

Caribbean Subregional Preparatory Meeting for the
International Meeting to review the Implementation of the
Barbados Programme of Action for the Sustainable
Development of Small Island Developing States
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**REVIEW OF THE IMPLEMENTATION OF THE
PROGRAMME OF ACTION
FOR THE SUSTAINABLE DEVELOPMENT OF
SMALL ISLAND DEVELOPING STATES (SIDS)
IN THE CARIBBEAN SUBREGION
1994-2003**



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Preface

In its resolution A/C.2/57/L64, the General Assembly took the decision to convene an International Meeting in 2004, to undertake a full and comprehensive review of the implementation of the Programme of Action for the sustainable development of small island developing States (SIDS POA). This decision provides the opportunity for the SIDS of the Caribbean subregion, among others, to themselves engage in a review and analysis of the experience of their individual, as well as collective implementation of the Programme of Action, towards the presentation of a consolidated position.

The international meeting will be an event of critical importance and the expectation is that a renewed commitment to the implementation of the SIDS POA will be articulated by the subregion and, in particular, by the wider international community. Since the adoption of the Programme of Action at the United Nations Global Conference on the Sustainable Development of Small Island Developing States (UNGCSIDS), in 1994, the approach to its implementation has been amplified, to embrace, in addition to the environmental issues, which were its hallmark, the key socio-economic issues that were recognised to present critical obstacles to the sustainable development of SIDS. This process was articulated at the twenty-second special session of the General Assembly in September, 1999 and subsequently entrenched at the World Summit on Sustainable Development (WSSD) in August-September, 2002.

The explicit recognition by the WSSD, of the constraints to implementation that have been encountered by SIDS and the fact that the global problems of sustainable development were reviewed by the WSSD through the prism of the outcomes of such major international instruments as the United Nations Millennium Declaration, present SIDS with significantly expanded opportunities. Within the same context, Caribbean SIDS continue to urge that the peculiar circumstances of SIDS, as a special and unique category, be effectively recognised by the wider international community.

The framework for the preparatory process leading to the 2004 International Meeting, was outlined by the General Assembly itself and spans the convening of regional meetings, together with an interregional meeting that is to convene in January 2004.

This document is intended to portray the experience of the SIDS of the Caribbean subregion in the implementation of the SIDS POA from the time of its adoption in 1994, to the present time and, also, with a perspective on 2004 when the full and comprehensive review will take place. It is thus intended to provide a backdrop to the discussions on the substantive issues at the Caribbean Subregional Preparatory Meeting. The preparation of the document was undertaken in the context of the responsibility entrusted to the Regional Commissions of the United Nations system with respect to the coordination of the implementation of the outcomes of global conferences.

The review undertaken by the Subregional Headquarters of ECLAC for the Caribbean indicates that the efforts towards the implementation of the SIDS POA in the Caribbean subregion have yielded considerably less than was envisaged. Certainly, they have failed to even

approximate the type of unilinear progress towards sustainable development, which the international community, including SIDS, appeared to have internalised, when that Programme of Action was adopted as a *blueprint*.

Notwithstanding the solid foundation that the Caribbean SIDS have acquired, both as individual countries and as a subregion, in the area of sustainable development approaches since the adoption of the SIDS POA, the SIDS of the Caribbean have seen their efforts frustrated by, *inter alia*, the non-materialisation of adequate, predictable, new and additional financial resources; the deficit in institutional capacity; the absence of the explicit integration of sustainable development approaches into national planning; and the inability to stimulate sustained broad based public participation.

Within the Caribbean, the implementation process took some considerable time to effectively get off the ground and, even so, once underway, its progress evolved in a very uneven manner across the subregion and in a format that was often less than sustained. Yet, that experience might be viewed as setting the stage for a more focussed approach to a process that is now more comprehensively understood by stakeholders at all levels, particularly following its more recent revitalisation by virtue of the adoption of the Johannesburg Declaration on Sustainable Development and the WSSD Plan of Implementation. The experience might also underline the imperative of a more strategic identification of priorities and, even, of the mobilisation of additional resources from within the subregion itself. Nor should sight be lost of the commitments that remain to be honoured by the wider international community, in this latter context.

This document reviews the activities that have been pursued towards the implementation of the SIDS POA in the Caribbean subregion; the achievements that have been recorded; the constraints that have been encountered in the process; and the prospects for the future. It also looks forward to some of the desired outcomes of the proposed 2004 International Meeting and beyond, as SIDS of all the geographical subregions continue to reach out towards the promise of Barbados. It is divided into three Sections covering, respectively, implementation of the SIDS POA at the subregional level; implementation at the national level; and "*the Future*". The Sections comprise 3, 8 and 2 chapters, respectively.

More specifically, Chapter 1 of Section 1 reviews the implementation of the Programme of Action across the subregion, by reference to distinct periods that mark the successive phases of the evolution of the process. The achievements, constraints and lessons learned in each period are also articulated and reviewed. Particular attention is paid, to one of the early major successes in the subregional implementation process, namely, the formalisation of the structures that have been developed to constitute the *Caribbean Model for the implementation of the SIDS Programme of Action*. This development considerably repays the efforts on the part of Caribbean SIDS to overcome the financial, human resource and institutional constraints that have bedevilled the implementation process from the very beginning. Chapter 2 is devoted to a review of the other major highlights of the implementation process, incorporating the *success stories* that have been reported across the subregion. It also reviews developments in the implementation of the other chapters of the POA that were not covered by the *success stories*, in addition to a

number of socio-economic elements from among those identified at the twenty-second special session of the General Assembly and subsequently entrenched at the WSSD.

Related to the structures that constitute the *Caribbean Model*, particular attention is paid to the Inter-Agency Collaborative Group (IACG) comprising the regional and international agencies that continue to make vital contributions to the implementation of the POA. Such contributions are made within the scope of the mandates of the respective Agencies and, very significantly, with no special funding having been provided, or even envisaged. This element is the subject of Chapter 3. This chapter reviews, in addition, not only the many achievements that have been recorded by the Agencies but, also, the constraints, as well as the enabling factors that have attended the implementation process. The recommendations of the reporting agencies to overcome the constraints encountered are also featured.

This document also incorporates a review of the implementation experience of eight Caribbean SIDS, undertaken by the Subregional Headquarters of ECLAC for the Caribbean. These reviews are not to be confused with the official National Reports that will be presented in another context and are presented in an effort to capture the differences, as well as the similarities that exist across the subregion, in relation to the implementation of selected priority areas. The limitations of these reviews vis a vis the National Reports are readily acknowledged, even if the former are based, in most cases, on consultations with the officials of the respective countries. The reviews of the national experience of implementation of the POA in selected Caribbean SIDS are set out in the respective chapters that comprise Section 11.

Finally, in Chapter 12 of Section 111, a number of unresolved or otherwise outstanding issues related to the implementation of the SIDS POA are examined, as the document looks towards the future. Also explored, is the precise manner in which Caribbean SIDS might seek to influence the further implementation of the SIDS POA, utilising the process that has been outlined by the General Assembly resolution referred to above. In Chapter 13, a number of recommendations are formulated in this regard.

List of Acronyms

ACB	Agricultural Credit Bank
ACCC	Adaptation to Climate Change in the Caribbean
ACP	African, Caribbean and Pacific
ACP-EU	African, Caribbean and Pacific-European Union
ACS	Association of Caribbean States
AOSIS	Alliance of Small Island States
APL	Adaptable Programme Lending
BASEL	The Basel Convention on the Transboundary Movement of Hazardous Wastes and their Disposal
BELFUND	The James Belgrave Micro-Enterprise Fund
BITS	Bilateral Investment Treaties
BNTF	Basic Needs Trust Fund
BVI	British Virgin Islands
BWA	Barbados Water Authority
CAEAL	Canadian Association of Environmental Accredited Laboratories
CAIC	Caribbean Association of Industry and Commerce
CANARI	Caribbean Natural Resources Institute
CARDI	Caribbean Agricultural and Research Development Institute
CAREC	Caribbean Epidemiology Centre
CARIBINECE	Caribbean Network for Environmental Compliance and Enforcement
CARICAD	Caribbean Centre for Development Administration
CARICOM	Caribbean Community
CARIFORUM	Caribbean Forum
CARIDIN	Caribbean Drug Information Network
CAR/RCU	Caribbean/Regional Coordinating Unit
CAST	Caribbean Alliance for Sustainable Tourism
CBD	Convention on Biological Diversity
CBO	Community Based Organisation
CBTPA	Caribbean Basin Trade Partnership Act
CBWMP	Caribbean Basin Water Management Programme
CCA	Caribbean Conservation Association
CCCCC	Caribbean Community Climate Change Centre
CCHI	Caribbean Cooperation in Health Initiative
CCMs	Country Coordinating Mechanism
CCMC	Committee of Caribbean Member Countries
CCST	Caribbean Council for Science and Technology
CDB	Caribbean Development Bank
CDCC	Caribbean Development and Cooperation Committee
CDERA	Caribbean Disaster and Emergency Response Agency
CDM	Clean Development Mechanism
CDMP	Caribbean Disaster Mitigation Project
CEDA	Caribbean Export Development Agency
CEHI	Caribbean Environmental Health Institute

CEIS	Caribbean Energy Information System
CEN	Caribbean Environment Network
CEP	Caribbean Environment Programme
CEPF	Curacao Economic Participation Fund
CEPIS	Centre for Sanitary Engineering and Environmental Sciences
CERMES	Centre for Resource Management and Environmental Studies
CERO	Central Emergency Relief Organisation
CFD	Conservation and Fisheries Department
CGCED	Consultative Group for Cooperation on Economic Development
CHA	Caribbean Hotel Association
CHAMP	Caribbean Hazard Mitigation Capacity Building Programme
CICAD	Inter-American Commission on Drug Abuse
CIDA	Canadian International Development Agency
CIMH	Caribbean Institute for Meteorology and Hydrology
CIT	Caribbean Institute of Technology
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CITMA	Ministry of Science, Technology and the Environment
CLI	Caribbean Law Institute
CMO	Caribbean Meteorological Organisation
COTED	Council of Ministers for Trade and Economic Development
CPACC	Caribbean Planning for Adaptation to Climate Change
CPACC/RPIU	Caribbean Planning for Adaptation to Climate Change/ Regional Project Implementation Unit
CPDC	Caribbean Policy Development Centre
CREDP	Caribbean Renewable Energy Development
CRNM	CARICOM Regional Negotiating Machinery
CSD	Commission on Sustainable Development
CSME	CARICOM Single Market and Economy
CTO	Caribbean Tourism Organisation
CUBIC	Caribbean Uniform Building Code
CWP	Caribbean Water Partnership
CWWA	Caribbean Water and Waste Water Association
CZM	Coastal Zone Management
CZMC	Coastal Zone Management Committee
CZMP	Coastal Zone Management Programme
CZMU	Coastal Zone Management Unit
DARE	Drugs Awareness Resistance Education Programme
DCA	Development Control Authority
DCPP	Development Cooperation and Programme Planning
DDM	Department of Disaster Management
DEOs	District Emergency Operations
DESA-DSD-SIDS	Department of Economic and Social Affairs-Division for Sustainable Development-Small Island Developing States
DFID	Department for International Development
ECCB	Eastern Caribbean Central Bank

ECLAC	Economic Commission for Latin America and the Caribbean
ECTEL	East Caribbean Telecommunications Licensing Authority
EEZ	Exclusive Economic Zone
EHD	Environmental Health Department
EIA	Environmental Impact Assessment
EMA	Environmental Management Authority
EMLUP	Environmental Management and Land Use Planning
EMS	Environmental Management Strategy
ENACT	Environmental Action Programme
ENCORE	Environment and Coastal Resources
EOC	Emergency Operations Centre
ERDMP	Emergency Recovery and Disaster Management Project
ESDU	Environment and Sustainable Development Unit
ESEP	Education Sector Enhancement Programme
EU	European Union
EVI	Environmental Vulnerability Index
FAA	Federal Aviation Administration
FAO	Food and Agriculture Organisation of the United Nations
FDA	Food and Drug Administration
FSC	Financial Services Commission
FTAA	Free Trade Area of the Americas
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GEO	Global Environmental Outlook
GCC	Global Climate Change
GCRMN	Global Coral Reef Monitoring Network
GIS	Geographic Information Systems
GNP	Gross National Product
GPA	Global Program of Action
GRR	Gross Reproduction Rate
HAT	Hotel Accommodation Tax
HEART	Human Employment and Resource Training
HRDC	Human Resource Development Centre
IACG	Inter-Agency Collaborative Group
IBCs	International Business Companies
ICAO	International Civil Aviation Organisation
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICENS	International Centre for Environmental and Nuclear Sciences
ICRAN	International Coral Reef Action Network
ICRIN	International Coral Reef Information Network
ICT	Information Communications and Technology
IDB	Inter-American Development Bank
IDP	Integrated Development Planning
IETC	International Environmental Technology Centre
IFWIC	International Financial and World Investment Centre
IICA	Inter-American Institute for Cooperation on Agriculture

ILO	International Labour Organisation
IMA	Institute of Marine Affairs
IMF	International Monetary Fund
IMO	International Maritime Organisation
IOCARIBE-GOOS	The Association of IOC for the Caribbean and Adjacent Regions-Global Ocean Observing System
IPCC	Inter-Governmental Panel on Climate Change
ISM	Island Systems Management
ISO	International Organisation for Standardisation
ISWMP	Integrated Solid Waste Management Programme
ITU	International Telecommunication Union
IWCAM	Integrated Watershed and Coastal Area Management
IWRM	Integrated Water Resources Management
JAMPRO	Jamaica Promotions Limited
JaNEAP	Jamaica National Environmental Action Plan
JBDC	Jamaica Business Development Centre
JBEF	James Belgrave Enterprise Fund
JCC	Jamaica Chamber of Commerce
JEA	Jamaica Exporters Association
JMA	Jamaica Manufacturers' Association
JTAT	Jamaica Trade and Adjustment Team
JWP	Joint Work Programme
LAMP	Land Administration and Management Programme
LBS	The Protocol on Land-Based Sources on Marine
LDCs	Least Developed Countries
LIAT	Leeward Islands Air Transport
LIFE	Local Initiative for the Environment
LSM	Local Site Management
MACC	Mainstreaming Adaptation to Climate Change
MACCC	Mainstreaming Adaptation to Climate Change in the Caribbean
MAFF	Ministry of Agriculture, Forestry and Fisheries
MARPOL	The International Convention on the Prevention of Pollution from Ships
MBT	Marine-based Tourism
MCH	Maternal and Child Health
MDGs	Millennium Development Goals
MDPF	Mitigation and Development Planning Framework
MEA	Multilateral Environmental Agreement
MIDA	Micro Investment Development Agency
MOJ	Maritime Organisation of Jamaica
MOU	Memorandum of Understanding
MPA	Marine Protected Area
NBSAP	National Biodiversity Strategy and Action Plan
NCC	National Conservation Commission
NCD	Non-Communicable Disease
NCSd	National Commission for Sustainable Development
NCSF	National Communications Support Programme

