

National Environmental Summary

Grenada

2010



United Nations Environment Programme

The National Environmental Summary (NES) for Grenada has been developed by UNEP, with financing from the European Community (EC). It serves as an information tool to support the incorporation of environment as a thematic component into the United Nations Common Country Assessment (CCA) and the United Nations Development Assistance Framework (UNDAF) initiatives. This environmental summary is intended to provide a critical analysis of gaps and opportunities that exist within policies, programmes and the national legislative framework all of which are used to address the major environmental issues within the context of poverty reduction and development.

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UNEP/ROLAC (Regional Office for Latin America and the Caribbean)

Coordination and Technical Supervision:

Mark Griffith, PhD Senior Programme Officer, UNEP-ROLAC

Technical Review:

Graciela Metternicht, PhD, Regional Coordinator, Division of Early Warning and Assessment

UNEP-ROLAC

Author:

Asha Singh, PhD – Independent Consultant

Prepared for

John WILSON  ecoNaturalResourcesManagmentConsulting

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Acronyms

BNTF	Basic Needs Trust Fund
CARICOM	Caribbean Community Secretariat
CBD	Convention on Biological Diversity
CDB	Caribbean development Bank
CRFM	Caribbean Regional Fisheries Mechanism
EC	European Community
FAO	Food and Agricultural Organisation
GEF	Global Environment Facility
GoG	Government of Grenada
GSWMA	Grenada Solid Waste Management Authority
IWCAM	Integrated Watershed and Coastal Area Management
JICA	Japan International Cooperation Agency
NAWASA	National Water and Sewerage Authority
OECS	Organisation of Eastern Caribbean States
OAS	Organisation of American States
PPDCA	Physical Planning Development Control Authority
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCD	United Nations Framework Convention to Combat Desertification
USAID	United States of America International Development

Executive Summary

The National Environmental Summary (NES) for Grenada was prepared using information gathered from a desktop review of scientific studies, national reports and documents and from personal interviews with key environmental and technical experts working in the various agencies and organisations in and for Grenada.

The conclusions drawn from the study identified the environmental priorities as effects of climate change in the form of droughts, pollution, land degradation, coastal erosion, contamination of drinking water supplies, incompatible coastal development, invasive species and solid waste management. The consensus is that Grenada’s policy output is low of which, many are not implemented rather they remained in draft over an extended period of time. If the existing policies were to be updated and implemented; they will assist immensely in responding too many of the environmental issues highlighted herein. Coordination, corporation and clearer mandates of and among the relevant agencies are bottlenecks to the management. In addition, the partnership with civil society and their participation in resources management is weak leading to low level of public ownership and greater challenge for the Government to promulgate environmental management. Although efforts are made to increase awareness, these are not continuous because they are highly dependent on external funding. Among the reasons identified for these environmental problems are absence of an effective land management regime and weak political ‘will’ to make needed policy shift for greater environmental consideration in the development agenda. Most notably, there are many national initiatives by the Government of Grenada responding to many of the issues however, the programme is severely hindered by the lack of financial resources available within the government budget coupled with limited/inadequate human capacity.

The gaps and opportunities identified during the process are tabulated under seven broad headings and presented below.

Main Gaps/Needs
1.Resource Management
Gaps <ul style="list-style-type: none">• Inadequate scientific data on environmental indicators• Solid Waste Management is not adequate to deal with the emerging forms of waste• Absence of an integrated coastal and marine management regime• Freshwater management is not a policy option
Opportunities <ul style="list-style-type: none">➤ For a better regime of data collection and processing which will assist in informing decision making➤ To have an integrated solid waste management policy which considers reuse and recycle➤ For a greater level of importance on the management of coastal and marine area in Grenada➤ For an assessment to determine Grenada’s freshwater capacity and to project how climate

Main Gaps/Needs	
	<p>change will affect this resource .Adaptation measures and awareness should be important components in this assessment. Also attention needs to be paid to the issue of pollution of the freshwater sources</p> <ul style="list-style-type: none"> ➤ Need a policy to confront the issue of invasive species in an effort to contain this problem
2.Policy	
Gaps	<ul style="list-style-type: none"> • Land use policy • Agricultural policy
Opportunities	<ul style="list-style-type: none"> ➤ To update and implement the land use policy for better land and environmental management ➤ Need for a policy which takes into account sustainability in food production in Grenada in an effort to respond to the issue of livelihoods and food security
3.Monitoring of key parameters	
Gaps	<ul style="list-style-type: none"> • Long term monitoring is absent
Opportunities	<ul style="list-style-type: none"> ➤ For a coordinated monitoring programme which considers all the sectors and the issues ➤ For greater surveillance and control in development projects and environmental management
4. Environmental Governance: Implementation and Enforcement	
Gaps	<ul style="list-style-type: none"> • Fragmented Policies • Low level of enforcement of laws and regulations • Issue of clear institutional mandate
Opportunities	<ul style="list-style-type: none"> ➤ To seek greater synergies both in the actual polices and implementation among the agencies ➤ For greater legislative involvement (given the legal authority) to drive resource management ➤ For better institutional cooperation and coordination which should be formally embedded in the institutional arrangement¹ ➤ To reform the mandates of the institutions in an integrated manner to aid better coordination
5. Environmental Governance: Legislative Framework	
Gaps	<ul style="list-style-type: none"> • Weak and or inadequate laws • Weak enforcement of current environment legislation • International Obligations from MEAs are not translated adequately at the local level to reflect the intended purposes • Legislation adoption is weak and slow and some required regulations are absent
Opportunities	<ul style="list-style-type: none"> ➤ To update laws to reflect the current issues in resource management and give adequate effect to the law by way of necessary Regulations ➤ For environmental crimes to be given higher priorities by the security (police) and judiciary for greater effect ➤ To harmonise legislation to fulfil and fully implement the various MEAs obligations

