



GOVERNMENT OF BARBADOS

National Report to The United Nations Commission for Sustainable Development (UNCSD) Cycle 16/17 (2008/2009)

**Agriculture
Desertification and Land Degradation Drought
Land
Rural Development**

and

**Reporting on Johannesburg Plan of Implementation Target on
Integrated Water Resources Management and Water Efficiency Plans**

Environment Division

Ministry of the Environment, Water Resources and Drainage
March 31st 2009

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Acronyms

ACP	African, Caribbean and Pacific States Group of States
ADP	Area Development Plan
ASU	Agricultural Services Unit
BADMC	Barbados Agricultural Development and Marketing Corporation
BES	Barbados Environmental Society
BGIS	Barbados Government Information Service
BIDC	Barbados Investment Development Corporation
BPOA	Barbados Plan of Action
BSDP	Barbados Sustainable Development Policy
BSS	Barbados Statistical Service
BTU	British thermal Unit
BWA	Barbados Water Authority
CANARI	Caribbean Natural Resources Institute
CARDI	Caribbean Agricultural Research and Development Institute
CARICOM	Caribbean Common Market
CBO	Community Based Organisation
CCAP	Climate Change Action Plan
CEHI	Caribbean Environment and Health Institute
CEO	Chief Executive Officer
CERMES	Centre for Resource Management and Environmental Studies
CIDA	Canadian International Development Agency
CIEX	Council for Investment, Exports, Foreign Exchange and the Diaspora
CIMH	Caribbean Institute for Meteorology and Hydrology
COP	Conference of the Parties
COTED	Council for Trade and Economic Development
CZMU	Coastal Zone Management Unit
DFID	Department for International Development
DHUB	De heart uh Barbados ©
DU	Drainage Unit
ENSO	El Nino Southern Oscillation
EPD	Environmental Protection Department
EU	European Union
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIS	Geographic Information System
GM	Global Mechanism
GNI	Gross National Income
GoB	Government of Barbados
IADB	Inter-American Development Bank
IEU	Irrigation Engineering Unit
IICA	Inter-American Institute for Cooperation on Agriculture
IWCAM	International Watershed and Coastal Areas Management
JPOI	Johannesburg Plan of Implementation
LDC	Least Developed Countries

LIS	Land Information System
MACC	Mainstreaming Adaptation to Climate Change
MA	Ministry of Agriculture
MDG	Millennium Development Goals
MEA	Multi-lateral Environmental Agreement
MEWD	Ministry of the Environment, Water Resources and Drainage
MPT	Ministry of Public Works and Transport
NAP	National Action Programme
NCB	National Coordination Body
NCC	National Conservation Commission
NCSA	National Capacity Self-Assessment
NCST	National Council for Science and Technology
NDS	National Development Strategy
NFP	National Focal Point
NGO	Non-Governmental Organisation
NHD	Natural Heritage Department
NCB	National Coordinating Body
NCSD	National Commission on Sustainable Development
NR	National Report
NSC	National Steering Committee
NSP	National Strategic Plan
OAS	Organisation of American States
PDP	Physical Development Plan Amended (2003)
PIC	Prior Informed Consent (The Rotterdam Convention on Trade in Hazardous Chemicals)
POPs	The Stockholm Convention on Persistent Organic Pollutants
PPC	Projects and Priorities Committee
PRSP	Poverty Reduction Strategy Paper
PS	Permanent Secretary
RAP	Regional Action Plan
RDC	Rural Development Commission
SCF	Seed Capital Fund
SCU	Soil Conservation Unit
SDA	Scotland District Authority
SGP	Small Grants Programme
SIDS	Small Island Developing States
SLM	Sustainable Land Management
SRAP	Sub-regional Action Plan
TPN	Thematic Programme Networks
TCPDO	Town and Country Development Planning Office
TWG	Technical Working Group
UDC	Urban Development Commission
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNCSD	United Nations Commission on Sustainable Development
UNCCD	United Nations Convention to Combat Desertification
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme

UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
UWI	University of the West Indies
VCF	Venture Capital Fund
WSSD	World Summit on Sustainable Development
WTO	World Trade Organisation
ZSEC	Zone of Special Environmental Control

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1.0 Introduction

National Reports to the United Nations Commission on Sustainable Development (UNCSD) remain the key instruments whereby the mandate to review and monitor activities undertaken by Governments to implement Agenda 21 is fulfilled. At the eleventh session of the CSD (post – World Summit on sustainable Development (WSSD)), countries were encouraged to provide national reports, on a voluntary basis, in particular to the UNCSD review sessions. In doing so, the UNCSD underscored that the reporting should:

1. reflect the overall progress in all three dimensions of sustainable development, focusing on the thematic cluster of issues for the cycle;
2. focus on concrete progress in implementation;
3. include lessons learned and best practices;
4. identify actions taken;
5. highlight relevant trends, constraints, challenges and emerging issues;
6. incorporate, where relevant, the effective use of indicators for sustainable development.

Thus, an updated reporting format focusing on specific thematic issues was utilised since CSD 12. The reporting post WSSD has been termed the Implementation Cycle. The Government of Barbados (GOB) has been reporting to CSD since 1996.

The present Report represents information for the third implementation cycle of the CSD, that is, for sessions 16 and 17 (2008-2009), where the focus will be on Africa, agriculture, drought, desertification, land and rural development, in addition to the cross-cutting issues. Countries report once on the thematic issues during the two-year implementation cycle of the CSD.

2.0 Format of the Report

The National Report is laid out as follows:

Part I: Information on National Focal Point: This section provides general information on the contact entity responsible for verification of the information submitted.

Part II A: Africa: Specific concerns as it pertains to the African continent which received special attention at WSSD in Johannesburg 2002 are addressed.

Part IIB: Agriculture, Drought, Desertification, Land and Rural Development: For each focal area, information is provided on:

- Concrete actions taken and specific progress made in implementation;
- Lessons learned;
- Recent trends and emerging issues;
- Major constraints and challenges.

The following common issues are addressed as means of implementation for each area:

- Education, training, awareness-raising and capacity-building;
- Institutional capacity building;
- National legal frameworks and administrative or other measures of relevance;
- Participation of Major Groups, in particular women and local communities, in decision-making and implementation;
- Mobilisation of financial resources from all sources, provision of credit facilities, provision of private investment, any innovative financing mechanisms;
- Technology development, transfer and dissemination, including through extension services;
- Application of indigenous knowledge and know-how;
- Cooperative frameworks and partnerships.

Part III: Draft Profile on National Sustainable Development Strategies and Indicators of Sustainable Development: This section provides general information of the Barbados Sustainable Development Policy (BSDP) and the National Programme on Indicators of Sustainable Development.

Additional appendices have been inserted to adequately describe the significant body of work carried out, on a national scale in the areas of sustainable land management and management of freshwater resources.

3.0 Background

Barbados is the most easterly of the islands in the Caribbean chain with a total land mass of 431 sq. km. The climate is classified as a moderate tropical maritime climate with a distinct rainy season (June – November) and a dry season (December to May) with temperatures between 20 and 32°C and an average rainfall of about 1,254 mm. The island is comprised mostly of limestone, as well as older clastic sedimentary rocks, sandstones, siltstones and clay. The absence of a solid limestone cap on the north eastern side of the island, commonly referred to as the Scotland District, makes that area highly susceptible to soil erosion and land slippage. Outside of the Scotland District, most of the solid limestone formation is covered by a very thin layer of surface-soil cover which means that any soil loss due to erosion would have a very negative impact on both agricultural and forest lands.

The Government of Barbados recognised at an early stage that principles of sustainable development would have to be incorporated into national development strategies in order to balance competing demands on scarce natural resources with the need for social and economic advancement. It was this recognition that saw the Government and people of Barbados host the Global Conference on the Sustainable Development of Small Island Developing States (SIDS Conference) in 1994, which resulted in the groundbreaking Barbados Programme of Action (BPOA). This recognition also resulted in Barbados being one of a few SIDS to produce a National Sustainable Development Strategy which became a document of Parliament in 2004. Annex B contains excerpts of the Barbados Sustainable Development Policy relevant to the thematic areas for discussion at CSD 16/17.

In 2006, the global economy expanded by an estimated 5.1% compared with 4.9% in 2005. This represented the fourth year of global expansion. This expansion occurred amidst inflationary concerns, tighter conditions in financial markets and further increases in oil prices. The Barbadian economy realized its fifth consecutive year of economic expansion in 2006, recording an estimated growth rate of 3.9 per cent compared with the rate of 4.1 per cent in 2005. This achievement was in part possible because of the commitment and implementation of the National Strategic Plan (NSP). See summary of plan in Annex C.

Since 1970 there has been a comprehensive Land Use Policy, the Physical Development Plan (PDP) in Barbados. The implementation of that plan has assisted Barbados in achieving a quality of life that is envied by many and has resulted in Barbados becoming the number one developing country. See summary of the amended PDP in Annex D. Barbados has also adopted a Sustainable Development Policy in 2004.

The Johannesburg Plan of Implementation (JPOI) adopted by Governments, at the World Summit on Sustainable Development (WSSD) in 2002 called for countries to “develop Integrated Water Resources Management and Water Efficiency Plans by 2005”. This target was included in recognition of the strategic importance of improved water resources management in achieving the Millennium Development Goals (MDGs). The Commission on Sustainable Development (CSD) during its 13th session recognized that this target may not be met by all countries by the target date, and took a number of decisions to accelerate the implementation of this target. A report on Barbados’ progress with respect to this target can be found at Annex E.

A CSD Type II Partnership Document also forms part of this report. It is aimed at giving greater visibility to Small Island Developing States (SIDS) concerns and mainstreaming the Barbados Programme of Action (BPOA), 1994 and the Mauritius Strategy for the Further Implementation of the BPOA, 2005. Please refer to Annex F. Finally, the Government of Barbados’ interventions at CSD 16 and the Inter-governmental Preparatory Meeting for CSD 17 are included as Annex H.

The issues covered in CSD 16 are closely interrelated, and while issues and challenges overlap, the approaches and solutions sometimes share some commonalities. For example, land degradation and drought are contributing factors to desertification, and the priority approaches and strategies identified to address these are also relevant to addressing desertification. Also many of the constraints and challenges, trends and issues are similar and interconnected.

4.0 PART I: Updated Information on National Focal Point for Sustainable Development

Name(s) of National Focal Point: Mr. Lionel Weekes

Title(s): Permanent Secretary

Ministry/Office: Ministry of the Environment, Water Resources and Drainage (Environment Division), Government of Barbados.

Key functions in relation to national reporting:

The Environment Division acts as the focal agency for collecting, disseminating and reporting on issues pertaining to sustainable development both locally and internationally. With respect to reporting to CSD, required information is collected and/or generated by several different sectors and the Ministry acts as a repository for information, collating in the prescribed United Nations Department of Economic and Social Affairs (UNDESA) format, obtaining the necessary approvals by senior officials and submitting in report format to UNDESA.

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5.0 PART II A: AFRICA

Barbados' relations with African countries cut across several development cooperation agreements including the Cotonou Agreement, Johannesburg Plan of Implementation (JPOI), United Nations Environment Programme (UNEP) action plans and the South-South Platform for Development Cooperation.

The African countries that Barbados has the most advanced relations with are Nigeria, Ghana, South Africa and Botswana. This report focuses on the relations that are bilateral in nature. In brief, Barbados has articulated an agreement to establish a trade commission with the government of Ghana, which could eventually lead to the establishment of trade centres. Barbados has also negotiated a bilateral investment treaty with Ghana and a double taxation agreement.

Barbados has facilitated the establishment of a cooperation agreement in the area of solar technology with Nigeria; this is primarily a private sector led initiative with financial support from government. The Barbados Industrial Development Corporation (BIDC) was the lead facilitating agency with some technical support from the former Ministry of Environment and Energy. Barbados is part of the Global Solar Water Heater Initiative under the Global Environmental Facility (GEF), and will serve as a global centre for SIDS.

In the area of technical cooperation Barbados has also established ties with Botswana. The Government signed a Memorandum of Understanding between the two countries establishing ties of friendship which could lead to a more in-depth development cooperation agreement.

The Government through the Commission for Pan-African Affairs has entered into a reciprocal exchange arrangement in the area of film and culture with South Africa. The Government of Barbados also works closely with the South African Government in Geneva in the World Trade Organisation (WTO) negotiation on the issue of agricultural goods. The South African Government as head of the African Union has led the consultations at the sub-regional level on Diaspora relations.

Regional cooperation initiatives (including regional trade agreements, cross-border infrastructure development and development cooperation agreements) are expected to facilitate growth and sustainable development initiatives across Africa.

6.0 PART II B: Agriculture, Drought, Desertification, Land and Rural Development

6.1 Agriculture

Government's focal point is the Permanent Secretary in the Ministry of Agriculture (MA).

a. Concrete actions taken and specific progress made in implementation

Policies

A Sustainable Agriculture bill is currently being drafted. The Food and Agriculture Organization (FAO) is collaborating with the Government on this matter. However there are several sugar and non-sugar initiatives in place that benefit from the foundation principles and policy guidelines of the Barbados Sustainable Development Policy (BSDP). Implementation of the current agricultural development plan has delivered some success particularly in the area of increased production per unit measure (acre/hectare).

The agricultural sector has undergone and will continue to undergo significant changes arising from domestic and external trade and economic factors. This is all the more evident given the high volatility of fuel prices in the world market, as well as increasing input factor costs due to inflation.

In an effort to achieve sustainable development the Government has adopted a comprehensive policy framework and several specific goals. These goals are encapsulated in a series of three-year medium term plans. The 2000 – 2002 plan highlighted the need for agricultural diversification into non-sugar activities. The medium term plan of 2004 – 2006 continuing into 2006 – 2008 sought to build upon this objective and further efforts towards strengthening the linkages between agriculture and other sectors of the economy as demonstrated with the initiation of the “strengthening the linkages” programme between the Ministry of Agriculture and the Ministry of Tourism. The model initiative has been so successful that the inter-American Institute for Cooperation on Agriculture (IICA) has signalled its intentions to promote similar programmes in territories that it covers. The current medium term plan is the Medium Term Plan for the Agricultural Sector for the Period 2008-2013.

The Ministry's policy on revitalising the sugar industry, exploring alternative uses for sugar cane and rationalisation of sugar factory operations has begun and is a process that will continue into the current planning period.

In April 2006, Barbados submitted its 2006-2014 Sugar Adaptation Strategy for obtaining European Union (EU) Assistance as part of the EU's assistance package offered to African, Caribbean and Pacific (ACP) Sugar Protocol countries. Barbados adaptation strategy has as its key goals the restructuring of the sugar industry as well as promotion of the diversification and strengthening of the sugar sector into the wider economy.

Food Security Policy

A food security policy and comprehensive plan is currently being designed and is scheduled to be finished by the end of 2009. The plan will primarily focus on increased domestic production and the processing of some commodities. The global events of 2001, the situation in Iraq, the increased frequency and intensity of natural disasters and the outbreaks of diseases that can threaten animal, plant and human health accentuate this need. It is finally being recognised that food security not only encompasses the ability to purchase food, but includes issues relating to reliable access to safe and wholesome food as well. Some of the focal elements in the food security policy will include:

- The identification of products that, are critical for food security. Stakeholders will be consulted on the products to be included as 'food security' products.
- Quantification of the products necessary for food security, as well as the percentage of product that should, ideally, be sourced from domestic production.
- Provision of the requisite regulatory and infrastructural framework to facilitate storage and preservation of food security products.
- A National Agricultural Health and Food Safety Authority, which will ensure that the country upholds national and international food safety requirements and regulations.

Plans for a national agriculture, health and food safety control agency have been developed. This agency will streamline all institutions that deal with commodities within the food chain. The agency will have monitoring and enforcement mandates. See Bio-safety Framework at Annex G.

Additionally, the BADMC will be seeking to establish a food science and development department whose functions include *inter alia*:

- i. Introducing new entrants to agro-processing and creating entrepreneurship within the agricultural sector;

- ii. Providing training to the food industry to assure consistently high quality products meeting local and international standards;
- iii. The application of new technology and the development of new and improved products and processes.

There are some initiatives in place to pursue a sustainable agricultural policy and plan within the broader sustainable development policy of Barbados that was adopted in 2004.

Programmes for Enhancement of Farm Productivity and Income

In an effort to stimulate local food production as well as encourage sustainable farming practices, the Government of Barbados has provided a package of incentives to the agricultural sector. This support has included the provision of grants, rebates and duty-free concessions which are made available to registered farmers in an effort to stimulate both food and non-food production as well as promote sustainable development. New areas addressed include Post Harvest Technology, Aquaculture, Environmental Control Systems for livestock and Disaster Relief. These incentives appear to have reaped some successes as farmers have invested heavily in new technologies such as tunnel ventilation systems, greenhouses and aquaponics in the past few years.

The Tissue Culture Laboratory is also researching advanced propagation technologies with a view to mass produce clean and disease resistant and/or tolerant cultivars. The facility is primarily working on cut flowers and foliage, and has also produced good results with yams, mushrooms and vegetables.

The Greenland Station for Livestock Research and Development, St. Andrew, is continuing its work on Black Belly sheep, concentrating on improving the genetic stock. They are working on multiple-birth progeny, quality of meat carcasses and low feed to meat conversion stock.

Recent agrarian reform – equitable access for both genders.

As of now there is no specific legislation in the area gender equity in agriculture. However the Town and Country Planning Act of 1968 [Revised 2003] provides for land and water rights and legal security of tenure for all individuals irrespective of gender. Additionally, gender has been integrated throughout the 2004 sustainable development policy, which is suggested as the foundation document for all national policies and strategies. In the interim the Department of Gender Affairs has been developing draft policy documents on gender issues and did contribute significantly to the development of the BSDP.

Generally however, Government policy does not in any way discriminate against any qualified individual whether male or female.

Community based and indigenous approaches to sustainable food production

Community based and indigenous approaches to sustainable food production are increasing though most are self started initiatives by co-operatives and individuals, an exemplified by the Fisherfolk organisation BARNUFO. The Natural Heritage Department within the Environment Division has a few such proposals under consideration. The Bawdens Farmers' group continue with their environmentally friendly approach to crop production. The Organic Farmers group most of whom are based in the parish of St. John continue with their efforts to produce chemical free organic products. The MA is aware of the links between organic farming and sustainable agriculture and will soon determine how best to support those type of initiatives. There is also the example of the St. George Farmers Cooperative which has made a significant contribution to the farmers of that area where they have an outlet to sell produce, preserves, foods etc.

Programmes for environmentally sound agricultural pest control

Over the past 10 years the Entomology Section of the MAR has dealt with the control of some 16 invasive species. These include the Pink Hibiscus mealybug, Papaya mealybug, West Indian fruitfly, Citrus Leafminer, Asian Citrus Psylla, Cycad Aulacapsis scale, Chilli thrips and the Giant African Snail. The Entomology Section has a long and distinctive history in the area of biological pest control, which is the most environmentally friendly means of pest suppression and control. This history dates back to the early 1920's with the Sugarcane mothborer and continued with a wide range of other pests including the citrus blackfly. More recently, Pink Hibiscus mealybug, Papaya mealybug and citrus leafminer have been brought under excellent biological control and similar programmes are underway for the West Indian fruitfly, Asian Citrus Psylla and Cycad Aulacapsis scale.