NDB	National Development Bank
NDFJ	National Development Foundation of Jamaica
NEAC	National Emergency Advisory Council
NEAP	National Environmental Action Plan
NEMAC	National Emergency Management Advisory Council
NEMO	National Emergency Management Office
NEPA	National Environmental and Planning Agency
NES	National Environmental Strategy
NFPs	National Focal Points
NGO	Non-Governmental Organisation
NIBJ	National Investment Bank of Jamaica
NICUs	National Implementing Coordinating Units
NIDS	National Integrated Development Strategy
NIHERST	National Institute for Higher Education, Research, Science and Technology
NOAA	National Oceanographic and Atmospheric Administration
NPEP	National Poverty Eradication Programme
NRDF	National Research and Development Foundation
NSDC	National Sustainable Development Council
NTA	National Training Agency
NWSC	National Water and Sewerage Commission
OACE	Organisations of the State Central Administration
OAS	Organisation of American States
ODA	Overseas Development Assistance
ODPM	Office for Disaster Preparedness/Management
OECD	Organisation for Economic Cooperation and Development
OECS	Organisation of Eastern Caribbean States
OECS/ESDU	Organisation of Eastern Caribbean States/Environment and Sustainable Development Unit
OECS/NRMU	Organisation of Eastern Caribbean States-National Resources Management Unit
OECS/ERDMP	Organisation of Eastern Caribbean States-National Resources Management Unit/Emergency Recovery and Disaster Management Programme
OFDA	Office of Foreign Disaster Assistance
OLADE	Latin American Energy Association
OPRC	International Convention on Oil Pollution, Preparedness Response and Cooperation
OSC	On-Scene Commanders
PAHO	Pan-American Health Organisation
PCDPPP	Pan Caribbean Disaster Preparedness and Prevention Project
PDM	Participatory Decision-Making
PDP	Physical Development Plan
PEO	Public Education and Outreach
PERTs	Parish Emergency Response Teams

PET	Polyethylene Terephthalate
PIOJ	Planning Institute of Jamaica
p-MTCT	Prevention of the Mother-to-Child-Transmission
PPS	Physical Planning Section
PRIDE	Programme for Resettlement and Integrated Development Enterprises
PROUD	Programme for the Rationalisation of Unplanned Developments
PV	Photovoltaic
PVC	Polyvinyl Chloride
RCM	Regional Coordinating Mechanism
REIA	Renewable Energy Initiative of the Americas
REM	Regional Environmental Management
REMPEITC	Regional Marine Pollution Emergency Information and Training Centre - Wider Caribbean
RPIU	Regional Project Implementation Unit
RSS	Regional Security System
SBAJ	Small Business Association of Jamaica
SD&EU	Sustainable Development and Environment Unit
SDCs	Sustainable Development Councils
SDNP	Sustainable Development Networking Programme
SEDCO	Small Enterprise Development Company
SEDU	Sustainable Economic Development Unit
SEDU	Small Enterprise Development Unit
SESNA	Small Enterprises Stimulation Netherlands Antilles
SIDS	Small Island Developing States
SIDSnet	Small Island Developing States Information Network
SIDS/POA	Programme of Action for the Sustainable Development of Small Island Developing States
SLASPA	St. Lucia Air and Seaports Authority
SLHTP	St. Lucia Nature Heritage Tourism Programme
SLREP	St. Lucia Rural Enterprise Project
SMEs	Small and Medium-sized Enterprises
SMMA	Soufrière Marine Management Area
SOLAS	Safety of Life at Sea
SOPAC	South Pacific Applied Geosciences Commission
SPAW	Specially Protected Areas and Wildlife
SRC	Scientific Research Council
SSA	Sanitation Service Authority
SST	Sea Surface Temperature
SSWPU	Sewerage and Solid Waste Project Unit
STATIN	Statistical Institute of Jamaica
STCW-F	Convention Standard of Training, Certification and Watchkeeping for Fishing Vessel Personnel
SWAMP	Solid Waste Management Project
SWWMA	St. Lucia Solid Waste Management Authority
SWMCOL	Solid Waste Management Company of Trinidad and Tobago Limited
TCDC	Technical Cooperation among Developing Countries

TNG	Trade Negotiating Group
TRIPS	Trade Related Aspects of Intellectual Property
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNCHS	United Nations Centre for Human Settlements
UNCLOS	United Nations Convention on the Law of the Sea
USEPA	United States Environmental Protection Agency
UNCTAD	United Nations Conference on Trade and Development
UNDESA	Department of Economic and Social Affairs of the United Nations
UNDP/GEF/OLADE	United Nations Development Programme/Global Environmental Facility/Latin America Energy Organisation
UNDP/TCDC	United Nations Development Programme Special Unit for Technical Cooperation Among Developing Countries
UNEP	United Nations Environment Programme
UNEP/GPA	United Nations Environment Programme/Global Programme of Action
UNEP/RCU	United Nations Environment Programme/Regional Coordination Unit
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNGCSIDS	United Nations Global Conference on the Sustainable Development of Small Island Developing States
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organisation
UNODC	United Nations Office on Drugs and Crime
USAID	United States Agency for International Development
USEPA	United States Environment Protection Agency
USSR	Union of Soviet Socialist Republics
UWI	University of the West Indies
UWICED	University of the West Indies Centre for Environment and Development
VDEOs	Voluntary District Emergency Operations
WASA	Water and Sewerage Authority
WASCO	Water and Sewerage Company
WHO	World Health Organisation
WMO	World Meteorological Organisation
WRA	Water Resources Authority
WRM	Water Resources Management
WSSCC	Water Supply and Sanitation Collaborative Council
WSSD	World Summit on Sustainable Development
WTO	World Trade Organisation
WWF	World Wildlife Fund

SECTION 1

CHAPTER 1	General Overview of Implementation of the SIDS POA and the Caribbean Subregion
CHAPTER 2	Highlights of the Implementation Process of the SIDS POA in the Caribbean Subregion
CHAPTER 3	The Contribution of the Inter-Agency Collaborative Group to the Implementation of the SIDS POA and related International Decisions

CHAPTER 1

General Overview of the Implementation of the SIDS Programme of Action and the Caribbean Subregion

1.0 Introduction

In terms of breaking new ground, *sustainable development* at the international level, achieved its greatest degree of prominence with the convening of the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil, from 3-14 June 1992. Subsequent global conferences such as the United Nations Global Conference on the Sustainable Development of Small Island Developing States (UNGCSIDS), including its review process, in the context of the twenty-second special session of the General Assembly and, subsequently, the World Summit on Sustainable Development (WSSD), have taken the process further. Moreover, the profound, comprehensive and epoch-making outcomes of the "*Earth Summit*" as enshrined in the "*Rio Declaration on Environment and Development*" and in "*Agenda 21*" served to focus the attention of the international community on the relationship between "*Environment*" and "*Development*" in a way that had not been done before.

Exploiting the momentum generated by the activism of the Alliance of Small Island States (AOSIS) in the negotiations for a United Nations Framework Convention on Climate Change (UNFCCC), the delegates from Small Island Developing States (SIDS) to the Preparatory Meetings of UNCED sought to extract "*concessions*" from the developed countries. The primary concession which was sought, was an acknowledgement on the part of the wider international community that SIDS are inherently disadvantaged entities and therefore warrant special treatment in the economic and environmental relations that were being forged between themselves and the developed countries, whether at the bilateral or multilateral level. The origins of this approach can be traced to the international debates of the 1960s including those that took place within the United Nations Conference on Trade and Development (UNCTAD), in which island States drew attention to the array of economic, social and ecological vulnerabilities which stood in the way of their development.

Thus, during the Preparatory Meetings for UNCED that were held between 1990 and 1992, delegates from small island developing states of the Caribbean, Pacific and Mediterranean regions, advanced several arguments in support of their call for "*new and additional resources*" to help them to more effectively confront the challenges posed by their unique economic, social and ecological circumstances. Eventually, in response to this sustained campaign, the United Nations General Assembly provided the platform of the UNGCSIDS which, significantly, convened in Barbados, a small Caribbean island developing State, in 1994.

By virtue of the convening of the UNGCSIDS - the first global conference to have been dedicated to the consideration of issues of direct concern to SIDS and the first global conference on sustainable development - formal recognition was given by the international community to the special characteristics and needs of those States. A specific *Programme of Action for the Sustainable Development of Small Island Developing States (SIDS POA)* was adopted as a

blueprint for the sustainable development of SIDS and articulated a considerable range of actions and policies in that regard.

1.0.1 The United Nations Global Conference on the Sustainable Development of Small Island Developing States (UNGCSIDS) and the Programme of Action for the Sustainable Development of Small Island Developing States (SIDS POA)

The *Barbados Declaration* and the Programme of Action for the Sustainable Development of Small Island Developing States (SIDS POA) elaborate principles and strategies for development that will protect the fragile environments of SIDS. These documents build on the "*Rio Declaration on Environment and Development*" and "*Agenda 21*" which were adopted at the 1992 United Nations Conference on Environment and Development (UNCED). Moreover, the UNGCSIDS itself was seen as the first test of the global partnership that was formed at UNCED, in which rich and poor countries agreed to work together for sustainable development. The SIDS POA embraces the Brundtland Commission's definition of "*sustainable development*" which is articulated in terms of "*development that meets present needs without jeopardising the welfare of future generations by undermining the environment on which all life depends.*"

In order to illustrate the very close relationship between the UNGCSIDS and UNCED, attention might be drawn to Principle 6 of the *Rio Declaration on Environment and Development* which provides that:

"The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries."

It is in the convening of the UNGCSIDS that this perceived need to direct particular attention to "*the special situation and needs of developing countries*" has found its maximum expression, to date. That Conference was convened at the request of the United Nations General Assembly in its resolution 47/189 of 22 December 1992, on the recommendation of UNCED itself. The Conference represented an attempt to translate "*Agenda 21*" into specific policies that are set out in 15 chapters, each representing a priority area relevant to addressing the special challenges faced by SIDS in the context of their sustainable development. The specific chapters of the SIDS POA cover, respectively:

1. Climate Change and Sea Level rise;
11. Natural and Environmental Disasters;
111. Management of Wastes;
- 1V. Coastal and Marine Resources;
- V. Freshwater Resources;
- VI. Land Resources;
- VII. Energy Resources;
- VIII. Tourism Resources;
- IX. Biodiversity Resources;
- X. National Institutions and Administrative Capacity;

- XI. Regional Institutions and Technical Cooperation;
- XII. Transport and Communication;
- XIII. Science and Technology;
- XIV. Human Resource Development;
- XV. Implementation, Monitoring and Review.

Within the SIDS POA, activities developed in the context of this collection of conceptually discrete, as well as "*cross-cutting issues*" were envisaged for implementation at the national, regional and international levels and provided the regional or subregional operational context for the sustainable development of SIDS within the wider global framework that had been developed at UNCED.

1.1 Review of the Implementation of the SIDS POA in the Caribbean Subregion

The review of the implementation of the SIDS POA in the Caribbean may be conveniently referenced to activities executed at the national, regional and global levels, during four periods, as follows:

- 1994-1997: This period marked the early beginnings of *the SIDS process*: a period of intense learning and a search for approaches to solutions that would deliver *the promise of Barbados* i.e. the sustainable development of the SIDS of the Caribbean subregion
- 1997-1999: This period spans the convening of a number of significant meetings, as well as the launching of a number of other important initiatives at the national, regional and wider international levels, related to the implementation of the SIDS POA.
- 2000-2002: This was a period dedicated to the assimilation and internalization of the outcomes of, in particular, the global meetings that took place during the preceding period; further implementation efforts; and preparation for the *Rio + 10* review which eventually convened as *the World Summit on Sustainable Development (WSSD)* in Johannesburg, South Africa, over the period, 26 August-4 September 2002.
- 2003-2004: The *Johannesburg Declaration on Sustainable Development* and the *Plan of Implementation* adopted at the WSSD, in particular, given the considerable attention directed in those documents to the *Millennium Development Goals (MDGs)*, have imparted a greater degree of focus to the implementation of *Agenda 21* and the SIDS POA. These outcomes of the WSSD in effect provide a re-engineered context for the implementation process of the SIDS POA.

A review of activities undertaken by the subregion during the four periods indicated, is set out in the following section.

1.1.1 1994-1997: The early beginnings

Having been actively engaged in the preparatory process leading up to the UNGCSIDS, from the moment of the adoption of the SIDS POA, Caribbean SIDS displayed a profound

appreciation of its relevance; the urgency of its implementation; the need to identify priorities; and the imperative of establishing appropriate mechanisms, including financial provisions, to ensure that they derived the greatest possible benefit from its implementation. At the operational level, the need was recognised, at a very early stage, for a coordinated system of mechanisms, to promote and generally facilitate the implementation process. The challenge confronting the subregion was that of translating the appreciation of these elements into corresponding actions, taking into account human, financial, institutional and other constraints.

Soon after the adoption of the SIDS POA, at a Caribbean Meeting of Experts coordinated by the Subregional Headquarters of ECLAC for the Caribbean, in collaboration with the United Nations Development Programme Special Unit for Technical Cooperation Among Developing Countries (UNDP/TCDC); the United Nations Environment Programme (UNEP); the University of the West Indies Centre for Environment and Development (UWICED); and the Caribbean Community (CARICOM) Secretariat, on 17-19 May 1995, all these aspects were recognized and explored. Significantly, the elements identified in that forum, in large measure, continue to inform the basic agenda of the subregion, as far as implementation of the SIDS POA is concerned. The elements identified include the following:

- The priorities of the SIDS POA and/or sustainable development approaches, more generally, had not been explicitly integrated into national policy-making, even though the primary responsibility for its implementation lay with Governments;
- An apparent perception on the part of Governments that abundant resources were available for environmental and related issues at the international level, hence the lack of ownership and therefore of responsibility, at the subregional and national levels, for implementation of the SIDS POA;
- The responsibility of the international community to facilitate the efforts of SIDS given, *inter alia*, their narrow resource base;
- The need to involve civil society in all aspects of sustainable development and to improve public awareness, education and understanding in this area; and
- Recognition that the SIDS POA required, in addition to an “*environment*” focus, a broader perspective that encompassed issues related to gender equity, poverty-alleviation, trade and sustainable livelihoods, among others.