¹ Currently the cooperation is done through informal relationship among the technical staff of the agencies and although this is working at present, when the person leaves the portfolio (which is often the case) rebuilding that level of cooperation takes a long time, thus stagnating the process and compromising sustained resource management

Main Gaps/Needs
➤ For the many policies and laws which are in draft to be given legal effect
6.Capacity Needs
Gaps
• Severe shortfall in capacity to pursue programmes relating to the environment
Opportunities
➤ To find appropriate and innovative financing mechanisms, viewing the environment as an economic asset and formulate programmes which can derive financial from the environment
➤ For more human resource capacity especially in the key agencies
7. Awareness
Gaps
• Civil society partnership and ownership of resources are weak
Opportunities
➤ For awareness and participation at all levels and sectors including the political stakeholders

1.Introduction and Background

The National Environmental Summary (NES) for Grenada was prepared as an information and decision making tool to support the mainstreaming of the environment as a thematic area (issues, management, responses and opportunities) into the United Nations Common Country Assessments (CCA) and the United Nations Development Assistance Programme. Summarily this NES aims to provide a succinct but critical analysis of the gaps in policy/programme response and in the national legislation which are used to address the environmental issues within the context of development, poverty reduction and improved human well being.

This NES was prepared by a collection and subsequent analysis of information and data from a desktop review of relevant documents (scientific reports, policy documents and reports)² and ‘face to face’ interviews using a semi structured format³ with key stakeholders and experts⁴.This includes government agencies, regional and international organisations. The DPSIR (driver-pressure-impact-state-response) approach was used as the framework model⁵ for this assessment.

² Refer to list of References

³ Refer to Annex 1 for the areas covered in the interviews with the experts

⁴ Refer to Annex 2 for the list of interviewers

⁵ DPSIR is a general framework for organising information and reporting about state of the environment covering Driving forces, Pressures, State of the environment, Impacts and Responses. The idea of the framework is often used for organising systems of indicators in the context of environment and sustainable development: http://maps.grida.no/go/graphic/the_dpsir_framework.

2. State of the Environment and Environmental

Grenada, the most southern of the Windward Islands is located between Trinidad on the South and St. Vincent on the North. The tri-island state referred to as Grenada consist of the islands of Grenada, Carriacou and Petite Martinique. Grenada is of volcanic origin with a characteristically steep topography most prominent in Grenada than the other two islands. Collectively, the islands have an area of 133 sq miles and a total population of approximately 95,000⁶.

Based on the analysis, seven⁷ major environmental issues were identified which are described below:

1. **The Effects of Climate Change:** The effects of global climate change are being felt in Grenada like many of the Caribbean SIDS. One of the noticeable impacts is that the climate patterns are changing into extreme weather events. A period of severe drought due to low rainfall in 2009 has fuelled water shortage crisis. Although this is not an annual phenomenon, the impacts such a single crisis had on the country and the possibility of recurring is a concern. This drought spell had exacerbated other environmental problems such as land degradation and loss of critical forest areas due to the increased incidence of fires⁸.
2. **Land Degradation:** Deforestation from clear cutting especially on privately owned land coupled with the impact from Hurricanes particularly Ivan (2004) and Emily (2005) have resulted in large areas of prime forest being denuded causing subsequent soil loss and impacts on biodiversity. The latter in terms of habitat destruction and species loss. Mangrove wetlands particularly in the Southern part of Grenada are being converted to other uses such as marinas and tourism facilities, without much consideration of the ecological benefits. The land tenure system has pointed to over 85% of the land being privately owned, hence appropriate land use are challenging. This is further exacerbated by systemic inadequacies in land use management and control. Collectively, increasing demand for housing settlements, tourism and infrastructural development has lead to unplanned activities in watershed areas, designated agricultural lands and critical coastal ecosystems. In Carriacou⁹, the traditional '*let go*' season¹⁰ has also contributed to denuding the island's vegetation and at present the number of animals are outstripping the carrying capacity thus causing intensive over-grazing. Gully erosion is also prevalent in the once peanut growing areas in Carriacou because of poor land management.

⁶ CIA World Fact book, 2010

⁷ The seven environmental issues were identified after a review of the information gathered during the consultation and secondary data

⁸ Although accidental fires are normal, the frequency in 2010 and subsequent damage warrant the concern raised regarding climate change effects in Grenada

⁹ Carriacou experiences a drier climate when compared to Grenada, so water scarcity is an issue to begin with.

