

LIST OF ABBREVIATIONS

BMA	-	Barbados Manufacturers' Association
BMEX	-	Barbados Manufacturers' Exhibition
BNT	-	Barbados National Trust
CANARI	-	Caribbean Natural Resources Institute
CDERA	-	Caribbean Disaster Emergency Response Agency
CDM	-	Comprehensive Disaster Management
CRIC	-	Committee on Review and Implementation of the Convention
CSTC	-	Caribbean Science and Technology Council
CYEN	-	Caribbean Youth and Environmental Network
CZMU	-	Coastal Zone Management Unit
ED	-	Energy Division
EED	-	Environmental Engineering Division
EIA	-	Environmental Impact Assessment
EMLUP	-	Environmental Management and Land Use Planning
ESPU	-	Environmental Special Projects Unit\
EU	-	Environment Unit
GEF	-	Global Environment Facility
GIS	-	Government Information Service
GM	-	Global Mechanism
JICA	-	Japan International Cooperation Agency
KAP	-	Knowledge, Attitudes and Perception
MAR	-	Ministry of Agriculture and Rural Development
MPE	-	Ministry of Physical Development and Environment
NAP	-	National Action Plan
NBSA	-	National Biodiversity Strategy and Action Plan
NCB	-	National Coordinating Body
NCC	-	National Conservation Commission
NCSD	-	National Commission on Sustainable Development
NGO	-	Non-Governmental Organisation

NIHERST	-	National Institute for Higher Education, Research, Science and Technology
NSP	-	National Strategic Plan
OAS	-	Organisation of American States
PDP	-	Physical Development Plan
PIU	-	Public Investment Unit
RIOD/CARIB	-	The Caribbean Unit of the International Network of Non-Governmental Organisations on Desertification
SCU	-	Soil Conservation Unit
TCDPO	-	Town and Country Development Planning Office
TDP 'C'	-	Tourism Development Programme Sub-Programme C
UNCCD	-	United Nations Convention to Combat Desertification
USD	-	United States Dollar

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EXECUTIVE SUMMARY

ES1. Introduction

Overview of the Second National Report

This report is Barbados' Second National Report to the United Nations Convention to Combat Desertification. As Barbados has already submitted its First National Report in April 2000, this report will primarily be focused on providing an update on measures implemented since April 2000 as well as providing information to fill in gaps not covered in the First National Report. It should be noted that not much has changed since the submission of the previous report, however Barbados has begun work on its National Action Plan (NAP) with assistance from the UNCCD Secretariat.

The Land Degradation Situation in Barbados

In order to restrict the length of the document, the status of land degradation was not discussed in great detail in Barbados' First National Report. However, noting that it is a perception among many Party countries that Barbados and the wider Caribbean as a whole are islands of "paradise" and not subject to the effects of land degradation, the Second National Report will draw attention to the land degradation problems experienced on the island.

The Geology of the Island

Eighty-six (86) percent of Barbados is capped by a coral limestone formation, which gives the landscape a gently rolling topography, interrupted at points by deep gullies and a series of almost vertical cliffs that are old coral reef formations. The gullies extend from the central upland region to the coastline, and form an integral part of the island's natural drainage system.

The remaining 1/7th of the island is known as the Scotland District and may be regarded as the most distinctive physiographic region of Barbados. This area has lost the protective coral limestone covering, is hilly, rugged and unstable and erosion has occurred in all forms for many years.

Factors Contributing to Land Degradation in Barbados

The problem of topsoil loss began with extensive clearing of forest for agriculture during the colonial period, which led to the consequent exposure of the underlying soil. According to the Environment and Natural Resources Management Plan (1998), the problem persists today due to several factors including:-

- The clearance of land for construction.
- The lack of maintenance and almost complete breakdown in the formerly extensive system of check-dams in gullies used to direct surface water into the underground aquifer.
- The use of non-specific herbicides

- The replacement of the cane hole planting system by cross contour ploughing and furrowing

The Consequences of Land Degradation

The Barbados State of the Environment Report (2000) recognises that these practices have several environmental impacts downstream. First, the resultant runoff removes the topsoil. Secondly, it carries pesticides and nutrient rich fertilizers to the sea. Thirdly, it transports solid waste and organic waste from gullies to the sea.

Population Size versus Land Area

Barbados is 432 square kilometers in area. The resident population in Barbados in 2000 was estimated at 268,402 making it one of the most densely populated countries in the world, with a density of 623 persons per square kilometer. Whereas in larger countries there is the option of physical relocation, this is not possible on a small island such as Barbados. In addition, under ideal conditions, it would be best not to have persons residing or practising agriculture in an area such as the Scotland District, but with the limited land resources available, this would not be feasible. It is therefore important that Barbados find a sustainable solution to the problem of land degradation before the situation gets critical.

ES2. Strategies Established within the Framework of Sustainable Development Plans and/or Policies

The First National Report identified a number of policies aimed at implementing the principles of sustainable development, however since then comprehensive national legislation addressing sustainable development was drafted and is currently under review. Notwithstanding the tough constraints faced, Barbados has sought to overcome them through regional and local collaboration and by emphasizing the importance of social partnership (both public and private sector).

Three major initiatives to implement Agenda 21 may be identified as the establishment of the National Commission on Sustainable Development (NCSD), the National Strategic Plan (NSP) and the Environmental Management and Land Use Planning (EMLUP) Project. These three initiatives have taken initial steps to address the needs of current and future generations.

Agriculture Sector Plan

An Agriculture Sector Plan was prepared to ensure that practices within the agricultural sector serve to maximize productivity and ensure optimal use of land.

Tourism Development Programme

The Tourism Development Programme Sub-Programme 'C' (TDP 'C') suggests various ways to diversify the tourism product and has a special focus on community tourism, cultural heritage and nature based tourism.

Poverty Alleviation

A poverty alleviation programme is being implemented island-wide through the Ministry of Social Transformation. This will assist in dealing with the issues of poverty and illegal settlements in the Scotland District.

National Biodiversity Strategy and Action Plan

The National Biodiversity Strategy and Action Plan (NBSAP) provides for the integration of the conservation and sustainable use of biological resources into the relevant sectoral and cross-sectoral plans, programmes and national policies. The NBSAP will be finalized in 2002.