With specific reference to implementation of the SIDS POA, among the key issues identified by the Meeting of Experts were:

- Capacity-building: involving, *inter alia*, training, information management and the need for an appropriate organizational, as well as behavioural approach, targeting not only Governments, but also, the segments of civil society that are to be involved in the implementation of the SIDS POA, emphasising the human dimension and equity;
- The proposal for the establishment of an appropriate mechanism at the national level, such as a Sustainable Development Commission, to provide an overarching strategy that represents the collective goals of all social partners for sustainable development.

In seeking to identify priority areas for action, note was taken of the proposals advanced by the countries of the Organisation of Eastern Caribbean States (OECS)¹ namely, coastal management; integrated development planning; protection of the Caribbean Sea; waste management; and capacity-building. Related proposals, in the wider Caribbean SIDS context, were in respect of, *inter alia*, coastal and marine resources; human resources development; institutional capacity-building; and information gathering.

Among the criteria utilised by the Meeting of Experts for the identification of priority areas, were the following:

- Potential to impact the greatest number of countries;
- Potential to enhance implementation capability;
- Potential to impact other programme areas, for example, with reference to cross-sectoral areas such as Climate Change and sea-level rise; national institutions and administrative capacity; and human resource development, which are all recognised to be relevant to the implementation of such sectoral areas as *Tourism Resources*; *Biodiversity*; and *Coastal and Marine Resources*, among others.

Caution was however sounded with respect to the need to avoid the identification of priority areas that might have the unintended effect of reducing the scope of action of regional agencies and, even, of Governments.

With respect to *Mechanisms for Coordination and Implementation*, the Meeting of Experts agreed, *inter alia*, that:

- The absence of a coordinating mechanism at the Caribbean subregional level was a critical factor accounting for the slow pace of implementation at both national and subregional levels;
- Pending the establishment of such an institutional device, *the CARICOM and ECLAC/CDCC² Secretariats should be requested to jointly provide a regional coordinating mechanism, on an interim basis, for one year; and that the secretariats should, for this purpose, seek the full cooperation and support of other organisations, particularly, the UNDP, UNEP and UWICED.*
- The institutions identified to coordinate the implementation of the SIDS POA should be provided with the resources required to fulfil their mandates. This should occur at both national and regional levels.

¹ The Treaty establishing the OECS entered into force on 1 July 1981. Annex A to the Treaty embodies an Agreement establishing the East Caribbean Common Market. The objectives of the OECS include cooperation; the harmonisation of foreign policy; and the promotion of economic integration. The members of the OECS are Antigua and Barbuda; Dominica; Grenada; St Kitts and Nevis; St Lucia; and St Vincent and the Grenadines. The Associate Members are: Anguilla; the British Virgin Islands; and Montserrat.

² The Caribbean Development and Cooperation Committee (CDCC) is a permanent subsidiary organ of ECLAC, established in 1975 to promote cooperation towards economic and social development. The members of the CDCC are Antigua and Barbuda; The Bahamas; Belize; Cuba; Dominica; the Dominican Republic; Grenada; Guyana; Haiti; Jamaica; St. Kitts and Nevis; St. Lucia; St. Vincent and the Grenadines; Suriname; and Trinidad and Tobago. The Associate Members are Anguilla; Aruba; British Virgin Islands; Montserrat; The Netherlands Antilles; Puerto Rico; and the United States Virgin Islands.

Of considerable interest, are the functions envisaged by the Meeting of Experts for the *Interim Regional Coordinating Mechanism*. These were as follows:

- Support and facilitate the implementation of the Programme of Action at the national level, by serving as a source of information and technical assistance on aspects of its implementation, including resource mobilization;
- Serve as a focal point for information and for regional and international liaison;
- Identify and take action on transboundary and other subregional sustainable development issues in the Caribbean, including the formulation of regional projects and the mobilization of resources for same;
- Encourage political support for the SIDS POA and ensure that relevant aspects are brought to the attention of policy-makers in the various sectors and in international fora;
- Serve as the secretariat for an appropriate subregional consultative or advisory body, which would include NGOs and other interest groups; and
- Examine the feasibility of establishing a permanent arrangement for the coordination of the implementation of the SIDS POA, at the subregional level and, depending on the outcome of this examination, seek the funding required for its establishment.

1.1.2 1997-1999: Intensification of implementation efforts at the national, subregional, regional and global levels

The period 1997-1999 spans the convening of a number of significant meetings and other initiatives at the subregional and wider international levels related to the implementation of the SIDS POA.

Convening of the Caribbean Ministerial Meeting on the implementation of the SIDS POA, Barbados, 10-14 November 1997: The watershed in subregional implementation.

Following the near comprehensive statement of the problem by the May 1995 Caribbean Meeting of Experts, accompanied by the formulation of a number of criteria of relevance, the subregion, recognising that little progress had in fact been made in the adoption of sustainable development approaches and in the integration of the SIDS POA into decision-making at the national level, created the opportunity to undertake a review, as technical as it was political, of the implementation of the SIDS POA within its geographical area. The occasion of the review was “the Caribbean Ministerial Meeting on the Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States.”

Consistent with its responsibility as a regional commission to undertake activities associated with global summits and prompted by its recognition of the deficit in implementation of the SIDS POA, the Subregional Headquarters of ECLAC for the Caribbean convened the subregion’s first and, to date, only Ministerial Meeting on the implementation of the SIDS POA³ in collaboration with a number of regional and international agencies.

³ The agencies which collaborated in the convening of the meeting included the Caribbean Centre for Development Administration (CARICAD); CARICOM; the Caribbean Development Bank (CDB); the Department of Economic and Social

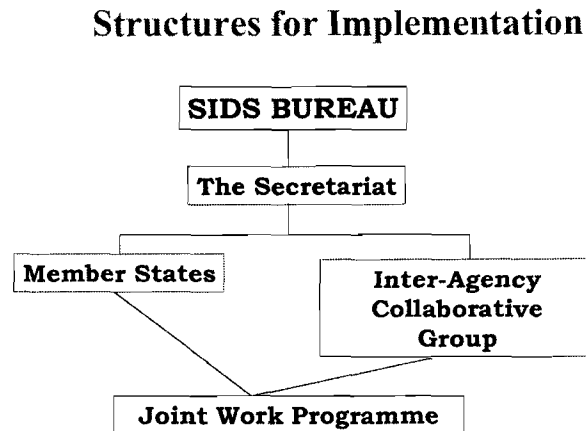
The meeting, which was hosted by the Government of Barbados, over the period, 10-14 November 1997, was geared to address three main aspects, namely: the status of implementation of the SIDS POA in the subregion in the context of, *inter alia*, the pending review in the context of *SIDS+5* which eventually convened on the context of the twenty-second special session of the United Nations General Assembly on 27-28 September 1999; the level of political commitment to the process; and the way forward. Further, the Meeting sought to provide the subregion with an opportunity to: identify and prioritize actions; effectively allocate resources; share information; and to generally recommit to the process of implementation of the SIDS POA. By the time of its conclusion, it was evident that, overall, the Meeting had served these major underlying purposes.

The Ministerial Meeting confirmed and highlighted the absence of a strategy and of a corresponding mechanism to coordinate, implement and report on activities undertaken or envisaged under the SIDS POA. Further, the Meeting noted that, while several sustainable development initiatives were underway in the subregion, these had fallen within the framework of the SIDS POA, not by design, but by default, given the broad and general nature of its formulations.

The success of the Ministerial Meeting is reflected in the fact that its decisions effectively set the stage for the significant achievements that have since been recorded in the implementation of the SIDS POA in the subregion. In effect, the decisions adopted by the Meeting have helped to define the structures and mechanisms that have now become entrenched within the subregion for the implementation of the SIDS POA, to which must now be added, other related international decisions, for example those adopted at the twenty-second special session of the General Assembly; The Millennium Summit, 6-8 September 2000; and the World Summit on Sustainable Development.

1.1.2.1 The Caribbean Model for the Implementation of the SIDS POA

The *Caribbean Model for the implementation of the SIDS POA* emerged from the recognition by the subregion of the need to develop and implement mechanisms that would help it to overcome the financial, technical, manpower and other constraints which had hitherto foreclosed many options identified by its SIDS towards their sustainable development within the specific framework of the SIDS POA. The model comprises four elements, namely, a *Joint Secretariat* and a *SIDS Bureau*, together with an *Inter-Agency Collaborative Group (IACG)* for the implementation of a *Joint Work Programme (JWP)*.

Figure I: Structures for Implementation

The Joint Secretariat

This Secretariat, which has already acquired the character of an entrenched institution, was as earlier indicated, initially conceived as a temporary coordinating mechanism. Its functions were entrusted, jointly, to the Secretariat of the Subregional Headquarters of ECLAC for the Caribbean and the CARICOM Secretariat. Within this mechanism, the former has functioned as the operational or technical secretariat, while the latter has engaged in the political outreach needed to maintain issues related to the SIDS POA on the international agenda, among other important aspects. The principal functions of the technical or operational *Secretariat* are in respect of the coordination, implementation and general follow-up of activities; the convening of meetings; the dissemination of information; reporting; and acting as an intermediary between the *Inter-Agency Collaborative Group* and the *SIDS Bureau*.

The SIDS Bureau

The Ministerial Meeting entrusted its own Bureau, referred to as “*the SIDS Bureau*”, with the task of political oversight of the implementation of a *Joint Work Programme* extrapolated from the respective Chapters of the SIDS POA. In addition, the SIDS Bureau was entrusted with oversight of overall preparations for the 1999 review of the SIDS POA by the United Nations General Assembly.

The Inter-Agency Collaborative Group (IACG)

The Joint Work Programme (JWP) was envisaged for implementation by an Inter-Agency Collaborative Group (IACG), comprising, *inter alia*, some 24 regional institutions; regional non-Governmental organizations (NGOs); and United Nations agencies, including, the Caribbean Development Bank (CDB); the Caribbean Policy Development Centre (CPDC); the United Nations Development Programme (UNDP); the Secretariat of the Organisation of Eastern

Caribbean States (OECS); the University of the West Indies (UWI); the Caribbean Centre for Development Administration (CARICAD); the Caribbean Environmental Health Institute (CEHI); and the United Nations Environment Programme/Regional Coordination Unit (UNEP/RCU).

The concept of an IACG, conceived by the Subregional Headquarters of ECLAC for the Caribbean and formalized by the Ministerial Meeting, may also be viewed as a major innovative device to promote inter-agency collaboration of a scope unprecedented in the subregion. Significantly, the agencies concerned supported the JWP, fully aware that no extra-budgetary funds would have been forthcoming for its implementation. In addition to its direct involvement in the implementation of the projects that comprise the JWP, the IACG supports the Joint Secretariat, principally in the execution of its reporting function, in the context of which Lead Agencies were assigned responsibility for the implementation of specific projects within the SIDS POA.

Through the IACG, the Subregional Headquarters of ECLAC is centrally involved in the coordination of implementation at the subregional level. Its basic contribution has been to maintain a focus on the implementation of the SIDS POA across the subregion. More generally, its contribution spans, in addition, the convening of meetings for the development of subregional positions for presentation at international fora; the representation of subregional concerns at international meetings such as the *Donors' Meeting* of February 1999; Meetings of the Commission on Sustainable Development (CSD); special sessions of the United Nations General Assembly (UNGA); and the preparation of documents and other publications.

In an effort to ensure even greater cohesion through the effective flow of information, the Subregional Headquarters of ECLAC for the Caribbean has also held briefing sessions with Caribbean representatives in strategic diplomatic centres such as Brussels, New York and Washington.

The Joint Work Programme (JWP)

To accelerate the rate of implementation of the SIDS POA and to facilitate a system of monitoring and reporting, the Ministerial Meeting adopted a JWP comprising some 130 concrete activities inspired by the SIDS POA and agreed for implementation by the IACG. This concept of grouping project activities in accordance with the respective Chapters of the SIDS POA, to be supported by agencies responsible for implementation, was conceived by the Subregional Headquarters and formalized by the Ministerial Meeting.

1.1.2.2 Other activities undertaken during the 1997-1999 period

To fill the gap created by the lack of information on the status of implementation of the SIDS POA at both the national and subregional levels, the Subregional Office of ECLAC for the Caribbean, produced a publication entitled, *"Implementation of the SIDS POA-A Caribbean Perspective"* (LC/CAR/G.520). This publication detailed the implementation activities of 15 Caribbean SIDS, as well as those of a number of regional and regionally-based agencies. Until the *Subregional Preparatory Meeting of the Caribbean for the World Summit on Sustainable*

Development, which convened in Havana on Cuba, 28-29 June 2001, it had the distinction of being the only document that summarized the experience of implementation of the SIDS POA in individual countries of the Caribbean and in the subregion as a whole.

The Caribbean Model in action

In 1998, the Joint Secretariat convened four meetings of the SIDS Bureau and the IACG, either jointly or separately. Documentation was prepared and disseminated by the Subregional Headquarters of ECLAC, as the subregion prepared for the *Meeting of representatives of International Donors and Representative of SIDS*, “the Donors’ Meeting,” of 24-26 February 1999. A similar process was followed in connection with the Seventh Meeting of the Commission on Sustainable Development (CSD-7), which convened on 19-30 April 1999; and the twenty-second Special Session of the General Assembly which convened in September 1999.

