmers and the provision of technical advice were some of the support services provided by Ministries of Agriculture. These initiatives provided valuable technical contributions in terms of capacity

building (for agricultural, forestry extension officers and farmers), and resulted in some short-term land degradation remediation. However, continuance of these interventions was not maintained, primarily due to inadequacies within the wider policy and institutional environments that did not allow for mainstreaming of these interventions beyond the realm of "project-driven, site-specific" actions. By extension, little consideration has been given to sourcing new mechanisms for financing sustainable land management (SLM) interventions outside of traditional government budgets. Consequently, as donor funding dries up, programmes are brought to a close. As the pressure on public funds from other sectors grows, alternative financing for SLM needs to be secured to ensure long-term continued investment in SLM in the interest of national development.

Although the region has been attempting to address these issues using internal resources, the process has continued to be somewhat fragmented and has not been framed against the guiding principle of maintenance of ecosystem functionality, which forms part of the foundation for holistic sustainable development.

BUSINESS AS USUAL SCENARIO

The business-as usual scenario is not a good one for any of the Caribbean SIDS, but particularly for the smaller countries, with limited manpower and natural resource constraints. Without any incremental intervention and assistance, the baseline can be expected to remain stagnant and the situation with respect to natural resources management, SLM and efficient, sustainable water use and wastewater management will predictably deteriorate. In the long term this will potentially result in some or all of the following: i) Deterioration in the availability and quality of freshwater resources, ii) Loss of water resources through loss of surface and ground storage and recharge areas, iii) A general failure in coastal and watershed ecosystem functions along with the loss of associated natural habitats and biodiversity, iv) Increased LBS pollution into the watershed and coastal environment, v) Increased soil erosion (resulting in losses of topsoil, nutrients, worsening of runoff and resulting flash flooding, damage to infrastructure) and vi) General deterioration of human condition (increased poverty, reduced health and well-being, failed economies, political instability).

INCREMENTAL REASONING

The proposed alternative scenario aims to address the thematic areas of critical concern through reforms in policy, legislation and institutions; improvements to institutional and human resources capacity; development of more effective and coordinated intersectoral management approaches; identification, demonstration and up-scaling of more appropriate (to small island) technologies and strategies; adoption of 'extreme-event' strategies; adoption of cost-effective and sustainable water service pricing and tariffs; and better information collection and handling to inform policy makers and guide legislative development. GEF assistance would be focused on the production (where necessary) and implementation of

IWRM plans consistent with the WSSD targets in order to establish or support regional frameworks (such as the CARICOM Consortium on Water) for the needed reforms and investments. Assistance will also focus on mainstreaming SLM into such plans and integrating same. A substantial proportion of the proposed GEF funding for this Concept would also be aimed at the development and implementation of on-the-ground demonstrations to remove barriers and alleviate problems preventing effective integrated water resources and wastewater management, SLM, and efficient water use within the individual participating SIDS, and to the transfer and replication of lessons and practices resulting from those demonstrations. The intended overall outcomes of a proposed Full Project will be improved and sustainable integrated land and water resources management, water supply protection and water use efficiency in all the participating SIDS.

It is anticipated that this project will also focus greater attention on the issues of sustainable land management at the national level, and empower an active stakeholder group with the capacity to leverage additional resources to address continued mainstreaming and capacity building needs for SLM in the medium to long term, through national investment plans.

GLOBAL ENVIRONMENTAL BENEFITS

Global environmental benefits would accrue by Caribbean countries working together on priority concerns of the trans-boundary system known as the Caribbean Sea, which is the dominant water connecting Caribbean SIDS. The global environmental benefits relate to the interconnectedness of the hydrologic cycle that dynamically links watersheds, aquifers, and coastal and marine ecosystems and their trans-boundary movement of water, pollutants, ships, and living resources. Specifically, through supporting implementation of the LBS Protocol, which also supports the GPA, the project will address a common threat to the regional sea, which is linked to the global oceans agenda.

Through its support of Agenda 21 Chapters 17 and 18 as well as the MDGs and WSSD targets, the project contributes to human well being and poverty eradication by sustaining water-related and dependent livelihoods, securing food sources, promoting equitable access to water, and reducing water-related health risks in addition to resolving and preventing water-related use conflicts in water bodies.

In terms of global benefits, the project will contribute to knowledge-sharing on mainstreaming SLM in SIDS and contribute to the global pool of knowledge on ecosystem function. Conservation of forest lands will contribute to global efforts aimed at conservation of biodiversity and enhancement of carbon sequestration in mitigation of the impacts of global warming on climate change.