ES 3. Institutional Measures Taken to Implement the Convention

Reconfiguration of the UNCCD Focal Point

Since the First National Report there has only been one major institutional change involving the reconfiguration of the Ministry which serves as Focal Point for the UNCCD.

The Ministry which now has responsibility for the UNCCD is the Ministry of Physical Development and Environment, formerly the Ministry of Environment, Energy and Natural Resources.

Agencies which fall under the new Ministry as of October 1, 2001 are:- The Town and Country Development Planning Office, the Public Investment Unit, the Environment Unit, the Coastal Zone Management Unit, the Environmental Special Projects Unit, the Environmental Engineering Division, the Energy Division and the National Conservation Commission.

ES 4. Participatory Process in Support of Preparation and Implementation of Action Programmes

In preparing the National Action Programme the Ministry of Physical Development and Environment in conjunction with the National Committee to Combat Desertification will ensure that there is a high level of participation by the relevant actors and stakeholders.

In order to achieve this the Ministry will seek to host a series of community and stakeholder consultations. To ensure that adequate information is disseminated to the public, the services of the Government Information Service (GIS) will be employed. The two daily newspapers will also be used to place information and announcements.

Stakeholders Identified in the Draft NAP

The draft National Action Plan identifies the following stakeholders which will be invited to participate in the elaboration of the National Action Plan. These are residents and landowners, businesses, horticultural site operators, historical site operators, tour companies, guesthouse owners and hoteliers, government agencies and key research institutions.

Key representatives within each stakeholder group have been identified.

ES5. Consultative Process in Support of the Preparation and Implementation of National Action Programmes

To date the only major consultation which has been held to move forward in the implementation of the UNCCD was the National Workshop held in 1999.

Now that the draft National Action Plan has been prepared the next step is to embark on a consultation phase involving all the stakeholders identified. During 2000, a National Consultation was held to review the National Report to the World Summit on Sustainable Development as well as the National Policy on Sustainable Development. A process such as this will be undertaken in the preparation of the National Action Plan.

ES 6. Measures Taken or Planned within the Framework of National Action Programmes, Including Measures Taken to Improve the Economic Environment, to Conserve Natural Resources, to Improve Institutional Organisation, to Enhance Knowledge on Desertification and its Control, and to Monitor and Assess Desertification and Drought.

Preparation of a Draft National Action Plan

The National Focal Point with assistance from the UNCCD Secretariat was able to contract a consultant to prepare a draft National Action Plan.

This is a major step for Barbados as it seeks to implement the UNCCD. The draft National Action Plan is based on the National Workshop on Desertification and Drought held in 1999, which was discussed in the First National Report.

Projects Aimed at Combating Desertification and Drought

There already exist numerous projects and activities which are geared towards combating the effects of desertification and drought, and these projects will be examined to assess their relationship with UNCCD principles and the possibility of incorporating them into the National Action Plan. These projects and activities include the Agro-Eco-Tourism Project, the Beautify Barbados 2000 Project, celebration of National Arbor Day on September 22, Community Redevelopment Projects, Disaster Action, the Bawdens Demonstration Project, Soil Conservation Projects, The Barbados National Trust School's Tree Planting Project and The Gully Ecosystem Management Study

ES7. Financial Allocations from National Budgets in support of implementation as well as financial assistance and technical cooperation including their inflows

Budget for Desertification in the MPE

The Ministry of Physical Development and Environment as Focal Point to the UNCCD has allocated USD 6000 to the desertification work programme for the year 2002 - 2003. These

funds will be primarily used to assist with the elaboration of the National Action Plan, on public awareness activities and for the general functioning of the National Committee to Combat Desertification.

Budget for Desertification in the MAR

The Ministry of Agriculture and Rural Development has provided the Soil Conservation Unit with a budget of approximately USD 15, 000 for the financial year 2002-2003. These funds will be used for the purchasing of materials such as seedlings, bags, soil, potting medium and nurseries for propagation of seedlings.

In an effort to proceed with the elaboration of the National Action Programme the Ministry will be seeking assistance from the UNCCD Secretariat and the Global Mechanism (GM) as the funds allocated in the national budget will not be sufficient to hold the necessary consultations required to elaborate the NAP.

Technical Assistance

To date a plan has not been formulated for the request of technical cooperation, however it is the intention to forge linkages with countries in the region such as Cuba as well as countries of Africa, which are more advanced in the techniques of combating desertification. Technical fields where Barbados could benefit include forestry management, nursery-care management and silviculture.

Financial Assistance

In addition to requiring financial resources to assist with the elaboration and implementation of its National Action Plan, funding is also required to upgrade the nursery at the Soil Conservation Unit. Money is needed to purchase collection and mensuration instruments for measuring diameter and height of plants to determine compatibility with the soil type, as well as for purchasing of vehicles to collect germplasm from around various parts of the island.

Financial assistance is also being sought to upgrade the existing hydrological and hydro-meteorological stations which will be utilized for drought management as well as for measuring the impacts of climate change.

ES 8. Review of Benchmarks and Indicators Utilised to Measure Progress and as Assessment

In the First National Report a number of benchmarks and indicators were listed which were taken from the Indicators Programme under the Ministry of Physical Development and Environment.

Monitoring and Data Collection

Monitoring and data collection continue to be an area that needs more attention in the environmental sector. With respect to parameters which assist in indicating the effects of desertification and drought, there is a need for a more coordinated approach to collecting and compiling this data.

Efforts are underway to bring together the Barbados Water Authority, the Ministry of Agriculture and Rural Development, the Coastal Zone Management Unit, the Barbados Meteorological Office and the Caribbean Meteorological Institute to devise a more coordinated approach to rainfall data collection and monitoring.

There is also a proposed initiative between the Japan International Cooperation Agency (JICA) and the Caribbean Disaster Emergency Response Agency (CDERA) entitled **The Caribbean Disaster Management Project**. The aim of this project is to promote an increase in the capacity of CDERA for Comprehensive Disaster Management (CDM). It is anticipated that this project will come on stream in August 2002.