The Entomology Section also focuses on Integrated Pest management (IPM) and is in the process of developing an IPM programme for the major pests of cotton, including the Pink Bollworm through the use of pheromone mating disruption and Chilli thrips and Tobacco budworm through the use of selective insecticides and the preservation of natural enemies like parasitic wasps and predatory lacewing and pirate bugs.

Additionally the use of biorationals, new pesticide formulations and active ingredients based on organic products to supplement and in some cases replace pesticides currently being used will be one programme that will be concentrated upon. These products are not only more pest specific but have the additional features of being environmentally friendly, including not killing beneficial organisms.

Actions to improve water management in agriculture

The Barbados Agricultural Development and Marketing Corporation (BADMC) under the Ministry of Agriculture is responsible for the management for 21 water wells and equipment in 12 irrigation districts, This programme provides connections to roughly 605 farm holdings throughout the country. The involvement by BADMC in managing the Integrated Rural Development Project (IRDP) has contributed to the expansion of the use of modern water use systems in the country.

The irrigation system networks have expanded and now cover much of the southern farming regions – Gibbons, Pegwell, St. Patricks, Fairview, and Silver Hill. The districts in the south east and eastern areas are Marchfield, Ruby/Jezreel, Sandford, Kirtons/Heddings and River Plantation. Another system is in Haggatt Hall servicing Salters, Neils and the Belle. A small system is located at Bawdens in St. Andrew has some facilities in place and should be in full operation by mid 2008. Marchfeild in St. Philip also has a system. In the urban areas, the system in the Pine Basin is functioning well. There is also a system in the north of the island at the Spring Hall Lease Project in St. Lucy.

The BADMC operates repairs and maintains these Government financed irrigation schemes. It also monitors the pumping stations three times a week and conducts water quality testing once a month. The samples are analysed by the Government Analytical Services of the MAR.

Two new projects are scheduled to be integrated into the water management programme next year. The Scada Constant pressure system is a project that will allow irrigation managers to monitor irrigation systems on various sites throughout the island from a central management station. The Scada system has some energy saving aspects to it as well. The second project is the introduction of a Geographical Information System (GIS) – Hydraulic Model to assist with the Island-wide water management programme. The Agricultural Development Fund, under the national Enterprise Growth Fund will be the mechanism used to finance these projects. The Enterprise Growth Fund is a private sector led institution that provides small and medium sized Barbadian companies in the productive sectors with, loan financing, venture capital (equity financing), business advisory services and technical assistance.

The main factor which contributed to improved water management in the agricultural sector was the early recognition by the Government of Barbados that this is a water scarce country and would require some intervention to facilitate the diversification from sugar cane to other crops. Thus incentives for irrigation systems that conserved water was one of the earliest devices to steer farmers towards adopting this technology. Rebates on approved irrigation systems presently range from 50% to 75% of the cost of establishment.

Another significant contributor to water management is the availability, within the MA and BADMC, of trained and experienced staff who are responsible for the management of irrigation systems and who undertake extension programmes related to water use such as those obtained under the FAO CARICOM Food Security Project (GTFS/RLA/141/ITA).

The Soil Conservation Unit (SCU) of the Ministry of Agriculture collects rainfall and other agrometeorological weather data at its eight (8) rainfall stations across the Scotland district. It also maintains a stream water quality sampling programme across the District. Information is made available to the Barbados Meteorological Service, the Caribbean Institute for Hydrology and Meteorology, as well as the Barbados Water Authority for incorporation into a national database for overall management of the island's water resources.

There are efforts in place to effect recycling of effluent from the existing South Coast Sewerage System for use for irrigation water, however, practically, this is still five years in the future. Similarly, water reuse for agriculture has already been incorporated into the plans for the next phase of the South Coast Sewerage Project scheduled to commence construction in 2009/2010.

Technological capabilities

The mandate of the Government Analytical Services (GAS) is to provide chemical and microbiological analytical services to government departments, the private sector and the general public. These services include determinations in the area of Inorganic Chemistry, Pesticides and Trace Organic Chemistry, Water Microbiology, Food Microbiology and Food Chemistry.

The analyses are generally classified into those of environmental analyses utilising the services of the Inorganic Chemistry, Pesticides and Trace Organic Chemistry and Water Microbiology sections and food analyses that use the services of Food Microbiology and Food Chemistry. Potable water is considered a food and some of the analyses utilise the services provided by more than one section

namely, the Inorganic Chemistry, Pesticides and Trace Organic Chemistry and Water Microbiology sections.

Specific examples of services provided by GAS include and relevant to the current CSD discussions include:

- i. The BAMC became a HACCP certified factory in 2008 and therefore has to periodically assess the quality of two sources of water used in the production process for four inorganic and three microbiological parameters. Samples will be submitted for both chemical and microbiological determinations. Additionally, in order to ensure that the effluent emanating from the Portvale sugar factory meets accepted standards, and therefore does not have the potential to negatively impact on the marine water quality downstream, the BAMC has set up water quality monitoring programmes to determine the quality of the effluent. As a result, samples will be submitted to the Inorganic Chemistry and Water Microbiology sections for determinations.
- ii. Bridgetown Public Markets: Samples for microbiological determinations are undertaken to assess the quality of water and ice at the Bridgetown and Oistins public markets.
- iii. BADMC: On a quarterly basis the quality of water from irrigation wells is monitored for inorganic parameters, and microbiological parameters are expected.
- iv. Soil Conservation Unit: Inorganic chemistry section and water microbiology analyses will be carried out to allow continuous assessment of the quality of water emanating from the fresh water springs in the Scotland District.
- v. Food Analyses: GAS will provide analytical services for the determination of chemical constituents and microbiological pathogens in food and food products. Samples are obtained from private sector agencies such as Mount Gay Distilleries Ltd., Barbados Dairy Industries Ltd. (Pine Hill Dairy), and Barbados Agricultural Management Company Ltd. (BAMC). Results of analyses from samples submitted by these agencies will be used to ensure that the products comply with the requirements of the importing country, are wholesome and satisfy the company's ISO certification programme or that the imported products or inputs to production are of an acceptable quality.

Measures to improve and develop infrastructure to enhance distribution to markets

Measures to improve and develop infrastructure to enhance distribution to markets have been put in place but these have to be more closely monitored to address changing market conditions. A more free market system is becoming the dominant trend. In the interim, the BADMC is currently working with IICA to develop Terms of References (TORs) and conduct feasibility and design study into the commodity distribution system. The Corporation wants to become an efficient player in moving agricultural commodities to buyers especially from the farmers participating in the national Land lease programmes.

Completed bilateral, regional and multilateral agreements relating to liberalization of agricultural product markets, including under WTO's Doha round of trade negotiations

Producers have not yet fully benefited from the completed bilateral, regional and multilateral agreements relating to liberalization of agricultural product markets, including the WTO's Doha round of trade negotiations. Barbados is the only country in the Caribbean that has access to safeguard mechanisms because it undertook the tariffication process. A group of commodities has special triggers; these include poultry, pork and most vegetables.

However, increasing pressures to liberalize even more has brought some fallout and some enterprises have been unable to respond to the competition and have not survived. The sector is fast recognizing that in order to survive they will have to make alliances and/or mergers to enhance and promote more trade on a bilateral basis.

Measures to diversify agricultural production systems, including development of new markets for value-added agricultural products

Much time and effort has been spent on implementing measures to diversify agricultural production systems, including development of new markets for valued-added agricultural products. Some initiatives have been very successful while others have not registered enough significant positive results. In an attempt to develop new markets for value-added agricultural products, Ministry of Agriculture and the Rural Development Commission has implemented a series of agri-business training activities. These include workshops on farm management and seminars on starting agri-businesses, recordkeeping, food handling, and the making of preserves.

New varieties of vegetable and fruits have been introduced to farmers. New sugar cane varieties that are more efficient at producing ethanol have also been introduced and integrated into the new sugar cane industry initiative. As part of the Bio-energy initiative, a facility to produce fuel ethanol and generate electricity is being planned for 2010. The project was originally scheduled to commence in 2008 and

will comprise a 30 mega watt plant by there have been some delays and that project is expected o be given new timelines. Further agronomic research on Sea Island cotton continues as well as the ginning operations of a cotton industry.

The cut flower and foliage industry offered a profitable return on investment initially but failure to adhere to proper agronomic practices and consistent marketing effort has resulted in the industry expanding more slowly than previously anticipated.

The fruit tree industry has also been expanding slowly but this is primarily because the upfront investment is quite substantial and the payback period is longer than other commodities. In some cases acquiring loan financing has also been challenging.

Improved national early warning systems for monitoring food supply and weather insurance schemes for farmers

Since the recent increase in intensity and frequency of natural disasters, some early warning systems have been put in place to monitor food supply. Early warning and monitoring of food supply and those factors affecting household demand for food is carried out through collaborative action between the Barbados Statistical Service, the National Nutrition Centre and the Agricultural Planning Unit.

Weather insurance schemes for farmers continue to be a challenge – the re-insurance cost is said to be too high. The poultry industry has put an initiative in place that will offer some sort of insurance payment to members in the event of a disaster.

b. Lessons Learned

The lessons learnt thus far can be summed up in one principle, which is that an integrated approach is critical to success. By using an integrated planning approach to this sector and other closely related sectors the country has been able to maximise the output even though in many instances the inputs are insufficient. Donor coordination is also crucial to achieving short and long-term goals. Inter-Ministerial and department cooperation and planning allows for maximising programme impact for beneficiaries.

Research and development is fundamental to good planning and greatly increases the rate of success of projects and programmes.

c. Major Constraints and challenges

Barbados has not established a national policy on sustainable agriculture but has taken a number of initiatives and implemented

programmes that addresses this issue. For example, an Area Development Plan (ADP) has been developed for Barbados that stipulates appropriate land use options for various parts of the island. It includes specifically agricultural development areas, rural development areas, soil classification, data base development, storage and management, policy reforms and rural planning policies. The ADP has been incorporated into the National Physical Development Plan (PDP) (revised 2003). An Agricultural Strategy which facilitates the implementation of the agricultural development Plan has also been developed by MAR also addresses issues of sustainable development.

The issue of pesticides and safe use thereof is currently being explored in some detail. The Pesticide Control Board is currently responsible for monitoring and managing the importation of pesticides used in agriculture. It has been recognized that the current system needs to be upgraded in order to deal effectively with the issues of increasing demand for pesticide, implications for human health and environmental health, national requirements in accordance with Multilateral Environmental Agreements (MEAs) such as the Prior Informed Consent (PIC) and Persistent Organic Pollutants (POPs) and the Basel Conventions. Collaboration is ongoing between the relevant agencies, including the Ministry of Agriculture, the Pesticide Control Board and the Environment Division towards finding a suitable and timely solution to these pressing issues.

Another challenge is the coordination of the various organisations and agencies whether local, regional or international that input and impact on the sector. The country cooperates in agriculture with FAO, UNDP, European Union, IICA and other institutions and sometimes it is difficult to maximise synergies.

The competition for land and other resources is a major challenge for the sector however some prescriptions are being implemented of which some are addressed in the **Section a.** -concrete actions taken. There is a need however to determine nationally what the food security needs of the nation are and how we can achieve them through the integrated use of resources and the use of appropriate technology driven by indigenous research. Having said this, the BADMC has identified the following areas as crucial for support:

- i. Irrigation systems and management-training and technical assistance;
- ii. Irrigation extension techniques;
- iii. Project management and implementation;
- iv. Land- lease schemes: structure, implementation, monitoring and management;
- v. An assessment of Land use policy and its implications on housing, agriculture and other competing uses. Technical assistance in establishing a robust research and development strategy to enable Barbados to effectively use

and distribute its resources (to include techniques to bring lands back to agricultural use).

d. Recent Trends and Emerging Issues

The trend of taking an integrated approach to the agricultural sector with other developmental sectors has continued. The agricultural sector has undergone and will continue to undergo significant changes arising from domestic and external trade and economic factors. This is all the more evident given the high volatility of fuel prices in the world market, as well as increasing input factor costs due to inflation.

Domestically, agriculture continues to compete with other sectors for scarce resources such as land, labour and capital. How the agricultural sector addresses these and other challenges will largely depend upon the type of policy measures that will be formulated.

Undoubtedly, the current environment will continue to pose challenges to an already vulnerable sector. Nevertheless, there are number of strategies and areas for intervention to facilitate the repositioning of the sector in order to effectively compete in a globalized environment, whilst capitalising on potential opportunities.

6.2 Desertification and Land Degradation

While Barbados does not suffer from any real form of desertification; it is one of the most water scarce countries in the world. Water resource and land management is critical. Barbados ratified the United Nations Convention to Combat Desertification (UNCCD) on May 14, 1997 and remains an active participant in the convention negotiations.

The Government's focal point is the Permanent Secretary in the Ministry of Environment, Water Resources and Drainage

There is an inter-ministerial/institutional coordination mechanism comprising of representative from the Soil Conservation Unit (SCU), the National Conservation Commission (NCC), the Ministry of Agriculture and Rural Development (MARD), the Drainage Unit (DU), the Environmental Protection Department (EPD), the Meteorological Services Department (MSD), Coastal Zone Management Unit (CZMU), the Barbados Water Authority (BWA), the Town and Country Development Planning Office (TCDPO), the Ministry of Foreign Affairs, the Barbados National Trust, UWI Centre for Resource Management and Environmental Studies, The Caribbean Youth Environmental Network as well as local representatives of the Inter- American Institute for cooperation on Agriculture (IICA) and the Food and Agricultural Organisation (FAO)

Improved use of and local access to climate and weather information, forecasts, early warning system and information networking to combat land degradation

There have been significant improvements in the use and access to climate and weather information, forecasts, early warning and information networking to combat the effects of desertification. The upgrading of Meteorological Services Department has been directly responsible for those successes.

Barbados' third national report to the United Nations Convention to Combat Desertification and Drought (UNCCD) has reported on the biophysical indicators relating to desertification and drought, see summary below as of December 2006.

Biophysical indicators relating to desertification and drought

1. Climate

1.1 Index of aridity: Not available

1.2 Normal rainfall: 1211 mm (Source: Barbados Meteorological Services Ministry of Agriculture)

1.3 Rainfall standard deviation: 232.4mm (Source Barbados Meteorological Services, MAR)

2. Vegetation and land use

2.1 Vegetation cover (%) of total land area: ~74.3% (Arable crop land, pasture, woodland)

2.2 Land use (percent of total land): ~87% (Arable crop land, other land)

Land use	1990 – 2005 (ha)
Arable crop land	26,466
Pasture	383
Woodland	5,218
Other land	11,109

3. Water Resources

3.1 Fresh water availability (million m³/day): 0.161644 (Source: Barbados Water Authority (BWA))

3.2 Fresh water resources per capita (million m³ /per person/per year): 0.000350 (Source: BWA)

3.3 Agricultural water use (million m³/day): 0.055781 (Source: BWA)

3.4 Industrial water use (million m³/day): 0.007092 (Source: BWA)

4. Energy

Consumption

4.1 Energy use per capita (kg oil equivalent): 1400kgoe/ca.year
(This figure does not include the consumption of renewable energy) (Source: Energy Division)

4.2 Agricultural energy use per hectare (millions of British Thermal Units (BTU)): Not available BTU however the Sugar industry produces over 21,000 TOE (Tonne of oil equivalent) of bagasse (Source: Energy Division)

Production

4.3 Energy from renewables excluding combustible renewables and waste (% of total supply): Not available in the format required by the questionnaire however 9000 TOE comes from solar technology (Source: Energy Division)

Renewables–Consumption by sector

4.4 Industry (% of total renewable consumption): Not available

4.5 Residential (% of total renewable consumption): Not available

4.6 Agriculture (% of total renewable consumption): Bagasse accounts for 90% of the sugar cane industry energy supplies (Source: Energy Division)

5. Types of Land Degradation

Type of degradation	1990-2005 Hectares (ha)
Overgrazing	200 ha (periodically during the dry season)
Deforestation	50
Soil Erosion/degradation	2500
Bush encroachment	700
Desertification	Not applicable
Partially Degraded Areas	150

(Source: Soil Conservation Unit, Ministry of Agriculture)

6. Rehabilitation

Lands under rehabilitation	1990 – 2005
Rehabilitation of degraded cropland (ha)	50-60
Rehabilitation of degraded range land (ha)	1587.87 (UNDP Figure)
Rehabilitation of degraded forest	20

(Source: Soil Conservation Unit, Ministry of Agriculture)

Socio-economic indicators related to desertification and drought

7. People and economy

7.1 Population (Total): 273,400 (Source: Barbados Social and Economic Report 2005)

Population: Urban (percent of total): **65.8% (UNDP Figure)**

Population: Rural (percent of total): **34.2% (UNDP Figure)**

7.2 Population growth (annual %): 0.3% Source: Barbados Social and Economic Report 2005)

7.3 Life expectancy (years): **72.8 (Males), 78.6 (Females) (UNDP Figure)**

7.4 Infant mortality rate (per 1000 live births): **8.3 (Source: Annual Report of the Chief Medical Officer)**

7.5 GDP (current US\$): \$3.3 billion (Source: Barbados Statistical Service (BSS))

7.6 GNI per capita (current US\$): **\$33,469 (UNDP Figure)**

(GDP per capita (current US \$) 11,889 (Source: BSS))

7.7 National poverty rate (% of population): 13.9% (1998 IADB figure. This information is currently being updated by the Poverty Alleviation Bureau)

7.8 Crop production (metric tons): 9873.4.5

(Constitutes local production of vegetable and root crops for 2006 i.e. bean, beet, cabbage, carrot, cucumber, lettuce, melon, okra, hot pepper, sweet pepper, pumpkin, tomato, cassava, eddoes, sweet potatoes, yams, onions and peanuts)

(Source: Agricultural Planning Unit Ministry of Agriculture)

7.9 Livestock production (metric tons): 29,129.4

(Constitutes local production of beef, mutton, pork, poultry, veal and turkey for 2005)

(Source: Agricultural Planning Unit, Ministry of Agriculture)

6.3 Drought

The Barbados Water Authority (BWA) addresses the issue of water resources in Barbados and is responsible for matters relating to drought. Meteorological parameters, such as rainfall are available from the Meteorological Office of the MAR.

a. Concrete actions taken and specific progress made in implementation

Water resource is vital to all sectors of the economy, and especially to all sub-sectors within the Agricultural sector. A water resource unit has been proposed under the environmental management and land use planning (EMLUP). At the end 2008 a water resource division was established within the Ministry of Environment, Water Resources and Drainage. To meet the growing demands for water for agriculture, and to improve the island's food security status, there is a need to increase water productivity, enhance water availability and improve irrigation and drainage. The current trend is to harvest and store run-off, as well as to enhance the capability of the land surface to recharge the subterranean aquifer.

A strategic planning framework for the protection and sustainable management of ecosystems in drought prone areas has been developed and integrated into the national development strategies and action plans.