Global benefits would be generated indirectly as the enabling environment leads to projects with on-the-ground investments in improved practices, and directly as sustainable land management is taken into consideration at the policy and institutional levels through better policies and incorporation of those concepts into the national development framework.

The associated Global Environmental Benefits therefore include:

- Improved provision of agro-ecosystem and forest ecosystem goods and services.
- Reduced vulnerability of agro-ecosystem and forest ecosystems to climate change and other human-induced impacts.

PROJECT 3: PROJECT CONCEPT NOTE: DEVELOPMENT OF AN INTEGRATED PEST MANAGEMENT SYSTEM FOR MANGOES GROWN IN ANTIGUA AND BARBUDA (GEF PROGRAM AREA BIODIVERSITY)

Submitted by Plant Protection Unit, Department of Agriculture [October 2011]

Mango is a highly favoured fruit in Antigua and Barbuda. During the fruiting season, many mango lovers can be seen with what may seem as a permanent yellow structure in the vicinity of their mouths – without fear of finding something foreign in any delectable morsel!!! The fruit has a significant export potential both fresh and processed (e.g., mango pulp and mango juice). In fact, the Ministry of Agriculture, having recognized this potential, has embarked on the annual Mango Festival which is aimed at increasing the public's appreciation for the economic potential of this fruit as well as to achieve a level of food security. The Christian Valley agricultural station is currently teaming up with farmers in surrounding areas to increase the acreage under production from approximately 20 to about 100 acres.

The objective of this project being proposed is to first determine the range of pests that affect the mango plant and to secondly develop an appropriate pest management strategy with a view to reducing the reliance on pesticide applications for management of the attendant pests.

In its bid to protect mango in Antigua and Barbuda, the Plant Protection Unit in the Department of Agriculture has been conducting annual pest detection surveys, specifically for the mango seed weevil and mango fruit flies. These pests are considered to be dangerous quarantine pests/invasive species. To date, neither of these two pests has been detected in the mango stock in Antigua and Barbuda. A total ban on fresh mango importation was imposed in Antigua and Barbuda since the early 1990s in an attempt to prevent the entry of these invasive, dangerous and destructive mango pests in the mango fruit.

The mango seed weevil is a pest of quarantine importance and, if present, can impede international trade of fresh mango fruits. Additionally, infestation by this pest can significantly increase fruit drop during early development. The weevil is spread mainly by transportation of infested fruits. Since the entire development of the weevil occurs in the seed, it can be transported unnoticed from one country to another. Outward signs or symptoms of the mango seed weevil are not readily detectable and generally can be detected only by slicing the mango seed. The weevil is present in most mango-growing areas in the world and in the Caribbean is

established in Barbados, Dominica, French Guiana, Guadeloupe, Martinique, St. Lucia, Trinidad and Tobago, British Virgin Islands, Grenada, Montserrat and St. Vincent and the Grenadines. It was first reported in the Caribbean in 1984.

A number of fruit flies affect mango worldwide. These pests have the potential to cause serious damage to fruit and other plant crops. Efforts to eradicate and/or quarantine can be extremely costly and have a significant economic impact. Fruit flies can be transported from an infested location to a non-infested area in infested fruit. Infestation cannot always be determined by visual inspection. Fruit flies of quarantine significance are not known to affect mango in Antigua and Barbuda but are widespread in distribution in mango-producing countries across the globe.

The mango seed weevil and fruit flies are considered to be Invasive Alien Species (IAS). With increasing trade of unprocessed plant products between countries worldwide comes the increased risk of the introduction and spread of these IASs into areas where they previously did not exist. It has been estimated that combating the effects of IASs worldwide costs US$1.4 trillion annually.

Mangoes are totally prohibited entry into Antigua and Barbuda. All mangoes coming through the ports of entry are confiscated, checked in the laboratory for the presence of the seed weevil and fruit flies and then destroyed by burning.

We must play our role in ensuring that our mangoes remain pest-free while maintaining pest control in an environmentally friendly manner. As mentioned previously, the government is endeavoring to increase mango production in Antigua and Barbuda. With this increase in production, it is expected that there will be a parallel increase in the need for management of pests that affect mango. There is a prevailing propensity for the use of pesticides to control or eliminate pests. An investigation of the different types of pests that attack the mango plant will be studied to allow for the development of an integrated pest management system aimed at reducing the reliance on pesticide use to combat the pest, which will help to decrease the damage to the environment and to the depletion of the ozone layer.