ES 9. Conclusion

As outlined in the draft National Action Plan, Barbados will focus on elaborating its NAP using a number of clearly outlined steps. These include:-

- ❖ Formulation of a full public awareness and education programme, informed by a Knowledge, Attitudes and Perceptions Study (KAP). This is key as success can only be achieved if concepts and practices are accepted and adopted on an individual basis.
- ❖ Procurement and expansion of financial, human and technological resources.
- ❖ Development, implementation and maintenance of a programme for monitoring and mitigating the effects of land degradation and drought.
- ❖ Identification, development, documentation and protection of local knowledge and practices with respect to hard and soft engineering solutions and other approaches to address land degradation and mitigate against the impacts of land degradation and drought.
- ❖ Support and strengthen mechanisms for stakeholder participation in the implementation of the actions outlined in the National Action Programme. The Convention itself emphasizes and promotes the bottom-up approach.
- ❖ Implementation and amendment of appropriate legislation to effectively support the NAP and related policies affecting land degradation and drought prevention and mitigation.
- ❖ The integration of climate change and biodiversity concerns with programmes for combating desertification and drought.

ES10. Closing Statement

Barbados remains committed to the United Nations Convention to Combat Desertification and will, once funds are available, be embarking on the elaboration of its National Action Plan.

In keeping with its commitment to the UNCCD, Barbados will be hosting the Eighth Regional Meeting of Latin American and Caribbean Countries Party to the UNCCD in July of this year. At this meeting the Second National Reports will be reviewed and preparations made for presentation of these reports to the Committee on Review and Implementation of the Convention (CRIC) scheduled for November 2002.

1. INTRODUCTION

1.1 Overview of the Second National Report

This report is Barbados' Second National Report to the United Nations Convention to Combat Desertification. The main purpose of the report is to inform Parties to the Convention on the situation in each country Party with regard to measures taken towards the implementation of the UNCCD at the national level.

As Barbados has already submitted its First National Report in April 2000, this report will primarily be focused on providing an update on measures implemented since April 2000 as well as providing information to fill in gaps not covered in the First National Report. It should be noted that not much has changed since the submission of the previous report, however Barbados has begun work on its National Action Plan with assistance from the UNCCD Secretariat.

1.2 The Land Degradation Situation in Barbados

It should be noted that in order to restrict the length of the document, the status of land degradation was not discussed in great detail in Barbados' First National Report. However, noting that it is a perception among many Party countries that Barbados and the wider Caribbean as a whole are islands of "paradise" and not subject to the effects of land degradation, the Second National Report will draw attention to the land degradation problems experienced on the island.

1.2.1 The Geology of the Island

Eighty-six (86) percent of Barbados is capped by a coral limestone formation, which gives the landscape a gently rolling topography, interrupted at points by deep gullies and a series of almost vertical cliffs that are old coral reef formations. The gullies extend from the central upland region to the coastline, and form an integral part of the island's natural drainage system.

The remaining 1/7th of the island is known as the Scotland District and may be regarded as the most distinctive physiographic region of Barbados. This area has lost the protective coral

limestone covering, is hilly, rugged and unstable and erosion has occurred in all forms for many years.

The Scotland District lies on the North East coastline of the island and is exposed to the prevailing North East trade winds. Rain leading to rapid run off on the hilly terrain with dissected ridges, ravines and flood plains, causes severe erosion and slumping.

1.2.2 Factors Contributing to Land Degradation in Barbados

The above-mentioned natural conditions are exacerbated by housing construction and inappropriate farming practices. This has resulted in severe land slippage and associated damage to property and risk to life, particularly after prolonged periods of heavy rains.

The most highly erodable soils are found in the Scotland District. However, the limestone regions have experienced significant levels of erosion due mainly to human activity, rather than to natural physical conditions as is the case in the Scotland District. The clearing of land and application of inappropriate agricultural techniques are major causes of the problem.

The problem of topsoil loss began with extensive clearing of forest for agriculture during the colonial period, which led to the consequent exposure of the underlying soil. According to the Environment and Natural Resources Management Plan (1998), the problem persists today due to several factors including:-

- The clearance of land for construction. This results in loss of surface shoots and subsurface roots, thereby increasing the vulnerability to landslides.
- The lack of maintenance and almost complete breakdown in the formerly extensive system of check-dams in gullies, and of canefield suck-wells, both of which were used to direct surface water into the underground aquifer.
- The use of non-specific herbicides that kill total ground cover and promote soil runoff.

- The replacement of the cane hole planting system by cross contour ploughing and furrowing, thereby encouraging runoff instead of water retention in the topsoil and aquifer.

1.2.3 The Consequences of Land Degradation

The Barbados State of the Environment Report (2000) recognises that these practices have several environmental impacts downstream. First, the resultant runoff removes the topsoil and creates an environmental hazard in the near-shore marine area, especially to reef systems, and causes loss of soil structure and soil fertility in agricultural areas. Secondly, it carries pesticides and nutrient rich fertilizers to the sea, impacting negatively on the marine environment. Thirdly, it transports solid waste and organic waste from gullies to the sea, with potential environmental and public health consequences.

1.3 Population Size versus Land Area

Barbados is 432 square kilometers in area. The resident population in Barbados in 2000 was estimated at 268,402 making it one of the most densely populated countries in the world, with a density of 623 persons per square kilometer. It is with these figures in mind that the land degradation scenario in Barbados is an important issue. Whereas in larger countries there is the option of physical relocation this is not possible on a small island such as Barbados. In addition, under ideal conditions, it would be best not to have persons residing or practising agriculture in an area such as the Scotland District, but with the limited land resources available this would not be feasible. It is therefore important that Barbados find a sustainable solution to the problem of land degradation before the situation gets critical.

2. STRATEGIES ESTABLISHED WITHIN THE FRAMEWORK OF SUSTAINABLE DEVELOPMENT PLANS AND/OR POLICIES

The First National Report identified a number of policies aimed at implementing the principles of sustainable development, however since then comprehensive national legislation addressing sustainable development was drafted and is currently under review. Notwithstanding the tough constraints faced, Barbados has sought to overcome them through regional and local collaboration and by emphasizing the importance of social partnership (both public and private sector).