The Ministry of Agriculture takes the lead in implementing various policies and practices to arrest land degradation and restore land and soil productivity. Its departments- the Soil Conservation Unit (SCU) and the Barbados Agricultural Development Management Corporation (BADMC) work with farmers and other stakeholders in promoting, monitoring and evaluating policies and practices.

The national strategy and contingency arrangements for drought preparedness to deal with drought related food and water deficiencies are coordinated by the Ministry of Agriculture. These include:

- Conducting comprehensive studies to identify efficient development and management of water resources.
- Instituting an island-wide water metering programme.
- Continuing efforts at refurbishing existing irrigation districts and the establishments of new irrigation districts.
- Introducing measures to reduce water consumption and improve water use efficiency. These will include the introduction of short-age crop varieties, establish salt-tolerant crops in areas served by arid, saline or brackish water, adopting water saving

irrigation techniques, modernising irrigation systems and promoting the use of mulching.

Drought-relief studies and their implications for national development and planning have been examined by the Caribbean Community Climate Change Centre in Belize and some studies have been done by the Ministry of Agriculture and the Barbados Water Authority (BWA). A drought relief scheme has been put in place as Barbados is the 15th most water scarce country in the world. The findings of the study have been integrated into national development planning.

The SCU implements afforestation and reforestation programmes using drought-resistant, fast growing species.

Legislative measures and policy incentives to encourage forestry development in dry-lands have been put in place including the Preservation of Trees Act, 1981

The use of climate and weather information, forecasts, monitoring and early warning to mitigate the effects of drought are indispensable tools for the sector.

The application of risk-mapping, remote-sensing, agro-methodological modelling, integrated multi-disciplinary crop forecasting techniques, and computerized food supply/demand analysis are tools not yet fully implemented or utilized by the sector.

b. Lessons Learnt

A multi-stakeholder approach in planning and implementing of projects and programmes increases the chances of success and greater probability of long term sustainability. Drought relief programmes are expensive and require specific expertise.

c. Major Constraints and Challenges

The issues of forecasting and assessment of droughts are two priority areas. The challenge is in expanding the hydrological and hydrometeorological observational network that would assist the work of the BWA in monitoring and evaluating the water resources and drought. Another significant constraint is the financing of a pipe-mains replacement programme. A substantial part of the island network is too old and due for repairs and replacement. A more up-to-date technology and equipment used in forecasting would be an asset. Sufficient opportunities for training of current personnel are sometimes problematic.

d. Recent Trends and Emerging Issues

It is now popular to see or hear public announcements about drought in Barbados. The public has become greatly sensitized about the issue of drought. An integrated approach has delivered much success. In Barbados, the trend of shorter more intense rainfall patterns has been recorded. This could have significant implications for other issues particularly, land degradation.

Faced with the prospects of less than enough water to satisfy the Barbadian and tourist population, the BWA commissioned a study on establishing a desalination facility in Barbados. A brackish water desalination plant was established in February 2000.

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6.4 Land

The Government focal point is the Permanent Secretary of the Ministry of Housing and Lands.

a. Concrete actions taken and specific progress made in implementation

Planning and development of land resources

The planning and development of land resources involves a wide range of stakeholders. This could have significant implications for other issues particularly; land degradation as a result of flood and increased flows and velocities. The recent update of the land administration system has strengthened the Town and Country Development Planning Office (TCDPO) which has the mandate for the orderly and progressive development of land in both the urban and rural areas of Barbados. The TCDPO is government's key regulatory agency and its mandate encompasses all issues associated with land use in Barbados. The TCDPO is mandated to consult with other interested and specialised ministries/departments e.g. MA, CZMU, BWA, Ministry of Transport and Works.

Land for Landless Programme

The land for landless farmers programme started in 2001 and has progressed steadily. The total public and private lands available to the BADMC for distribution in 2006 via this programme were 220.5 acres and 204 acres respectively. The total public and private lands currently in production are 204.0 acres and 100.0 acres respectively. These lands are allocated to livestock, root crops, vegetables and orchard production.

The Land for Landless programme received ninety-one new applicants at the end of December 2006. Livestock farming continues to be the popular choice among farmers. The BADMC also has provisions for foreign investors to make application to the land bank.

Some constraints are experiences for example in 2006; vegetable production declined on the private lands due to unseasonably low rainfall. Additionally, the high cost of inputs, competition for imported vegetables and limited availability of funds to allow farmers to introduce new technologies in their production processes, remain a challenge.

The Irrigation Engineering Unit (IEU) of the Ministry of Agriculture manages and maintains twelve (12) irrigation districts which include twenty-one (21) wells and 631 service connections.

Policies and laws to guarantee land and water use rights and legal security of tenure

Policies and laws have been in place since the 1960's. The Town and Country Planning Act, 1968 [Amended 2003] provides for land and water rights and legal security of tenure for all individuals irrespective of gender.

The integrated assessments of socio-economic and environmental potentials of land resources has been examined in the Environmental Management and Land Use Planning for Sustainable Development Project, 1998.

The application of techniques and methodologies for assessing the potential adverse effects of climate change on wetlands takes place on an *ad hoc* basis therefore a more a systematic programme approach needs to be adopted. An assessment had been made on the Graeme Hall area, while Chancery Lane on the south coast and Batts Rock on the west coast have been identified for further studies.

There have been some attempts at local community-based programmes to sustainably enhance the productivity of land and the efficient use of water resources. The Bawden's group in the parish of St. Andrew and the Organic farmers in the Codrington College, St. John area are two examples.

Additionally, development and land use indicators and related monitoring systems have been developed.

Long-term land conservation and rehabilitation programmes to arrest land degradation are in place in the Scotland District area and good agricultural practices including hedge row establishment and environmentally friendly agronomic practices are utilized in other farming zones.

On the issue promoting women's equal access to, and full participation in land decision-making, Barbados has a proud history of promoting equal access of men and women to land-holdings and respective titles. However, there is no official legislation on gender mainstreaming of all land policies and strategies.

There are specific programmes for empowerment of people living in poverty and for their increased access to land and land tenure arrangements. Two of the most progressive programmes have been facilitated through the Urban Development Commission Act and the Rural Development Act 1995/12. Those acts provided for the improvement of social amenities, assistance to small farmers and other small entrepreneurs and establishment and

development of cottage industries in urban and rural areas of Barbados.

Strengthened information systems and use of Geographic Information System (GIS) though expensive, is being utilized for integrated planning and management of land resources. In Barbados, they are being used to identify land vulnerable to slippage and land degradation and also some subsurface drainage systems.

Strategic urban planning approaches aimed at managing urban growth, limiting urban sprawl and reducing the number of people living in poverty in urban and rural areas comes under the mandates of the Urban and Rural Commissions respectively.

The Ministry of Housing and Lands, the Ministry of Agriculture, the Rural Development Commission and the Ministry of the Environment, Water Resources and Drainage share the responsibility for conducting national research on the local land resource systems. Those ministries also promote and implement environmentally sound, site-specific, low-cost technologies, and provision of related extension services for greater efficient land resource management programmes and initiatives.

The Ministry of Agriculture cooperates and collaborates with the Caribbean Agricultural Research and Development Institute (CARDI) on laboratory and field research work in areas such as environmentally sound, effective and efficient use of soil fertility improvement practices and agricultural pest control.

b. Lessons Learnt

In some cases Special Development Area legislation is required to established specific national programmes. There is also the need for a comprehensive land use study to be implemented to assess the change in land use patterns over the last decade.

c. Major Constraints and Challenges

A significant challenge is the need to restrict activities on land that could affect the underground water supply. Another is the management of land resources to meet aspirations of citizens and to provide sustainable economic development for current and future generations.

d. Recent Trends and Emerging Issues

The main issues of concern relating to land use in Barbados has to do with the competing demands from numerous sector – residential,

tourism, agricultural and industrial. Another issue is that very little research has been dedicated to the potential impacts of El Nino Southern Oscillation (ENSO) on Barbados' land resources. The increased marketing of land to foreign buyers has made land a highly speculative commodity and many say that the price is rising beyond the means of the average citizen.

6.5 Rural Development

a. Concrete actions taken and specific progress made in implementation

A Rural Development Commission Act has been in place since 1995. It provides for the establishment of a Rural Development Commission that would, *inter alia*, provide for the improvement of social amenities, assist small farmers and establish and develop cottage industries in rural areas. (ACT 1995/12)

The integration of rural development strategies into Poverty Reduction Strategies (PRSPs) or other economic/development strategies have become commonplace in Barbados. The Sustainable Development Policy of Barbados that was adopted in 2004 promotes an integrated approach to all sectoral planning.

Barbados is a small well developed country, hence instead of rural-urban migration, the reverse urban to rural is now occurring. Both the Urban and Rural Development Commissions and their policies are addressing national development strategies.

The Ministry of Economic Affairs, Empowerment, Innovation, Trade, Industry and Commerce leads the government machinery that is the driving force for economic growth and social development in rural areas. A number of statutory corporations have responsibility for executing the day to day activities, programmes and initiatives that bring to life the various development goals and objectives.(e.g. agriculture, small and medium enterprise development, employment and other non-agricultural sector)

Barbados has a long history of early extensive development of the rural areas, in the last five years there has continued improved access to basic services and infrastructure in rural areas (e.g. adequate shelter, education, employment opportunities, health and sanitation).

Access to land and property is becoming more challenging, primarily because of high demand and overly inflated prices.

Infrastructure Access to Local Markets

Barbados has an extensive network of roads both in rural and urban areas. Producers primarily use trucks and other types of motor vehicles to carry their produce to market and therefore have very few problems in that respect.

Access to energy

Access to reliable and affordable energy services is a pre-requisite if producers are going to be competitive in both local and international markets. Fossil fuels are expected to be under severe pressure in the next few decades. Countries and industries will have to explore avenue of renewable energy sources, including solar, and modern biomass technologies particularly bio-fuels.

Enhancement in sustainable tourism development

Tourism is the fastest growing industry in the world and can be an important economic tool for developing countries in their quest to achieve sustainable development. The government is currently in the process of diversifying the tourism product. New segments within the sustainable tourism sector are being explored. National programmes are being developed in the areas of community, sports and health tourism.

Environment and Rural development

There can be severe environmental consequences of rural development efforts. To mitigate potential negative impacts an integrated planning approach must utilized and the relevant environmental impact assessments must be conducted.

However, efforts are being sustained to ensure that the rural communities have all of the modern amenities that the urban sector benefits from. Barbados being a small island state has significant pressure on the urban sector, it is hoped that with further rural development this pressure can be alleviated.

The Barbados Industrial Development Corporation (BIDC) has developed and implemented some programmes on capacity building for small and medium-sized enterprises. Both the Urban and Rural Development Commissions also have ongoing programmes in that area.

The mandate of the Rural Development Commission is to facilitate the empowerment of local rural communities, especially those living in poverty and their organizations. A number of facilitation and alleviation programmes are available to the people of Barbados.

There is slow progress towards full use of waste management systems in the rural areas which include waste prevention and minimization, reuse and recycling, and environmentally sound disposal facilities.

Economic incentives to promote adaptation of low cost technologies pertaining to the areas of rural development are part of the packages and programmes implemented by the various departments across several government ministries.

b. Lessons learnt

Integrated rural development planning requires extensive cross-sectoral consultation with several stakeholders and beneficiaries. Clear and comprehensive legislation is also a prerequisite.

c. Major Constraints and Challenges

Major problems faced in the development of rural areas include the lack of specific professional personnel and budgetary allocations although there have been significant increases in the last five years.

d. Recent Trends and Emerging issues

The integration of greater stakeholder concerns into the decision making process for rural development is still an issue although the practice is becoming more established. The funding of commercial enterprises in rural areas has become a priority, this includes all types of self-employed business that may be ongoing or new initiatives.

7.0 Best Practices of Sustainable Development – Agriculture, Drought, Desertification, Land and Rural Development

1. Administration of the Agricultural Incentive Package

Economic Justification: It is clear that in an effort to stimulate local food production as well as encourage sustainable farming practices, the Government of Barbados has over the years provided a package of incentives to the sector. This support has included the provision of grants, concessions, and rebates, which are made available to registered farmers in an effort to stimulate both food and non-food production as well as promote sustainable development. New areas addressed have included post harvest technology, organic farming, new crop technology and management of resources. These incentives appear to have reaped some success, with growth being experienced for most commodities.

Rationale for Incentives: As a result of incentives which offer financial support to farming and farm related enterprises, there are a number of benefits which accrue to both the recipients of incentives and the Ministry of Agriculture (MA):

- Encourage involvement in new technology and processes which are likely to enhance farm efficiency and productivity
- Encourage engagement in enterprises which are unfamiliar and in which farmers are hesitant to become involved
- Encourage practices which are environmentally sound and aesthetically pleasing
- Encourage practices which enhance animal welfare
- Show farmers that government is interested in their welfare and provide a basis for co-operation

Executive and Administrative Policy: The Government of Barbados has recognised the vulnerability of the agricultural sector especially in relation to new trade arrangements in the face of its contribution to commercial activity and the social and environmental fabric of Barbados. This position has been underscored for the past five years during each presentation of the Economic and Financial Policies of Government.

These have clearly articulated that agriculture is too vital to our way of life to lose faith in it, or allow it to vanish and demanded further that policies must:

- enable the sector to upgrade its technology and attract new investment especially in non traditional areas and;
- allow the sector to continue export diversification and reform of the traditional export sectors

When necessary, recommendations for additions or changes are submitted to the Ministry of Finance for inclusion in the annual Financial and Economic Statement. This forms the executive basis of the incentive scheme. Internal policies are directed by the managers of the scheme with the approval of the Minister of Agriculture and the Chief Agricultural Officer who both have the authority to make procedural changes.

Management of the scheme is farmer-friendly and encourages farmers to apply while ensuring that the policy of Government and the financial rules are adhered to. Farmers who are not in compliance are encouraged and assisted toward becoming compliant.

The Agricultural Services Unit (ASU): The Agricultural Incentive Scheme of the Ministry of Agriculture is managed by the ASU.

The unit currently provides a variety of essential functions including managing the scheme as follows:

- Promotion of the Agricultural Incentive Scheme using the print and electronic media and farmers' group meetings.
- Registration and provision of identification cards to farmers and revising data of registrants under the scheme including the removal of names of persons who do not qualify.
- Provision of recommendations for rebates and grants and processing of duty-free concessions and special concessions for agricultural inputs on behalf of the Ministry of Finance, Investment and Energy.
- Provision of recommendations to the Agricultural Development Fund for loans and other applications to the fund.
- Provision of recommendations on land use applications received from the Town and Country Development Planning Office (TCDPO) with the use of the GIS programme.
- Conducting valuation of plants and crops affected by road construction for Ministry of Transport and Works or other Government agencies.
- Investigation of applications under the Agricultural Holdings (Options to Purchase) Act, 1982.
- Supplying data to various Government ministries on request.

2. Biological Pest control programmes

Over the past 10 years the Entomology Section of the MA has dealt with the control of some 16 invasive species. These include the Pink Hibiscus mealybug, Papaya mealybug, West Indian fruitfly, Citrus Leafminer, Asian Citrus Psylla, Cycad Aulacapsis scale, Chilli thrips and the Giant African Snail: The Entomology Section has a long and

distinctive history in the area of biological pest control, which is the most environmentally friendly means of pest suppression and control.

This started in the early 1920's with the Sugarcane mothborer and continued with a wide range of other pests including the citrus blackfly. More recently, Pink Hibiscus mealybug, Papaya mealybug and citrus leafminer have been brought under excellent biological control and similar programmes are underway for the West Indian fruitfly, Asian Citrus Psylla and Cycad Aulacapsis scale.

The Section also focuses on Integrated Pest management (IPM) and is in the process of developing an IPM programme for the major pests of cotton, including the Pink Bollworm through the use of pheromone mating disruption and Chilli thrips and Tobacco budworm through the use of selective insecticides and the preservation of natural enemies like parasitic wasps and predatory lacewing and pirate bugs.

Additionally the use of biorationals, new pesticide formulations and active ingredients based on organic products) to supplement and in some cases replace pesticides currently being used will be one programme that will be concentrated upon. These products are not only more pest specific but have the additional features of being environmentally friendly, including not killing beneficial organisms

3. Land Use Policy

Barbados is a Small Island Developing state that has approximately 430 sq. km of land space, with a population of just over 292,000 people. It is the most densely populated country in the western hemisphere. Land is a scarce and extremely valuable commodity that must be carefully managed. Several competing sectors have to rationalize and prioritize its use.

A land use policy that is too flexible as to allow *ad-hoc* change of use for competing sectors presents difficult and complex development planning challenges and very often retard sustainable development initiatives. The ideal situation should include balanced development that especially protect peoples aspirations and food security issues.

Since 1970, Barbados has developed a comprehensive Land Use Policy, the Physical Development Plan (PDP). The implementation of that plan has assisted Barbados in achieving a quality of life that is envied by many. The Policy was recently amended in 2003 and a summary of the amended PDP is shown in **Annex C**.

4. The irrigation scheme

Agriculture is still an important sector for Barbados although its contribution to GDP has been severely eroded from around 60 % in the

1970s to approximately 6% in 2007. Over six thousand persons are still directly employed in the sector and its ancillary services.

The Barbados Agricultural Development and Marketing Corporation (BADMC) under the Ministry of Agriculture has established an irrigation scheme for both urban and rural farmers, with many progressive features, and also offering free technical advice to farmers. There is a 40 % rebate on irrigation systems and the cost of the water from the irrigation scheme is also subsidized.

The irrigation network system is nearly island wide, it covers nearly all of the southern regions, the eastern and south eastern regions have four systems. Another system is in the central region in Haggatt Hall and services three districts, and the Pine Basin is functioning well.

The project will soon see the implementation of a new pilot project involving about thirty farmers that will demonstrate the use of tensiometers which can assist in reduced water wastage.

5. The Solar Water Heater Model

The Solar Water Heating Industry has been extremely successful in Barbados and is now a model that is being emulated in many countries across the regions of the world. This example of a renewable energy source for heating water has been successful largely in part because of the tax incentive support scheme designed and implemented by government. This programme is well documented and can be viewed online at <http://www.bajanpower.com>.

6. Promoting equal access for men and women to land holdings and title

The issue of land tenure and security is a critical one for many developing countries. The ownership of land by individuals and or communities is one that is being addressed through the UN system right now especially in the Indigenous Peoples fora. The Beijing Platform also addressed the disparity between men and women on several different levels and across many issues.

In Barbados, the issue has been resolved to a large extent for decades. While some policy matters pertaining to gender have been dealt with adequately and some still remain unresolved. The issue of land rights and tenure were discussed in the 1960s and some resolutions were formulated. Therefore, policies and laws providing for equal access for men and women to land holdings and tenure have been in place since 1968. The Town and Country Planning Act(1968)[Amended 2003] provides for land and water rights and legal security of tenure for all individuals irrespective of gender.

With a large number of single female-headed households in Barbados this Act has contributed significantly to the quality of life for many Barbadians.

7. The Integrated Assessment approach to land use

The socio-economic and environmental linkages are often not clearly articulated in many of our national developmental programmes, and this can adversely affect the sustainability of those programmes. Barbados has done a comprehensive study on integrated assessments of these three broad pillars of sustainable development; the particular sector used was land resources.