¹⁰ The let go season is a traditional practice where animals are allowed to roam freely in the dry season

3. **Coastal Erosion and Contamination:** Sand mining especially in the River Antoine Bay, Telescope, and Tyboe has devastated the integrity of some of the beaches resulting in large scale erosion. Although sand mining is now prohibited, the impacts are still felt to date. Some of the experts¹¹ concluded that erosion have changed the coastline with huge areas lost to the sea over time. Apart from changing the coastline, this has compromised nearby marine habitats; decrease the recreational area available as beaches and contributing to salt water intrusion¹² of nearby agricultural lands. The issue of salt water contamination in water wells is one of the factors that is compromising the portable water quality and supply service.
4. **Coastal Land Development:** Post Hurricanes Ivan and Emily witnessed a massive rebuilding effort and coupled with increased tourism based activities meant that a significant level of development in marinas and other coastal construction. This is done with relatively weak planning control and weak enforcement and monitoring for compliance within the EIA process.
5. **Pollution:** The geomorphology of the island is such that land based sources of pollution ultimately affects the marine environment and inland waterways. Sedimentation from erosion and land degradation issues listed above are causing siltation in the coastal waters. Pollution from sewerage and grey water from direct and indirect sources is compromising the water quality. In terms of treatment, there are two sewerage systems in Grenada serving the population of St George's and South St George's, which performs crude separation (screening) prior to disposing into an outfall¹³. Agro chemicals are contaminating the water sources in the watersheds, river systems and coastal area with far reaching implications on human health and wellbeing especially the portable water quality.¹⁴ Despite the paucity of scientific studies, experts have concluded that over of 30% of the coral reefs are lost and a percentage of the remaining stand are deteriorating due to pollution from land based activities¹⁵, including coastal land development, erosion, land degradation, agricultural activities, leachates from landfill and the effects of climate change (bleaching due to high temperatures).
6. **Solid waste:** Over the years, consumers' consumption patterns are changing and as such Grenada has witnessed an increase in the level of importation of plastic encased products in PET bottles and plastic containers, and much of them are non biodegradable. This increase coupled with a growing public attitude of irresponsible littering has resulted in an increasing incidence of waste in waterways, both inland and coastal. Electronic and hazardous waste such as batteries are increasing without the accompanying response measure like reuse, recycle and segregation.

¹¹ *Per Comm.* with Paul Phillips and Christopher Joseph of the Ministry of Environment, Foreign Trade and Export Development

¹² Most portable water wells are within 100 meters of the coastline. Recent technical reports indicated vulnerability of 4 ground water wells in the south of the main island and several in Carriacou. Two wells have been abandoned within the last 10 years.

¹³ The use of the present outfall began in 1995

¹⁴ NAWASA does not have the capacity or financial resources to test for pesticides on a consistent basis.

¹⁵ Assessment study done by Fisheries Department

Construction waste is increasing because of the continued rebuilding efforts. This waste often times are dumped in mangroves (although prohibited) or in areas other than the landfills.

7. **Invasive Species:** After Hurricanes Ivan and Emily in 2004 and 2005 respectively, there is an increase in the occurrence and distribution of bamboos which is affecting crop species in principal farming areas such as Levera Pond.

The Key Drivers identified are for the issues highlighted above are as follows:

1. Lack of synergies/collaboration among agencies
2. Policies are lacking or inadequate
3. Legislation gaps (including weak or non existent Regulations), weak enforcement and low penalties, Slow political process in granting required approval to the existing policies
4. Poor environmental governance structures
5. Lack of awareness and education
6. Limited capacity – financial, human and training
7. Environment is not viewed as an important commodity/asset in the development process
8. Limited economic option and job opportunities
9. Private land ownership

3.National Policy Responses

There is no overarching policy/ framework in Grenada to guide sustainable development. The common consensus is that environmental ownership by the citizen (including political directorate) is severely lacking. There is also a dire need to mainstream environment throughout the national development agenda. Grenada has a number of key but limited policies of which the political accession is low thereby further compromising efforts at sustainable management. Below are the national responses as they relate to the priority environmental issues.

Item #	Priority Environmental Issues	Specific Area	National Responses
			<ul style="list-style-type: none"> ❖ ¹⁶There is a <i>National Environmental Policy and Management Strategy (2005-2010)</i> which seeks to have full integration of environmental management into development process. It articulates broad policy directions for many of the issues identified in this report. However, this is largely unimplemented to date ❖ Established in 2005 is the <i>Sustainable Development Commission, a quasi body</i> which comprises of representatives of various agencies. The purpose is to advise the sitting government on environmental issues of importance ❖ Grenada developed an <i>Environmental Management and Sustainable Development Bill</i> but it still remain in draft and unimplemented ❖ In total, there are about 45 pieces of legislation that governs the protection and management of the forest, water, soil and other resources and provide a legal basis for conservation, planning, development and use of lands; control of beach protection, management of Fisheries and control of pesticides, pollution and waste management. Key legislations include the following: Beach Protection Act; Birds and Other Wildlife Act; Fisheries Act; Forest Soil and Water Conservation Act; Grand Etang Forest Reserve Act; Land Development Control Authority Act; National Parks and Protected Areas Act; Pesticide Control Act; Public Health Act; Territorial Waters and Marine Boundaries Act; Town and Country Planning Act; Wild Animals and Birds Sanctuary Act.
1.	Climate Change		<ul style="list-style-type: none"> ○ Ratified the UNFCCC¹⁷ and the Kyoto Protocol and submitted the first and second communication reports as mandated for the Contracting Parties ○ Established a National Climate Change Committee to oversee the implementation of Climate Change Initiative ○ Have a Draft National Climate Change Policy and Action Plan, which place emphasis on the inter-sectoral issues among others, however implementation is weak ○ There is ongoing public awareness aimed at the general public and key stakeholders, in an effort to bring awareness of the issues, impacts, vulnerability and adaptation measures regarding climate change

¹⁶ This is a national response which is applicable to a number of the environmental issues and to avoid repetition, it is headlined as a general response