2.1 Implementation of Agenda 21

Three major initiatives to implement Agenda 21 may be identified as the establishment of the National Commission on Sustainable Development (NCSD), the National Strategic Plan (NSP) and the Environmental Management and Land Use Planning (EMLUP) Project. These three initiatives have taken initial steps to address the needs of current and future generations. In this regard, some of the strengths of planning for sustainable development are pro-activity, inclusiveness, shared responsibility and integration. With respect to pro-activity, the EMLUP Project recognized that economic and social development could not continue along a sustainable path unless measures were put in place to address environmental issues as well. The NSP is structured to anticipate the need for adjustments in the implementation of measures since the Plan is designed to respond to the dynamics within each sector and to external forces. In keeping with the principles of sustainable development, the NCSD has sought the input of all sectors and stakeholders in the execution of its work. This is demonstrated in the formulation of the draft National Sustainable Development Policy, which includes policies pertaining to land degradation and water resources. The NSP aims to combine the objectives, ideas and concerns of practitioners in all sectors, in order to facilitate a comprehensive approach to national planning.

2.2 Integrated Approach to Planning and Management of Land Resources

The Town and Country Development Office is responsible for the development and implementation of national policy on land use and physical planning in Barbados. The TCDPO

seeks to ensure compliance with policy for land use and physical development through the development control process. Applications for new developments, as well as changes to existing developments, are submitted to the TCDPO. These applications are evaluated for compliance or non-compliance with national policies and standards, and if deemed necessary are subject to Environmental Impact Assessments (EIAs) through the oversight of an EIA panel. The TCDPO has strong powers of regulation and enforcement, with which to ensure compliance with the legislation and policies of the Physical Development Plan (PDP).

The main policy document for land use planning is the Physical Development Plan, which was discussed in the First National Report. With a view to promoting sustainable land use the EMLUP project prepared a revised PDP in 1998 and draft amendments to the Town & Country Planning Act which are intended to integrate the concepts of sustainable development into every aspect of land use planning and development in Barbados.

The revised institutional structure, policies, regulations and legislative instruments allow for objections to planning applications to be considered in the approval process. Town Hall Meetings and public consultations are convened with a view to extracting public opinions on land use proposals. The overriding objective is the achievement of sustainable national development including: conservation of environmental and natural resources; efficient use of resources; improved quality of life; inter- and intra- generational equity with regard to resource allocation; and full stakeholder participation in the development and implementation of national policies. The strategy/policy reflects an integrated approach addressing: rural development; viability of rural areas; environmental aspects (e.g. minimization of negative environmental impacts of human-induced activities such as unsustainable agricultural practices on marginal lands, regulation of productive lands and urban land use zoning and enhancement of positive impacts on the environment through better land use management practices); and social aspects. Best possible land use and sustainable management of land resources in Barbados is to be encouraged through the use of various market based instruments as proposed in the revised draft Physical Development Plan (1998) and Town and Country Planning Development Act (1998). Legislation and guidelines stipulated within these documents would be the dominant measures in use.

2.3 Agriculture Sector Plan

An Agriculture Sector Plan was prepared to ensure that practices within the agricultural sector serve to maximize productivity and ensure optimal use of land available for agriculture, promote the adoption of farming systems that are environmentally friendly, and ensure preservation of adequate areas of arable land for future generations.

2.4 Tourism Development Programme

The Tourism Development Programme Sub-Programme 'C' (TDP 'C') suggests various ways to diversify the tourism product and has a special focus on community tourism, cultural heritage and nature based tourism. The TDP C forms a critical component of the Tourism Plan for Barbados.

2.5 Poverty Alleviation

A poverty alleviation programme is being implemented island-wide through the Ministry of Social Transformation. This will assist in dealing with the issues of poverty and illegal settlements in the Scotland District, and as genuine cases of poverty are tackled, the attendant land use and degradation typically associated with such illegal settlements should be addressed.

2.6 National Biodiversity Strategy and Action Plan

The National Biodiversity Strategy and Action Plan (NBSAP) provides for the integration of the conservation and sustainable use of biological resources into the relevant sectoral and cross-sectoral plans, programmes and national policies. The NBSAP will be finalized in 2002.

3. INSTITUTIONAL MEASURES TAKEN TO IMPLEMENT THE CONVENTION

3.1 Reconfiguration of the UNCCD Focal Point

Since the First National Report there has only been one major institutional change involving the reconfiguration of the Ministry which serves as Focal Point for the UNCCD.

The Ministry which now has responsibility for the UNCCD is the Ministry of Physical Development and Environment, formerly the Ministry of Environment, Energy and Natural Resources.

Agencies which fall under the new Ministry as of October 1, 2001 are:-

❖ Physical Development

- Town and Country Development Planning Office (TCDPO)
- Public Investment Unit (PIU)

❖ Environment

- Environment Unit (EU)
- Coastal Zone Management Unit (CZMU)
- Environmental Special Projects Unit (ESPU)
- Environmental Engineering Division (EED)
- Energy Division (ED)
- National Conservation Commission (NCC)

3.2 National Coordinating Body (NCB)

The composition of the National Coordination Body has not changed, however plans are being made to include an NGO on the committee, namely the Barbados chapter of the Caribbean Youth Environment Network (CYEN). CYEN is a regional organization comprised of youth groups and individuals whose aim is to encourage youth to take positive action on issues related to the environment and sustainable development. CYEN has participated in some of the NGO

meetings of the UNCCD and is currently seeking to become accredited with the Convention. CYEN is currently the alternative Focal Point of RIOD/CARIB (The Caribbean Unit of the International Network of Non-Governmental Organisations on Desertification). RIOD is the NGO grouping recognized by the UNCCD as the legitimate NGO body with observer status to all UN meetings pertaining to the Convention.

The work plan of the NCB will not differ from that identified in the First National Report. The primary goal of the Committee at present is the elaboration of the National Action Plan. Additionally, much of the NCB's work comprises public awareness activities in conjunction with other organizations such as the National Arbor Day Committee.