The more important meetings convened in the context outlined above, within the subregion, are shown in Table 1 below:

Table 1
List of meetings convened within the subregion

Date	Meeting	Purpose
23 March 1998	Informal Meeting of the SIDS Bureau	Review of Implementation since the Ministerial Meeting
15 June 1998	Meeting of the IACG	to review the status of implementation of the SIDS POA and also of progress in the implementation of the JWP
16 June 1998	Meeting of the SIDS Bureau and the Joint Secretariat	to review the status of implementation of the SIDS POA, more specifically, to evaluate progress in the execution of the JWP adopted at the Ministerial Meeting of November 1997.
6 November 1998	The Joint Meeting of the SIDS Bureau, the IACG and the Joint Secretariat	to evaluate progress in the implementation of the SIDS POA and to advance subregional preparations for the twenty-second special session of the UNGA that would undertake a review of the implementation of the SIDS POA in the context of the <i>Five-year review</i> , commonly referred to as <i>SIDS + 5</i> ⁴ .
14 August 1999	Joint Meeting of the SIDS Bureau, other Caribbean SIDS, the Joint Secretariat and the IACG	to engage the subregion in final preparations for the twenty-second special session of the General Assembly ⁵ .

⁴ In this connection, the Subregional Headquarters of ECLAC for the Caribbean prepared and circulated across the Caribbean, a *Report on the state of implementation in the Caribbean of the Programme of Action for Small Island Developing States*. This document was the focus of attention at the meeting which was convened by the Subregional Headquarters to generate consensus on a Caribbean position on the implementation of the SIDS POA as an input into CSD-7 and into the overall process of preparation for the twenty-second special session of the General Assembly. The document was ratified by consensus.

⁵ At this meeting, a document entitled: “*The Caribbean Consensus on the Further Implementation of the SIDS Programme of Action*”, developed by the Subregional Headquarters was circulated for discussion. The objective of this document was to

8-9 March 2001	The Meeting on Inter-Agency Collaboration in the Caribbean: Towards a Framework for Collaboration	This Meeting covered a number of themes in the context of " <i>A Possible Agenda for Inter-Agency Collaboration</i> ". Among the themes addressed was <i>Preparation for Rio + 10</i> .
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Among the meetings that convened at the wider international level between 1997-1999, were:

- The Meeting of Representatives of Prospective Donors and Representatives of SIDS, the so-called "*Donors' Meeting*", New York, 24-26 February 1999;
- the Seventh Meeting of the Commission on Sustainable Development, New York, 19-30 April 1999; and
- The twenty-second special session of the United Nations General Assembly for the review and appraisal of the implementation of the Programme of Action for the Sustainable Development of Small Island Developing States, New York, 27-28 September 1999.

As envisaged in the *Implementation, Monitoring and Review* chapter (Chapter XV) of the SIDS POA, there was to be a direct relationship between implementation activities at all levels. Consonant with this perspective, a summary note on each of these meetings will help to relate all these levels of activity, each to the other.

The Meeting of Representatives of Prospective Donors and Representatives of SIDS, 24-26 February 1999

Of the 312 projects proposals submitted to the *Donors' Meeting* by SIDS of the three designated geographical regions, Caribbean SIDS accounted for 149 or almost 50 per cent. Of the Caribbean project proposals presented, 20 per cent were devoted to *Human Resource Development*; 11 per cent to *Biodiversity*; 11 per cent to *Management of Waste*; and 9 per cent to *National Institutions and Administrative Capacity*. Other projects were distributed among all the other priority areas of the SIDS POA, with the exception of *Transport and Communication*.

Four Subregional Project Proposals were submitted by the Subregional Headquarters of ECLAC for the Caribbean on behalf of the subregion, for execution in the context of the SIDS POA. These referred to:

- The establishment of a Regional Coordinating Mechanism (RCM) for the Implementation of the SIDS POA;
- Application of Economic Instruments in the Caribbean;
- Strengthening Information Management for Sustainable Development in the Caribbean; and
- National Legislation to Implement International Conventions.

provide the last comprehensive briefing for Caribbean delegations in the final days leading to the special session. While some misgivings were expressed, for the most part by the agencies there represented, with respect to the nomenclature of the document, its content received general endorsement.

Contrary to the expectations of many SIDS, the *Donors' Meeting* did not take the form of a "*Pledging Conference*". Indeed, by the eve of the meeting, it had become all too clear that, in any event, a forum of that size and composition would not have been appropriate for the review of such a large number of proposals, even though arrangements were made and, in fact, exploited, for the convening of a number of bilateral contacts between representatives of SIDS and prospective donors. From the perspective of the then Under-Secretary-General of DESA, as stated in his *Introductory Remarks*, the *Donors' Meeting* was in the nature of "*a special and unique and, in some ways experimental Meeting in the implementation of the decisions of United Nations Conferences.*"

In effect, the *Donors' Meeting* provided the occasion for the elaboration of procedures for the reformulation and resubmission of project proposals, together with a recommendation for the *regionalization* of projects wherever this was deemed feasible.

Subsequently, the Subregional Headquarters of ECLAC, with the concurrence of its member States, embarked on the process of consolidating into *subregional projects*, a series of overlapping, or otherwise related project proposals that had been originally presented in the form of national submissions. No concrete achievements were recorded, however, beyond the preparation of draft *subregionalized* project proposals.

Despite the unfavourable outcome of the *Donors' Meeting*, Caribbean SIDS continued to express their commitment to the Programme of Action, encouraged by the conviction that the positive results thus far achieved could have been further enhanced and even replicated in others.

The Twenty-Second Special Session of the United Nations General Assembly, 27-28 September 1999

As has been foreshadowed, this special session remedied a major shortcoming of the SIDS POA, as identified by Caribbean SIDS, among others, through the incorporation of elements that had presented major challenges to their sustainable development but which, to date, had found no expression in the SIDS POA. Among these elements were *trade, investment, commodity issues, capital markets, unemployment, and poverty eradication*. The need to incorporate socio-economic issues into the SIDS POA may be illustrated by reference to the corresponding emphasis placed in the Report of the Special Session, on the fact that "*Eradication of poverty is therefore a serious issue and an objective of high priority for small island developing States, and requires the integration of economic, environmental and social components of action to achieve sustainable development.*" UNGA resolution S/22/2, annex⁶

In addition, in its intervention at the special session, the Subregional Headquarters drew attention to the need to encompass, in a focused, operational sense, the social, economic and environmental issues, that had been presenting major obstacles to the sustainable development of Caribbean SIDS. This element had been earlier articulated in the document that was prepared by the Subregional Headquarters and endorsed by the subregion to inform its participation at CSD-7.

⁶ UNGA resolution S/22/2, annex

More generally, the special session provided the occasion for the formal and explicit recognition of the role played by Regional Commissions. For example, it recognised that the United Nations should continue to play a catalytic and supportive role, particularly through the Regional Commissions. Quite apart from being a source of encouragement to the Subregional Headquarters of ECLAC, this recognition also facilitated its continued support of other subregional entities in promotion of the sustainable development of Caribbean SIDS. Reference was also made by the special session, to the need for the strengthening of institutional arrangements through the more efficient use of resources in the United Nations to maximize support for SIDS.

1.1.2.3 The SIDS POA, Environment and Sustainable Development in the Organisation of Eastern Caribbean States (OECS): Development of a Framework for Implementation

In September 1999, Ministers of the Environment of the countries of the OECS requested the Natural Resources Management Unit of the OECS Secretariat (OECS/NRMU) - since renamed the *OECS Environment and Sustainable Development Unit (OECS/ESDU)*, to develop an OECS Charter for Environmental Management and a regional strategy “...that will become the framework for environmental management” in the subregion. The *St. George’s Declaration of Principles for Environmental Sustainability in the OECS* adopted in Grenada, in April 2001, sets out the general framework requested by the Ministers⁷.

The 21 *Principles* embodied in the *St George’s Declaration* are as follows:

1. Foster Sustainable Improvement in the Quality of Life;
2. Integrate Social, Economic and Environmental Considerations into National Development Policies, Plans and Programmes;
3. Improve on Legal and Institutional Frameworks;
4. Ensure Meaningful Participation by Civil Society in Decision-Making;
5. Ensure Meaningful Participation by the Private Sector;
6. Use Economic Instruments for Sustainable Environmental Management;
7. Foster Broad-based Environmental Education, Training and Awareness;
8. Address the Causes and Impacts of Climate Change;
9. Prevent and Manage the Causes and Impacts of Disaster;
10. Prevent and Control Pollution and Manage Waste;
11. Ensure the Sustainable Use of Natural Resources;
12. Protect Cultural and Natural Heritage;
13. Protect and Conserve Biological Diversity;
14. Recognize Relationships between Trade and Environment;
15. Promote Cooperation in Science and Technology;
16. Manage and Conserve Energy;
17. Negotiate and Implement Multilateral Environmental Agreements;
18. Coordinate Assistance from the International Donor Community towards the Organisation of Eastern Caribbean States Region;

⁷ (OECS website: <http://www.oecsnrmu.org/>)

- 19. Implementation and Monitoring;
- 20. Obligations of Member States;
- 21. Review

With respect to the basic *approach* of the OECS countries to *sustainable development*, and the relationship postulated between *environment* and *sustainable development*, the *Preamble* to the St George's Declaration was adopted as proclaiming "*the principles of sustainable development by which human conduct affecting the Environment is to be guided and judged.*" It commences with the declaration to the effect that the States of the OECS are:

Persuaded that the effective management of environmental resources at local, national, regional and international levels is an essential component of sustainable social and economic development, including the creation of jobs, a stable society, a buoyant economy and the sustaining of viable natural systems on which all life depends;

The *Declaration* also recognizes "*the need to address the relevant priority areas of the SIDS POA to ensure follow-up action to the United Nations Global Conference on Sustainable Development of Small Island Developing States...*" Placing the *environment* at the centre of the sustainable development process, the *Preamble* also affirms the commitment of the OECS States "*to the principles of sustainable development in order to minimize inherent environmental vulnerability.....*"

In its *Principle 1 (Foster Sustainable Improvement in the Quality of Life)*, the *Declaration* indicates that:

Each Member State agrees to develop, promote and implement programmes to address poverty, health, employment, education, social development and provision of basic human needs to sustainably improve the quality of life within the carrying capacity of its natural resources, and giving due consideration to levels of acceptable change.

On the basis of the *Principles* enshrined in the *St George's Declaration*, an *OECS Environmental Management Strategy* has been developed as the mechanism for their implementation. The "*central challenge*" for environmental management in the OECS States, as identified within that *Strategy*, "*is to ensure levels of environmental quality that maximise opportunity for economic and social development for present and future generations, without compromising the integrity and sustainability of biological diversity, environmental and cultural assets.*

Further:

The Vision for environmental management in the OECS is informed by the draft OECS Development Strategy, insofar as the achievement of economic growth, international competitiveness and improved quality of life are largely dependent on the appreciation and management of the environment.

At the level of the OECS subregion, primary responsibility for coordinating implementation of the *Environmental Management Strategy (EMS)* is entrusted to the OECS Secretariat, through its *Environment and Sustainable Development Unit (ESDU)*. Other regional and international agencies are also recognised to have “key roles” to play.

In this regard, *Principle 18 (Coordinate Assistance from the International Donor Community towards the Organisation of Eastern Caribbean States Region)* indicates, *inter alia*, that the OECS member States agree to: *Collaborate through the OECS Secretariat and other regional organizations to ensure that the environmental needs and requirements of the Member States are clearly articulated to the international community.*

1.1.2.4 Issues in the Implementation of the SIDS POA in the Caribbean subregion, 1997-1999

Priorities of Caribbean SIDS within the SIDS POA

On the basis of a questionnaire that was developed and administered by the Subregional Headquarters of ECLAC for the Caribbean, Governments of the subregion were invited to rank the 14 substantive priority Areas of the SIDS POA. Overall, respondents identified *Coastal and Marine Resources* and *Natural and Environmental Disasters* as the two areas requiring the most urgent attention. Also high on the list, were the related issue of *Climate Change and Sea-level Rise*; and *Management of Wastes*. At the subregional level, *Energy Resources* was ranked at the very bottom of the list. In general, however, most respondents ranked all issues as being of more or less equal importance, with all but four of the 14 substantive issues receiving an average weighting that could be equated with “high”. Significantly, also, the ratings for any given priority area were consistent across the subregion, indicating the existence of a considerable degree of consensus.

The ranking of the substantive Priority Areas of the SIDS POA by Caribbean SIDS, at the subregional, as opposed to the national level, was as follows:

- i. Coastal and Marine Resources
- ii. Natural and Environmental Disasters
- iii. Land Resources
- iv. Management of Wastes
- v. National Institutions and Administrative Capacity
- vi. Climate Change
- vii. Freshwater Resources
- viii. Tourism Resources
- ix. Biodiversity
- x. Science and Technology
- xi. Transport and Communication
- xii. Human Resources
- xiii. Regional Cooperation
- xiv. Energy Resources

With respect to *Cross-Sectoral Issues*, priorities were ranked at the subregional level, as follows:

- i. Financing
- ii. Capacity-building
- iii. Legislation
- iv. Poverty Alleviation
- v. Information Management
- vi. Policy
- vii. Training
- viii. Technical
- ix. Involvement of Marginal Groups

The prioritisation, as set out above, was incorporated into the report that was submitted by the SIDS of the Caribbean subregion to the Seventh Meeting of the Commission on Sustainable Development (CSD-7). However, the report also noted that, notwithstanding this prioritisation, there was consensus among Caribbean SIDS *that all priority areas enshrined in the SIDS POA remained profoundly relevant to their sustainable development and that significant progress had been made by many of these SIDS in their implementation*. Reviews conducted at the individual country level in preparation for the *Caribbean Ministerial Meeting* referred to above, nevertheless highlighted the uneven progress in implementation, as a marked feature of the Caribbean experience. Accounting for this factor, were differences in capability, including financial resources, among the respective Caribbean SIDS.

Notwithstanding this state of affairs, Caribbean SIDS continued to strive to enhance the contribution of the implementation of the SIDS POA to national, as well as subregional development, through a focussed and sustained effort. However, a number of challenges were identified, among them:

- The explicit integration of the SIDS POA into national planning and decision-making across the region;
- The adoption of more rigorous sustainable development approaches;
- The acquisition of much needed financial resources;
- Effective programmes of education and public awareness of the Programme of Action;
- The fragmented institutional arrangements to deal with sustainable development issues at both national and subregional levels; and
- The need to incorporate into the SIDS POA, the socio-economic elements that are also major factors in the sustainable development process.

From this perspective and against the backdrop of the multifaceted nature of the *sustainable development* process, the SIDS POA, whose predominantly environmental prescriptions are incontestable, was not regarded as promoting the holistic policy-making that was required for sustainable development. What this recognition implied was that the Programme of Action lacked the specificity and breadth that would have transformed it into a more effective operational tool.