PROJECT 4 – SIDS DOC (CONCEPT ONLY)

PROJECT CONCEPT

SIDS are at a clear disadvantage when it comes to climate financing. Unlike the LDCs, SIDS do not have a dedicated fund, but must compete with larger developing countries like China, Brazil and India, for financing and investments. SIDS need to increase their adaptive capacity, necessary condition for the design and implementation effective adaptation strategies so as to reduce the likelihood and the magnitude of harmful outcomes resulting from climate change.

Recognizing the challenges and barriers to climate financing, and the realization that promises made by developed countries to provide climate financing resources to SIDS have not materialized to date, AOSIS has mobilized its membership to participate in the SIDS Sustainable Energy Initiative – SIDS DOCK, a facilitating mechanism to assist SIDS develop a sustainable energy sector to provide a foundation for low carbon economic growth and adaptation to climate change. SIDS DOCK will be able to help SIDS generate financial resources for adaptation to climate change through the energy sector.

GHG from the SIDS energy sector is estimated at 38 million tons of carbon annually. Based on projected carbon price of USD 20 per ton, a 25 percent reduction in carbon emissions by SIDS traded on the global carbon market would be equivalent to USD160 million per year. Acting collectively, it would be possible for SIDS to derive a significant amount of these financial flows, compared to acting individually. The main role of SIDS DOCK would be to organize the documentation and processing of the avoided carbon emission to have them certified and marketable. As many projects will be small in scale, SIDS DOCK would have to do a bundling exercise in order to reach the necessary transaction threshold.

Twenty (20) SIDS have signed a Memorandum of Agreement, along with the Caribbean Community Climate Change Centre ("5Cs"), the Secretariat of the Pacific Regional Environment Programme ("SPREP"), endorsing the work necessary to establish an international organization – the SIDS DOCK – to facilitate the transformation of SIDS national energy sectors into ones minimally dependent on high carbon and imported petroleum fuels, thereby assisting the national economies to generate additional financial resources to help meet the challenges of adapting to the adverse consequences of human-induced climate change.

SIDS DOCK PILOT COUNTRIES (AS AT APRIL 18, 2011)

Pilot Country	*Population 2010*	*GDP 2009 USD billion (ppp)*	*Petroleum Imports (000's bbls) 2004*	*GHG Emissions (million MtC)*
Pacific				
Cook Islands	*11,870*	*0.18*	*70*	*0*
Federated States of Micronesia	*107,434*	*0.24*		
Samoa	*219,998*	*1.03*	*953*	*0*
Palau	*20,796*	*0.16*	*871*	*0.1*

Solomon Islands	*595,613*	*1.57*	*492*	*0*
Caribbean				
Antigua & Barbuda	*85,632*	*1.522*	*1,720*	*0.1*
Bahamas	*307,552*	*9.09*	*7,855*	*0.5*
Belize	*307,899*	*2.53*	*1,275*	*0.2*
Dominica	*72,660*	*0.75*	*291*	*0*
Dominican Republic	*9,650,054*	*78.89*	*42,277*	*5.3*
Grenada	*90,739*	*1.16*	*537*	*0.1*
Jamaica	*2,825,928*	*23.36*	*25,870*	*3*
St. Lucia	*160,267*	*1.75*	*1,246*	*0.1*
St. Vincent & the Grenadines	*107,000*	*1.07*	*667*	*0.1*
Suriname	*481,267*	*4.57*	*2,073*	*0.6*
(AIMS) Africa, Indian Ocean, Mediterranean and South China Sea				
Cape Verde	*429,474*	*1.68*	*919*	*0.1*
Maldives	*396,334*	*1.69*	*2,952*	*0.2*
Mauritius	*1,284,264*	*15.94*	*7,142*	*0.9*
São Tomé & Príncipe	*212,679*	*0.30*		*0*

Seychelles	*87,476*	*1.68*	*3,275*	*0.1*

PROJECT PROFILES – CLIMATE CHANGE

(These projects are identified as priority. Funding for these will mostly come from the Adaptation fund and other sources of funding and will be used as co-financing for the GEF funding projects)

PROJECT PROFILE 1 - PROTECTION OF COASTAL ECOSYSTEM SERVICES:

(a) Identification of critical coastal areas at risk and designing and implementing protection and restoration measures

(b) Implementation protection measures

(i) mangrove replanting

(ii) Swamp cleaning and regeneration

(iii) Sand dunes and Beach stabilization

(iv) Fish nursery protection and restoration

(v) Coral reef protection

(vi) Water filtration measures, including sedimentation ponds and vegetation replanting and regeneration and creation buffer strips