4. PARTICIPATORY PROCESS IN SUPPORT OF PREPARATION AND IMPLEMENTATION OF ACTION PROGRAMMES

In preparing the National Action Programme the Ministry of Physical Development and Environment in conjunction with the National Committee to Combat Desertification will ensure that there is a high level of participation by the relevant actors and stakeholders.

In order to achieve this the Ministry will seek to host a series of community and stakeholder consultations. To ensure that adequate information is disseminated to the public, the services of the Government Information Service (GIS) will be employed. The two daily newspapers will also be used to place information and announcements.

As discussed in the First National Report public awareness and education campaigns have been organized by various organizations including the National Arbor Day Committee and the Barbados Water Authority.

4.1 Stakeholders Identified in the Draft NAP

The draft National Action Plan identifies the following stakeholders which will be invited to participate in the elaboration of the National Action Plan.

- ❖ Residents and Landowners
- ❖ Businesses
- ❖ Horticultural site operators
- ❖ Historical site operators
- ❖ Tour companies
- ❖ Guest house owners and Hoteliers
- ❖ Government agencies
- ❖ Key research institutions (University of the West Indies, Bellairs Research Institute)

Key representatives within each stakeholder group have been identified.

It is envisaged that there will be an overall sensitization and education programme for all key groups in the Scotland District through consultation and information exchange among the various groups.

4.2 Stakeholder Participation in Water Resource Projects

With respect to water resources, there has been improved stakeholder participation in the development and implementation of projects. For example, the desalination project was the first water resources development project that was mandated to conduct an Environmental Impact Assessment (EIA) and to hold Town Hall meetings and consultations with the local communities that would be impacted. This was a Town and Country Development Planning Office conditionality for project approval. EIA and project proposals reports were made accessible to the community for their review and comments.

4.2.1 Sustainable Water Resources Development and Management

Back in 1998, National Consultation Workshops were organized by the National Commission for Sustainable Development (NCSD) on Sustainable Water Resources Development and Management. These comprised presentation of information on water resources development, demand, management and control issues to invited stakeholders from government, private, NGO and community groups. The workshop also provided feedback and input which were incorporated into the National Sustainable Development Policy for Barbados. Feedback was captured in reports submitted by various working groups of stakeholders and then synthesized into national policy positions by various sub-committees of the NCSD.

4.2.2 Integrated Watershed and Coastal Areas Management Project

In 2001, there was the development of the Integrated Watershed and Coastal Areas Management Project. This regional project is seeking financing from the Global Environment Facility (GEF). Whereas the Coastal Zone Management Unit has previously executed projects involving local communities, this will be the first major structured project in water resources management that involves local communities living within the demonstration project watershed.

4.2.3 Co-operative Strengthening of National Institutions to Enhance Integrated Water Resources Management Project

Barbados is participating in an on-going regional project sponsored by the Organisation of American States (OAS) being implemented by the Caribbean Science and Technology Council (CSTC) through the Trinidad and Tobago National Institute for Higher Education, Research, Science and Technology (NIHERST). The project is entitled “Co-operative Strengthening of National Institutions to Enhance Integrated Water Resources Management Project”. Emphasis is on enhancing stakeholder participation and includes the review of the Draft Policy Framework for Water Resources Development and Management to ensure that the relevant water resources issues contained in the recently prepared Draft Agricultural Sector Policy as well as Barbados’ obligations under the various international and regional agreements, are adequately incorporated.

Updates to the draft Policy Framework of 1997 included:-

- The recommendation to establish a separate Water Resources Agency which deals with resource and regulatory issues.
- The recommendation to shift the responsibility for water quality monitoring and control to the Environmental Engineering Division.
- The recommendation to strengthen regional co-operation in managing water resources.

4.2.4 Stakeholder Participation Workshops

During the period 1999 – 2001, the Barbados Water Authority (BWA) personnel have attended training workshops organized by the Caribbean Science and Technology Council (CSTC) through the Trinidad and Tobago National Institute for Higher Education Research, Science and Technology (NIHERST) on Stakeholder Participation Techniques.

4.3 Stakeholder Participation in the Rio + 10 National Report

There was also stakeholder participation in the preparation of the National Report for the RIO + 10 Conference in 2001. Stakeholders were invited to review and provide input into the Draft National Report prepared by the then Ministry of Environment, Energy and Natural Resources, in collaboration with other relevant agencies, individuals and NGOs. The format of the

workshop allowed for participants, including civil society, to review thematic areas in small groups and provide feedback based on their experiences and interests. The report focused on key issues of concern for Barbados, one of which is the management of freshwater resources.

It has been observed that there is an increased number of persons participating in public stakeholder meetings. There is also more research being conducted on water related issues at all levels of education – primary, secondary and tertiary.

5. CONSULTATIVE PROCESS IN SUPPORT OF THE PREPARATION AND IMPLEMENTATION OF NATIONAL ACTION PROGRAMMES

To date the only major consultation which has been held to move forward in the implementation of the UNCCD was the National Workshop held in 1999.

The draft National Action Plan proposes that consultations will be held among the various stakeholders. The information gained from these consultations, along with that amassed from studies by Government and private agencies over the years, will be used to guide the development of a Scotland District Environmental Standards Certification Programme for all activities within the area.

Now that the draft National Action Plan has been prepared the next step is to embark on a consultation phase involving all the stakeholders identified. During 2000, a National Consultation was held to review the National Report to the World Summit on Sustainable Development as well as the National Policy on Sustainable Development. A process such as this will be undertaken in the preparation of the National Action Plan.

6. MEASURES TAKEN OR PLANNED WITHIN THE FRAMEWORK OF NATIONAL ACTION PROGRAMMES, INCLUDING MEASURES TAKEN TO IMPROVE THE ECONOMIC ENVIRONMENT, TO CONSERVE NATURAL RESOURCES, TO IMPROVE INSTITUTIONAL ORGANISATION, TO ENHANCE KNOWLEDGE ON DESERTIFICATION AND ITS CONTROL, AND TO MONITOR AND ASSESS DESERTIFICATION AND DROUGHT.

6.1 Preparation of a Draft National Action Plan

The National Focal Point with assistance from the UNCCD Secretariat was able to contract a consultant to prepare a draft National Action Plan.