In addition to the foregoing, it is relevant to observe that, in the course of the implementation of the SIDS POA, Caribbean SIDS have had to contend with a number of disappointments in a number of critical areas. Chief among these is what has been referred to as *the retreat on the part of the international community from the financial and other commitments made at UNCED*. These disappointments were perhaps most keenly experienced in the context of *the Donors' Meeting*.

On the other hand, faced with the unavailability of the effective means, including adequate, predictable, new and additional financial resources that were promised by the international community in accordance with chapter 33 of Agenda 21, the SIDS of the Caribbean sought to maximize the benefits that could be derived from the utilization of the very limited resources at their disposal. The creation of the *Caribbean Model* for the implementation of the SIDS POA in the subregion, as depicted above, cogently illustrates this phenomenon. The disappointments encountered by Caribbean SIDS have therefore served to unleash their creative energies towards self-reliance.

Notwithstanding the disappointments with certain aspects of the outcomes of UNCED and the UNGCSIDS and with the effective absence of many of the key processes and procedures that were adopted at the international level to govern their implementation, a number of noteworthy achievements have been recorded by Caribbean SIDS, among them:

- The invaluable experience acquired by Caribbean representatives in negotiating international environmental and sustainable development agreements;
- The commitments adopted by the World Bank, the Commonwealth Secretariat, the CARICOM Secretariat and other organisations to pursue in-depth studies on economic, social and environmental aspects of the vulnerability of SIDS prompted by, *inter alia*, the substantive arguments advanced at the corresponding international conferences by SIDS representatives;
- The creation of the *Caribbean Model* for the implementation of the SIDS POA, based on existing subregional capacity; and
- The promotion of a transformed scope of operationalization of the SIDS POA, in conjunction with the SIDS of other geographical regions and the eventual endorsement of this initiative by the twenty-second special session of the United Nations General Assembly.

Reference might also be made to a number of other positive aspects of the experience of Caribbean SIDS in the implementation of the SIDS POA. Among the lasting achievements in this regard, is the enhanced understanding of sustainable development issues that continues to emerge from the process. Evidence of this is afforded by, *inter alia*, the improved identification of environmental, as well as socio-economic issues and projects throughout the subregion. In addition, Caribbean Governments and civil society have responded to the demands of the SIDS POA and, more generally, of *sustainable development*, by seeking to forge innovative partnerships for collaboration at unprecedented levels, both in terms of intensity, as well as scope. Further, the role of civil society, including the private sector, in identifying, as well as achieving the objectives of the SIDS POA, has been recognized and encouraged through novel

attempts at co-management of natural resources, in setting standards and in preparing environmental policies and action plans.

Efforts at co-management of natural resources are exemplified by the establishment of Sustainable Development Councils or Commissions in a number of Caribbean SIDS in an effort to facilitate broad-based participation in national sustainable development planning and policy formulation. For a number of reasons, however, including lack of resources, the establishment of these bodies was not evenly spread across the region nor has their activism been sustained. The basic point, however, is the recognition on the part of Caribbean SIDS, of the need for coordinating mechanisms, whether in the form of Sustainable Development Councils or Commissions, or through integrated approaches to planning, in which social, economic, environmental and other policies might be coordinated, for example in the context, of a national budget.

Appreciation of the importance of the critical area of “*institutional strengthening*” must also be included among the lasting gains from the implementation of the SIDS POA. Such institutional strengthening has been pursued through, *inter alia*, capacity-building; the enactment of environmental legislation; the application of management tools such as Environmental Impact Assessments (EIAs); and the adoption and, in some cases, the implementation of Environmental Action Plans and National Biodiversity Strategies and Action Plans. These forms of institution-building, together with the establishment of Environmental Ministries and Authorities, are among the primary mechanisms through which Caribbean SIDS have sought to promote and advance their sustainable development.

A major difficulty encountered in evaluating the progress of implementation of the SIDS POA in the Caribbean, arose from the lack of effective monitoring of the funds that had been explicitly directed to sustainable development projects and programmes.

In this regard, mention might be made of the Small Island Developing States Information Network (SIDSnet), which seeks to facilitate the exchange of information and experiences among SIDS and which also provides a very useful tool in the tracking of inputs and related activities. Attention might also be drawn to the project that has been implemented by the Subregional Headquarters of ECLAC for the Caribbean, with UNDP funding, to identify SIDS POA - related projects, by reference to, *inter alia*, their area of focus; their status; and the source and quantum of their funding. Through this project, information has been compiled on over 1,200 projects. Thus significant efforts have already been made to remedy the situation. As the subregion pursues the further implementation of the SIDS POA, these efforts will continue, subject only to the availability of resources.

A most significant observation in the evaluation of the Caribbean experience in implementing the SIDS POA is the fact that many sustainable development activities were neither conceived nor implemented in direct response to the adoption of that international instrument. Indeed, the commencement of such activities, in many cases, pre-dated the adoption of the SIDS POA and many continue to be pursued in the context of national sustainable development action plans. Nevertheless, the SIDS POA has been able to impact these activities,

imparting greater focus and renewed emphasis on them, in a comprehensive sustainable development context.

Finally, as Caribbean SIDS give further expression of their global citizenship, strenuous efforts have been made to ensure their ratification and implementation of a number of important Multilateral Environmental Agreements (MEAs), among them the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC), which, themselves, constitute significant elements of the “*UNCED process*.”

1.1.2.5 Review of the Major Constraints to More Rapid and Effective Implementation of the SIDS POA in the Caribbean Subregion

The major constraints encountered by Caribbean SIDS in the implementation of the SIDS POA fall into three main categories, namely, financial; institutional; and human resources and training.

Financial Constraints

This factor, in large measure, explains the significant gaps in the implementation of the SIDS POA, since many critical projects lie beyond the resources of Caribbean SIDS. Generally, financial constraints have impeded efforts at the establishment and strengthening of infrastructure, institutions and capacity-building, among other important developmental imperatives. Thus, Caribbean SIDS continue to emphasise, as a matter of urgency, the honouring of commitments on the part of the international community, in this critical area.

Institutional Constraints

Institutional constraints have also been identified as a critical factor retarding the pace of implementation of the SIDS POA at both national and subregional levels. Specific elements identified under this category include the following:

- The uneven situation across the subregion with respect to the explicit integration of the SIDS POA and, more generally, of sustainable development approaches, into national policy-making;
- The need for, *inter alia*, enhanced awareness; capacity-building; training; information management; and adjustments in organizational behaviour;
- The widespread lack of expertise in the preparation of project proposals and in the monitoring and implementation of projects;
- The inability of many National Sustainable Development Councils or Commissions across the subregion to serve as coordinating mechanisms for a more systematic approach to sustainable development issues and for the development of strategies that respond to the collective sustainable development goals of the social partners;
- Weaknesses in national reporting on the implementation process
- The absence of a permanent, adequately-resourced and dedicated mechanism for coordination of the implementation of the SIDS POA at the subregional level.

Human Resources and Training Constraints

The shortage of relevant skilled human resources affects all aspects and levels of the implementation process. The very wide range of skills that are implied in the sustainable development process creates very heavy demands on the societies of SIDS and remains a critical factor to be urgently addressed.

The Constraints to Implementation in Perspective

Caribbean SIDS have repeatedly observed that the constraints to the rapid implementation of the SIDS POA do not detract from the fundamental relevance, validity and viability of that instrument. Accordingly, at the twenty-second special session of the UNGA, Caribbean SIDS proposed that, while the SIDS POA should be maintained, it should nevertheless be supplemented and reinforced through the incorporation of those social and economic issues that had long been recognised to be presenting obstacles to the sustainable development of the subregion. This recommendation was reinforced by Heads of Government of the Caribbean Community (CARICOM) at their Nineteenth Meeting held in Castries, St Lucia, in July 1998. The Conference, *endorsed the need for the implementation of the SIDS POA to be continued following its review at the Special Session*. They also recognised that the primary responsibility for implementation lay with them. It was nevertheless recalled that the SIDS POA was adopted, not only by SIDS, but by the international community as a whole.

1.1.2.6 Selected issues arising from the Arrangements for Implementation of the SIDS POA in the Organisation of Eastern Caribbean States

With the OECS constituting a subregion within CARICOM, in addition to the overlapping of its membership with that of the ECLAC/CDCC, these latter two organisations are among the agencies that are consulted by the OECS Secretariat in the context of the implementation of the *OECS Environmental Strategy*. In this context, it is useful to recall that “...the Strategy builds on a series of other relevant planning documents, including....the *Small Island Developing States (SIDS) Programme of Action (SIDS POA)* in support of environmental management. It is also useful to recall that, in the context of the CDCC membership, ECLAC/CDCC has the responsibility for coordinating the implementation of the SIDS POA.

Moreover, within the ECLAC/CDCC and the *Caribbean Model* that has evolved for the implementation of the SIDS/POA in relation to the SIDS of the Caribbean, the ECLAC/CDCC and CARICOM Secretariats together provide the Joint Secretariat for the implementation process. In addition, within the same *Caribbean Model*, the OECS Secretariat is itself a member of the IACG of agencies which jointly implement a Joint Work Programme extrapolated precisely from the SIDS/POA and other relevant international decisions, such as those emanating from the twenty-second special session of the General Assembly, the Millennium Summit and the WSSD. With this multi-dimensional overlap of membership and functions, there is an evident need for the articulation of a joint understanding and increased coordination towards convergence, in relation to *sustainable development* and related concepts.

ECLAC-CDCC, CARICOM and the OECS: The Scope for Convergence

Notwithstanding the varying degrees of emphasis placed on *sustainable development* in the official documentation of CARICOM and the OECS, there is considerable scope for convergence outside of those confines. Firstly, the countries concerned share the profile of small island developing States as defined in the SIDS POA. Secondly, with the OECS as a subregion of CARICOM, both sets of countries are accommodated within the same forum, so that communication and general collaboration are facilitated. Thirdly, through their membership in the ECLAC/CDCC, convergence in their approaches to sustainable development is promoted and facilitated. The utility of joint understandings and approaches is also relevant in the facilitation of inter-subregional outreach, as well as in the adoption of joint positions for articulation in wider international fora.

1.1.3 The Period 2000-2002

This period was essentially dedicated to:

- (a) the assimilation of the outcomes of the subregional, regional and international meetings that took place during the period, 1997-1999;
- (b) further implementation efforts; and
- (c) preparation for the *World Summit on Sustainable Development (WSSD)*.

Preparation for the WSSD provided yet another opportunity for Caribbean SIDS to conduct a detailed review of the implementation of the SIDS POA, given its very close relationship to *Agenda 21* whose implementation was the focus of that global Summit.

Reviewing the activities pursued during the period 2000-2002, in early 2000, the Subregional Headquarters of ECLAC for the Caribbean, in its continuing pursuit of collaboration towards the sustainable development of the subregion, was part of a larger ECLAC delegation that accepted an invitation to attend the *Twelfth Forum of Ministers of the Environment of Latin America and the Caribbean*, which convened, in Barbados, on 2-7 March, under UNEP auspices. At that meeting, the ECLAC delegation was successful in facilitating the adoption of resolutions to support the further implementation of the SIDS POA and to promote its recognition as the framework for the pursuit of sustainable development by the small island developing States of the Caribbean subregion.

Also, in order to advance the further implementation of SIDS POA in the subregion, the Subregional Headquarters of ECLAC for the Caribbean convened a meeting of representatives of Caribbean SIDS and of regional and regionally-based organizations of the IACG, on 7 March 2001. The meeting was directed towards two major objectives, namely, to undertake a final review of the status of implementation of the Joint Work Programme adopted in 1997 and to develop an updated version, even as the subregion embarked on preparations for the WSSD.

By early 2001, with the 1997 Joint Work Programme almost fully implemented, an updated Joint Work Programme was adopted, coordinated by the Subregional Headquarters. In this updated version, attention was given to the few outstanding elements of the 1997 prototype,

to the extent that they remained relevant, as well as to the new socio-economic elements that were incorporated into the implementation process of the SIDS POA by the twenty-second special session of the UNGA. In addition to the elements identified by the special session, attention was given to such issues such as *crime*, including the illicit traffic and use of drugs, which impinge on the sustainable development prospects of the SIDS of the Caribbean, among others.

In effect, the amplified scope of implementation of the SIDS POA, through the explicit incorporation of socio-economic issues, presented the subregion with new opportunities when it prepared an updated JWP in March 2001. The agencies which constitute the IACG were very active collaborators in the process. Of necessity, the membership of the IACG has had to be expanded to reflect the new elements that were identified for implementation.

In the context of preparation for the WSSD, the *Preparatory Meeting of the Caribbean for the World Summit on Sustainable Development* convened in Havana, Cuba, on 28-29 June 2001. This meeting was jointly coordinated by the Subregional Headquarters of ECLAC for the Caribbean and UNEP/ROLAC, Mexico. To facilitate the preparatory process, the Subregional Headquarters of ECLAC presented extensive basic reference documentation to this meeting, as well as to the *Regional Preparatory Conference of Latin America and the Caribbean for the World Summit on Sustainable Development* which convened in Rio de Janeiro, Brazil, on 23-24 October 2001. The most outstanding example of this documentation was the publication entitled, *The SIDS Programme of Action-Agenda Twenty-One: The Road to Johannesburg* (Document LC/CAR/G.649)⁸, which sets out the status of implementation of the SIDS POA in the Caribbean subregion up to the eve of the WSSD, identifying, in the process, the constraints encountered by the subregion, as well as its achievements, in the implementation of the respective Chapters of the Programme of Action. The document also articulated the challenges and issues that remained to be confronted in the future implementation of *Agenda 21* and the SIDS POA. A number of national reports on the implementation of the Programme of Action, as well as the updated Joint Work Programme were also incorporated.

Also, in the context of wider international sustainable development initiatives, the Subregional Headquarters of ECLAC for the Caribbean also provided Caribbean SIDS, including their Permanent Representatives to the United Nations, New York, with *Policy Briefs*, prepared at their request, to inform the participation of the respective countries and the subregion as a whole at the *International Conference on Financing for Development*, which convened in Monterrey, Mexico, from 18-22 March 2002.