(c) Development and enforcement coastal water quality standards

(d) Development and enforcement coastal waste disposal standards

2. COMBATING SALT WATER INTRUSION, EROSION AND AUGMENTING AQUIFER RECHARGE RATES

(i) Replanting forestry and vegetation in critical watershed areas and aquifers

(ii) Utilization of modern appropriate recharge augmentation techniques, including infiltration basins and canals water traps cut water surface runoff drainage wells and sink holes

(iii) Establishing sustainable aquifer extraction rates and water standards

(iv) Fruit tree replanting programme in critical water shed and aquifer areas, exploiting cultural practice of population protecting fruit trees

3. COMBATING INCREASING ARIDITY AND RAINFALL VARIABILITY IN SMALL HOLDER RAIN FED DEPENDENT AGRICULTURAL PRODUCTION SYSTEMS;

(i) Development series of Dams in major farming settlements and runoff areas

(ii) Development agriculture water distribution infrastructure

(iv) Development of drip irrigation infrastructure

(v) Intensification agricultural enterprises including tree crop vegetable and livestock.

(vi) Development adequate drainage system including contour ploughing, runoff control ponds, dams, runoff canals, replanted vegetation for flash flood control

(Vii) Development of adequate storage and packing centre and marketing arrangements both local and export to support production intensification process and increased resilience through increased profitability

4. INCREASING RESILIENCE OF LIVELIHOODS THROUGH LIVELIHOODS DIVERSIFICATION

(i) Establishment of Mari culture production focusing on Prawn shrimp through development of Mari Culture ponds

(ii) Establishment Backyard Green House production focusing on seasoning herbs local teas seedling production and fruit trees production

(iii) Introduction of Coconut and cane enterprises targeted at fresh market

(iv) Introduction Fish drying and Corning operations

(v) Intensive goat fattening enterprises

PROJECT PROFILE TWO - **REDUCING CONSUMPTION OF FOSSIL FUEL IN ELECTRICITY POWER GENERATION**

This project seeks to initiate the diversification of the source of energy in electricity power generation by introducing Wind power and Solar power as part of the national grid in an effort to reduce the future demand for fossil fuel and as a means of mitigating against increasing temperatures humidity aridity water storage and distribution difficulties. Additionally the project will initiate the conversion of Barbuda to a Green Centre starting with electrical power generation.

CRITICAL IMPACT CLIMATE CHANGE TARGETED BY THIS PROJECT

Higher Temperature; increase Aridity has led to an increase in demand for electrical power for cooling and lighting as more homes offices and businesses are forced to be enclosed shutting out natural light using artificial light and air conditioning to cool the internal air temperature of buildings. In addition increased aridity has increased the demand for water storage and distribution both for domestic and agricultural production.

CHALLENGES AS A RESULT OF TARGETED IMPACTS OF CLIMATE CHANGE:

Presently in Antigua And Barbuda Street lighting along with lighting and cooling of Government buildings consume over twenty percent of Power Generation or about 15mega watt of power. This level is expected to increase as temperatures and humidity increase due to the impacts of climate change. The high cost of fossil fuel, the increasing budgetary difficulties of Antigua and Barbuda economy to finance the cost of importing fuel make it imperative that new alternative energy sources be developed. Increased aridity and the need for movement of water for irrigation and domestic uses will add to the increasing demand for energy.

Barbuda an undeveloped Island with a population of less than two thousand people will also receive additional tourism sustainability related benefits from moving to Green technology when used as a tourism promotional tool.

Transforming Barbuda into a Green Centre. This project also seeks to provide demonstration effect of converting Barbuda power supply to wind Power and installing solar powered street lights in the capital St John's as well as installing wind power generating capacity of up to ten mega watts

2.3.1 PROJECT OBJECTIVES

1. To reduce consumption fossil fuel in combating effects of higher temperature increases due to impact climate change
2. To switch electrical power generation in Barbuda from fossil fuel to wind powder
3. To Developed up to ten mega watts wind power generation on Antigua the equivalent power required to provide electricity to Government Buildings and providing Public street lighting
4. Installation of Five Megawatt wind Power generation On Barbuda.
5. Developing public education programme on conservation targeted at High school children, Civil Servants, Church Groups, Public Service organizations and hotel Industry
6. Converting all Public street lights in St John's to Solar Lights

Project Components

1. Wind power Generation installation and connection to the national grid on Antigua and on Barbuda

2. Solar Power lights installation in St Johns

3. Public Education programme

PROJECT PROFILE THREE: COPING STRATEGIES AFTER HURRICANE DISASTERS

Increased in temperature has brought changes in weather patterns resulting in increasingly intense hurricanes. Disasters pose the greatest risk to Health life and livelihoods, as a result of the impact of climate Change. Disaster mitigation has received several interventions to enhance its institutional capacity and operations. In spite of this, there is still a major gap in the disaster recovery process specifically in the development and implementation of coping strategies and activities to support early recovery of livelihoods