This is a major step for Barbados as it seeks to implement the UNCCD. The draft National Action Plan is based on the National Workshop on Desertification and Drought held in 1999, which was discussed in the First National Report.

The draft NAP provides an overview of the land degradation issues on the island as well as the drought situation, reviews national policies and legislation relevant to the UNCCD, outlines the National Action Programme as discussed at the National Workshop and identifies a way forward to elaborate the draft document.

6.2 Projects Aimed at Combating Desertification and Drought

There already exist numerous projects and activities which are geared towards combating the effects of desertification and drought, and these projects will be examined to assess their relationship with UNCCD principles and the possibility of incorporating them into the National Action Plan.

A brief overview of some of those projects and activities since the First National Report or those omitted from the First National Report are outlined below:-

6.2.1 Agro-Eco-Tourism Project

The Agro-Eco-Tourism Project was a joint initiative of the Inter-American Institute for Cooperation on Agriculture and Ministries of Agriculture and Rural Development, Physical Development and Environment, Social Transformation and Tourism to promote the development of sustainable projects at the community level in the Scotland District. The project offered training, prizes and incentives and sought funding for the projects submitted under the programme. The capacity building component included workshops on the development of project proposals. This initiative is still ongoing, some of the project proposals have been approved for funding, whilst some project concepts require assistance with the preparation of the project proposal.

6.2.2 Beautify Barbados 2000

Re-vegetation and beautification of various areas across the island is the main thrust of the Beautify Barbados 2000 Project. In addition to improving the aesthetic quality of the island, this project will assist in improving soil conservation across the island. An initiative at Joe's River Forest on the East Coast of the island involved enrichment planting with potentially commercial tree species such as Mahogany, Cassuarina and Cedar. The small size of this area prevents economically viable harvesting of these species. Teaching and research expeditions are conducted in this area with established trails for nature walks and recreation.

6.2.3 National Arbor Day 2000 and 2001

The First National Report highlighted the work of the National Arbor Day Committee. Since that report the committee has embarked on various activities to promote the importance of planting and maintaining trees. The work of this committee is in harmony with the principles of the UNCCD.

Barbados celebrates National Arbor Day on September 22, however the Arbor Day Committee, of which the Focal Point for the UNCCD is a member, celebrates the week of Arbor Day as National Arbor Week.

The National Arbor Day Committee, having reviewed its successes over the three year period since its reconstitution, came to the realization that even though it was important to have as many trees planted as possible, it was better to ensure the longevity of the trees, and by extension, to have the young trees adequately maintained to ensure that they reach maturity. Thus, during the year 2000, emphasis was placed on educating the population about the importance of proper tree planting techniques and ensuring that proper maintenance structures were in place to ensure that the trees survived. Further, focus was concentrated on the following areas:-

❖ *Public Relations*

In 2000, contact was made with a local radio station Starcom Network, with a view to utilizing the Road Runner Programme which travels around the country distributing items. For Arbor Day 2000, trees were distributed to residents in the communities visited by the Road Runner. The same radio station also offered air time during one of their shows entitled “Afternoon Delight”, where committee members were interviewed on their agencies’ respective roles where trees are concerned as well as on the activities planned for Arbor Week 2000.

Articles were also placed in the daily newspapers which discussed the importance of trees.

❖ *Education Package*

In an effort to continue its thrust to educate the public about the importance of trees and also to encourage schools and community groups to assist in the preservation of the environment, the Committee sought to have a booklet produced and printed. The booklet was created to help persons do a better job of planting and caring for their trees.

❖ *Schools’ Nursery Development Project*

During 2000, the Committee was fortunate to receive sponsorship for the School’s Nursery Development Project. Each of the four schools receiving plant nurseries were presented with Proclamations to certify the school’s commitment and their pledge to utilize and maintain the plant nursery. The schools were also presented with gift vouchers from the Barbados 4-H Foundation, which entitled them to receive USD25.00 worth of seeds from the Foundation’s Seed Store. They were also presented with the Guide to Tree Planting.

❖ *Creation of Web Page for Arbor Day*

This was a way of ensuring that information was available to a wider audience and is also used to highlight the work of the committee.

The address is www.sunbeach.net/arborday

❖ *Provision of Tee-Shirts*

Shirts were produced with the Arbor Day logo as well as the theme – ***“Trees: The Circle of Life”***

❖ *Arbor Week 2000*

The activities for the week included:-

- Open Day at Coastal Zone Management Unit
- Barbados 4-H Foundation, Barbados National Trust and University of the West Indies Joint Open Day
- Environment Unit & NCC Joint Open Day
- Tree Planting Ceremony

❖ *Poster Competition*

There was a school’s poster competition which invited students to produce posters in celebration of National Arbor Day on the theme **“Trees The Circle of Life”**. Fifty-eight entries were submitted and the quality and originality of the posters was very good.

Celebrations for Arbor 2001 were similar in nature to those of 2000, the highlight being a tree planting ceremony at the Prime Minister’s residence. This was a very important day for the Arbor Committee, as it showed that there was political support at the highest level for its efforts. Two trees were planted on the grounds of Ilaro Court, one by the Prime Minister himself and the other by the Acting Minister of the then Ministry of Environment, Energy & Natural Resources.

6.2.3.1 Arbor Week 2002

Activities for Arbor Week 2002 will be focused on how best the Committee can involve the community. To this end, it is proposed that the following activities be considered:-

- Public lectures be held island-wide
- Practical sessions in tree planting be conducted in the schools
- Expansion of the plant nursery development project into other schools
- Inclusion of an environmental page in the next issue of the NCC's Newsletter scheduled for June 2002
- Implementation of an urban area greening project – where an area would be selected and the community would be encouraged to plant trees and generally beautify the site
- Development of a Plant Basket Project - where students would be encouraged to grow plants in baskets. This would be modeled from a similar project in Denver, U.S.A
- Engage in discussions with contractors and architects regarding the preservation and inclusion of trees in their building plans
- Conduct workshops on preservation of trees
- Launch of a Graduation Class Tree Project, where a tree would be planted by the graduating class. Technical assistance would be provided by the committee

6.2.4 *Community Redevelopment Projects*

These projects represented an offshoot of the Coastal Conservation Programme under the Coastal Zone Management Plan. The projects were community driven, with technical and financial support from various government agencies and the private sector, and saw the development of a Dune Rehabilitation Programme and a Coastal Revegetation Project at Walkers, St. Andrew. These projects were discussed in the First National Report.