Integrated assessments of socio-economic and environmental potentials of land resources have been recommended in the Environmental Management and Land Use Planning for Sustainable Development Project, the study was completed in 1998. The framework and approach are outlined in the instrument. The entire study is also available from the Ministry of the Environment, Water Resources and Drainage.

8. Land for the Landless Programme

We use the natural resources at our disposal to engage in economic activity that can benefit our social development priorities. One of the most basic resources is land and many potential producers do not have access to this scarce productive base. The Government of Barbados has been attempting to address this need in a more structured way for the last decade.

The land for landless farmers programme started in 2001 and has progressed steadily. The total Public and Private lands available to the BADMC for distribution in 2006 were 220.5 acres and 204 acres respectively. The total public and private lands currently in production are 204.0 acres and 100.0 acres respectively. These lands are allocated to livestock, root crops, vegetables and orchard production. The land for landless programme receives an average of eighty new applicants each year. The BADMC also has provisions for foreign investors to make application to the land bank.

9. Ecologically sound approaches to farming

Consumers are fast recognizing the benefits of eating healthier foods. Along with the ever-increasing cost of agricultural inputs, it has become urgent that we address in a more sustained manner the issue of ecologically sound agriculture. In an effort to produce healthier foods and in some cases reduce the cost of production, farmers with the support of the Ministry of Agriculture have been exploring different technologies for agricultural production.

There have been some attempts of local community-based programmes to sustainably enhance the productivity of land and the efficient use of water resources. The Bawden's Group in St Andrew and the Organic farmers in the Codrington College area have developed environmentally friendly technologies and methodologies for farming.

The organic farmers have formed a network and an umbrella group, most of them operate from out of the eastern part of the island. In the parishes of St. John and St. Andrew, the farmers are as sheltered as they can be from the potential 'contaminations' of pesticides agriculture. They still have significant challenges to overcome but have demonstrated that healthy food can be produced economically.

The use of protected cropping (greenhouses) would also assist greatly in promoting more environmentally sound farming practices, since closed system farmers would be afforded the opportunities to utilise strategies not based on the use of more harmful alternatives. For example the use of *Encarsia formosa* for the control of whitefly and use of insect proof netting to reduce insect populations.

10. Co-management Approach to Natural Resources

A multi-stakeholder approach to management is being promoted through out the United Nations System. Non-state actors are being integrated into several levels of management and decision making.

In Barbados, the fisheries sector has developed a framework for the management of the fisheries resources and associated habitats. The objective of the government in this initiative is to promote co-management within the fisheries sector so that stakeholders are involved in implementing measures aimed at protecting and preserving the fisheries resources. A framework was developed to facilitate the strengthening of fisher-folk organisations through technical and developmental assistance and actively promoting co-management and community-based management approaches.

A multi- sectoral committee has been able to identify persons from among stakeholders to act as change agents; and develop strategies to effect behavioural changes among fishers; prepare and distribute user-friendly information on the fisheries management issues; mount extension programmes that focus on the educating fishers and the public on fisheries management issues and practices; establish strategic alliances between the industry and the coast guard to ensure protection of fisherfolk on the high seas.

11. Rural Development Commission

In many countries including small island developing states most of the development is in the urban corridors or coastal areas. Barbados has

been able to successfully develop the rural areas to the point that it has become difficult to technically define the rural corridors. The formation of the Rural Development Commission helped to fast track those developmental programmes in the rural areas.

A Rural Development Commission Act has been in place since 1995. It provides for the establishment of a rural development commission that would, *inter alia*, provide for the improvement of social amenities, assist small farmers and establish and develop cottage industries in rural areas. (ACT 1995/12)

The integration of rural development strategies into Poverty Reduction Strategies (PRSPs) or other economic/development strategies have become commonplace in Barbados. The commission has been able to deliver significantly on several infrastructural and services needs, they have built roads, repaired and replaced new homes, sunk and cleaned wells and septic tanks and cleanup in several areas.

12. The Beautify Barbados programme

Beautify Barbados is a programme designed to inculcate sound environmental practices amongst Barbadians via beautification of the major highways of the island, and encourage the establishment of green spaces.

The programme promotes a concept of maintenance of open spaces rather than simply de-bushing areas. The programme also exposes the public to new techniques in landscape design, including water conservation and xeri-scaping, i.e. the use of drought tolerant plants. The programme also trains a cadre of workers that have the opportunity to develop their skills in landscaping.

The programme enhances vistas along the highways; and encourages individuals, businessmen, and communities to participate in the care and beautification of their surroundings.

13. Mainstreaming Sustainable Consumption and Production in the Central Rural Communities: De Heart of Barbados©(DHUB)

The DHUB programme establishes the basis by which Barbados can adequately assess and promote its sustainable consumption and production patterns in relations to agriculture, tourism and rural development. DHUB is unique in that it has extensive and accessible gully and cave systems, and has been designed as a protected Zone of Special Environmental Control (ZSEC). This ZSEC was established to protect the system of gullies and caves that are conduits to the underground aquifers for potable water. The area has also received

international fame as the birthplace of the grapefruit [Bot. '*citrus paradisi*'.]

The network of communities in DHUB has collaborated with the Government of Barbados from 1999 to host a weekend of activities which celebrate the natural, cultural and rural features of the area. A survey done in 2006 indicated that both locals and visitors would support these types of initiatives and buy more local commodities if the price was favourable.

The programme has agri-business, agro-tourism and agro-processing potential and can be developed to facilitate and encourage small and medium size business ventures.

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Table1: National Programmatic Areas that Best Practices Fall Under

NAME OF PROJECT	IMPLEMENTING AGENCIES AND PARTNERS	PROJECT IMPLEMENTED WITHIN FRAMEWORK OF THE NAP/SRAP/RAP	TIMEFRAME
Lady Bird Programme	Ministry of Agriculture	National Action Plan (NAP)	On going
Land Use Policy	Ministry of the Environment, Water Resources and Drainage, MAR, Town and Country Development Planning Office	NAP	On going
The Irrigation Scheme	BADMC	NAP	On going
Solar Water Heating	Ministry of Finance, Investment and Energy and the private sector	NAP	On going
De heart of Barbados©	Natural Heritage Department and the 'Grapefruit and Molasses Foodies'	NAP	On going
Rural Development Commission	Ministry of Social Care, Constituency Empowerment, Urban and Rural Development	NAP	Ongoing
Integrated Assessment Approach to land use	Town and Country Development Planning Office	NAP	On going
Coastal Infrastructural Project	Coastal Zone Management Unit	NAP	On going
Beautify Barbados	Natural Heritage Department (NHD)	NAP	On going
National Conservation Commission (NCC) Beach Revegetation Project	NCC	NAP	On going
Promoting equal access for men and women to land holdings and title	Town and Country Development Planning Office	NAP	On going
Ecologically sound approach to farming	SCU, FAO, Agriculture Cooperatives	NAP	Ongoing

8.0 New Policy Directives for 2008 that Addresses Substantive Issues, as well as Cross Cutting Issues of Sustainable Development.

1. New Approach to Governance

Following general elections the new administration has put in place a governance advisory board. The board has been appointed with a mandate to advise the minister on matters relating to the establishment of a legislative regime to foster good governance in the public sector, and ultimately the country.

The board will, with the assistance of legal advice prepare draft legislation in the following areas:

- Integrity (to include declaration of assets by public officials, and a code of conduct for ministers);
- Defamation;
- Freedom of information;
- New Constitutional provisions to rationalize the powers of the Prime Minister.

In addition, it will advise on a comprehensive public education programme on matters of good governance. The board will also address matters of the role of the Ombudsman and a Contractor General. It was proposed that draft legislation will be completed by the end of 2008.

2. Provision of Additional Educational Opportunities

The Government in collaboration with the University of the West Indies has agreed to establish a Medical Faculty in Barbados from September 2008. This programme will mean that twenty-five (25) Barbadian Youth will be able to pursue their medical studies in Barbados and this also translates into reduced cost to them. Ten students will still have the option to go overseas to study medicine in Jamaica or Trinidad and Tobago.

3. Provision of policy space for the participation of citizens in local decision making and development planning

Thirty Constituency Councils will be established to enable ordinary Barbadians in communities, to participate in the process of deciding what needs to be done in their constituencies and to link residents in a meaningful way to Parliament and Central Government. This initiative will devolve greater responsibility and authority to local people to decide on programmes and projects that will impact directly on their quality of life. These councils will be put in place by the first quarter of 2009.

4. Provision of housing solutions

The National Housing Corporation will provide low-income housing for qualified applicants. The housing authority is intent on facilitating two thousand housing

solutions annually. A special unit will be set up to achieve those goals. The programme started immediately in 2008. Banks and insurance companies that support this programme can benefit from a reduced corporate profit tax on the profits made from such lending.

5. Expansion of Health care access

Discussions have been initiated with the labour unions to enable all the polyclinics to open longer and to open twenty-four hours a day where research show that those services are needed. The central premier hospital will also be expanded and upgraded to the tune of US\$200 million.

6. Reduced subsidy from potable water

The Barbados Water Authority will be rationalized and fall under the ambit of the Fair Trading Commission. The price of water for end-users will be fairer and the Government will reduce its subsidy which is a huge burden on the national budget.

7. New Tourism Master Plan

A new unit in the Ministry of Tourism has been established to develop a new Tourism Master Plan. The new plan will look at the tourism development strategy in a holistic way addressing the tourism product, land use policy, marketing, carrying capacity and linkages to other sectors. The marketing programme has already started and is estimated to cost an additional US\$ 5 million. A specific component of the programme will focus on the Diaspora market.

The Tourism Development Act will also be amended to provide a gradation of concessions related to tourism-related investments.

8. Land Use Policy

A new land protection policy has been announced which protects our East Coast from Pico Teneriffe to Skeetes Bay as a national park area and from purchase of land by foreign buyers. The policy is not xenophobic but an attempt to protect the island's patrimony.

An Agricultural Protection Bill is being drafted which will protect large areas of agricultural land and require the approval of parliament for the change of use of land areas of 100 acres.

9. Access to Agricultural concessions

All farmers entitled to concessions will get them up front and on the basis of the annual inspections which the Ministry of Agriculture will be required to conduct for the issue of farmer's licenses.

Persons engaged in aquaculture will now have the same type of incentives and access to capital as do other farmers.

10. Regional Transport

Government will pursue the construction of a terminal for private jets in the north of the island. It will also build a new cruise ship pier and facility in the north of the island to reduce congestion at Bridgetown port. The government has also discussed the investment in a regional ferry service.

11. Energy

Government will take the lead using its properties in the generation of electricity from solar, wind and waste for its own facilities and for sale into the national electricity grid. The initiative will also be accompanied by any necessary fiscal incentives to encourage the efficient generation of energy from these alternative sources. Government will continue to press ahead with the search for off shore oil and gas. Work on the waste-to-energy complex at Vacluse should be complete by July 2009 and will provide between 6 to 8 megawatts of power to the grid, when commissioned.

A new and separate allowance called the Energy Conservation and Renewable Energy Deduction has been created. It allows a deduction of up to five thousand dollars per year over five year to cover the cost of an energy audit and fifty per cent of the cost of retrofitting a residence or installing a system to produce electricity from a source other than fossil fuels. It also applies to businesses whether incorporated or not.

The Cabinet has already approved the Government approaching the Inter-American Development Bank (IADB) for assistance in preparing the appropriate legislation that would be require the Barbados Light and Power Co. Ltd. purchase all the electricity produced from renewable energy sources. The rates of the electricity from independent producers will be set by the Fair Trading Commission.

12. Physical Planning Decisions

Government has given consideration to shorten the time for decisions in respect of planning permissions on developments to be made without in any way reducing the carefulness and due diligence of the process. Work has already started on putting some of these arrangements in place including the hiring of professional town planners in private practice to assist with the case load and to delegate certain powers now exercised by the Minister to the Chief Town Planner.

13. Trade Facilitation

A tripartite council called the Council for Investment, Exports and Foreign Exchange (CIEX). It has a mandate to develop, exploit and monitor opportunities for earning and conserving foreign exchange; to identify and remove operational constraints to the earning of foreign exchange and to

coordinate and monitor an overall strategy for promoting Barbados' economic interest abroad.

The government has designed a new policy directive aimed at restoring the relationship between residents and the tens of thousands of Barbadians living overseas. The Diaspora is viewed as an integral part of the economic, social and cultural development of Barbados.

A unit for Overseas Barbadians will be established and called the Barbados Network. They will review incentives, create a bond to encourage investment, develop a data bank and host a biennial consultation of all Barbadian organisations.

14. Corporate Social Responsibility and Philanthropy

The government signalled its intentions and the work has started on setting up a foundation for corporate social responsibility and philanthropy designed to provide a legal framework for high net worth individuals to make contributions to local development in a more tangible way. Several Barbadian businesses currently make contributions to diverse community events but the scope of their contributions are limited by the inadequacy of the current domestic fiscal and legal regime governing charitable donations. The new policy and legal framework will address these issues.

15. Economic Innovation

A national imperative is to grow the size of Barbados' economic base and increase the net growth rate in order to induce sustainable economic growth and several other development priorities. The Government therefore proposes to establish the Barbados Quick Response Revolving Seed Capital Fund (SCF) and the Barbados Quick Response Venture Capital Fund (VCF). Those funds are designed to meet the needs of clients that have potentially profitable and sustainable high-growth business ideas but find it difficult to access all the seed and venture capital finance required.

PART III: Draft Profile on National Sustainable Development Strategies and Indicators for Sustainable Development

a. Strategy Title: The Barbados Sustainable Development Policy (BSDP)

Strategy website: <http://www.un.org/esa/sustdev/natlinfo/nsds>.

Coordinating Body: The National Commission on Sustainable Development (NCSD)

Coordinating Body website: The website which will be included in the website of the Environment Division is currently being developed.

Strategy Status: The BSDP is being implemented

Date of Adoption: In 2002, the Barbados Sustainable Development Policy was finalized by the National Commission on Sustainable Development (NCSD) and the Environment Division. It was approved by Cabinet in 2003 and was laid in Parliament in January 2004.

Strategy contact:

The Permanent Secretary (Environment)
Ministry of the Environment, Water Resources and Drainage
1st Floor, S. P. Musson Building
Hincks Street
Bridgetown, BB11144
Barbados
Tel: 246-467-5700
Fax: 246-437-8859
E-mail: becklesp@gob.bb

Additional Information: The Environment Division will soon commence an assessment of success of implementation of the Barbados Sustainable Development Policy. Conservative estimations indicate that over 80% implementation has been achieved.

b. Information on Indicators for sustainable development

Name of indicator set: National Indicators of Sustainable Development.

Indicators website: The website which will be included in the website of the Environment Division of the Ministry of the Environment, Water Resources and Drainage is currently being developed.

Date of last update: 2000

Indicators contact:

The Permanent Secretary (Environment)
Ministry of the Environment, Water Resources and Drainage
1st Floor, S. P. Musson Building

Hincks Street
Bridgetown, BB11144
Barbados
Tel: 246-467-5700
Fax: 246-437-8859
E-mail: becklesp@gob.bb

Additional Information:

Following the announcement by the Minister of Finance of Green Economy Fiscal and Economic Proposals in 2007, with a call for the establishment of a task force to develop targets and indicators of Green Economics and Sustainable Development and building upon the national initiatives already in existence, a Technical Working Group (TWG) was assembled to articulate an initial list of indicators of the Green Economy. This initial list has been prepared and is currently under review.

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Annex A: List of Stakeholders Consulted

1. Barbados Agricultural Development and Marketing Corporation
2. Barbados Statistical Service
3. Caribbean Agriculture Research and Development Institute
4. Caribbean Development Bank
5. Coastal Zone Management Unit, Ministry of the Environment, Water Resources and Drainage (MEWD)
6. The Environmental Protection Department, (MEWD)
7. Food and Agriculture Organisation
8. Inter-American Institute for Cooperation on Agriculture
9. National Conservation Commission, Ministry of the Environment, Water Resources and Drainage (MEWD)
10. Natural Heritage Department, MEWD
11. Pinelands Creative Workshop
12. The Ministry of Agriculture
 - a. Meteorological Services
 - b. Dr. Beverly Wood, Government Analytical Services
 - c. Michael James, Plant Pathology Department
 - d. Ian Gibbs, Entomology Department
 - e. Glenn Marshall, Soil Conservation Unit
 - f. Dr. Dennis Blackman, Senior Agricultural Officer
13. The Ministry of Economic Affairs, Empowerment, Innovation, Trade, Industry and Commerce
14. The Environmental Unit, (MEWD)
 - a. Travis Sinckler, Senior Environmental Officer
 - b. Nicole Scholar, Environmental Officer
 - c. Amrikha Singh, Environmental Officer
15. The Town and Country Development Planning Office
16. University of the West Indies, Cave Hill Campus
 - a. Department of Biology, Faculty of Science and Technology
 - b. Center for Resource Management and Environmental Studies, Faculty of Science and Technology.

Annex B: Excerpts from the Barbados Sustainable Development Policy

AGRICULTURE

Sustainable agriculture optimizes the use of renewable, locally available resources and farming practices and ensures that sustainable farming technology is passed on to future generations for their continued benefit. In addition, it is envisaged that productive economic and environmental conditions with respect to the agricultural and food production sectors will be maintained into the future.

The overall policy objective is to pursue sustainable agriculture through the implementation of a strategy which preserves, conserves and sustainably uses the island's agricultural resources. Some considerations for ecological efficiency encompassed within the sustainable agriculture policy include:

- biodiversity preservation
- maintenance of water purity
- efficient and conservative water use
- conservation and improvement of chemical, physical and biological qualities of the soil
- energy conservation
- natural resource recycling and reuse where possible
- cultural appropriateness
- scientific inputs
- economic viability
- utilization of local renewable resources
- minimisation of external and purchased inputs
- minimization of synthetic pesticide and fertilizer inputs
- promotion of organic fertilizers
- research and development of appropriate biological pest control methods
- integrated crop management practices wherever possible

Specific policy objectives for sustainable agriculture include:

5.1 Formulating Barbados' agricultural policies via an integrated approach involving all concerned stakeholders and interest groups, with a view to ensuring sustainable domestic food production and food security and food safety;

5.2 With respect to food safety, the following recommendations are made:

- Develop national pesticide residual levels standards for food stuff both local and imported
- Develop national/regional capacity to monitor Maximum Residual Levels in food stuff , both local and imported and for food that is exported
- Develop national/regional capacity to screen genetically modified foods
- Barbados should as a policy, a Adopt the Precautionary Principle as a policy with respect to genetically modified foods.