¹⁷ For an overview of the purpose of this Convention and the others mentioned in this report, refer to Annex 3

Item #	Priority Environmental Issues	Specific Area	National Responses
			<ul style="list-style-type: none"> ○ National Communication process involved the compilation of an inventory of Green House Gases (GHG) emissions using 1994 baseline and the development of a vulnerability assessment for Grenada ○ A significant level of analysis were done in the areas of legal (to facilitate the implementation of UNFCCC upon ratification) and the assessment of potential impacts
		Drought	<ul style="list-style-type: none"> ○ NAWASA conducts public awareness campaigns through the media on water conservation. The agency also has a school programme component of it campaign. However these are not consistent but fund dependent ○ <i>Pipeline</i>: NAWASA plans to conduct a hydro-geological study for Carriacou aimed at sustainable water management
<p>❖ ¹⁸Currently efforts are being made to update the <i>National Physical Development Plan</i>, which was done in 2000¹⁹, to have a National Land and Land Use Policy. However, this would need to be given legal effect. If this process is successful, it will significantly compliment the other national responses highlighted in this report.</p> <p>❖ <i>Pipeline</i>: The Government jointly with donor partners (UNEP) plan to undertake a project to upgrade the existing regulatory framework²⁰ regarding land management in an effort to respond better to land degradation.</p>			
2.	Land Degradation	Deforestation	<ul style="list-style-type: none"> ○ In 2001 a Forestry Policy was developed which currently informs the Forestry Division programme of work. It is a draft policy with requires formalization ○ The Forestry Division initiated a community forest programme targeting multiply users in the Levera Pond area, aimed at sustainable livelihoods under the SLM initiative of UNEP ○ Has an ongoing programme of providing seedlings to private landowners to encourage reforestation of denuded areas
		Agriculture	<ul style="list-style-type: none"> ○ A Food and Nutrition Policy and Plan of Action for Grenada was developed to boast agricultural output which is heavily productivity driven. This is critical because of the need to revived the sector post Hurricanes Ivan and Emily ○ Have a limited awareness programme aimed at educating farmers on good land management

¹⁸ Same as Footnote 16

¹⁹ Grenada recognises the need for a land use management policy, as many of the environmental issues highlighted in this report have the genesis in land use reform. To this end a land use policy was devised in 1999, but the political will needed has been successively weak as it is a contentious issue among electorates

²⁰ *Per Comm* with Mr. Aron Francios, Permanent Secretary for Ministry of Agriculture, Fisheries and Forestry.

Item #	Priority Environmental Issues	Specific Area	National Responses
			<ul style="list-style-type: none"> ○ Ongoing programme to restore the agricultural sector through re-cropping of the spices –nutmeg etc ○ Provide concessions and tax breaks to farmers in an effort to encourage more agriculture
		Biodiversity	<ul style="list-style-type: none"> ○ Ratified the CBD and produced a National Biodiversity Strategy and Action Plan in 1999. Submitted the fourth national report as its obligation to the Convention ○ Grenada made a commitment to protect 23% of its biological species- both land and marine under the CBD ○ Currently has a campaign to protect one of Grenada’s endemic species ‘Grenada Dove’. ○ MPA Regulation 2001 was legislated under the Fisheries Act 1986 to give legal effect to MPAs in Grenada, however, implementation is ongoing but slow ○ A Protected Area system plan was approved which is now being implemented in mainly Carriacou
			<ul style="list-style-type: none"> ○ Soon to embark on developing protected Area management plan for designated PAs and to earmark the MPAs ○ An active effort by Physical Planning Development Control Authority (PPDCA) to adopt best practices with respect to the sustainable use of areas that have biodiversity dimensions, which is accommodated in the EIA process ○ Ratified the SPAW Protocol of the Cartagena Convention in 2000
3.	Coastal Erosion and Contamination of Drinking Water	Sand mining	<ul style="list-style-type: none"> ○ In 2009, the government prohibit sand mining by an act of Parliament. This prohibits the use of beach sand for construction. However, on a very small scale this practice continues illegally
		Salt Water Intrusion	<ul style="list-style-type: none"> ○ Closed wells that are contaminated ○ Upgrading some of the water treatment facilities- with counterpart funding from the EU ○ <i>Pipeline:</i> Plan for a reverse osmosis treatment facility in Carriacou to improve water supply and quality
4.	Pollution	Coastal Water Quality	<ul style="list-style-type: none"> ○ The Fisheries division with its partners conducting water quality monitoring
		Sewerage and grey water	<ul style="list-style-type: none"> ○ Have Sewerage systems in St George’s and South St George’s ○ <i>Pipeline:</i> Plans to expand the sewerage system