CLIMATE CHANGE IMPACTS TARGETED BY THIS PROJECT

High temperature, increasingly intense hurricanes, Coastal erosion, Flooding, Farm land erosion, Farm road damages, agricultural water catchment destruction, seedlings destruction, crop destruction, fish pot destruction, fishing boats destruction, Moorings destruction

PROJECT COMPONENTS

1. Developing Coping strategies and plans for fisher folks and small farmers

2. Organizational strengthening farmers and fisher folk groupings at main landing points as well as farmers and fishermen national organizations and development of local disaster mitigation recovery and coping plans

3. Developing linkage and Coping savings plans with fisher folks and farmers and financial Cooperatives

5. Strengthening disaster preparation plan and mass education among fisher folk and farmers

6. Acquiring mobile boat lifting equipment dedicated to lifting fisher folk boats out of the water

7. Developing and strengthening backyard fish pot making enterprises developing the capacity for quick fishing pot replacement after Hurricanes as well as supplying standardized pots made to be more efficient and durable.

8. Developing backyard seedling production enterprises with the capacity to quickly provide planting material to facilitate early recovery of farmers destroyed field crops after a hurricane

9. Developing an equipment pool to support land preparation, farm road clearance and repair, to facilitate early recovery from hurricane

10. Development storage facilities for early harvesting crops before hurricanes

PROJECT PROFILE 4: DEVELOPMENT OF AN INTEGRATED PEST MANAGEMENT SYSTEM FOR MANGOES GROWN IN ANTIGUA AND BARBUDA

Mango is a highly favoured fruit in Antigua and Barbuda. During the fruiting season, many mango lovers can be seen with what may seem as a permanent yellow structure in the vicinity of their mouths – without fear of finding something foreign in any delectable morsel!!! The fruit has a significant export potential both fresh and processed (e.g., mango pulp and mango juice). In fact, the Ministry of Agriculture, having recognized this potential, has embarked on the annual Mango Festival which is aimed at increasing the public's appreciation for the economic potential of this fruit as well as to achieve a level of food security. The Christian Valley agricultural station is currently teaming up with farmers in surrounding areas to increase the acreage under production from approximately 20 to about 100 acres.

The objective of this project being proposed is to first determine the range of pests that affect the mango plant and to secondly develop an appropriate pest management strategy with a view to reducing the reliance on pesticide applications for management of the attendant pests.

In its bid to protect mango in Antigua and Barbuda, the Plant Protection Unit in the Department of Agriculture has been conducting annual pest detection surveys, specifically for the mango seed weevil and mango fruit flies. These pests are considered to be dangerous quarantine pests/invasive species. To date, neither of these two pests has been detected in the mango stock in Antigua and Barbuda. A total ban on fresh mango importation was imposed in Antigua and Barbuda since the early 1990s in an attempt to prevent the entry of these invasive, dangerous and destructive mango pests in the mango fruit.

The mango seed weevil is a pest of quarantine importance and, if present, can impede international trade of fresh mango fruits. Additionally, infestation by this pest can significantly increase fruit drop during early development. The weevil is spread mainly by transportation of infested fruits. Since the entire development of the weevil occurs in the seed, it can be transported unnoticed from one country to another. Outward signs or symptoms of the mango seed weevil are not readily detectable and generally can be detected only by slicing the mango seed. The weevil is present in most mango-growing areas in the world and in the Caribbean is established in Barbados, Dominica, French Guiana, Guadeloupe, Martinique, St. Lucia, Trinidad and Tobago, British Virgin Islands, Grenada, Montserrat and St. Vincent and the Grenadines. It was first reported in the Caribbean in 1984.

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ANNEX 3. LIST OF REFERENCES

- Draft National Energy Policy;
- National parks system Plans;
- Draft National Land Use Plans;
- Marine and Natural Resource Assessment for South West Regional of Antigua and Barbuda;
- Delivering Transformational Change 2011 -2021 – Implementing the CARICOM Regional Framework for Achieving Development Resilience to Climate Change;
- SIDS DOCK – project document;
- Draft Environmental Management Bill 2011;
- SNC – Second national Communication to the UNFCCC;
- GEF Cluster Country Portfolio Evaluation: GEF Beneficiary Countries of the Organisation of Eastern Caribbean States (1992–2011);
- GEF website;

Annex 4. List of existing GEF projects being implemented in Antigua and Barbuda