Since the Coastal Conservation Programmes implemented in 1998 and 1999, the Coastal Zone Management Unit has not initiated any other re-vegetation programmes, however there is a proposal to implement a Beach Re-vegetation Programme during the 2002 – 2003 financial year.

The aim of the new project will be to re-establish vegetation on beaches around the island to promote beach stability and improve the aesthetics of the coastline. The main areas of focus will be beaches, which the public utilize heavily. The project will be carried out in two phases, the re-vegetation phase and the vegetation conservation phase.

Phase 1 – Re-vegetation phase

A. Batts Rock – for beach stability purposes

The types of vegetation chosen for this site are sea yam and sea grape. These types were chosen for two reasons. The sea grape trees have a complex deep root system, which can bind the sand and offer stability against wave action. Sea yam will offer the necessary ground cover to protect sand from erosion due to run-off.

B. Brandons – for aesthetic purposes

As with the Batts Rock site, restricting vehicular traffic to the back beach area will be necessary to protect vegetation in the early stages of growth.

The types of vegetation to be used at this site are almond and sea grape.

C. Sandy Beach – for aesthetic purposes and protection from wind erosion

This area also has a high incidence of vehicular traffic. Sea grape and almond are also being considered for this site.

Phase 2 – Vegetation conservation phase

- A) Drill Hall vegetation protection around turtle nesting sites
- B) Silver Sands dune vegetation protection
- C) Long Pond dune vegetation protection
- D) East Coast dune vegetation protection
- E) Crane Beach dune vegetation protection

The Re-vegetation phase of the project is scheduled to take six months, however this might be extended. The vegetation conservation phase should finish in December 2002, however there is the fear that on opening the sectioned off areas persons would once again start driving on to the vegetation. It is therefore imperative that a public awareness / public education campaign be a part of this venture, if maximum success is to be achieved.

As part of the education awareness initiative it is proposed that the following activities be undertaken:-

- placing of signage on the beaches;
- publication of articles in the Coastal Zone Management Unit's quarterly newsletter;
- mounting of exhibitions - including participation in the Barbados Manufacturers' Association's (BMA) Barbados Manufacturers' Exhibition (BMEX); and
- presentations to primary and secondary schools.

It is also proposed that the project be highlighted for World Day to Combat Desertification on June 17, 2002 and during Arbor Week in September 2002.

6.2.5 Disaster Action

Disaster Recovery and Proactive Actions have included the relocation of (160) households from the White Hill community of St. Andrew by the Ministry of Housing and Lands. The households had to be relocated as they were in danger due to severe land slippage in the area. The persons were relocated at no cost to themselves. Another (43) households have been identified for relocation.

6.2.6 Bawdens Demonstration Project

Bawdens Demonstration Project is a working display established by the Bawdens Environmental Group, a local NGO, to show persons in a practical way the benefits of utilizing renewable energy, organic farming and the importance of sustainable lifestyles in general. The work of the group is all the more important as the group represents one of a very few examples in Barbados of a functional NGO that combines grass roots environmentalists, farmers and academics.

6.2.7 Soil Conservation Projects

The work of the Soil Conservation Unit (SCU) is aimed at controlling soil conservation in the Scotland District area as well as rehabilitating degraded lands and bringing them back to a state where they can sustain vegetation.

The SCU has identified approximately 1000 hectares of land that needs to be reforested in the Scotland District. To date they have had some success in rehabilitating the soils of the Scotland District, however there is much more work to be undertaken.

6.2.8 The Barbados National Trust School's Tree Planting Project

The Barbados National Trust (BNT) is currently awaiting financing from the Caribbean Natural Resources Institute (CANARI) to embark on a school's tree planting project.

The objectives of the project are to: -

- ❖ Increase awareness of environmental preservation
- ❖ Increase knowledge about indigenous trees and plants especially The Pride of Barbados (*Caesalpinia pulcherrima*) which is the national flower of Barbados.
- ❖ Beautification of school compounds

Activities will include lectures, tree planting demonstrations and tours. Assistance will be sought from the National Conservation Commission, the Coastal Zone Management Unit, the Ministry of Physical Development and Environment and the National Arbor Day Committee.

Another project being undertaken by the BNT is a tree-planting project at Andromeda Gardens for the students of the Irving Wilson School (School for the Blind and Deaf). The project is aimed at providing these students with an appreciation for the environment.

6.2.9 The Gully Ecosystem Management Study

The gullies of Barbados are a very unique feature in the Barbadian landscape. Gullies are deep fissures in the coral limestone cap of the island which contain a significant portion of the island's

biodiversity. Additionally they act as channels for stormwater flow and provide an entrance for water into the groundwater supply. Gullies can therefore serve as an important means for recharging the groundwater aquifer.

It is therefore the intention of the Gully Ecosystem Management Study, being executed by the Ministry of Physical Development and Environment, to encourage further consideration of the use of gully systems in national flood mitigation and ground water recharge programmes. The results from this Study would assist the Government in designing a strategy for responding to drought. The Study commenced in April 2001 and is scheduled to end in October 2002.

7. FINANCIAL ALLOCATIONS FROM NATIONAL BUDGETS IN SUPPORT OF IMPLEMENTATION AS WELL AS FINANCIAL ASSISTANCE AND TECHNICAL COOPERATION INCLUDING THEIR INFLOWS.

7.1 Budget for Desertification in the MPE

The Ministry of Physical Development and Environment as Focal Point to the UNCCD has allocated USD 6000 to the desertification work programme for the year 2002 - 2003. These funds will be primarily used to assist with the elaboration of the National Action Plan, on public awareness activities and for the general functioning of the National Committee to Combat Desertification. The budget for 2001 – 2002 was USD 2500, which was used on public awareness and on activities of the National Committee.

7.2 Budget for Desertification in the MAR

The Ministry of Agriculture and Rural Development has provided the Soil Conservation Unit with a budget of approximately USD 15, 000 for the financial year 2002-2003. These funds will be used for the purchasing of materials such as seedlings, bags, soil, potting medium and nurseries for propagation of seedlings.