Item #	Priority Environmental Issues	Specific Area	National Responses
		Agricultural pesticides and residues	<ul style="list-style-type: none"> ○ Broad guidelines on use and management of pesticides, but the environmental component is weak
		Industrial/Oil waste and its derivatives	<ul style="list-style-type: none"> ○ Legislated against dumping of oily waste in waterways. Operators of this type of industry are required to dispose accordingly. However, this is not well enforced
5.	Solid Waste		<ul style="list-style-type: none"> ○ Solid Waste Act and Regulation 1999 ○ GSWMA was established 1995 and have the mandate to provide an island wide collection system for household waste. Currently the service is approximately 98% and done twice weekly ○ Established two engineered landfill site where collected waste is disposed, however, no segregation of waste is conducted. Majority of the poorly constructed landfill have been closed ○ It is required by law that construction waste be sorted and disposed into designated landfill, however, there is no regulatory system in place to ensure this practice and currently construction waste and illegal dumping remains an issue <u>Awareness</u> ○ Have developed public awareness campaigns, however, these are not consistent but rather subject to funding availability. Some of the programmes include targeting school children
6.	Coastal Land Development		<ul style="list-style-type: none"> ○ Have a EIA process but monitoring and enforcement for compliance remains very weak ○ Cabinet appointed an inter-sectoral committee 'Physical Planning Development Control Authority' which plays an advisory role ○ Physical Planning and Development Control Act # 25, 2000
7.	Invasive Species		<ul style="list-style-type: none"> ○ No response to date

4. International Assistance Programmes

Over the last few decades, a number of environmental related initiatives and projects were sanctioned by international agencies. These agencies have played a vital role and to a large extent have been driving financially, many of the environmental initiatives in Grenada. These initiatives past, present and those in the pipeline phase along with the collaborating partners are described below.

International Institutions	What has been/is currently done	Major Partners	Future Programmes
UNDP	Funded enabling activities to prepare the first and second National Communication reports under its Commitments to UNFCCC	GEF/GoG	Some of the enabling activities under the first communication report are still on going such as awareness and capacity development in the water hydro-meteorological sectors in an effort to better respond to Climate Change
	Developed a National climate Change Adaptation Policy (2006-2007)	GEF /GoG	
	Funded the development of a National Biodiversity Conservation Strategy, and Action Plan and Country Report to the CBD	GEF/GoG	
	Funded the Assessment of Capacity Building Needs and Country Specific Priorities	GEF/GoG	
	Supported the development of National Capacity Self-Assessment (NCSA) for Global Environmental Management Report	GEF/GoG	
	Funded a climate change self assessment study (2005-2006)	GEF/GoG	

International Institutions	What has been/is currently done	Major Partners	Future Programmes
		GoG	Plans to develop a Land Degradation Monitoring System in addition to establishing pilot sites to demonstrate best practice for land use management. This will be accompanied with a website
TNC	Supporting National Implementation Supplemental Partnership initiative to meet Grenada's commitment under CDB for Biodiversity Protection	GoG/St. George's University	
UNEP	In 2005, Integrating Watershed and Coastal Areas Management (IWCAM) project was launched aimed at helping 13 Caribbean countries to implement an integrated approach to the management of watersheds and coastal areas. Grenada was part of the project which was completed in 2009.	GE F /GoG/CEHI	
	Provide funding through Sustainable Land Management Project (SLM) to develop a 'Best Use and Practice Manual for sustainable land management'	GoG through a number of local agencies	
	Funded an initiative to develop the Environmental Management and Sustainable Development Bill	GoG	
		GEF/GoG	

International Institutions	What has been/is currently done	Major Partners	Future Programmes
	Caribbean Programme for Adaptation to Global Climate Change (CPACC) (1997-2000). In particular, as a pilot, vulnerability assessment in three coastal areas were conducted in addition to participation in other CPACC activities within the regional component	OAS/GoG	
World Bank	Protected Area and associated livelihoods Project (OPAAL) was initiated to contribute to the conservation of biodiversity by removing barriers to the effective management of protected areas (PAs), and increasing the involvement of civil society	GEF /OECS ²¹ / OAS/GoG	
	Sustainable Financing for Protected Areas Project is aimed at creating viable option for the protection and management of PA through the <i>Caribbean Biodiversity Trust Fund</i>	TNC/OECS/GoG	
	Provide funding for Solid Waste Management Programme in Grenada	OECS/GoG	
	Provided funding to promote Dry Forest Biodiversity Conservation aimed at protecting the Grenada Dove and its habitat	GEF/GOG (Ministry of Agriculture)	
EC	Supports a labour subsidy programme to enhance irrigation to enhance productivity	GoG	

²¹ OECS is a facilitating organization for its member states and all projects undertaken are done with agency collaboration in the member states. The member states are Anguilla, Antigua and Barbuda, British Virgin Islands, Dominica, Grenada, Montserrat, St Lucia, St Vincent and the Grenadines and St Kitts and Nevis

International Institutions	What has been/is currently done	Major Partners	Future Programmes
	Funds a project to upgrade the water supplies system in Grenada, which involves new pipes in the distribution system and upgrade of 9 out of a total of 27 water treatment facilities	GoG	
	STABEX Funding for a number of agricultural related projects aimed at reforming the agricultural sector	GoG	
	Under the SPA Grant, funding a project aimed integration Plant Protection Management and improved productivity via organic agriculture	FAO	
JICA	In 2009 participated in the development project aimed at formulating a master plan for fulfilling a sustainable fishery resource use and management, targeting local artisanal fishers and their communities in the Caribbean region.	Caribbean Regional Fisheries Mechanism/ GoG through The Ministry of Fisheries	
USAID		OECS	Currently in the conceptualisation phase: A climate change project based on water resources and coastal zone management
DFID	In 2000, provided funding to develop the Forestry Policy and supplemental forestry related training	GoG	
CIDA	OECS Environmental Capacity Development (ENCAPD) coastal and marine environmental management	OECS/GoG	
FAO		GoG	Land bank Project to bring more land into agriculture
Government of Finland	Funded a project for improving preparedness for climate variability and global climate change	CARICOM/GOG	
CDB	Under the BNTF, funds is being provided for the Clozier Spring Water Project aimed	GoG	

International Institutions	What has been/is currently done	Major Partners	Future Programmes
	at harnessing spring water into storage facilities		

5. Critical Gaps and Opportunities to Support Grenada's

The analysis reveals gaps in a number of areas which are hindering effective resource and environmental management. These gaps present a number of opportunities which could improve the current situation. The gaps and opportunities are presented below.