- 5.3 Carry out critical assessments of existing land use policies and legislation and amendment where necessary to ensure the sustainability of the agricultural sector;
- 5.4 Identify key areas of agricultural importance in Barbados with a view to optimizing the use of limited biological resources which are suitable for agriculture;
- 5.5 Strengthening or development of mechanisms to assist small farmers in marketing and maintaining a constant supply of produce to hotels and the tourism sector in general;
- 5.6 Supporting farm and crop diversification as well as general production enhancement, through infrastructural developments and support such as:
 - sustainable irrigation where necessary
 - market facilities
 - transport services for products
 - education programmes on sustainable cultivation practices
- 5.7 Supporting and encouraging farmer training programmes which build awareness of sustainable cultivation practices;
- 5.8 Offering incentives, especially economic incentives, for sustainable agriculture production practices;
- 5.9 Promoting via suitable incentive schemes, the use of hydroponics to increase domestic agricultural production and self-sufficiency in food production to ensure efficient use of land by the agricultural sector;
- 5.10 Maintenance of networks to disseminate information on these practices to other farmers to encourage their adoption;
- 5.11 Strengthening national commitment of technical, financial and human resources towards agricultural research. This should include investigations into:
 - opportunities and risks posed by bio-technology
 - appropriate crop alternatives and possibilities for agricultural diversification
 - alternative crops associated with less environmental “damage”, for example water intensive species verses xerophytic species
 - Best Management Practices for cultivation schemes
 - presence and levels of chemical residuals and/or environmental contaminants in soils
 - presence and levels of chemical residuals and/or environmental contaminants in food products which have been domestically produced and/or imported
- 5.12 Establishment of an effective and comprehensive data collection system and information dissemination service for the agricultural sector;

5.13 Within the sub-area of genetic resources for sustainable agriculture, the following recommendations are made (see also the section on biotechnology below):

5.13.1 Strengthening research into plant and animal genetic resources suitable for agricultural progress, including investigations into disease resistant strains of various crops, biological pest control agents, and alternative economically viable plants and animals;

5.13.2 Where appropriate, promoting crop diversification using cultivated strains of plants or animals which possess proven advantageous traits and no adverse effects on human health or the natural environment;

5.13.3 Dissemination of information on biotechnology and bio-safety among the agricultural sector as well as the general public;

5.13.4 Provision of training in the safe and sustainable development and use of plant or animal genetic resources for agriculture;

5.13.5 Development of programmes to preserve endangered populations of plants or animals which play a role in agriculture currently or may offer potential for future commercial development;

5.14 Within the sub-area of Integrated Pest Management (IPM) for sustainable agriculture, it is recommended that increased use be made of appropriate Integrated Pest Management practices and techniques to reduce chemical pesticide and fertilizer use in agriculture and to develop and introduce suitable biological controls for pest infestations. Policy recommendations in support of Integrated Pest Management include:

5.14.1 Establishing programmes to monitor the incidence of crop diseases and pest infestations;

5.14.2 Recording in computerized form baseline information on the use of pesticides for crop maintenance in Barbados and the human and environmental side effects of their use;

5.14.3 Research into non-chemical pest management techniques which make use of pesticides that degrade to harmless substances and are suitable for use in Barbados;

5.14.4 Establishing programmes to control, via suitable IPM practices, the incidence of crop diseases and pest infestations in Barbados;

5.14.5 Provision of education programmes on available and reliable options for pest management in agriculture which offer an alternative to chemical pesticides and support Integrated Pest Management techniques;

5.14.6 Reformulation of national policy to ensure the appropriate use and management of pesticides, especially those recognized as potentially harmful to human health or the natural environment;

5.15 With respect to energy conservation for sustainable agriculture, encouragement and support will be lent to the use of alternative renewable energy sources as well as improving the efficiency with which energy is utilized within the sector. Specific policy recommendations include:

5.15.1 Intensifying research into agricultural energy demands and options for improving the efficiency with which energy is used;

5.15.2 Development and use of alternative renewable energy sources and technologies suitable for integration into the agricultural sector in Barbados;

5.15.3 Execution of education programmes for farmers and other interest groups on the environmental and financial benefits of employing practices which maximize efficient energy use is used, or exploit renewable energy sources.

5.16 Wherever possible harness traditional knowledge within the industry with specific attention paid to sustainable technologies and practices

LAND RESOURCES

Policy recommendations for sustainable land use span many sectors. Reference should be made to other sections within this policy paper including but not limited to transport, the built environment, waste management, agriculture, biodiversity, coastal and marine resource, and fresh water resources. Policy recommendations towards achieving sustainable land use include:

12.1 Continued maintenance by the Town and Country Development Planning Office of a computerized Geographic Information System (GIS) land use database for Barbados;

12.2 Use of the GIS land use database to facilitate the coordination, collection, storage and sharing of land use information with governmental agencies and other interest groups;

12.3 Use of the GIS land use database for national development planning, review of planning/development applications, and general decision and policy-making with regards to sustainable land use;

12.4 Ensuring that such data as defined above is available for use by interested individuals including in particular contractors, architects and engineers, so that they too are in a position to promote sustainable land use programmes;

12.5 Integrating concerns for sustainability into the establishment of future national land use plans and policies (especially the Physical Development Plan) and amending or enacting relevant legislation so that the Physical Development Plan becomes legally binding by all parties including the crown.

12.6 Any changes to the Physical Development Plan (PDP) after the Development Application approval process should be transparent with clearly stated reasons when decisions are in conflict with the guidelines in the PDP. The PDP should be amended to reflect any changes in land use.

12.7 Application by the Town and Country Development Planning Office of the requirement that an Environmental Impact Assessment be conducted and submitted to an Environmental Committee for consideration prior to deciding on approval or denial for certain applications to that office;

- 12.8 Approving land use plans and developments based on the requirement that the development does not adversely effect the environment or inhibit national sustainable development;
- 12.9 Researching options available for more efficient utilization of limited land space, including a possible revision of current building height restrictions;
- 12.10 Designating Areas as where hazardous chemicals are used as hazardous sites, particularly if the land use is to be changed.

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Annex C: National Strategic Plan (NSP) Summary 2006 - 2025

Barbadian Traditions provides the blueprint for the realization of Barbados' vision of becoming a fully developed society that is prosperous, socially just and globally competitive by the end of the first quarter of this century.

The Plan first presents an economic and social picture of Barbados as it sets out on its journey. This picture, sketched from the last twelve years, shows a Barbados that has achieved remarkable economic and social progress. One defining indicator of this performance is its 29th ranking among all countries in the world in the **United Nations Human Development Report 2004** and its designation as a leading developing country.

This picture further highlights Barbados' strengths, weaknesses, opportunities and threats. The analysis supports the firm conclusion that Barbados can secure its desired place in the world as a fully developed society that is prosperous, socially just and globally competitive.

The Plan embodies the theme "**Global Excellence, Barbadian Traditions**". This theme conveys the message of a Barbados that is a successful and globally competitive society, fully integrated into the world economy, but at the same time capable of preserving and strengthening its own identity, enterprise, national sovereignty, and traditions.

There is also a set of core values that provides an ethical framework for the transformed Barbadian society we envisage. The Plan advances **six strategic goals** in pursuit of the national vision for 2025.

GOAL ONE speaks to a cultural transformation that will reinforce Barbadian values and national identity and act as a catalyst for propelling Barbados into the 21st century as a fully developed society. This goal will seek to create greater equity and social justice, while building an inclusive society with opportunities for all.

GOAL TWO envisions vastly improved governance. It foresees a Barbados with a "fully Barbadianised" constitution free of all vestiges of colonialism; a modernized parliamentary and electoral system; greatly enhanced political participation and the empowerment of all communities. It also envisions a radical overhaul of the administrative machinery of government as a catalyst for change, while also strengthening civil society as a critical part of the governance for the 21st century. It further envisages that there will be higher levels of self-reliance, less dependency on the state and greater diversity and tolerance.

GOAL THREE places people at the heart of the development process. It promotes the building of social capital. This involves the development of the human resources necessary to function in a knowledge-based services economy and the creation of appropriate family and community values. This calls for a revolution in education which will unlock the productive potential of all Barbadians. A good quality of life will also be paramount and, therefore, a well-developed public health system and the eradication of poverty from our social landscape will all be part of this social transformation.

GOAL FOUR requires the protection, preservation and enhancement of our physical infrastructure, environment and scarce resources as we seek to advance our social and economic development. It demands that we find the right balance between our development and the preservation of our physical surroundings. It calls for access to adequate water and energy supplies, a good transportation system and the development and maintenance of sound infrastructure.

GOAL FIVE seeks to enhance Barbados' prosperity and competitiveness in the world economy. This will require rapid and radical transformation in the way we carry out our productive activities. We must identify those areas of economic activity that are viable and competitive, and that can contribute to sustainable growth, employment and overall prosperity for everyone. Focusing on the export of services such as tourism and international business, while exploiting new ones such as culture and health, will all contribute to a more diversified and prosperous economy.

GOAL SIX calls for us to continue consolidating our image in the world. This image has served us well and has brought us considerable international respect since independence. Our political stability, education, democratic governance and good leadership have all earned for Barbados worldwide recognition. Our duty will be to continue to show others how a small country can be successful and yet retain its identity; in other words, we have to brand Barbados globally.

The above-mentioned goals are explained in detail in Section VI. Section VII presents the national objectives, strategies and targets of each goal. Collectively, the goals, national objectives, strategies and targets provide the road map to a fully developed Barbados. There is a planning matrix at Section X that summaries all the goals, national objectives, strategies, targets and indicators for ease of reference.

The Appendix provides an indication of the key objectives and strategies that will guide the development of the individual sectors - economic, social, governance, infrastructure and environmental - over the next 20 years. Section VIII indicates that substantial financial resources will be required to bring about the fundamental transformation of Barbados by 2025.

The National Strategic Plan will be updated to take into account the views of the private sector, labour and civil society and changes in the economic and social environment. The preparation of periodic sectoral strategic plans, at five-yearly intervals, will be undertaken to help shape revisions to the National Strategic Plan. The Ministry of Finance and Economic Affairs will work with Government Ministries, Departments and Statutory Bodies, the private sector, labour and civil society to prepare the detailed sectoral plans.

The Ministry will also be responsible for ensuring that the review, monitoring and implementation of the goals, national objectives, strategies and targets are effectively undertaken. The Ministry will therefore be strengthened by the creation of a special unit whose mandate will be to oversee the implementation of the National Strategic Plan.

The National Economic Council, with expanded membership, will provide the overall oversight and guidance. The formulation of the National Strategic Plan has benefited from the collective effort of the public sector, private sector, labour and civil society. In 2003, the Cabinet established a Working Group on Strategic Planning which fashioned the vision and identified the broad strategies for its realization. The vision and broad strategies were endorsed by the Cabinet in 2004.

Draft sectoral strategic plans prepared by the public sector were also instrumental in the preparation of the Plan. In addition, consultations within the framework of the Social Partnership were essential inputs into the formulation of the National Strategic Plan. Representatives of the private sector, labour and civil society reviewed the Plan in its draft form.

Annex D: Physical Development Plan (PDP) Amended [2003]

Since 1970 there has been a comprehensive land use policy, the Physical Development Plan (PDP), in Barbados. The first PDP was developed in 1970 with a ten year plan period that lasted until 1985 because the PDP became operational in 1976. Barbados is currently into its third revision of the national Physical Development Plan with the most recent document having been amended in 2003¹.

The legal basis for the preparation of the PDP is the Town and Country Planning Act, Cap 240 which requires the preparation of Development Plans for the whole island or parts of the island.

The PDP is a useful planning tool that seeks to create a direct link between national development and land resources by ensuring the allocation of adequate land to support economic development, social development and environmental conservation. This is achieved by allocating land space for all economic activities including agricultural, industrial, residential, commercial and recreational land uses.

The PDP is used to ensure the orderly, progressive and proper development of land in Barbados by reducing or preventing adverse conflicts between and among competing land uses. The PDP is used to achieve social, economic and environmental outcomes. The PDP amended 2003, which has adopted the notion of sustainable development and embraces the following basic planning principles:

- emphasis on the protection of the natural environment and cultural heritage resources;
- establishment of criteria and procedures for Environmental Impact Assessments (EIA);
- a national development strategy which aims to minimize scattered urban development, by concentrating new growth into a defined urban corridor;
- protection of agricultural lands from incompatible urban development;
- promotion of a strong diversified economy through land use policies which encourage a wide variety of locations throughout the Island;

The PDP amended 2003, contains a number of social development goals aimed at the addressing the following issues:

- Growth Management and Agricultural Preservation;
- Housing
- Social and Community Facilities
- Cultural Heritage

The PDP amended 2003, contains two main economic development goals:

- to promote further diversification and expansion of the national economy, while at the same time promoting the efficient use of land and the protection and conservation of significant natural and heritage features;
- to assist in the achievement of national economic development goals by ensuring that sufficient land is available to meet the needs of the various economic sectors.

The PDP amended 2003, contains three main environmental goals:

- to conserve and manage natural resources for valued ecological functions and to provide an improved quality of life for the residents and future generations of Barbados;
- to advance public awareness and appreciation of the essential linkages between the environment, quality of life and sustainable development;
- to limit the unnecessary and inefficient use of fossil fuels, by promoting environmentally friendly sustainable modes of transportation.

The PDP as a planning instrument is not governed by rigid zoning policies. The PDP is operated as a flexible guideline with a few exceptions where it is necessary in the interest of public health and safety to enforce strict guidelines². In a perfect world scenario economic efficiency would

¹ The second PDP was prepared in 1983 and adopted in 1998.

² For example, there are strict planning zones to protect the ground water resources; and in controlling the use of lands surrounding the airport.

expect that a scarce resource would be diverted to uses which result in maximum net benefits to the society. In Barbados the land use model may best be described as a hybrid where both market-driven and plan-led approaches co-exist.

The land space of Barbados has been divided into three main physical planning units:

1. The Urban Corridor where there is a presumption in favour of urban settlement development;
2. The Agricultural green belt where there is a presumption in favour of agricultural development interspersed with rural villages and hamlets;
3. The National Park area where the presumption is in favour of resource conservation, amenity and open space development.

The PDP amended 2003, contains specific strategies consistent with the overall objectives of the three broad planning units, *viz*:

1. New settlement growth is confined to the Urban Corridor. This will ensure the preservation of a predominantly urban landscape;
2. The Agricultural green belt is protected from incompatible urban development. In addition a minimum amount of agricultural lands have been designated for protection from conversion to non-agricultural use. This will ensure the preservation of a predominantly rural landscape ;
3. The designation and implementation of a National Park and Open Space system, including gullies. This will ensure the preservation of a predominantly open space and recreation area.

DRAFT

ANNEX E: Reporting on JPOI Target on Integrated Water Resources Management and Water Efficiency Plans by 2005- Barbados' Response

Background

The Johannesburg Plan of Implementation (JPOI) adopted by Governments, at the World Summit on Sustainable Development (WSSD) in 2002 called for countries to “develop Integrated Water Resources Management and Water Efficiency Plans by 2005”. This target was included in the JPOI in recognition of the strategic importance of improved water resources management in achieving the Millennium Development Goals (MDGs). The Commission on Sustainable Development (CSD) during its 13th session recognized that this target may not be met by all countries by the target date, and took a number of decisions to accelerate the implementation of this target.

IWRM and Water Efficiency Plans

The concept of “Integrated Water Resources Management” (IWRM) was introduced in its modern interpretation at the United Nations Conference on Environment and Development in Rio in 1992 (Chapter 18 of Agenda 21), and it has since that time evolved, somewhat differently in different countries, depending on their, geography, culture and stage of development.

The Global Water Partnership (GWP) has defined the IWRM as a process: “which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems”. Thus IWRM builds on three basic pillars: (1) an enabling environment of proper water resources policies and legislation; (2) an institutional framework of capable institutions at national, local and river basin levels, and (3) a set of management instruments for these institutions.

IWRM processes stress the management of water as a finite and vulnerable resource for which policy should be articulated in a cross-sectoral process which ensures that participation of representatives of sectors and stakeholder groups, is provided for in the policy processes. It also emphasizes the role of the basin for planning and water allocation between competing uses. It finally stresses that IWRM addresses *both* the management of water as a resource, *and* the establishment of a proper framework for provision of water services.

The Article 26 of the JPOI also makes reference to “*water efficiency plans*”. In fact, water efficiency is referred in two ways, namely “...to introduce measures to improve the efficiency of water infrastructure to reduce losses and increase recycling of water” and “to improve the efficient use of water resources and promote their allocation among competing uses...”. These are two rather different aspects of “efficiency”: the first dealing with the “technical water efficiency” of water infrastructure works; and the second dealing with overall water use. . Both forms of “efficiency” are integral parts of the “IWRM and water efficiency plans”, and could be addressed through measures ranging from policy and legislative reforms to awareness campaigns, implementation of economic incentives, technological innovations, and new financing structures etc.

The Questionnaire

Reporting to CSD-16 in 2008 on IWRM/Water Efficiency Plan target is sought through a questionnaire. It has been developed to accommodate different interpretations and modalities for water resources management reforms by not focussing only on the “IWRM plans”, but also on other elements of the enabling environment and on actual implementation of the reform processes. It provides opportunities for narrative explanations, where necessary, and it is open ended for any additional or alternative description of what is being implemented in the country in terms of water resources management strategies and reforms.

Part 1 of the questionnaire seeks information on the enabling conditions for water resources management reforms i.e. the strategies and plans as well as policies and legislation. It is important to note that even if there is no IWRM plan that has been labelled as such, other strategic water resources management policy or planning documents which could be considered as “equivalents or proxy” should be mentioned here. Part 2 provides an indicative list of main elements of water resources management policies, strategies regardless of these being the outcomes of a “proper” IWRM plan that has been labelled as such or of other planning processes. Countries are requested to provide some indication of their status of implementation by checking in the relevant box. Information about implementation and monitoring instruments pertaining to water resources management reforms is sought in Part 3. Part 4 calls for information about the impact of water resources management instruments in addressing the problems for which these instruments were designed and implemented. Finally, suggestions are sought about key issues and their possible solutions on which the debate during CSD-16 should focus for expediting the implementation of CSD-13 decisions.

Responses

An Inter-Ministerial Working Group was responsible for the completion of this Questionnaire. The membership is outlined below.

Name	Designation	Ministry/Institution/Organization	Tel/Fax Number:	Email Address:
Carlyle Bourne	Senior Agricultural Officer	Ministry of Agriculture	246-428-4150	aqual_barbados@yahoo.com
Anthony Headley	Deputy Director	Environmental Protection Department, Ministry of the Environment, Water Resources and Drainage	246-436-4820	enveng@caribsurf.com
Alex Ifill	Water Quality Analyst	Barbados Water Authority	246-425-9139	alexifil@caribsurf.com
Romel Watkins	Trainee Town Planner	Town and Country Development Planning Office	246-467-3000	rwatkins@townplanning.gov.bb
Amrikha Singh	Environmental Officer	Environmental Unit, Ministry of the Environment, Water Resources and Drainage	246-467-5704	singha@gob.bb

Part 1: Enabling conditions for water resources management (policies, legislation and plans)

1. Please indicate the stages of formulation and approval of key enabling instruments for water resources management in your country, by checking one of the five columns for each instrument.