1.1.4 The Period 2003-2004

In the context of what had earlier been envisaged as the 10-year review of the outcomes of UNCED and referred to as *Rio+10*, the convening of the World Summit on Sustainable Development over the period, 26 August-4 September 2002, was an event of great significance for the further development of Agenda 21 and its progeny, the SIDS POA. The major outcomes of the WSSD, - the *Johannesburg Declaration on Sustainable Development* and the *Plan of Implementation*, - particularly given the considerable attention directed to the *Millennium*

⁸ Document LC/CAR/G.649

Development Goals in these documents are recognised to have imparted a greater degree of focus to the implementation of *Agenda 21* and the SIDS POA. In addition, their very clear identification of the constraints to implementation and the entrenchment of the sustainable development approach at global, regional, subregional and national levels, feeds an expectation of many concrete achievements in the implementation of sustainable development in the future. The decision by the General Assembly to convene an international meeting in 2004 to undertake a full and comprehensive review of the implementation of the SIDS POA, as called for in the *Johannesburg Plan of Implementation*, provides a significant incentive in this regard.

1.1.4.1 The International Meeting to undertake a full and comprehensive review of the Implementation of the SIDS Programme of Action

The decision of the fifty-seventh session of the UNGA - conveyed in its Resolution entitled: *Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States* (A/C.2/57/L64) - to convene an International Meeting in 2004 to undertake a full and comprehensive review of the implementation of the SIDS POA, offered ample opportunity for the subregion to undertake the necessary preparations. The Resolution established the preparatory process for the Meeting, including a series of regional and interregional meetings. Repeated reference was also made to the role of regional commissions in the preparatory process. Thus, an appropriate framework has been provided.

The adoption of this resolution prompted the further mobilisation of the *Caribbean Model* for the implementation of the SIDS POA. In this context, a Joint Meeting of the Small Island Developing States of the Caribbean and the Agencies members of the Inter-Agency Collaborative Group (IACG) convened in San Juan, Puerto Rico on 11 April 2003. Significantly, as the meeting developed approaches to be pursued in preparation for the International Meeting 2004, the representative of such agencies as DESA, UNDP and UNEP reiterated the commitment of their respective organisations to the Caribbean subregional preparatory process.

Overall, the Caribbean Subregional Preparatory Meeting will constitute the centrepiece of the preparatory process. It is also recognised that the 2004 International Meeting will be of critical importance. In that regard, the expectation is that a renewed commitment will be articulated by the subregion and, by the wider international community, to the implementation of an expanded SIDS POA. The proposed Subregional Preparatory Meeting is expected to provide the overall direction on the technical aspects that will be presented to the Inter-regional Meeting, leading to the International Meeting in 2004.

1.2 Conclusion

Efforts towards the implementation of the SIDS POA in the Caribbean subregion have yielded considerably fewer concrete results than were anticipated. Notwithstanding the solid grounding that the SIDS have acquired, both as individual countries and as a subregion, the lack of adequate, predictable, new and additional financial resources, coupled with the lack of the requisite institutional capability, including the required skilled manpower resources, ensured that the implementation process took some considerable time to effectively get off the ground.

Yet, recognizing, *inter alia*, some of the lasting achievements, such as the development of the *Caribbean Model*, in addition to the structures that have been fashioned by the countries of the OECS, the experience of the first decade of the implementation of the SIDS POA, could, nevertheless be viewed, as having been very useful.

At a later stage of the preparatory process for the 2004 International Meeting when the subregion will have undertaken a more comprehensive evaluation of the SIDS experience, particularly at the level of individual SIDS, a firmer basis will have been provided for the development of national, as well as subregional perspectives, together with the corresponding strategies that might inform the positions to be articulated in the context of the 2004 International Meeting and future implementation of the SIDS Programme of Action.

CHAPTER 2

Highlights of the Implementation Process of the SIDS Programme of Action in the Caribbean Subregion

2.0 Introduction

In the context of the subregional preparatory meeting to which this Paper is specifically addressed, the review of selected aspects of the implementation of the SIDS POA will be undertaken, as in the preceding section, essentially from a subregional perspective. The priority areas identified in the Programme of Action inform the headings for the review. Implementation activities undertaken in five priority areas are given particular attention, namely:

- Climate Change and Sea-Level Rise
- Coastal and Marine Resources
- Natural and Environmental Disasters
- Freshwater Resources
- Tourism Resources

The review highlights however embraces developments and issues related to the implementation of all chapters of the SIDS POA.

2.1 Climate Change and Sea-Level Rise

Within recent years, Global Climate Change (GCC) has emerged as one of the world's major long-term challenges. Anticipated global warming and consequent changes in sea level, sea-surface temperatures, precipitation, wind and ocean currents, can have a serious impact on the sustainable development of the SIDS and low lying coastal States of the Caribbean, among others.

Low-lying SIDS depend on the protective functions of tropical coastal ecosystems for their economic survival, physical existence and social viability. Global Climate Change will compromise the integrity of such ecosystems as coral reefs, sea grass beds and mangroves, undermining their ability to deliver the protection that they offer to coastlines, anchorages, beaches, buildings and coastal infrastructure⁹. It will also compromise their ability to provide food (fisheries); employment (tourism, fishing, recreation); and building materials. These impacts will occur at the very time when the natural protection of coastal ecosystems will be needed most, in the face of sea level rise and an escalation in the intensity and possibly, frequency of tropical cyclones.

In his report to the twenty-second special session of the General Assembly, The United Nations Secretary-General highlighted two key constraints to implementation of the SIDS POA related to institutional capacity-building, namely, the limited availability of human resources and

⁹ IPCC WG2 Third Assessment Report, Chapter 17

a lack of financial resources for developing and strengthening institutions and their mechanisms.¹⁰ Both of these constraints present significant challenges to the taking of effective and timely action to address Global Climate Change in individual Caribbean SIDS.

In the SIDS POA, '*Climate Change and sea-level rise*' is listed first among the 14 priority areas requiring "urgent action" for the achievement of sustainable development in SIDS. Adverse effects of GCC such as sea-level rise, with associated coastal erosion and salt water intrusion; an escalation in the frequency and intensity of hurricanes; and disruptions in precipitation and fresh-water supply, threaten the very existence of the small island developing States' as well as the low lying coastal states of the Caribbean.

In addition to the foregoing, Caribbean SIDS are highly vulnerable to natural disasters, especially those caused by short-term climate variability manifested in extreme weather events. The consequences of this vulnerability include destruction of infrastructure and productive capacity; interruption of economic activity; and irreversible changes in the natural resource base. Many Caribbean SIDS continue to be confronted by situations in which scarce resources formerly earmarked for development projects have to be diverted to relief and reconstruction activities following disasters, thus impeding sustainable development.

2.1.1 Caribbean Planning for Adaptation to Climate Change (CPACC) Project and follow-up Climate Change Projects in the Caribbean

In the area of Climate Change, the major initiative to have been developed and executed in the Caribbean is the *Caribbean Planning for Adaptation to Global Climate Change*.

The CARICOM Secretariat, several Caribbean SIDS and the OAS prepared a proposal for a subregional project that would assist the countries in preparing to deal with the impacts of Climate Change. In 1997, the Caribbean Planning for Adaptation to Global Climate Change project (CPACC) was approved by the GEF, and funding was made available through the World Bank. The project was executed by the OAS, in conjunction with the University of the West Indies Centre for Environment and Development, UWICED, through a Regional Project Implementation Unit (RPIU) located in Barbados.

The project's objective was to assist Caribbean countries in coping with the adverse effects of Climate Change, particularly sea level rise, in coastal and marine areas, through vulnerability assessment, adaptation planning and related capacity-building in its twelve member countries. These participating countries were Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines and Trinidad and Tobago, and the specific activities were coordinated by National Focal Points (NFPs) in each country.

¹⁰ UN Economic and Social Council, "Report of the Secretary-General: Addendum, National Institutions and Administrative Capacity in Small Island Developing States," p.5. and "Report of the Secretary-General: Addendum: Regional Institutions and Technical Cooperation for the Sustainable Development of Small Developing States (E/CN.17/199)," p.5 and 6.

The Project consisted of nine components:

- i Design and establishment Sea-level / Climate monitoring network;
- ii Establishment of databases and information systems;
- iii Inventory of coastal resources and use;
- iv Formulation of a Policy Framework for Integrated Coastal and Marine Management;
- v. Coral Reef Monitoring for Climate Change impacts;
- vi Coastal vulnerability and Risk Assessment;
- vii Economic Valuation of Coastal and Marine Resources;
- viii Formulation of Economic / Regulatory proposals; and
- ix Preparation of First National Communications for St. Vincent and the Grenadines

Components (i) to (iv) were implemented in all 12 participating countries while components (v) to (ix) were pilot projects implemented in selected countries. The Project developed a successful model of subregional cooperation in addressing the countries' concerns with Climate Change impacts and made satisfactory progress towards the establishment of expected technical and institutional outputs. It also emerged as the focal point for subregional initiatives aimed at satisfying the subregion's obligations under the UNFCCC.

Specific achievements of the project are:

- a) Establishment of Climate Change Committees / Focal Points. All countries have National Focal Points (NFPs) and National Implementing Coordinating Units (NICU's). In some countries, National Committees have been established to address Climate Change.
- b) Establishment of a sea-level and climate monitoring system that contributes to global and regional assessment of the issues. The monitoring stations and related information network installed in 12 countries have improved the CC monitoring and evaluation capacity in the region. The data are primarily used to document sea-level rise and changes in sea surface temperature (SST), thus assisting in the global monitoring of the impacts of Climate Change. The contribution and place of this Caribbean monitoring activity within global monitoring efforts are being assessed. Additional applications in areas such as shipping, tourism and monitoring of extreme events are being promoted.
- c) Improved access to and availability of data. The project has developed an extensive database for coastal zone management and Climate Change monitoring, accessible to a wide range of environment and development agencies in each country.
- d) Increased appreciation of Climate Change issues at the policy-making level and technical support in the development of regional positions at the Convention. CPACC has made policy makers, decision-makers, technical personnel and the wider public aware of Climate Change and has increased appreciation of the complexity and integrated nature of Climate Change issues. The project has enabled a more unified and improved documented positioning of the subregion before the Convention and the Conference of Parties.

- e) Meeting country needs for expanded vulnerability assessment and economic evaluation techniques.
- f) Establishment of methodology for vulnerability assessment. Pilot studies have expanded the knowledge of vulnerability assessment and economic evaluation tools and methods and have facilitated an increased awareness of the most physically vulnerable sectors in the Caribbean, as well as the possible magnitude of loss of coastal resources.
- g) Establishment of coral reef monitoring protocols. Coral reefs have proven to be key barometers of Climate Change. As a result of ongoing efforts within CPACC, monitoring and early warning capabilities are being enhanced. The data are assisting in documenting the pace of coral bleaching and impacts on coral reefs caused by changes in SST. As with SST and sea-level change, efforts are being undertaken to link the CPACC coral reef monitoring activities to the global networks.
- h) Development of National Climate Change Adaptation Policies and Action Plans. At the country level, a consultative, multi-sectoral approach was utilized to identify the likely impacts of Climate Change. Based on this, countries were able to formulate National Climate Change Adaptation Policies as well as Action Plans in support thereof. Some of these Action Plans have been approved at the level of the Cabinet of Ministers.
- i) Creation of a network for regional harmonization. Through its collaborative efforts with a number of existing agencies,¹¹ CPACC is introducing Climate Change as a factor in the agenda of these agencies and is establishing programmatic linkages between CC and other activities.

Results of the two comprehensive evaluations:

- (a) *World Bank Mid-Term Evaluation.* The mid-term review of CPACC (September 1999) concluded that implementation performance throughout the first half of the project was satisfactory and constituted a sound basis on which to continue CPACC activities. The mid-term review also identified several areas where CPACC needed to dedicate increased attention and/or resources to meet its objectives.¹²

¹¹ These are the Caribbean Tourism Organisation (CTO), the Caribbean Alliance for Sustainable Tourism (CAST), the Centre for Resource Management and Environmental Studies (CERMES) of the University of the West Indies, the Caribbean Energy Information Systems (CEIS), the Caribbean Development Bank (CDB), the Caribbean Conservation Association (CCA), the Caribbean Environmental Health Institute (CEHI), the Caribbean Disaster and Emergency Response Agency (CDERA), private sector interests such as Petrotrin of Trinidad and Tobago as well as the insurance and banking sector.

¹² Whereas some of these areas have been addressed since the mid-term report became available, further efforts are needed in the following areas: a) Sea level and climate monitoring system. Staff at national agencies responsible for the operation and maintenance of the equipment, require an update in their training to reduce the down-time of the equipment. Procedures for intervention by the Regional Network Coordinator located at CIMH need to be refined and agreed upon with the national offices; b) Use of data collected by the monitoring stations. Several countries still are not using the data. Data stream reliability and ease of access need to be improved, and regional agencies such as the University of the West Indies, CIMH and IMA will need to intensify their efforts with national agencies on developing applications of the data with clear national benefit; c) Application of Climate Change issues at the policy-making level. Notwithstanding the efforts of the CPACC national focal points and the RPIU, Climate Change issues are rarely included in the development decision-making in participating countries. Capacity-building by CPACC has been concentrated in short-term technical training directly related to project activities. The sponsoring of a policy dialogue at the country and regional level, and longer term training in certain areas for environmental management will need to be supported in order to have a lasting impact on this issue; d) Meeting country needs for expanded vulnerability assessment.

- (b) *GEF Secretariat Review of GEF-Funded Climate Change Projects in the Caribbean.* During the first quarter of 2000 the GEF Secretariat commissioned an evaluation of the GEF-UNDP funding for National Communications, the GEF-UNDP National Communications Support Programme¹³, a subregional project, and the CPACC.¹⁴ The report stated that the GEF-funded efforts were meeting the objectives of assisting CARICOM countries to: (a) develop the capacity to assess and adapt to the possible adverse impacts of Climate Change, and (b) to meet their respective obligations under the UNFCCC, with respect to Initial National Communications. The report pointed out that, prior to the start of CPACC, the Caribbean was characterized by a general weakness of the policy and institutional arrangements for environmental management and sustainable development, constraining the effect of the capacity building activities of CPACC. This weakness was identified as a principal cause of poor linkages between Climate Change and the other areas of environmental and economic management in the countries. The report indicated that sustainability of CPACC and the National Communications process was being threatened by a low appreciation of Climate Change issues at the level of the political directorate, and the lack of capacity for in-depth research into these issues.¹⁵

The approach to the design of CPACC involved national and subregional consultations as it was perceived that this would ensure that countries took ownership of the project's activities. It is in this regard that, through a series of national consultations with relevant stakeholders, CPACC countries have begun the process of designing National Climate Change Adaptation Policies and Implementation Plans. To date, the Government of St. Lucia has approved its national policy and overall successful implementation in all CPACC countries is expected.