Main Gaps/Needs	Opportunities	Comments
Resource Management		
Inadequate scientific data	Decisions regarding sound sustainable management in various sectors (agriculture, land use, forestry and water management) could be better informed by a better regime of data collection and interpretation (e.g. construction of environmental indicators) and baseline studies	
Solid Waste Management	A need for an integrated solid waste management policy which considers reuse and recycling and new forms of waste within the context of a business venture	The current system of waste management serves well in ensuring proper collection and disposal into the landfill. However, now the issue of reuse and recycling is becoming critical
Absence of an integrated coastal and marine management regime	There is a need to place some level of importance on the management of coastal area in Grenada. Despite its multi use and importance, there is no integrated management being reflected in the current agenda. Consideration should be given to conducting stock assessments to determine stock integrity and to explore options for sustainable livelihoods and determining the contribution of the fishery sector to food security	
Freshwater management	For an assessment to determine Grenada's freshwater capacity and to project how climate change will affect this resource. Adaptation measures and awareness should be important components in this assessment	

Main Gaps/Needs	Opportunities	Comments
Environmental governance: Policy		
Need for a land use policy	The existing land use policy if updated and implemented would assist immensely in responding to the current and emerging issues regarding environmental management. Mapping of vulnerability and hazards should complement the policy	Efforts are currently under way to revamped the land use policy with the hope of getting the required political support to give it the legal authority
Agricultural Policy is lacking	Need for a policy which takes into account Sustainability in food production in Grenada in an effort to respond to the issue of livelihoods and food security	
Environmental Monitoring		
Long term monitoring is absent	A coordinated monitoring programme which considers all the sectors and the issues Greater surveillance and control in development projects and environmental management	The current cabinet appointed quasi body to provide greater monitoring to land development
Environmental governance: Implementation and Enforcement		
Fragmented Policies	Many of the policies are fragmented and therefore need to seek greater synergies both in the actual polices and implementation among the agencies	
Poor Coordination and enforcement of laws and	Greater institutional cooperation and coordination and should be formally embedded in institutional arrangement	
Issue of clear institutional mandate	Need to reform the institutions' mandates in an integrated manner for more effective environmental stewardship	
Legislative Framework		
Weak and or inadequate existing laws	To update laws to reflect the current issues in resource management and give adequate effect to the law by way of necessary Regulations	
Weak enforcement of current environment	Environmental crimes are not high in priority for the security (police) and the judiciary. There is a need to change	

Main Gaps/Needs	Opportunities	Comments
legislation	the current status quo for greater effect	
International Obligations from MEAs are not translated adequately at the local level	Need to harmonise legislation to fulfil and fully implement the various MEAs obligations	
Legislation adoption is weak and slow and some accompanying regulations are absent	There are many policies and laws which are in draft and need to be given the necessary legal effect	
Capacity Needs		
Severe shortfall in capacity to pursue needed programme	Need to find appropriate and innovative financing mechanisms. Viewing the environment as an economic asset may yield greater rewards	
	Need for greater human resource capacity especially in the key agencies	
Awareness		
Civil society partnership and participation is weak	<p>Awareness at all levels and sectors of the society including the political level. A need for environmental education to be part of the education system, in addition to environmental awareness targeting the general public to promote changing behaviors and attitudes greater civil society partnership and collective responsibilities. In particular,</p> <ul style="list-style-type: none"> • Inclusion in the development curriculum (environment, energy and climate change) • Programmes and initiatives at government level to bring greater collective awareness at that level, in an effort to have necessary political 'buy in' • Create mandates for the private sector and more active participation 	There is an environmental awareness strategy and efforts are made to bring an awareness to the strategy at the moment

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Annex 1: Interview Format

1. What do you consider as the main environmental issues affecting your Country?
2. Why do you consider as the drivers (root causes) of those issues?
3. Do you think that the current policies are effectively addressing the issues you have cited? What are the gaps?
4. Do you think that current programs (environment and development) are adequately addressing those issues you have cited? Kindly give reasons for your response.
5. Kindly identify and describe any current programs that your institution is executing as a direct response to the issues you have cited. Kindly give reasons for your responses.
6. Kindly identify and describe any future programs that your institution will implement in an effort to address those issues you have mentioned.
7. Do you have other comments? Please provide details