Water Resources Management – Enabling Instruments	Not relevant	consideration	but not yet implemented	partially implemented	fully implemented
Main national instruments	1	2	3	4	5
a) Water Policy				✓	
b) National/federal water law				✓	

c) National/federal IWRM plan or equivalent strategic plan document				✓	
d) National/federal Water Efficiency Plan				✓	
Other national/federal strategies that may contribute to promoting IWRM:					
e) Poverty Reduction Strategy (PRS) with WRM component					✓
f) National Development Plan with WRM component				✓	
g) National Sustainable Development Strategies with WRM Component				✓	
h) National Environmental Action Plan with WRM component			✓		
International agreements on IWRM to which your country is party::					
h) Regional/sub-regional IWRM plans/strategies or their equivalent		✓			
i) Transboundary IWRM plans/strategies (river basins) or their equivalent	✓				

For enabling instruments that have been checked in columns 4 and 5 please provide details on name of document, year of approval. For items e–h, please also provide information on how they contribute to IWRM, if this is the case.

- Please provide text.
- o Barbados Storm Water Drainage Study, 1996
 - o Water Resources Management and Water Loss Studies, 1997
 - o Emergency Drought Management Plan, 1998
 - o Barbados Poverty Assessment Report, 1998.
 - o Environmental Management & Land Use Planning for Sustainable Development - Environmental and Natural Resources Management Plan, 1998
 - o The Coastal Zone Management Plan, 1999
 - o Agriculture Area Development Plan, 1999
 - o First National Communications to the United Nations Framework Convention on Climate Change (UNFCCC) 2001
 - o Green Paper on the Sustainable Development of Tourism in Barbados. A Policy Framework, 2001
 - o Draft Policy Framework for Water Resources Development and Management in Barbados, 2002
 - o The Barbados Sustainable Development Policy, 2004
 - o Gully Ecosystem Management Study, 2006
 - o Medium- Term Strategic Framework for the Agricultural Sector 2007-2009, 2006
 - o The National Strategic Plan 2006-2025, 2006
 - o Physical Development Plan(PDP) Amended 2003, 2007
 - o Green Economic Fiscal and Economic Proposals, Economic and Financial Policies of the Government of Barbados, 2007

2. If your country has an IWRM planning process or an equivalent water resources management planning framework in place, how was it developed and who developed it (e.g. developed using a multi-stakeholder process or developed by the relevant Ministry or through some other mechanisms etc.)

Please provide text.

Water management measures are implemented to achieve specific targets or standards. The management of water resources in Barbados can be summarized as:

a. Water Quality Management: The Barbados Water Authority currently has the legal responsibility of ensuring water quality under the Barbados Water Authority Act. The water quality of Barbados is protected and ensured at 3 levels. Firstly, the National Groundwater Protection Zoning Policy, 1963, protects the groundwater resource. Secondly, the water at the pumping station is disinfected to ensure biological safety. Thirdly, The Minister of Health under the Health Services Act has legal responsibility for protecting the health of all residents inclusive of ensuring a safe drinking water supply. This is accomplished through sources monitoring by the Environmental Protection Department and the Barbados Water Authority and is re-enforced by distribution system monitoring by the Environmental Health Department and the Barbados Water Authority. The EPD and EHD both act as regulatory of the BWA. The Barbados Agricultural Development and Marketing Corporation (BADMC) monitors water quality for agricultural purposes. At present the drinking water supply meets all international standards for drinking water quality and is safe for consumption.

b. Land Use and Zoning: Resource protection in Barbados is achieved using the "Revised Policy of Private Sewerage and Waste Water Disposal Systems." The BWA, EPD and Town and Country Planning department holds primary responsibility for its enforcement. However, an inter-ministerial policy has been adopted to administer and enforce the policy. The major players in water resources management in Barbados are the Barbados Water Authority (BWA), the Environmental Protection Department (EPD) and the Ministry of Agriculture and Rural Development (MARD) through its irrigation schemes, the Town and Country Development Planning Office (TCDPO) through its zoning policies. The Revised Policy seeks to control any development or liquid waste disposal system that could be injurious to the national water resources.

The Groundwater Protection Zoning Policy divides the island into five zones and its primary concern is to protect groundwater from bacterial contamination. Zone 1 has the most land use restrictions while Zone 5 has the least. The prohibition of new development in Zone 1 has been incorporated into the Development Order under the Town and Country Planning Act (1972). The Barbados Physical Development Plan, as mandated by the Town and Country Planning Act, 1972, addresses the issues of water and sewage and lists the requirements guiding the groundwater zoning policy. The BWA and EPD have the joint task of policing the zoning policy; however the TCDPO has sole responsibility for its enforcement.

c. Pollution Prevention and Control: It is believed that because the zoning policy is over 30 years old it does not provide adequate protection from modern industrial pollutants (oil, cleaning detergents, etc.) and agricultural chemicals. A review of the zoning policy is planned to ensure protection of the groundwater reserves from modern chemicals as well as biological contaminants. Recognition is given to the need for continual review, which will determine whether policies remain relevant. However, water quality continues to meet the WHO guidelines for drinking water quality. The Marine Pollution control Act will establish discharge standards for all waste water into the groundwater as well as the marine environment which will be listed in a table of prohibited concentrations.

d. Protection from Degradation and Depletion: The present regime of groundwater development in Barbados is based on the principle that the limit of the national water reserves is equal to the recharge of the aquifer. The estimation of groundwater reserves is cognisant of degradation, which can take place in the freshwater-saline zone and the response of this zone to pumping as well as to pollution from point and non-point sources. To this end the BWA institutes a system of managed pumping based on monitoring the chloride content of its wells where this concentration is not allowed to exceed 250 ppm chlorides. Full implementation of the Marine Pollution Control Act, 1998 will address degradation of groundwater outside of zone one areas.

Resourcing (Financial mechanisms)

Barbados is one of the world's fifteen most water scarce country with limited available water resources. Thus, there is potential for the water resource issues to adversely limit economic and social development of the country. Therefore, enough support exists to facilitate financing/loans for the above-mentioned management initiatives. The main source for financing however is the government of Barbados.

Legislation

There are several pieces of legislation that can directly and indirectly influence the management of fresh water resources in Barbados.

- i. Three-Houses Spring Act, 1713
- ii. Porey's Spring Act, 1864
- iii. The Underground Water Authority Act 1953 [Cap. 283]
- iv. The Soil Conservation (Scotland District) Act, 1959
- v. The Health Services Act and Regulations (1969)
- vi. The Barbados Water Authority Act, 1980 [Cap.274A]
- vii. The Town and Country Planning Development Order, 1972
- viii. The Marine Pollution Control Act, 1998

3. Please indicate steps/actions being undertaken to bridge the water demand/water availability gap, if such a gap exist in your country?

While currently there is no gap, Barbados is quickly approaching the limit to the exploitation of its renewable water resources. Bearing this in mind, the following strategies have been adopted

Demand Reduction

The Barbados Water Authority (BWA) is responsible for the abstraction of groundwater for public supply. Currently the BWA abstracts in excess of 35.0 million gallons per day. In addition there has historically been private abstraction, controlled by a system of licences. There are currently an estimated one hundred and eleven (111) private wells in use, abstracting approximately 11.8 million gallons per day.

In order to address demand reduction a number of policies have been implemented. These include:

-Metering: Historically all commercial, hotel and industrial customers are metered. A programme has been instituted for the metering of domestic customers. To date 95percent of the distribution is metered.

-Water Saving Devices: The Barbados Water Authority (BWA) has to date distributed over 30, 000 low flow shower heads and 30, 000 tap aerators and has promoted the wider use of water-saving Water Closets.

-Agricultural Practices: The Government of Barbados has put an incentive scheme in place which provides rebates of 50% for individual holdings, 60% for 2 or more farmers sharing property and 75% for cooperatives and farmers' organisations on the cost of new irrigation equipment for non-sugar agriculture utilizing drip irrigation.

-Rainwater Storage: The Town and Country Development Order 1972 with respect to development for housing purposes designates that every house that has a gross floor area of 1500 square feet or more but not more than 3000 square feet, is required to have a water storage tank with a capacity of not less than 3000 gallons and every house that has a gross floor area of more than 3000 square feet is required to have a water storage tank with a capacity of not less than 6000 gallons. For the commercial sector the requirement is that they must provide at least (4) gallons per square foot of floor area once the building has a roof area of 1, 000 sq.ft, or more. As a result of sometimes questionable water quality provided by roof runoff, the water collected is recommended for non-potable uses only

-Reduction in Unaccounted-for-water: The BWA has put in place a programme to more effectively identify and address leaks through a water mains replacement programme. There is also district metering to detect leaks.

-Tarif Structure: The Government has amended the tarif structure of charging for water to a rising block tariff. There is to be a review of the licencing system for the operators of private wells.

-Under drought conditions the Drought Management Plan is activated to bridge the gap between demand and supply. The Plan entails measures aimed at reducing demand.

Supply Augmentation

A number of supply augmentation alternatives are practiced in Barbados. These include surface water impoundment in the Scotland District, reuse of wastewater, desalination, construction of check dams through the gully system and even importation.

To date only the option of desalination has been advanced. The construction of a brackish water desalination plant has served to increase the potable water supply by 10%. The water produced through the desalination process is mixed with the abstracted groundwater.

A number of golf courses have been given permission for development on the basis that they have to use desalinated water for their irrigation. To date at least one golf course, Sandy Lane, has installed a sea water desalination plant which has been commissioned and is currently in use.

The Government of Barbados continues to examine the issue of wastewater reuse, especially for golf course application. In addition the issue of the development and re-development of a check dam system is being studied to address both flood mitigation and groundwater recharge

4. If your country has developed and approved or is in the process of developing an IWRM Plan or an equivalent water resources management planning framework, please indicate how was the development of the plan/framework funded?

- entirely by national funds?
- mainly through assistance from donors or IFIs?
- through both national and donor funded activities?
- others?.

Part 2 Main elements of water resources management policies, strategies, programmes and plans

5. From the following indicative list, please check those programme areas and policy measures that are included in your country's water resources strategies, programmes and plans, while at the same time giving some indication of their status of implementation.

Water Management Programs/Policies/Strategies/Measures	Not relevant	Under consideration	In place but not yet implemented	In place and partially implemented	Fully implemented
Water Resources Development					
Assessment of water resources.					✓
Regulatory norms and guidelines for sustainable development of water resources.				✓	
Basin studies for long-term development and management of water resources.					✓
Desalination of seawater. ³				✓	
Rainwater harvesting programs.					✓
Initiatives on water harvesting from coastal fogs.	✓				
Supply augmentation programs to meet increasing demand of water.					✓
Programs and policies for recycling of water, wastewater treatment and reuse.		✓			

³ Barbados has in place a brackish water desalination plant.

Water Resources Management					
Programs and policies for watershed management.					✓
Program for improving efficiency of water infrastructure to curtail water losses.				✓	
Programs and policies on protection and rehabilitation of catchment areas.				✓	
Groundwater management program.					✓
Programs/policies to reverse ecosystem degradation and restore their functions.				✓	
Programs and policies to avoid floods and to overcome flood related disasters.				✓	
Programs and policies to combat drought and desertification.				✓	
Policies for efficient allocation of water resources among competing uses.				✓	
Legislative mechanisms to protect water resources from all types of pollution.				✓	
Demand management measures to improve water use efficiency in all sectors.				✓	
Integration of drainage facilities in irrigated agricultural development schemes.					✓
Mechanisms to promote conjunctive use of ground- and surface water ⁴ .				✓	✓
Norms and guidelines to evaluate environmental impacts of water projects.					✓
Cooperative programs for joint management of shared water resources.	✓				
Water Use					
Water demands survey in different water using sectors.					✓
Programs and policies for managing agricultural water use.					✓
Programs and policies for managing municipal water use.					✓
Programs and policies for managing industrial water use.				✓	
Programs and policies for managing other water uses.		✓			
Monitoring, Information Management and Dissemination					
Functional hydrological and hydro-meteorological monitoring networks.				✓	
Standardized procedures for data compilation, processing and analysis.				✓	
A reliable integrated water resources management information system.		✓			
Programs for information exchange and knowledge sharing about good practices.		✓			
Monitoring and reporting system to determine impact of IWRM reforms.		✓			
Capacity Building and Enabling Environment					
Assessment of capacity building needs/ gaps in the water sector			✓		
Capacity building programs on different aspects of water resources management.				✓	
Establishment of river basin management institutions.	✓				
Institutional reforms to enhance the effectiveness/accountability of institutions.				✓	
Institutional co-ordination mechanisms for water resources management.				✓	
Mechanisms to link water resources management to other economic sectors.				✓	

⁴ Conjunctive use mechanisms are fully implemented in the agricultural section and partially implemented in other areas.

Assessment of water management research needs and gaps.				✓	
Mechanisms to enforce water legislation.					✓
Programs for providing advisory (extension) services on WM issues to end users.					✓
Programs for transferring improved and cost effective water saving technologies.					✓
Pro-poor policies and programs in the water sector.					✓
Stakeholders Participation					
Processes for stakeholders' participation in water management decisions making.					✓
Decentralized water resources management structures.	✓				
Programs for gender mainstreaming in all aspects of WRM.	✓				
Public awareness campaigns to educate people about water-health-poverty links.					✓
Mechanisms to discuss/resolve trans-boundary issues with the riparian countries.	✓				
Partnerships for water resources management.				✓	
Financing					
Water sector investment plan					✓
Strategy for mobilizing financial resources in the water sector.					✓
Norms and procedures for financial sustainability and viability of water schemes.					✓
Gradual cost recovery mechanisms/progressive tariff structures in all water uses.					✓
Subsidies/micro credit programs for promoting water conservation technologies.		✓			
Water sector investment plan.			✓		

Please provide additional information on elements not covered above, but form a significant part of your water sector development and management plans, especially within the context of JPOI target and decisions reached during CSD-13.

Some of the specific measures that are being implemented to ensure sustainable practices at the national level include:

- Adoption of universal metering
- Upgrading of hydrological monitoring network
- Reduction of water-loss that cannot be accounted for (Unaccounted for water)
- Intensified leak detection and repair
- Public education programmes
- Replacement of water-mains
- Distribution of water-saving devices
- Sensitisation of all stakeholders to be good stewards of water resources
- Optimised use of rainwater
- Monitoring of abstraction rates is very important so that the occurrence of saline intrusion can be observed in its early stages.

At the sectoral level, all golf courses are encouraged to use treated wastewater or desalination for irrigation purposes. This is not yet enshrined into law although the Planning and Priorities Committee (PPC) approved the proposal in 1997.

Part 3: Implementation, monitoring and evaluation

6. If your country is in the stage of implementation (last two columns of the preceding question), please indicate specific actions/ activities undertaken, including institutional arrangements such as e.g. national implementation body, cross-sectoral coordination mechanisms, stakeholder fora, river basin committees etc.

The 1963 Underground Water Protection Policy (revised 1972) protects water catchment areas and the subterranean supply through the establishment of water zones. This zoning policy is based on bacteriological travel time of flow through the limestone to the pumping station. It is implemented through the collaborative efforts of the Barbados Water Authority, the Town and Country Development Planning Office, the Environmental Protection Department (EPD) of the Ministry of Energy and the Environment, and the Public Health Division of the Ministry of Health.

Incorporated into the Zoning Policy is the Revised Policy on Private Sewage and Waste Water Disposal Systems, which seeks to control any development or liquid waste disposal systems that could be damaging to the national water resources.

Responsibility for monitoring and surveillance is shared by several agencies. The BWA has legal responsibility for monitoring and maintaining water quality standards. The EPD has power to enforce standards on water quality and waste water discharge. The Coastal Zone Management Unit has powers of enforcement in matters relating to discharge into the marine environment.

7. Defining indicators, establishing networks and setting up mechanisms to ensure monitoring and evaluation are all key activities in any successful implementation of plans and reform processes. If your country has established monitoring and evaluation mechanisms for water resources management policies/strategies/plans, please describe how and by whom it is being done:

Sustainable development indicators related to freshwater resources have been developed by the National Commission on Sustainable Development under the National Indicators Programme (NIP), which has defined national indicators for all policy areas, including freshwater resources. Currently, the Prime Minister in the 2007 Green Economy Fiscal and Economic Proposals has listed the monitoring of freshwater indicators as a priority.

Recently there has been an increased use of GIS in various aspects of environmental management data collection. Specifically, the technology has been used in land-use assessment, coastal zone monitoring, soil erosion monitoring and freshwater resources monitoring.

With respect to satellite-based remote sensing the Meteorological Office has been using satellite information for a long time for weather monitoring and forecasting and disaster preparedness. The regional project Caribbean Planning for Adaptation to Climate Change (CPACC) has proposed IKONOS satellite imagery to monitor climate change activity. There is a lot of satellite-based environmental data available. The drawback seems to be the lack of receiving systems to capture these data and the need for equipment and trained staff. With specific reference to the Indicators programme, once the data are gathered and information system is created, it is hoped to launch a large-scale public awareness campaign to sensitize the public on our progress towards sustainability.

The BWA collects information island-wide in a wide range of subjects including water quality, complaints, burst mains, production at stations, electrical consumption and rainfall data. Rainfall data are becoming a challenge to collect as the number of rainfall stations is decreasing rapidly and the equipment needed to monitor rainfall is costly and cannot be readily placed in areas such as schools where monitoring can become a daily activity for class. Data such as Pan Evapotransport have not been collected and any figures used would be from a 1960 study.

Part 4: Outcomes of implementation of IWRM or Water Efficiency plans.

8. Countries which have made some progress in *implementing* IWRM/Water Efficiency Plans or equivalent reform frameworks may already have achieved some of their intended objectives. Sharing these experiences as well as constraints in implementing water resources management reforms may assist other countries in their implementation efforts.

(a) At the time when your country embarked on water resources management reform and planning process, what were the priority problems which were intended to be solved? (e.g lack of water resources for development, frequent floods, deteriorating water quality, wetland degradation, low water efficiency etc)

Please list three priority problems planned to be solved through water resources management reforms:

- Expansion of the water distribution network
- Protection of groundwater resources
- Augmentation of water supply (based on increased per capita demands)
- Human capacity development for varied inputs

(b) What were the main water management measures implemented to address the problems identified under (a) above?—for example: new water policy or law, creation of new institutional structure, decentralization of water management to river basin level and water user associations, upgrading of water resources assessment and monitoring networks, application of economic instruments etc.

Please provide text.

- Infrastructural development and investment
- Development control mechanisms via the national Zoning Policy
- Development of a national water quality monitoring network for source and distribution network
- Diversification of water production sources
- Increased training opportunities for varied areas of water resources management

(c) Please provide an evaluation/assessment of the results achieved as a result of implementing the water management measures implemented under (b) above to address the problems identified under (a) above.

- 100% coverage with respect to water supply
- Over 30 years history of protecting water resources and achieving WHO accepted standards for water quality
- 10% reserve in water resources for development purposes
- An increase in number of professionally trained staff and in management capacity for water resources

(d) Please list constraints or obstacles that your country has experienced in IWRM implementation.

- Institutional constraints
- Limited human resources
- Current human resource needs not being identified nor quantified
- Financial Constraints

ANNEX F: Commission for Sustainable Development Partnership Document.

General

* **Name of partnership:**

* **Expected timeframe:** Start: (month/year) End: (month/year)

Partnership website (if any):

* **Partners involved** (Please identify, for each relevant type, the names of all partners involved in the partnership.)