Whereas CPACC was designed to focus on Climate Change vulnerability and adaptation in the coastal area, CPACC countries have identified additional vulnerabilities and adaptation needs in their National Communications mainly in the agricultural sector, in the supply and management of fresh water resources, and in human health.

¹³ *Enabling Activities: National Communications Projects Implemented by UNDP.* The UNDP National Communications Support Programme (NCSP) provides technical support to CPACC participating countries, Haiti, Suriname and the Dominican Republic. Regional experts in the field of Climate Change are contracted to support countries in their efforts to prepare their National Communications. Training workshops are offered in the preparation of green house gas inventories, vulnerability assessment, and other key areas.

¹⁴ A Synthesis of Performance and Experiences of Caribbean States participating in GEF-Financed, Climate Change Projects, Impact Consultancy Services, July 2000

¹⁵ The following recommendations in the report are of relevance to CPACC and its follow-up:

- Future interventions should be preceded by a thorough assessment of the policy and institutional arrangements for addressing Sustainable Development.
- An evaluation of the effectiveness of training provided under both projects should be undertaken, against an overall review of the human resources management in each country.
- Future training activities should be broadened beyond the narrow focus of the project's activities, and long term training in critical areas should be considered.
- A concerted effort is required, preferably with support from the political directorate, to integrate Climate Change into the curriculum of non-scientific disciplines in secondary and post-secondary education.
- The Caribbean should seek technical and financial support for the establishment of a Regional Sustainable Development Agency, which would, amongst other things, help strengthen cooperation and collaboration among regional environmental agencies.

2.1.2 A Permanent Mechanism to Address Climate Change

At the 1997 Caribbean Ministerial Meeting on the implementation of the SIDS POA, Caribbean countries were mandated to ensure that an adequate institutional mechanism was established to address Climate Change issues after the completion of CPACC. Consistent with the recommendation of the Ministerial meeting, the CPACC team initiated extensive consultations with various regional institutions and developed a concept proposal for the establishment and functioning of a Caribbean Climate Change Centre. The concept paper was considered at the Ministerial level in the participating countries and was approved by the Eighth Meeting of the Council of Ministers for Trade and Economic Development (COTED) - one of the political decision-making organs of CARICOM - in February 2000. COTED forwarded the

proposal with its endorsement to the meeting of the CARICOM Heads of Government, held in Canouan, St. Vincent and the Grenadines, in July 2000, where the Heads gave their approval for the establishment of a Caribbean Climate Change Centre in Belize.

Text Box 1

The Caribbean Community Climate Change Centre (CCCCC)

The Agreement establishing the CCCCC was signed at the Thirteenth Inter-Sessional Meeting of the Conference of Heads of Governments of CARICOM which convened in Belize on 3-5 February 2002. It represents a natural progression of the work of the CPACC institutionalizing Climate Change at the national and regional levels. The Centre will operate as a CARICOM agency with independent management. Operational oversight will be provided by a Board of Directors. The Centre will serve as a regional institution that will articulate support and sustain the programme of action on Climate Change. It will be self-sufficient and will generate its revenue from the services that it provides, such as project execution, provision of services to Governments and the private sector. Other proposed revenue streams include: a Trust Fund established with support from international foundations and contributions from the private sector; the proposed Climate Change Adaptation Fund and fees for certification services provided under the Clean Development Mechanism (CDM).

Establishment of a Climate Change Centre in the subregion mirrors similar initiatives for the strengthening of institutional capacity in this field in Latin America and the rest of the world. Also, it is in direct response to the recommendations contained in the Institutional Development Initiative (IDI) of the UNFCCC, which has called for the establishment of "Regional Centres of Excellence in Climate Change" at the fifth Conference of Parties. The island nations of the South Pacific have recently taken a similar initiative in articulating the Pacific Islands Climate Change Adaptation Programme (PICCAP). The CCCCC is to be based in Belize.

2.1.3 Follow-up Projects in Climate Change in the Caribbean

Two Climate Change-related projects will build on the foundation established by the CPACC. They are: the Adaptation to Climate Change in the Caribbean (ACCC) Project; and the Mainstreaming Adaptation to Climate Change in the Caribbean (MACC).

The “Adapting to Climate Change in the Caribbean” (ACCC) Project

Purpose and Objectives

A key objective of this project was to create conditions under which the subregion would be able to sustain Climate Change activities at the conclusion of the CPACC project in December 2001. This proposed Programme was designed to strengthen and make sustainable, private and public sector institutional capacities, to respond to Climate Change in the Caribbean region. It builds upon and consolidates the successes of the CPACC initiative.

Description of Activities

The following nine projects will be managed locally by the CPACC/RPIU with technical support provided by Canadian companies, Government agencies and academic institutions according to project needs.

Project 1: Detailed Project Design and Business Plan for Regional Climate Change Centre -

This project provided for the detailed design of all nine projects with plans to be agreed by all Partners and the Project Management Committee. This Project also developed a business plan for the CCCCC to make it sustainable after this CCCDF Programme is completed. Funding strategies, involving Governments and private sector of the Region, and sustainable management strategies will be prepared and adopted.

Project 2: Public Education and Outreach (PEO) - This Project will further develop and implement a Climate Change PEO programme for Caribbean nations extending the initial CPACC efforts.

Project 3: Integrating Climate Change into a Physical Planning Process using a Risk Management Approach - The objective of this Project is to build capacity for integrating adaptation to Climate Change risks into the physical planning process, in the private sector and Governments. This will follow a risk management approach building on experience with Canadian municipalities and in the Caribbean.

Project 4: Strengthening Technical Capacity - This Project is designed to respond to specific gaps and needs in regional and national technical capabilities identified in the first three years of the CPACC Programme. Development of the necessary scientific and technical expertise in the Region is essential to ensuring sustainability. The project also provides for strengthening of linkages with similar programmes in the Southwest Pacific Islands.

Project 5: Integrating Adaptation Planning in Environmental Assessments for National and Regional Development Projects - The goal of this project is to integrate adaptation planning into the project cycle for international and national development activities.

Project 6: Implementation Strategies for Adaptation in the Water Sector - Climate models suggest increasingly dry conditions for much of the Caribbean subregion and water demands are

increasing. The objective of this project is to establish, with water management agencies, a comprehensive set of adaptation strategies in the water sector.

Project 7: Formulation of Adaptation Strategies to Protect Human Health - The objective of this project is to build upon the risk management assessment in the health sector identified in Project 3 and develop a strategy for the protection of human health from adverse Climate Change impacts. IPCC studies indicate the likelihood of increasingly adverse conditions in the region for vector and water borne diseases and those related to heat stress.

Project 8: Adaptation Strategies for Agriculture and Food - The objective of this project is to develop national and regional strategies that will provide for food security and sustainable rural livelihoods in the Caribbean region.

Project 9: Fostering Collaboration/Cooperation with non-CARICOM Countries - This project will focus on the formulation of a strategic framework to foster closer collaboration in the implementation of Climate Change adaptation activities in CARICOM countries and other non-CARICOM countries in the Caribbean subregion.

The Mainstreaming Adaptation to Climate Change (MACC) Project

Purpose and Objectives

The overall objective of this project is to build capacity in the CARICOM Small Island Developing States (SIDS) to develop Stage II adaptation strategies and measures, according to the United Nations Framework Convention on Climate Change (UNFCCC) and the guidance issued at the Conference of Parties. This will be pursued through support to:

- (i) the mainstreaming of Climate Change considerations into development planning and sectoral investment projects;
- (ii) appropriate technical and institutional response mechanisms for adaptation to global Climate Change; and
- (iii) regional climate change monitoring and modelling.

Description of Activities

The project will build capacity in the CARICOM Small Island Developing States (SIDS) to develop Stage II adaptation strategies and measures through the mainstreaming of adaptation into the general planning process of the countries in the subregion. This will be sought through:

- (a) Mainstreaming adaptation to Climate Change in national development planning and public and private investment decisions.
- (b) Assisting Institutional and Technical Support mechanisms:

- (i) Assisting participating countries with Stage II adaptation under the UNFCCC;
 - (ii) Support and coordination for the preparation of the 2nd National Communications;
 - (iii) Creating a Permanent Institutional Mechanism to Address GCC in the Caribbean.
- (c) Expand GCC monitoring and impact assessment as a basis for national and regional level decision making on adaptation.
- (d) Project Management

2.2 Coastal and Marine Resources

The enjoyment of sovereign rights for the exploration and exploitation of an Exclusive Economic Zone (EEZ), by coastal States afforded under the 1982 United Nations Convention on the Law of the Sea, has placed enormous tracts of ocean space at the disposal of these States. According to Article 57 of the 1982 Convention, the EEZ *shall not extend beyond 200 nautical miles from the base lines from which the breadth of the territorial sea is measured*. In many cases, this provision places under the jurisdiction of coastal States, areas of maritime space that are several times larger than their respective land spaces. Significantly, many such States, including Caribbean SIDS, lack the financial, manpower, institutional and other prerequisites that would permit them to derive optimum benefits from this internationally sanctioned regime.

The challenges confronting these States are in respect of, *inter alia*:

- The development of national ocean policies inclusive of coastal zone management accompanied by the necessary legislation and regulations;
- the strengthening and development of institutional, administrative, scientific and technological capacity to effectively manage and utilise the resources of the EEZ;
- The development of a comprehensive inventory of living and non-living resources of the EEZ;
- The establishment of additional marine protected areas;
- Reduction of land-based sources of marine pollution;
- The adoption of measures and procedures for the effective prevention of pollution from ships and the establishment of mechanisms for rapid response to emergencies such as oil spills;
- The establishment of monitoring mechanisms for marine eco-systems and development of an integrated environmental database, utilising technologies such as remote sensing and geographic information systems (GIS);
- Promoting an Integrated Management Approach to the Caribbean Sea Area in the context of Sustainable Development.

The coastal environments of the Caribbean accommodate a diversity of habitats including coral reefs, seagrass beds, mangrove, wetlands and rocky shores. All Caribbean SIDS have established some aquatic preserves to protect valuable habitat but the authorities lack the necessary manpower and funding to enforce the corresponding regulations. The threats to the coastal ecosystems include sea-based and land-based contamination; development; over-fishing; sand mining; and increased storm activity.

2.2.1 Threats to sustainable development of coastal and marine resources

Living and non-living marine resource exploitation

The impact of the exploitation of non-living marine resources varies across Caribbean SIDS. Sand mining is a particular problem in St. Vincent and the Grenadines and St. Lucia, due to the existence of an active construction industry in these States. The respective Governments have introduced policies to encourage sand importation. Relevant legislation has also been drafted. However, these legal instruments have either not been enacted, or are not being adequately enforced.

Extraction of living marine resources is a significant threat in all reporting countries. Jamaica reports that coral harvesting, particularly harvesting of the black coral, continues to be a problem.¹⁶ Other threats to coral include physical damage from anchorages, fishing equipment and divers. In addition, the use of bleach to harvest reef fish has damaged coral in the Bahamas.¹⁷ Fisheries have been severely depleted in some countries. In Barbados, recourse has been had to a three-year moratorium on the harvesting of sea urchins in an attempt to restore the population.¹⁸ Many Caribbean SIDS report the deforestation of mangroves for fuelwood, often by squatters. In the Dominican Republic, mangrove roots are cut during the harvesting of oysters (*Crassostrea rizophorae*).¹⁹

Aquaculture is practiced on many islands but has not been found to have had a significant impact on any coastal areas. Cuba's aquaculture industry produces over 1,600 tons of white-shrimp annually.²⁰

Climate Change and natural disasters

There is a widespread need for disaster management plans within Caribbean SIDS. Recent years have witnessed an increase in the number and intensity of tropical storms. As St. Vincent and the Grenadines reports, *"If Climate Change is responsible for the intensity of storms and storm surges over the last five years then it is also responsible for major coastal erosion on the island. Some areas on the northern windward side of the island have had as much as 25 meters of shoreline recession over the last five years. Hurricane Lenny (1999) destroyed 10 meters of coastal forest that had stood for over 50 years."*²¹

¹⁶ Jamaica National Report, p. 26

¹⁷ The Bahamas National Report, p. 23

¹⁸ Barbados National Report, p. 32

¹⁹ Dominican National Report, p. 25

²⁰ Cuban National Report, p. 115

²¹ St. Vincent and the Grenadines National Report, p. 20

The possible effects of Climate Change on coastal water levels and temperatures are a threat to the fragile coral-reef ecosystems. The coastal region is the most economically valuable area on most islands and even small changes could produce permanent environmental damage, severely affecting the islands' economies.

Transboundary threats

The most common transboundary threats to Caribbean SIDS are oil spills. Thousands of large vessels transporting oil, gas and chemicals traverse the subregion annually.²² In several countries, National Oil Spill Contingency Plans are in place. However, a subregional spill-response plan is needed. This might best be pursued within the initiative being piloted through the United Nations General Assembly by Caribbean SIDS for *Promoting an Integrated Management Approach to the Caribbean Sea Area in the context of Sustainable Development*, with due regard to other subregional and wider international initiatives. In addition, the discharge of solid waste, wastewater and bilge water by both commercial and cruise ships, pollutes the coasts. All Caribbean SIDS are signatories to the MARPOL Convention 1973/78 and the 1989 Basel Convention on the Trans-boundary Movement of Hazardous Wastes and Their Disposal, but none has signed the Basel Protocol on Liability and Compensation.

The Dominican Republic reports that Haitian nationals are overexploiting the fisheries in border regions of the Dominican Republic, particularly shrimp and lobster. Cross-border trade creates a lucrative market for Haitian fishermen who sell their catch to the Dominican market.²³

The southern islands, particularly Trinidad and Tobago, face a transboundary threat from the Orinoco River on the South American mainland. The river brings a heavy sediment load to the waters, notably increasing turbidity on the west coast of the island of Trinidad.²⁴

Land-based pollution

Many Caribbean SIDS lack coastal zone management and development plans. Trinidad and Tobago is conducting a detailed examination of the components and the implementation of coastal management plans as well as their integration with development plans.