In an effort to proceed with the elaboration of the National Action Programme the Ministry will be seeking assistance from the UNCCD Secretariat and the Global Mechanism (GM) as the funds allocated in the national budget will not be sufficient to hold the necessary consultations required to elaborate the NAP. Preliminary discussions with the Global Mechanism have shown that the organization stands ready to offer assistance to the countries of the Caribbean, however this offer of assistance is still in very early stages and more discussions need to be held with the GM to get official commitment.

7.3 Technical Assistance

To date a plan has not been formulated for the request of technical cooperation, however it is the intention to forge linkages with countries in the region such as Cuba as well as countries of Africa, which are more advanced in the techniques of combating desertification.

Technical fields where Barbados could benefit include forestry management, nursery-care management and silviculture.

7.4 Financial Assistance

In addition to requiring financial resources to assist with the elaboration and implementation of its National Action Plan, funding is also required to upgrade the nursery at the Soil Conservation Unit. Money is needed to purchase collection and mensuration instruments for measuring diameter and height of plants to determine compatibility with the soil type, as well as for purchasing of vehicles to collect germplasm from around various parts of the island.

Financial assistance is also being sought to upgrade the existing hydrological and hydro-meteorological stations which will be utilized for drought management as well as for measuring the impacts of climate change.

8. REVIEW OF BENCHMARKS AND INDICATORS UTILISED TO MEASURE PROGRESS AND AS ASSESSMENT

In the First National Report a number of benchmarks and indicators were listed which were taken from the Indicators Programme under the Ministry of Physical Development and Environment.

8.1 Monitoring and Data Collection

Monitoring and data collection continue to be an area that needs more attention in the environmental sector. With respect to parameters which assist in indicating the effects of desertification and drought, such as rainfall, evaporation rates, temperature, humidity, wind direction, wind speed and radiation, there is a need for a more coordinated approach to collecting and compiling this data.

In Barbados, many of the rainfall gauges are located on plantation lands and the plantation owners provide monthly reports on rainfall to the Barbados Water Authority and the Barbados Meteorological Office who then forward the data on to the Caribbean Meteorological Institute. Efforts are underway to bring together the Barbados Water Authority, the Ministry of Agriculture and Rural Development, the Coastal Zone Management Unit, the Barbados Meteorological Office and the Caribbean Meteorological Institute to devise a more coordinated approach to rainfall data collection and monitoring.

It is of concern though, that the majority of rainfall gauges are located in low rainfall areas and there is a need to install more gauges across the island at more strategic locations. To this end, the Barbados Water Authority in conjunction with the Caribbean Meteorological Institute are working on a project to install more rainfall gauges island-wide in more suitable locations.

There is also a proposed initiative between the Japan International Cooperation Agency (JICA) and the Caribbean Disaster Emergency Response Agency (CDERA) entitled **The Caribbean Disaster Management Project**. The aim of this project is to promote an increase in the capacity of CDERA for Comprehensive Disaster Management (CDM). Under this project, the Japanese

are expected to provide equipment for rainfall data collection. Additionally the data obtained from this project with respect to flood forecasting would assist in the forecasting of drought, whereas for flood forecasting one would be examining the peaks on the rainfall chart, for drought forecasting one would be examining the troughs. It is anticipated that this project will come on stream in August 2002.

It is essential to have parameters in place so that the success of programs implemented can be assessed. Inadequate human resources and lack of sufficient technical staff usually hamper this process.

The countries of the Eastern Caribbean are currently trying to address this issue and will be convening a Workshop on Benchmarks and Indicators in 2002.

As part of its NAP elaboration process, the benchmarks and indicators highlighted in the First National Report will be reviewed and the data collection programme implemented.

9. CONCLUSION

As outlined in the draft National Action Plan, Barbados will focus on elaborating its NAP using a number of clearly outlined steps. These include:-

- ❖ Formulation of a full public awareness and education programme, informed by a Knowledge, Attitudes and Perceptions Study (KAP). The programme should target specific publics as well as the general public and should take a multi-sectoral, multi-media approach. This is key as success can only be achieved if concepts and practices are accepted and adopted on an individual basis.
- ❖ Procurement and expansion of financial, human and technological resources. The need for institutional strengthening and capacity building cannot be ignored. The need for data collection and analysis, and the use of data in decision-making is also critical. Oftentimes when funding is scarce data collection is the first component cut from the budget, however if land degradation and drought are to be combatted effectively data collection at the primary and secondary level are components that must be supported.
- ❖ Development, implementation and maintenance of a programme for monitoring and mitigating the effects of land degradation and drought. An early warning system should be implemented. This would allow for both pro-active and reactive actions and would bring a more holistic approach to combating land degradation and mitigating against the impacts of land degradation and drought.
- ❖ Identification, development, documentation and protection of local knowledge and practices with respect to hard and soft engineering solutions and other approaches to address land degradation and mitigate against the impacts of land degradation and drought. While experiences with respect to addressing desertification should be shared, intellectual property rights issues need to be addressed in this regard.

- ❖ Support and strengthen mechanisms for stakeholder participation in the implementation of the actions outlined in the National Action Programme. The participation of communities and stakeholders identified in the planning process is critical, as the programme cannot be implemented successfully at the Government level alone. The Convention itself emphasizes and promotes the bottom-up approach.
- ❖ Implementation and amendment of appropriate legislation to effectively support the NAP and related policies affecting land degradation and drought prevention and mitigation.
- ❖ The integration of climate change and biodiversity concerns with programmes for combating desertification and drought.

10. CLOSING STATEMENT

Barbados remains committed to the United Nations Convention to Combat Desertification and will, once funds are available, be embarking on the elaboration of its National Action Plan.

In keeping with its commitment to the UNCCD, Barbados will be hosting the Eighth Regional Meeting of Latin American and Caribbean Countries Party to the UNCCD in July of this year. At this meeting the Second National Reports will be reviewed and preparations made for presentation of these reports to the Committee on Review and Implementation of the Convention (CRIC) scheduled for November 2002.

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