Governments (country, name of government body):

Major groups ⁵ (group, name of organization, country):

UN System (name of UN body, country):

Other intergovernmental organizations (name, country):

Other ⁶ (name of organization, country):

• **Lead partners** Please designate one or at most two partners as the focal point(s). Please provide contact information (*full name, address, *phone, email).

Coverage

* **Themes involved** Select one or more themes from the multi-year programme of the work of the Commission on Sustainable Development, by placing an X in the relevant boxes.

⁵ As identified in [Agenda 21](#), the nine major groups of civil society are: Women, Youth and Children, Indigenous People, Non-Governmental Organizations, Local Authorities, Workers and Trade Unions, Business and Industry, Scientific and Technological Community and Farmers.

⁶ Other organizations e.g. academic institutions, media, etc.

Primary focus/theme(s) please use the left box (1), other theme(s) use the right box (2).

1 2	1 2	1 2
<input checked="" type="checkbox"/> Agriculture	<input type="checkbox"/> Energy for sustainable development	<input checked="" type="checkbox"/> Ocean and seas
<input type="checkbox"/> Air pollution / Atmosphere	<input type="checkbox"/> Forests	<input type="checkbox"/> Poverty eradication
<input type="checkbox"/> Biodiversity	<input checked="" type="checkbox"/> Gender equality	<input checked="" type="checkbox"/> Protecting & managing natural resource base
<input type="checkbox"/> Biotechnology	<input checked="" type="checkbox"/> Health and sustainable development	<input checked="" type="checkbox"/> Rural development
<input checked="" type="checkbox"/> Changing unsustainable patterns of consumption Production	<input type="checkbox"/> Human settlements	<input type="checkbox"/> Sanitation
<input type="checkbox"/> Chemicals	<input checked="" type="checkbox"/> Industrial development	<input type="checkbox"/> Sustainable development Africa
<input type="checkbox"/> Climate change	<input checked="" type="checkbox"/> Institutional framework for sustainable development	<input checked="" type="checkbox"/> Sustainable development SIDS
<input type="checkbox"/> Desertification	<input type="checkbox"/> Land	<input checked="" type="checkbox"/> Sustainable development globalizing world
<input type="checkbox"/> Disaster management Vulnerability	<input type="checkbox"/> Marine resources	<input checked="" type="checkbox"/> Tourism
<input type="checkbox"/> Drought	<input checked="" type="checkbox"/> Means of Implementation (Trade, Finance, Transfer, etc.)	<input type="checkbox"/> Transport
<input checked="" type="checkbox"/> Education	<input type="checkbox"/> Mining	<input checked="" type="checkbox"/> Waste management
	<input type="checkbox"/> Mountains	<input type="checkbox"/> Water

*** Geographic scope**

Please select one of the following to describe the geographic scope of your partnership:

<input checked="" type="checkbox"/> Global	<input type="checkbox"/> Sub-regional (specify):	<input type="checkbox"/> Sub-national /
<input type="checkbox"/> Regional (specify):	<input type="checkbox"/> National	

*** Please identify every country where the partnership is being implemented:**

<ol style="list-style-type: none"> 1. Barbados 2. Trinidad and Tobago 3. Mauritius 4. Pacific SIDS-(Pohnpei, Federated States of Micronesia) 5. Grenada
--

Objectives

*** Partnership goals and objectives** (Please provide a brief description. Maximum 200 words):

Goal:

To utilize local foods in an economic viable and equitable manner that advances social progress and that re-affirms the uniqueness of island cultures.

General Objective:

To bring additional global visibility to SIDS and to mainstream particular aspects of the MSI into national development processes via food.

Specific Objectives:

1. To facilitate the implementation of pilot community-based eco-gastronomic development activity in SIDS – “Community Cornucopias”.
2. To develop a global platform for research and development into foods, utilizing the SIDS regions’ university systems with selected partners.
3. To facilitate the development of an electronic highway throughout SIDS for the promotion of a Food-Art Fusion – “E-hub for Artistic Impressions and Expressions”.
4. To coordinate a once every two years islands food fest and trade show –“Communion with friends for Sustainability”.
5. To create a philanthropic instrument for youth development and integration in viable multi-dimensional island food-economy– “Responsible investment in Youth”.

*** Partnership targets (quantifiable or other)** (Please be as specific as you can. Maximum 200 words):

Targets:

- 15 new ecogatronomic projects designed and implements per annum
- A compendium of island gastronomic research
- 3 Funded research fellowships per region on various aspects island-gastronomy (health, trade, agro-tourism)
- Island food-art champions for literature, photography, music, culinary
- 5 submission per island per annum per art category to e-hub
- Biennial 4-week Island Food Festival at UN HQ
- Biennial Island Food Trade Show in New York
- Island Food station in UN Cafeteria as of 2009
- Procurement 101 for Islands Spices and Seasonings
- Partnership with the Financial Sector to disburse US\$100,000.00 per island per annum to educating and training youth and to finance fellowships

*** Progress against targets** (Maximum 200 words) If none, state none.

None

Arrangements for capacity-building and technology transfer (if relevant):

- | | | |
|--|--|--------------------------------|
| <input checked="" type="checkbox"/> Human resources development/training | <input checked="" type="checkbox"/> Education/building awareness | <input type="checkbox"/> Other |
| <input checked="" type="checkbox"/> Institutional strengthening, including local participation | <input checked="" type="checkbox"/> Technology transfer/exchange | |

Please provide a brief description:

Coordination mechanism of the Partnership (Please provide a brief description. Max. 200 words):

The coordination mechanism envisaged would be a multi-stakeholder body, with representation from the international, regional, national and local level. This will be discussed at experts meeting in 2008.

Implementation mechanism of the Partnership (Please provide a brief description. Max. 200 words):

The partnership will establish a secretariat to coordinate implementation. To be discussed with other partners.

- Please indicate how the partnership contributes to the implementation of Agenda 21, the Programme for the Further Implementation of Agenda 21, and/or the Johannesburg Plan of Implementation.⁷ If possible, please specify the relevant sections of the agreements that relate to your partnership.

Resources

As stated in the CSD-11 guidelines and criteria, partnerships should be based on predictable and sustained resources for their implementation, including new resources. Please provide as much information as possible.

Funding available: **currently** Amount in US\$

Source(s): Government Inter-Governmental (IGOs) Organizations Foundations / charities
 Private sector Non-Governmental (NGOs) Organizations Other (please specify):

Specify source(s) e.g. names of organizations, ministries, etc.:

Additional funding sought: Amount in US\$

Specify source(s) already approached:

Five SIDS from each of the three regions will be approached to commit US\$ 50,000 dollars each year for three years.

Non-financial resources available:

Type(s): Computers Office space Staff Other None
Source(s): Government Inter-Governmental (IGOs) Organizations Foundations / charities
 Private sector Non-Governmental (NGOs) Organizations Other (please specify):

Specify source(s):

Non-financial resources sought:

Requirement(s): Computers Office space Staff Other (specify None below)

Specify source(s) already approached and provide details of requirements:

⁷ Copies of these documents are available by following the links given or visiting the following page of the CSD Secretariat website: www.un.org/esa/sustdev/partnerships/partnerships_registration

National Focal Points

Taking into account the CSD-11 guidelines and criteria in this respect, please indicate if the partnership has made contact with the national focal points for sustainable development⁸ in the countries involved:

Yes

No

Don't know

Additional Relevant Information

Please share any lessons learned from experience with this partnership, including any problems and constraints encountered and successful strategies employed for dealing with them, possible opportunities for extending this initiative and/or replicating it elsewhere, etc.

Please submit completed form to:

Partnerships Team

Two UN Plaza, DC2-2220,

New York, NY 10017 USA

Fax: +1 (917) 367 2341

E-mail: beyondwssd@un.org

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⁸ A list of National Focal Points is available at <http://www.un.org/esa/sustdev/natlinfo/nfp.htm>

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ANNEX G: Summary of Barbados' National Biosafety Framework

In September 2002, Barbados became a Party to the Cartagena Protocol on Biosafety (CPB) and, by extension the ongoing global biosafety programme. Since signing the Protocol, the country has undertaken several initiatives intended to establish compliance with international obligations and generally to develop national capacity to manage biosafety issues.

Accordingly, Barbados participated in the Global Biosafety Project entitled “*Development of National Biosafety Frameworks*” which was funded by the Global Environmental Facility (GEF) and implemented by the United Nations Environmental Programme (UNEP) to assist countries in putting in place the structures needed to effectively achieve the objectives of the Protocol. The National Project component commenced in July 2003 and facilitated the definition of a Draft National Biosafety Framework (NBF) for Barbados. The Draft NBF Report was finalized in September 2005 and endorsed by Cabinet in August 2006, thus paving the way for the commencement of work preparatory to the establishment of the national administrative and regulatory regimes.

The Draft National Biosafety Framework Report contains the following as its key components :-

- (i) A National Biosafety Policy;
- (ii) A Regulatory Regime;
- (iii) An Administrative System;
- (iv) A Monitoring and Enforcement System; and
- (v) A Mechanism for Promoting and Facilitating Public Awareness, Education and Participation.

A synopsis of the contents of each component is presented below.

National Biosafety Policy

The draft national policy identifies an appropriate national vision and goal for biosafety, and defines guiding principles and objectives for the safe use of modern biotechnology.

The long-term vision against which the National Biosafety Policy is developed is one in which Barbados is recognized as:

“A society that safeguards human, plant and animal health and the environment, while optimizing the benefits of modern biotechnology”.

The main goal of the policy is to ensure the safe and sustainable utilization of biotechnology and its application in the development of science, agriculture and other disciplines, and to improve the quality of life of Barbadians. The recommended policy is designed to simultaneously allow Barbados to exploit modern biotechnology and to provide for the safety of human health and the environment from the potential adverse effects of this technology.

Regulatory Regime

The general provisions of the Protocol require Barbados to develop appropriate legislation to implement its obligation under the Protocol. The findings derived from the investigations conducted as part of the NBF Project revealed that although several existing regulatory instruments make references to matters related to the regulation of modern biotechnology, they are limited in their capacity to deal with issues of modern biotechnology and biosafety because of their pre-existence to the Protocol. As such the Draft NBF proposed that appropriate legislation be drafted and enacted to regulate and monitor the development, handling, release, use and transfer of LMOs.

The Administrative System

Compliance with the Protocol requires Barbados to establish institutional structures to be responsible for performing the administrative functions required by the Protocol. The proposed Barbados NBF includes the following institutional and administrative structures:-

1. National Competent Authority; and
2. Other Supporting Administrative Structures

The associated responsibilities attached to each of these are detailed below:

National Competent Authority

The proposed framework identifies the Ministry of Agriculture (MA) as the National Competent Authority (NCA). The NCA will be charged with the primary responsibility for the day to day management of Biosafety issues and include among its functions the following:

- receipt and handling of notification and LMOs applications;
- coordination of risk assessment requirements;
- communicating the decision of the NCA to the notifier; and
- implementation of monitoring and enforcement activities.

While the NCA will be responsible for carrying out administrative functions under the Protocol, the technical review, consultation and ultimately the decision-making process will involve a wide range of national authorities and agencies. Complementary bodies proposed for assisting the NCA with the execution of its mandate include: -

- i. A Biosafety Administration Office (BAO) – to address all matters arising from applications received by the NCA that relate to trade in LMOs;
- ii. A Scientific Advisory Body (SAB) – to conduct and/or review risk assessment and recommend appropriate decisions and risk management measures on proposed LMO activity;
- iii. Public Education and Information Committee (PEIC) – to make available to the public information relevant to, and facilitate opportunities for public expression and

- communication of views on, LMO activity on which a decision is required; and
- iv. A Decision Making Council (DMC) – to receive and consider the recommendations of the SAB, PIEC and BOA and tender a recommendation for consideration of the Minister of Agriculture who shall then make a final decision.

Other Supporting Administrative Structures

Compliance with the Protocol also requires Barbados to identify and designate other supporting administrative entities. Accordingly, the purposes for which these are required and the national offices designated are detailed below: -

- **National Focal Point for Biosafety**

The proposed NBF identifies the Ministry of Environment, Water Resources and Drainage (MEWD) to serve as the National Focal Point for Biosafety. Accordingly, this will be the national institution that liaises with the Secretariat of the Convention on Biological Diversity and the Cartagena Protocol on Biosafety on behalf of the country through:

- reporting to the Secretariat on measures that the country has taken to implement the provisions of the Protocol;
- attending and participating in the proceedings of any meeting of the Conference of the Parties serving as meeting of the Parties to the Protocol;
- managing communication between the Secretariat and the government, and the public.

- **National Focal Point for the Biosafety Clearing House**

The (MEWD) has also been identified to serve as the National Focal Point for the Biosafety Clearing House to liaise with the CBD Secretariat on the technical aspects of national Clearing House (BCH), as well as communicate national information on LMOs to the BCH.

- **Contact Point for Notifications of Unintentional Transboundary Movements of LMOs and Emergency Measures**

For the purpose of receiving notifications on unintentional transboundary movements of LMOs and emergency measures, the MA has been designated to function as the Contact Point for Notifications.

Monitoring and Enforcement System

A post approval monitoring and enforcement regime has been proposed to meet regulatory requirements considered necessary for the intended use of the LMO in a safe manner. In the recommended framework, a protocol of inspection for

compliance with the prescribed regulatory requirement will be utilized through the use of Field Investigators and Inspectors. The required monitoring and enforcement activities are to be attended to by the following offices:

- Plant Quarantine Unit
- Veterinary Services Unit
- Entomology Unit
- Barbados National Standard Institution
- Barbados Port Inc.
- Customs and Excise Department.

Mechanisms for promoting and facilitating public awareness, education and participation.

Compliance with the Protocol requires Barbados to promote and facilitate public awareness, education and participation concerning the safe transfer, handling and use of LMOs. Barbados will comply with these requirements through their integration within the functions assigned to the National Competent Authority (NCA).

To raise public awareness and knowledge concerning the safe transfer, handling and use of LMOs in Barbados, the Draft NBF also recommended the development and implementation of a public education and information programme.

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ANNEX H: Statements made by the Government of Barbados at CSD 16 and the Inter-Governmental Preparatory Meeting for CSD 17

Statement by the Alliance of Small Island States Thematic Discussion on Agriculture Monday, May 5th, 2008

Distinguished Chair

I have the honor to speak on behalf of the members states of the Alliance of Small Island States.

Agriculture in SIDS has been faced in recent years with severe pressure due to competing uses, intra- and inter- sectorally, the lack of an adequate labour force being loss to non-agricultural activities, the loss of traditional markets, the loss of preferential marketing arrangements and commercialization of the food sector. The latter has implications for safeguarding our limited biodiversity stocks and will have significant health impacts.

SIDS which are heavily dependent on fishing are at risk of significant loss of earnings and retrenchment of labour if they do not find sustainable mechanisms to safeguard future production and productivity. As such our marine ecosystems must be maintained in the most pristine condition to ensure that fish stocks for food and general marine life is not compromised by events such as over-harvesting, pollution and fish kills.

Faced with the above challenges, SIDS need to find opportunities to diversify their economies and markets in a sustainable manner, especially in the agricultural sector, in order to increase their degree of food security and self-reliance. The international community must assist SIDS in their efforts to:

1. create an enabling environment for agricultural diversification;
2. develop environmentally sound programmes to support food production;
3. develop integrated approaches to sectoral planning and development;
4. develop capacity to meet the various new international requirements, such as the WTO agreement on agriculture, sanitary and phyto-sanitary measures (SPS), technical barriers to trade (TBT), and other standards and regulations,

In the latter context and given the significance of agriculture to many developing countries including SIDS, we maintain the view that agriculture must assume a prominent role in the global development agenda. We are therefore naturally concerned about the current stalemate in the Doha development Round of trade negotiations underway in Geneva. Within this context the early conclusion of the Round is critical and should ensure the fullest realization of the development dimension of the Doha Work programme to avoid further marginalization of SIDS in the global market place.

To elaborate concrete strategies to enhance efficient and sustainable agricultural production and ensure their food security, the UN system, and the FAO in particular, must provide practical support to SIDS, for research into such matters as: diversification of agriculture; alternative uses for crops; improved husbandry, irrigation and water management; aquaculture; and use of appropriate modern technologies for smallholder agriculture, including agricultural extension services. SIDS-SIDS partnerships, as well as partnerships with development partners, should be supported to assist cooperative efforts towards improved techniques and diversification.

United Nations Commission on Sustainable Development (UNCSD) 16/17
AOSIS statement on Rural Development
Wednesday May 6, 2008

Distinguished Chair

The Government of Barbados has the honour once again to speak on behalf of the member states of the Alliance of Small Island States.

For the SIDS, rural development poses special and unique challenges. The various states which comprise this group are very diverse in terms of level of geographical features, infrastructural development, and environmental vulnerabilities. As such, it is important to note that some states have difficulty in defining the demarcation between the rural and urban spaces and in some cases these entities impact negatively by each other.

Most of these states are heavily and regularly impacted by climactic phenomena such as hurricanes and are prone to flooding and soil degradation especially in territories with thin coralline soils.

In archipelagos, such as the Bahamas and Seychelles, the smaller family islands are often remote and difficult to access and may be devoid of potable water which makes infrastructural development difficult to sustain. The lack of job creation, subsistence on marginal lands and the high fuel cost have all been documented in your Economic Council Report of 21 February 2008 as the additional rural development challenges facing SIDS.

Development programmes for rural people in SIDS although costly, are essential for sustained and balanced national development by providing for employment generation, reduction of poverty, modernising agricultural practices, maintaining the environmental management and aesthetic appeal of the countryside especially as it relates to enhancing the infrastructure for tourism, reducing urban migration and social displacement, reducing drug cultivation and improving the self esteem of rural people.

Mining is also an important aspect of rural development in many SIDS. Gold, silver, copper, oil, clay, sand and stone are commonly extracted. While these activities contribute to rural and indeed national incomes you will of course recognise that mining causes serious degradation of soil and can destroy the rural landscape. Mining also has the potential to create health issues in adjoining rural areas.

In order to combat the above threats SIDS have struggled to develop methodologies to provide rural folk with the resources to which their urban dwelling counterparts have become accustomed as well as to assist them to make the best use of the districts in which they live while at the same time providing the vital role of ensuring food security.

These methodologies include the enactment of specific legislation and establishment of dedicated institutions which support rural development. Legislation must ensure that residents are able to legally secure lands on which their ancestors have traditionally lived and that lands are also made available to new entrants into agriculture for landless farmers.

For agriculture to be sustainable, water must be supplied for irrigation and finance must be provided for rural projects, farmers' organisations and for womens' organisations. Further, the construction and repair of rural fishing ports and markets is one of the most rapid ways of stimulating commerce in rural spaces.

In addition governments must be involved in upgrading of rural roads, engineering works to reduce land slippage and soil erosion, installation of utilities and services, renovation of homes and installation of sanitary facilities and provision of educational and health facilities.