Annex 2: List of Experts Interviewed

Name	Designation	Organisation	Contact Details
Government and In-Country Experts			
Mr. Raymond Baptiste	Head of Land Use Division t	Ministry of Agriculture, Fisheries and Forestry Ministerial Complex Tanteen, St. George's Grenada	(473) 405 4284 rabaptiste@yahoo.com
Mr. Aron Francois	Permanent Secretary	Ministry of Agriculture, Fisheries and Forestry Ministerial Complex Tanteen, St. George's Grenada	(473) 440 2708 afrancois@gov.gd
Mr. Aiden Forteau	Chief Forestry Officer	Ministry of Agriculture Forestry Division Queen's Park St George's Grenada	(473) 440-2934 michael_forteau@yahoo.co.uk
Mr. Lauriston Hosten	Manager (ag)	National Water and Sewerage Authority The Carenage St George's Grenada	(473) 440 2155 hostenl@spiceisle.com
Mr. Anthony Jeremiah	Wildlife Conservation Officer and OPAAL National Coordinator	Ministry of Agriculture Forestry Division Queen's Park St George's Grenada	(473) 440-2934 anthonyj0191@yahoo.com tonydove2@gmail.com
Mr. Christopher Joseph	Environmental Officer	Ministry of Environment, Foreign Trade and Export Development Financial Complex Carenage St George's Grenada	473) 440 2022 christoj@hotmail.com
Mr. Daniel Lewis	Chief Agricultural Officer	Ministry of Agriculture, Ministerial Complex Tanteen, St. George's Grenada	(473) 440 2708
Mr. Dillon Palmer	Forest Officer, Tree Establishment and Management	Ministry of Agriculture Forestry Division Queen's Park St George's Grenada	(473) 440-2934

Name	Designation	Organisation	Contact Details
Mr. Benson Patrice	Senior Agricultural Officer	Ministry of Carriacou and Martinique Affairs , Carriacou Grenada	(473) 443 7458 benson@spiceisle.com
Mr. Paul Phillips	Environmental Officer	Ministry of Environment, Foreign Trade and Export Development Financial Complex Carenage St George's Grenada	473) 440 2022 Paul_phillips@yahoo.com
Mr. Justine Rennie	Chief Fisheries Officer	Ministry of Agriculture, Forestry and Fisheries 2 nd Floor Melville Street Fish Market Complex St George's Grenada	(473) 440-3814 justinar7368@hotmail.com
Ms. Helen Roden	Permanent Secretary (ag)	Ministry of Environment, Foreign Trade and Export Development Financial Complex Carenage St George's Grenada	rodenhelen@yahoo.com
Experts- International and Regional Organisations			
Ms. Simone Banister	Head of Corporate Management/Climate Change Contact/Disaster Risk Reduction Focal Point	DFID CARIBBEAN Chelsea House, Chelsea Road St. Michael P.O.Box 167, Bridgetown Barbados, BB 14022.	Phone: 246 430 7950 Fax: 246 430 7959 S-Banister@dfid.gov.uk
Mr. Cam Bowes	Counsellor (Development)	Canadian International Development Agency High Commission of Canada Bishop's Court Hill PO BOX 404. Bridgetown Barbados	Tel. 429 3550 ext 3459 Fax 246 429 3876 cam.bowes@international.gc.ca
Mr. Daniel Carruthers	Second Secretary	, Barbados and the Eastern Caribbean, British High Commission	Phone: 246 430 7802 daniel.carruthers@fco.gov.uk

Name	Designation	Organisation	Contact Details
		Lower Collymore Rock P.O. Box 676, Bridgetown, Barbados	
Ms. Sasha Gotheilb	Programme Officer	UNEP/IWCAM CEHI, Morne Saint Lucia	sgottlieb@cehi.org.lc
Mr. Keith Nichols	Head	OECS- Environment and Sustainable Development, Morne, Castries St Lucia	(758) 455 6362 kenichols@oecs.org

Annex 3: List of MEAs Grenada is party to

MEAs	STATUS
Wildlife /Conservation	
Convention of International Trade in Endangered Species, 1972 (CITES) <i>This is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival</i>	A-1999
Convention on the Conservation on Migratory Species (CMS)	
Convention on Wetlands of International Importance especially as Waterfowl Habitats (RAMSAR)	
International Convention for the Regulation of Whaling 1948 and 1959 <i>This is an international agreement which seeks to protection a number of whale species over-exploitation., and to identify measures for greater protection of the species and cooperation of the international community</i>	Ad-1993
Biodiversity/Bio-safety, Traditional Knowledge	
International Plant Protection Convention, Rome, 1951 <i>The agreement seeks to securing common and effective action to prevent the introduction and spread of pests and diseases of plants and plant products and to promote measures for their control</i>	Ad-1985
Convention on Biological Diversity, 1992 <i>This agreement aims to conserve 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</i>	R-1994
Cartagena Protocol on Bio-Safety <i>It is an international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health</i>	R-2004
Marine Protection and Safety	
Convention on the Protection and Development of the Marine Environment in the Wider Caribbean, 1983 (Cartagena Convention) (RE) <i>This is a comprehensive, umbrella agreement for the protection and development of the marine environment. This regional environmental convention provides the legal framework for cooperative regional and national actions in the Wider Caribbean Region</i>	A-1987
Protocol Concerning Cooperation in Combating Oil Spills in the Wider Caribbean, 1983 (RE) <i>This Protocol applies to oil spill incidents which have resulted in, or which pose a significant threat of, pollution to the marine and coastal environment of the Wider Caribbean Region or which adversely affect the related interests of Contracting Parties</i>	A-1987
Protocol of 1992 to Amend the International Convention on Civil Liability for Oil Pollution Damage, 1969 (CLC PROT, 1992)	A-1998
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, as Amended (LC 1972)	DI-1973