Despite these challenges, a number of SIDS have demonstrated success in a certain areas. For example:

- Barbados, Guyana and Jamaica have established land administration programs which transfer plantation land to the tenants hence giving them legal ownership which confers

not only security of tenure but also provides collateral so that persons can approach financial institutions for loans for both agricultural and non-agricultural development. This approach empowers rural people, gives them a sense of self esteem and self worth and reduces the need for governments to provide more inputs.

- Jamaica and Guyana have used legislation to mandate that international mining companies follow best practices for chemical use, restore mined lands to their former productive capacity and financially support rural agriculture on these lands after mining is complete.
- The Ministry of Agriculture and Rural Development in Barbados has established a Rural Development Commission which provides extension services and loans. The government also provides irrigation services in 21 districts and soil engineering in vulnerable areas.
- The export of Virgin Coconut Oil to the UK by Samoan women is an example of niche product development and Fiji has also been successful in the export of dried fruit through high temperature air treatment.

Despite the many efforts at the national level however, SIDS are concerned that the promises by the international community which emanated from the Mauritius Strategy are yet unfulfilled. 2010 marks the five-year review of the MSI. Are we to continue annually at the CSD to make this point? Or will we position the CSD to report on practical, country-driven, workable partnerships within its umbrella?

Many SIDS require technical assistance in building institutions and drafting legislation to provide for development in marginalised areas. There is also need for the Global Environment Facility, bilateral donors and regional development banks to get actively involved in financing integrated rural development programs.

Let 2010 mark a year of reporting successes within the international community in not only standing by their promises but also having committed the necessary investment in SIDS to advance their sustainable development agendas.



**United Nations
Commission on Sustainable Development (UNCSD) 16/17
The Government of Barbados' Statement on
Cross-cutting Issues**

Friday May 9th 2008

Madame Chair

The Government of Barbados is honoured to present this statement, and wishes to associate itself with the statement made by the representative of the Government of Antigua and Barbuda, on behalf of the Group of 77 and China.

Barbados, as a SIDS and ranked among the topmost water scarce countries in the world, recognizes the complexities and interconnectedness of the thematic issues to the pursuit of sustainable development and more specifically to sectoral development. These complexities have been clearly articulated in the Barbados Sustainable Development Policy; and, action plans built on the national sustainable development principles of equity, conservation of natural resources, economic efficiency, participation and quality of life call for concrete activities to address such.

Madame Chair

With respect to the agriculture sector, in an effort to meet the growing demands for water in agriculture, and to improve the island's food security status, there is the need to increase water productivity by harnessing all available sources of water, enhance water availability and improve irrigation and drainage. The country has therefore instituted a number of cross-cutting, integrated policies and programmes to tackle these issues.

A strategic planning framework, namely the Integrated Rural Development Project, for the protection and sustainable management of ecosystems in drought prone areas has been developed and integrated into the national development strategies and action plans.

The national strategy and contingency arrangements for drought preparedness to deal with drought related food and water deficiencies is coordinated by the Ministry of Agriculture and Rural Development. These include:

- Conducting comprehensive studies to support efficient development and management of water resources for irrigation.
- Instituting an island-wide water metering programme.
- Continuing the refurbishing existing irrigation districts and the establishments of new irrigation districts.
- Introducing measures to reduce water consumption and improve water use efficiency. These will include the introduction of short-age crop varieties, establish salt-tolerant crops in areas served by arid, saline or brackish water, adopting water saving irrigation techniques, modernising irrigation systems and promoting use of commercial and organic mulching.

Drought-relief studies, and their implications for national development and planning have been examined by the Caribbean Community Climate Change Centre in Belize, and some studies have been done by the Ministry of Agriculture and Rural Development and the Barbados Water Authority (BWA). A drought relief scheme has been put in place, given the water scarceness of Barbados. The findings of the study have been integrated into national development planning. Government has established incentives to encourage farmers to design reservoirs to harness well water, rainwater and surface runoff and to establish irrigation systems only if they are water saving.

Afforestation and reforestation programmes using drought-resistant, fast growing species are implemented by the Soil Conservation Unit. It is important to note that legislative measures and policy incentives to encourage forestry development in drylands have been put in place including the preservation of Trees Act, 1981.

In terms of lessons learnt, Madame Chair, a multi-stakeholder approach in planning and implementing of projects and programmes increases the chances of success and greater probability of long term sustainability. Drought relief programmes are expensive and require specific expertise.

With respect to the constraints and challenges, the issues of forecasting and assessment of droughts are two priority areas. The challenge is, in expanding the hydrological and hydro-meteorological network that, would assist the work of the BWA in monitoring and evaluating the water resources and drought.

Finally, we wish to reiterate the need for the international community to honor its commitments for the full implementation of the Mauritius Strategy for the further implementation of the

Barbados Programme of Action for the Sustainable Development of SIDS. We also attach great importance to the Marrakech Process

Madame Chair, We thank you.



**STATEMENT BY THE HONORABLE DR. ESTHER BYER-SUCKOO
MINISTER OF FAMILY, YOUTH, SPORTS AND ENVIRONMENT
GOVERNMENT OF BARBADOS**

Distinguished Chair,

This is my first meeting of the Commission on Sustainable Development, having been elected and appointed Minister responsible for the Environment in a new Administration 4 months ago. Fourteen years ago Barbados was honoured to host the First Global Conference on the Sustainable Development of Small Island Developing States (SIDS). The resulting Barbados Programme of Action, formalized international acceptance that SIDS are among the most vulnerable members of our global community and merit special attention and support. At the opening of that Barbados Conference, then Prime Minister of Barbados Sir Lloyd Erskine Sandiford outlined what remains Barbados' vision of sustainable development - its focus on its people!

Distinguished Chair,

I wish to reaffirm that the pursuit of a people-centred and fully participatory approach will continue to be at the heart of Barbados' efforts to protect the environment and achieve economic and social development.

Allow me to share a number of my Government's new policy initiatives.

First, the Government of Barbados is committed to the completion of an innovative Food Security Policy. Our national report to the World Summit on Sustainable Development in 2002 flagged this issue and our policy seeks to lower the cost of basic foods and promote sustainable consumption and production from within our terrestrial and marine spaces. Much work is being done at the community level. At the regional level CARICOM is fully engaged at its highest level.

Second, the Government of Barbados is in the process of completing a Sustainable Agricultural Development Act which addresses eco-friendly production methodologies and technologies, increased efficiencies and increased productivity.

Third, the Government of Barbados recognises the need for improved access and lower transaction costs within CARICOM to address regional food security concerns. Barbados is committed to the further development of a sustainable regional maritime transport system consistent with the provisions of the Revised Treaty of Chaguaramas and the move towards the final phase of the CARICOM Single Market and Economy.

Fourth, the Government of Barbados will continue the development of the Fisheries Sub-Sector, cognizant of its contribution to health and nutrition, agri-business and inter-sectoral development. I wish here to thank the Government of Iceland for its development assistance to SIDS in this area through the Island Growth Initiative and encourage other Governments to support similar efforts.

The Government of Barbados is happy to report over seventy-five percent (75%) implementation of the Mauritius Strategy largely utilizing our own resources. The Government of Barbados will continue to strengthen its National Commission on Sustainable Development, but we are convince that it is only in partnership with the international community that SIDS will find solutions to there sustainable development needs.

I thank you.



The Government of Barbados

Statement on Agriculture

To the

**Inter-governmental Preparatory Meeting
For the 17th Session of the United Nations Commission on Sustainable Development
(UNCSD)**

24 February 2009

Distinguished Chair,

The Government of Barbados has recognised the need to maintain a strong agricultural sector despite the competition for its small land space by competing sectors of the economy. As a result, the Government has taken action over the past years to strengthen key areas in order to maintain jobs, ensure food security and prevent land degradation in vulnerable zones.

Madame Chair

Barbados is still able to maintain a healthy capacity for certain products for which we have a production advantage. The sugar industry, while somewhat contracted is still able to produce over 30,000 tons of sugar annually while at the same time ensuring adequate production of molasses to support the traditional rum industry which is an important foreign exchange earner.

Further, the country is self sufficient in fresh pork, fresh milk and fresh chicken and is even able to export small quantities of these products to neighbouring islands and to the cruise industry.

In an effort to stimulate local food production the Government of Barbados has provided a well managed package of incentives to the agriculture sector. These incentives appear to have reaped some success as farmers have invested in new technologies such as tunnel ventilation systems and greenhouses during the past few years

A Sustainable Agriculture bill is currently being drafted in collaboration with The Food and Agriculture Organization (FAO) in order to give legislative support to the sector.

A food security policy and comprehensive plan is currently being designed. Some of the focal elements in the food security plan will include the identification and quantification of products that are critical for food security and a National Agricultural Health and Food Safety Authority, which will ensure that the country upholds national and international food safety requirements and regulations.

Madame Chair

Despite some apparent successes there is still a need for assistance in developing our very ambitious programs.

Over the past 10 years the Entomology Department of the Ministry of Agriculture has been severely strained by having to deal with the control of some sixteen (16) invasive species including the Pink Hibiscus mealybug, Papaya mealybug and the Giant African Snail. In some cases the department has had outstanding success but in others it is losing the battle against some of these pests which have put our food crop sector at risk. We therefore have a need for technical support in research geared toward control and eradication of these invasive species.

Additionally, the Barbados Agricultural Development and Marketing Corporation (BADMC) will be seeking to establish a food science and development department whose functions will include introducing new entrants to agro-processing, providing training to the food industry, the application of new technology and the development of new and improved products and processes.

The corporation is now producing small quantities of both breadfruit and cassava flour in order to satisfy a growing demand for these products but requires technical support in order to produce commercial quantities and develop new industries which will help to sustain our mandate toward food security.

Madame Chair

The above represents only a few of the areas in which Barbados is seeking technical assistance partnerships to support agriculture. Barbados is a country which has pressing needs as well as specific skills to share. As an outcome of CSD 17, we hope that we will be able to find partners with whom we can forge alliances which can be mutually beneficial.

Thank you Madame Chair.



The Government of Barbados

Statement on Land

To the

Inter-governmental Preparatory Meeting

**For the 17th Session of the United Nations Commission on Sustainable Development
(UNCSD)**

25 February 2009

Madam Chair

The planning and development of land resources involves a wide range of stakeholders especially for a country the size of Barbados where the main issues of concern relate to competing demands from numerous sectors namely – residential, tourism, agricultural and industrial. Having limited land area has resulted in an early recognition that careful management measures would have to be put in place.

Some of those measures have included:

- A Land for Landless Farmers Programme which started in 2001 and has progressed steadily, whereby available public and private lands are allocated to farmers for livestock, root crops, vegetables and orchard production. This programme has had multiple benefits including bringing idle lands into production, enhancing food security for the country and providing livelihoods for farmers.
- The Enactment of the Town and Country Planning Act, 1968 [Amended 2003] provided for land and water rights and legal security of tenure for all individuals irrespective of gender.
- The integrated assessment of the socio-economic and environmental potentials of land resources has been examined in detail under the Environmental Management and Land use Planning for Sustainable Development Project, 1998.
- Long-term conservation and rehabilitation programmes to arrest land degradation were put in place to protect the fragile soils in the vulnerable Scotland District area, while good agricultural practices including hedge row establishment and environmentally friendly agronomic practices are utilized in other farming zones.

and lastly

- There are specific programmes for empowerment of people living in poverty and for their increased access to land and land tenure arrangements. This has been facilitated through the Urban Development Commission Act and the Rural Development Act 1995. These acts provide for the improvement of social amenities, assistance to small farmers and other small entrepreneurs and the establishment and development of cottage industries in urban and rural areas of Barbados. Strategic urban planning approaches aimed at managing urban growth, limiting urban sprawl and reducing the number of people living in poverty in urban and rural areas comes under the mandates of the Urban and Rural Commissions respectively.

Madam Chair

Various sectors of the government of Barbados share the responsibility for conducting national research on the local land resource systems. The use of information systems including Geographic Information System (GIS) though expensive is being utilized for integrated planning and management of land resources. Specifically they are being used to identify land vulnerable to slippage and land degradation and also helps to identify some subsurface drainage systems.

There is presently a significant challenge in identifying activities on land that could affect the underground water supplies. In some cases Special Development Area legislation will be required to curtail such activities. There is also the need for a comprehensive land use study to be implemented to assess the change in land use patterns over the last decade.

The Government of Barbados is hopeful that emerging from CSD 17, we will be able to identify partners with whom we can share our experience in sustainable land management. We also hope to identify opportunities for capacity development and technology transfer in the area of land management monitoring and information systems.

I Thank you.



The Government of Barbados

Statement on Drought

To the

**Inter-governmental Preparatory Meeting
For the 17th Session of the United Nations Commission on Sustainable Development
(UNCSD)**

25 February 2009

Madame Chair

Barbados is among the fifteen (15) most water scarce countries of the world.

In addition, the effect of climate change in Barbados is being manifested in the form of shorter, more intense rainfall patterns which could have significant implications for other issues particularly, land degradation.

In order to meet the growing demands for water for agriculture and to improve the island's food security status, the Government of Barbados has therefore sought to enhance the country's capacity to harvest and store rain water as well as to divert surface water to recharge the subterranean aquifer.

Drought-relief studies and their implications for national development and planning have resulted in a drought relief scheme being put in place as the findings of the studies have been integrated into national development planning.

Faced with the prospects of less than enough water to satisfy national needs the following initiatives were undertaken:

- A brackish water desalination plant was established in February 2000.
- A strategic planning framework for the sustainable management of ecosystems in drought prone areas has been developed and integrated into the national development strategies and action plans.
 - The Ministry of Agriculture established an Authority to oversee the implementation of various policies and practices to arrest land degradation and restore land and soil productivity in areas undermined by subterranean run-off.
- The national strategy and contingency arrangements for drought preparedness to deal with drought related food and water deficiencies are coordinated by the Ministry of Agriculture. Included among these arrangements will be the introduction of short-age crop varieties, establishment of salt-tolerant crops in areas served by arid, saline or brackish water, adopting water saving irrigation techniques, modernising irrigation systems and promoting the use of mulching. These initiatives will be supported by incentives when necessary.

Madame Chair,

The use of climate and weather information, forecasts, monitoring and early warning to mitigate the effects of drought are indispensable tools for the sector. The application of risk-mapping, remote-sensing, agro-methodological modelling, integrated multi-disciplinary crop forecasting techniques, and computerized food supply/demand analysis are tools not yet fully implemented or utilized by the sector.

The issues of forecasting and assessment of droughts are two priority areas for us. The challenge for Barbados will be to develop the means of expanding the hydrological and hydrometeorological observational network that would assist the work of the Barbados Water Authority in monitoring and evaluating the water resources of the country.

Another significant constraint is the financing of our somewhat antiquated potable water distribution system which, although it has served the country well in the past, is in dire need of a major overhaul.

In conclusion, the Government of Barbados is seeking alliances with partners who can share in developing mutually beneficial monitoring, harvesting and distribution technologies which can assist in the better development of this crucial aspect of national development.

Thank you Madame Chair



The Government of Barbados

Statement on Desertification

To the

Inter-governmental Preparatory Meeting

For the 17th Session of the United Nations Commission on Sustainable Development (UNCSD)

26 February 2009

Madam Chair

Recognizing the possible threat that land degradation and drought poses to Barbados' social and economic development, government continues to address the problem via some key governmental institutions.

- The Soil Conservation Unit addresses issues relating to land degradation within the vulnerable Scotland District,
- The Drainage Unit focuses on flood related matters.
- The Coastal Zone Management Unit deals with all coastal related matters, including the evident increase in beach erosion which is now a major threat to coastal plant communities around the island's coastline.

More recently a Natural Heritage Department (NHD) was established in 2005, with part of its mandate to ensure that land-use practices occurring within the proposed National Park are consistent with sustainable land management. Similarly, a National Botanical Gardens Unit was established primarily to promote and showcase best land-use practices on environmentally sensitive landscapes.

Government's support and commitment to the implementation of the provisions of the UNCCD is reiterated via the following actions:

- ongoing capacity building;
- structured and coherent reviews, participatory planning and implementation of governance-based systems;
- continual allocation of financial resources via national budgetary processes;

- continual amendments to existing legislation and the creation of new laws and regulations;
- participation in regional and international functional and technical cooperation arrangements on degradation and drought issues;
- establishment of national data collection, indicator, and information dissemination systems; and
- increased efforts in public consultation, engagement, education and outreach programmes.

While we have put some measures in place- the area of land information systems, access to new and developing technologies in monitoring and surveillance and training of personnel in this particular area remains a constraint.

The Government of Barbados is hopeful that emerging from CSD 17, we will be able to identify partners with whom we can share our experience in addressing land degradation. We also hope to identify opportunities for capacity development and technology transfer in the area of land management monitoring and information systems.

I Thank you.



The Government of Barbados

Statement on Inter-linkages, Cross Cutting Issues and Means of Implementation

To the

Inter-governmental Preparatory Meeting

For the 17th Session of the United Nations Commission on Sustainable Development (UNCSD)

27 February 2009

Madame Chair,

Barbados has established a National Strategic Plan, one of the major tenets of which is the building of a Green Economy by strengthening the physical infrastructure and preserving the environment. In pursuit of this goal we have initiated steps to develop Indicators of the Green Economy, monitor and adapt as necessary our consumption and production patterns and build partnerships with non- traditional sectors such as the banking and financial sector as well as industry and manufacturing. Government is also a key advocate of corporate social responsibility.

Madame Chair

Barbados' economy relies on a number of service based industries which have provided infrastructural growth and development. Indeed, the development of a relatively strong tourism industry is one of the successes of the post independence period. The people of Barbados are cognisant however, of the erratic nature of international travel and trade as demonstrated by recent global events. We have always endeavoured to maintain a strong agricultural sector in order to ensure a measure of food security, provide traditional foods for our citizens, prevent land degradation, generate commercial activity in the rural space, and maintain the aesthetic

beauty of the countryside. As it is with many of our neighbours, our culture has been inextricably linked with agriculture.

The linkage between agriculture and the type of tourism which is promoted in Barbados is very strong. We encourage our visitors to share in our rich heritage, eat our traditional foods and enjoy our coastline.

In order to maintain this balance the Ministry of Agriculture has to constantly deal with a number of issues which challenge our technical expertise and are also very costly to manage.

These issues include constant landslides and erosion in the Scotland District which represents one-seventh of the total land area of the country. Such occurrences threaten agriculture in those areas as well as the associated housing and road network of rural people.

Another is the high cost of maintaining surveillance units and laboratories to protect animal health and to assure food quality for both nationals and visitors as well as to provide services to neighbouring countries. Labs must also maintain a stringent Quality Assurance/Quality Control (QA/QC) system with a view to meeting international standards.

Other areas of concern include the maintenance and restoration of near-shore reefs subject to damage as a result of soil and chemical pollution, the control of invasive species of pests and the harvesting and storage of water in a densely populated and water scarce country.

Madame Chair

Barbados anticipates that CSD 17 will provide a platform for us to have meaningful dialogue with other governments, civil society and major groups including research institutions, universities and the like which can benefit from our experiences and at the same time allow us to find solutions to those key issues that confront us. We believe that it is only through the establishment of such partnerships that we will achieve sustainable growth.

Thank you Madame Chair.

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