Marine Resources	
United Nations Convention on the Law of the Sea, 1982 <i>The Law of the Sea Convention defines the rights and responsibilities of nations in their use of the world's oceans, establishing guidelines for businesses, the environment, and the management of marine natural resources</i>	R-1991
Sustainable Land Management	
United Nations Convention to Combat Desertification <i>The UNFCCC convention aims to address the anthropogenic impacts on the global climate patterns</i>	A-1997
Atmospheric/Climate Systems	
Vienna Convention for the Protection of the Ozone Layer, Vienna, 1985 <i>It acts as a framework for the international efforts to protect the ozone layer. However, it does not include legally binding reduction goals for the use of CFCs, the main chemical agents causing ozone depletion. These are laid out in the accompanying Montreal Protocol</i>	A-1993
Montreal Protocol on Substance that Deplete the Ozone, 1989* Ibid	A-1993
United Nations Framework Convention on Climate Change, 1992 <i>The objective of the treaty is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system</i>	R-1994
Kyoto Protocol <i>The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas (GHG) emissions.</i>	R-2002
Culture and Natural Heritage	
Convention for the Protection of World Culture and Natural Heritage, 1972	Ac-1998

A = Accession²²; Ac= Acceptance²³; Ad=Adherence; R= Ratification²⁴ and S=Signature, DI = Date of deposit of instrument; EF/Su = Date of Entry into Force or Succession; RE = Regional MEA

Table above Adopted and modified from Griffith and Oderson (2009)

²² "Accession" is the act whereby a state accepts the offer or the opportunity to become a party to a treaty already negotiated and signed by other states. It has the same legal effect as ratification. Accession usually occurs after the treaty has entered into force. See Arts.2 (1) (b) and 15, Vienna Convention on the Law of Treaties between States and International Organizations or between International Organizations 1986]

²³ The instruments of "acceptance" or "approval" of a treaty have the same legal effect as ratification and consequently express the consent of a state to be bound by a treaty. Arts.2 (1) (b) and 14 (2), Vienna Convention on the Law of Treaties 1969

²⁴ Ratification defines the international act whereby a state indicates its consent to be bound to a treaty if the parties intended to show their consent by such an act. See Arts.2 (1) (b), 14 (1) and 16, Vienna Convention on the Law of Treaties 1969.

Annex 4: List of International Projects Implemented in 2005-09 and Planned for 2010-15

IMPLEMENTING AGENCY	INTERNATIONAL PROJECT	TOTAL FUNDS (000,000.00)	TIMELINE	NOTES
GRENADA AS PART OF THE REGION				
CIDA/PAHO	Health Sector Disaster Risk Management	CAN \$3.00	2007-2015	
CIDA	Disaster Risk Management Facility	CAN \$12.86	2007-2015	
CIDA/WB	Caribbean Catastrophe Risk Insurance Facility	CAN \$20.00	2007-2012	
CIDA	Caribbean Disaster Responsive Fund	CAN \$10.00	2003-2008	
CIDA/OAS	Disaster Preparedness	CAN \$3.86	2001-2008	
DFID/CIDA, EC and OECS Secretariat (CDEMA)	Comprehensive Disaster Management - Harmonised Implementation Programme (CDM-HIP)	USD 3.6	April 2009- March 2013	
DFID/UNECLAC; IADB/CDB and AusAID (UNECLAC and CCCCC)	Caribbean Review of Economics of Climate Change (RECC)-Phase 2 and 3	USD1.125	June 2009-January 2011	
DFID/AusAID supporting CCRA for five additional countries (OUCE and CCCCC)	Caribbean Climate Change Risk Atlas (CARIBSAVE CCRA)-Phase 1 for tourism sector	USD1.125	March 2010-June 2011	
DFID/Climate Development Knowledge Network (CDKN) (CCCCC)	Development of an Implementation Plan for the Regional Framework for Achieving Development Resilient to Climate Change	co funded with CDKN USD 0.66	August 2010- March 2011	
DFID (CCCCC)	CCCCC/regional task force support	USD 0.269	Oct 2007-June 2010	
DFID (UNDP with CCCCC)	Copenhagen and beyond-Capacity building for CARICOM policy makers involved in climate change negotiations	USD 0. 2245	Sept 2009- June 2010	
DFID (National Disaster Offices)	Disaster Risk Reduction Capacity building in the UK Overseas Territories	USD 0.450	2008-2011	
DFID	Low carbon/renewable energy development	Tbc	2010-	Regional (pipeline)
DFID	Global Environmental Facility – Sustainable	£11.00	2010-2012:UK	

	environmental management			
EC (8th & 9th EDF)	Regional Weather Radar System	€13.20	2003-2006	
EC (9th EDF)	Disaster Management	€3.40		
EC (7th & 8th EDF)	Caribbean Regional Sustainable Tourism Development programme	US\$8.00	2000-2007	
EC (7th EDF)	Caribbean Regional Environmental Programme	US\$9.15	2000-2006	
GTZ/UNDP	Caribbean Renewable Development Energy Programme – Phase II (CRDEP)	???	2008 - ???	
OAS	Caribbean Sustainable Energy Project	???	2008- ??	
WB (IBRD/IDA)	OECS Protected Areas and Associated Livelihoods Projects	US\$2.70	2005-???	
	GRENADA			
UNDP/GEF	National biodiversity Strategy, Action Plan and Report to the CBD	???		Project Closure
GEF/UNDP	Climate Change Enabling Activity (Additional Financing for Capacity Building in Priority Areas)	???		Project Completion
GEF/UNEP	National Capacity Needs for Self Assessment (NCSA) for Global Environmental Management	???		Under Implementation
World Bank	Enabling Grenada to Prepare its First National Communication in Response to its Commitments to UNFCCC	???		Project Completed