There is general concern over land-ownership issues and a need for improved coordination between the central Government and local town councils regarding land-planning and the approval of construction projects.²⁵ Canal-building and dredging to create harbours have damaged many mangrove forests and wetland areas.

Rapid population growth and urbanization have resulted in increased solid and liquid pollution. Wastewater treatment facilities are inadequate in many locations. For instance, in

²² Trinidad and Tobago National Report, p. 70

²³ Dominican Republic National Report, p. 27

²⁴ Trinidad and Tobago National Report, p. 71

²⁵ The Bahamas National Report, p. 17

Castries, St. Lucia, the wastewater is discharged directly into the sea without treatment and only 13 per cent of the population is connected.²⁶

Surface-water runoff is a problem on all Caribbean SIDS and is a significant cause of pollution in coastal areas. Rivers carry solid waste directly to the coast because of the lack of adequate solid waste disposal. Point-source pollution, such as mining and industrial waste discharges, has been measured in rivers and can be assumed to reach coastal regions although no specific studies have been undertaken to validate this. Cuba reports that increased development has brought about an increase in the amount of hazardous chemicals and biomedical waste. Over 1.2 million tons of industrial hazardous wastes are produced in Cuba annually.²⁷ In an effort to reduce such waste, Cuba is encouraging the inclusion of methods to reduce hazardous waste production in the design of new industrial plants, as well as retrofits, whether through source reduction or recycling.

Non-point-source pollution such as agricultural run-off, fertilizers, pesticides, and herbicides is a significant problem for all Caribbean SIDS. Nutrient loading from nitrogen and phosphorus is causing eutrophication of rivers and increasing algae and turbidity in coastal areas. Many Caribbean SIDS report uncontrolled deforestation by land squatters for fuelwood and agriculture.²⁸ Cuba reports that 11.8 per cent of its forestland has been converted to agriculture in recent years, resulting in increased water turbidity in deforested areas.

2.2.2 Tourism impacts

Tourism is an important factor in coastal area management. Tourist activities and developments significantly affect the health of the area through the construction of buildings that are sited too close to high water marks; harbour dredging; cutting down of mangroves; mooring on reefs and sea-grass beds; exceeding carry capacity; and pollution. The issue of construction in coastal areas is illustrated in Antigua and Barbuda, where 39 of the country's 55 hotels have a beach-front location.²⁹

2.2.3 Health impacts

Health concerns related to coastal area management are generally linked to land-based pollution, such as the disposal of untreated sewerage and surface run-off from agricultural and industrial sectors, streets, and construction sites. These pollutants have been known to cause diseases such as gastroenteritis, diarrhoea, jaundice, rashes and various other infections, in Caribbean SIDS.

2.2.4 Data, information management and research

As with other areas of environmental management, data information management and research are conducted by a variety of agencies and organizations, including:

²⁶ St. Lucia National Report, p. 31

²⁷ Cuba National Report, p. 131

²⁸ Trinidad and Tobago National Report, p. 66

²⁹ Antigua and Barbuda National Report, p. 13

- Non-Governmental organizations;
- Private consultants;
- Government agencies responsible for environment, fisheries, natural resources, transportation, forestry, etc.;
- Academic institutions;
- International organizations.

Data, information management and research needs are generally related to capacity-building. Some countries have highlighted the need for additional water level, meteorological, and pollution monitoring and equipment, as well as studies on various coastal ecosystems.

2.2.5 Stakeholder participation/awareness and education

Throughout the subregion, there are reports of increased stakeholder participation in the decision-making process for coastal area management and increased awareness and education programmes. Government agencies are making intense efforts to reach out to non-Governmental organizations and community-based organizations and to promote public awareness regarding coastal area issues. Listed below are some examples of Governmental efforts in this area:

- Educational and training programmes for students, teachers, public sector officials, and other stakeholders;
- Establishment of Local Area Management Authorities;
- Involvement of stakeholders in monitoring, management, and conservation activities;
- Media campaigns;
- Public awareness activities;
- Public consultations; and
- Training on sustainable tourism.

Notwithstanding these activities, many countries still do not consider that there is sufficient public involvement in the decision-making process for coastal area management. St. Lucia is moving to address this problem, by developing an Integrated Approach to Development Planning.

Significant strides are being made in Trinidad and Tobago in the promotion of the role of women in coastal resource management. The Gender Studies Department of the University of the West Indies, St. Augustine Campus, has been working towards the empowerment of women and the sustainable development of the communities in the area of the Nariva Swamp.”³⁰

2.2.6 Ocean management

At the fifty-seventh session of the United Nations General Assembly, the countries of the Caribbean secured the passage of a Resolution entitled: *Promoting an Integrated Management*

³⁰ Trinidad and Tobago National Report, p. 81

Approach to the Caribbean Sea in the Context of Sustainable Development. This follows the adoption, at earlier sessions of the General Assembly, of resolutions 54/255 and 55/203 which bear the same title.

Text Box 2
The Caribbean Sea Proposal

The proposal for *Promoting an integrated management approach to the Caribbean Sea area in the context of sustainable development*, that is now before the United Nations General Assembly, has its origin in a decision adopted at the Caribbean Ministerial Meeting on the implementation of the Programme of Action for the Sustainable Development of Small Island Developing States, Barbados, 10-14 November 1997. The original proposal as adopted by the Ministerial Meeting was for *the international recognition of the Caribbean Sea as a "special area" in the context of sustainable development*.

The fundamental objective of the proposal was the international recognition of the Caribbean Sea as a special area, not by reference to any single mode of use or abuse of that sub-oceanic basin, but in the comprehensive context of *sustainable development*. The proposal would build on a range of regional and wider international instruments as it pursues global acknowledgement of the unique environmental, economic and social values of the Caribbean Sea and of the significance of these to the peoples of the region. Its detailed elaboration would also be informed by, *inter alia*, the recognition in the SIDS POA (Paragraph 25) that sustainable development in small island developing States depends largely on coastal and marine resources, because their small land area means that those States are effectively coastal entities. What is ultimately envisaged is the development of an international instrument with an extended range of characteristics and attributes under which would be subsumed all activities aimed, not only at the preservation of the Caribbean Sea environment, but beyond that, to address the sustainable development of that environment, including its resources and with due regard to the social and economic dimensions, in addition to as the environmental.

The resolution adopted at the fifty-seventh session of the UNGA, notwithstanding the continuing very strong environmental thrust that characterised both its predecessors, recognises, *inter alia*, *the heavy reliance of most Caribbean economies on their coastal areas, as well as on the marine environment in general, to achieve their sustainable development needs and goals*. It also recognises *the diversity and dynamic interaction and competition among socio-economic activities for the use of the coastal areas and the marine environment and their resources*.

In its operative paragraphs, the resolution, *inter alia*, *encourages the further promotion of an integrated management approach to the Caribbean Sea area in the context of sustainable development, in accordance with the recommendations contained in resolution 54/225, as well as the provisions of Agenda 21, the Programme of Action for the Sustainable Development of Small Island Developing States, the outcome of the twenty-second special session of the General Assembly, the Johannesburg Declaration on Sustainable Development, the Johannesburg Plan of Implementation, and in conformity with relevant international law, including the United Nations Convention on the Law of the Sea*.

The Secretary-General of the United Nations is requested to report on the implementation of this resolution at the fifty-ninth session of the General Assembly in 2004.

UNEP has been working with CARICOM to establish a regional network to monitor the resources of the Caribbean Sea. Aspects to be included in this approach include:

- Environmental and safety aspects of shipping;
- Pollution monitoring and assessment;
- Control of pollution from land based sources;
- Development of common methodologies for integrated coastal zone management;
- Conservation of biological diversity;
- Exploitation of fisheries and other marine resources;
- Exploitation of non-living resources;
- Information and data exchange;
- Security concerns; and
- International and regional cooperation and coordination.

A Protocol to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean, “*The Cartagena Convention*”, on Land-Based Sources of Marine Pollution (the LBS Protocol) was adopted in 1999. Within the Caribbean, seven major categories of point sources of land-based pollution have been identified, namely, domestic sewage; oil refineries; sugar factories and distilleries; food processing; beverage manufacturing; pulp and paper; and the chemical industry. While the Protocol largely pursues a source-specific approach and the application of the most appropriate technologies, its initial focus is to be on domestic sewage and agricultural non-point sources. UNEP/RCU has also implemented projects on appropriate and environmentally sound technologies for sewerage treatment and best management practices. In addition, a Waste Oil Management Programme for the Caribbean is being developed by UNEP in collaboration with the Basel Secretariat and PAHO.

2.2.7 Fisheries development

Fisheries play an important and sometimes underrated role in the economies of Caribbean SIDS, providing employment and contributing to food security and national income. Current methods of evaluating the contribution of fisheries to economic and social development have tended to overlook the incremental economic benefits arising from the export market, as well as support services.

Within the OECS, the following major issues have been identified in the context of fisheries development:

- Near-shore demersal fisheries resources are coming under increasing pressure and, in some instances, are already showing signs of collapse;
- Exports are constrained and regulated;
- Strong internal markets exist in the region;
- An increased need to diversify the industry;
- Limited knowledge of potential resources;
- Difficulty in accessing financial resources;
- Limited human and financial resources.

Sustained fisheries development will require action in the following areas:

- Improving national fisheries management framework, through training in fisheries management planning, compliance and conservation;
- Increasing accessibility to varied markets through the diversification and improved quality of fisheries products;
- Increasing the overall production by the fisheries sector; and
- Facilitating regional action by, inter alia, defining mechanisms for the exploitation and management of shared resources and outlining roles and responsibilities of various regional and international agencies.

The following actions have already been pursued:

- Development by the Caribbean Law Institute (CLI) of the legislative apparatus in relation to the integrated management of fisheries;
- Convening by UNDP of Workshops to promote a methodology for resource management in the Caribbean Sea;
- Development by the OECS Secretariat of a Fisheries Development Strategy.

On 4 February 2002, the *Agreement Establishing the Caribbean Regional Fisheries Mechanism* was opened for signature in the context of the Thirteenth Inter-Sessional Meeting of the Conference of Heads of Government of the Caribbean Community (CARICOM). On that date, the Agreement was signed by Barbados; Belize; Grenada; Guyana; Jamaica; St. Vincent and the Grenadines; Suriname; and Trinidad and Tobago. On 4 July 2003, in the context of the Twenty-Fourth Meeting of the Conference of Heads of Government, Antigua and Barbuda; Montserrat; and St. Kitts and Nevis also became signatories.

According to Article 4 of the Agreement, the Mechanism shall have as its objectives:

1. The efficient management and sustainable development of marine and other aquatic resources within the jurisdictions of Member States;
2. The promotion and establishment of co-operative arrangements among interested States for the efficient management of shared, straddling or highly migratory marine and other aquatic resources;
3. The provision of technical advisory and consultative services to fisheries divisions of Member States in the development, management and conservation of their marine and other aquatic resources.

According to Article 5, in pursuance of its objectives, the Mechanism shall be guided by the following principles:

1. Maintaining bio-diversity in the marine environment using the best available scientific approaches to management;
2. Managing fishing capacity and fishing methods so as to facilitate resource sustainability;
3. Encouraging the use of the precautionary approaches to sustainable use and management of fisheries resources;
4. Promoting awareness of responsible fisheries exploitation through education and training;
5. According due recognition to the contribution of small scale and industrial fisheries to employment, income and food security, nationally and regionally; and
6. Promoting aquaculture as a means of enhancing employment opportunities and food security, nationally and regionally.

The Caribbean Fisheries Mechanism was launched in Belize, on 26 March 2003. The first meeting of the Forum of the Mechanism convened on 27 March 2003. According to Article 9 of the *Agreement establishing the Caribbean Fisheries Mechanism*, subject to the determination of

the overall policy of the Mechanism by the Ministerial Council, the Forum “*shall determine the technical and scientific work of the Mechanism....*”

The Forum comprises:

One representative of each Member and Associate Member of the Mechanism;
Representatives of:

- i Fisher Folk Organisations and Private Fishing Companies within the Caribbean Region;
- ii Regional bodies and institutions and regional organisations whose work in the area of fisheries contributes to the work of the Mechanism; and
- iii Non-Governmental Organisations whose work in the area of fisheries contribute to the work of the Mechanism.

Even more recently, when the Fourteenth Inter-Sessional Meeting of the Conference of Heads of Government of the Caribbean Community (CARICOM) convened in Trinidad and Tobago, on 14-15 February 2003, a proposal was tabled by one of the signatory countries to the CRFM, for the adoption of a Regional Fisheries Policy for the joint exploitation and conservation of the fishing resources of the region for the benefit of its peoples. Issues identified for consideration in this regard include:

- 1. Establishment of a single maritime authority to manage the resources, cooperate in research and provide technical support for ongoing fisheries projects in the region;
- 2. The issuing of licenses to operate in the identified “fishery zone”;
- 3. Research to determine an “allowable yearly sustainable catch”, with catches and landings thereof being recorded;
- 4. Making fishing operations without a license “illegal and punishable”;
- 5. Effective security procedures for reporting by fishing vessels to Coast Guard, Customs and Immigration services when entering and leaving national jurisdictions.

Significantly, in this context, the CARICOM Secretariat has been mandated to carry out the necessary research with a view to developing a framework for the exploitation and conservation of fisheries resources in the region, based on stipulated guidelines. Further, in the conduct of the research, the Secretariat is to take note of the overlapping maritime areas between Member States of the Community and Third States. The framework is to be presented to the Twenty-fourth meeting of the Conference of Heads of Government of CARICOM, which convenes in July 2003.

2.3 Natural and Environmental Disasters

Like many other areas, the Caribbean is subject to meteorological hazards, such as hurricanes, floods and droughts, as well as geophysical events, such as earthquakes, landslides, and volcanoes. Depending on the degree of vulnerability of given SIDS, exposure to hazards

may result in natural disasters that, in such small island developing entities, such can have devastating economic, social and environmental effects.

Arguably, tropical cyclones are the most frequent of the natural hazards that affect the subregion. The decade of the nineties was one of contrasts. Landsea³¹ reported that the first half of the decade saw the least active four-year period in at least fifty years³². However, in the second half of the decade, the region experienced an upsurge in the incidence of hurricanes. Indeed, Guy Carpenter reported that 1999 saw the highest number of category 4 hurricanes since records began to be kept in 1886³³. In 1999, Hurricane Irene crossed western Cuba; Hurricanes Dennis and Floyd and tropical storm Harvey made landfall in the Bahamas and in the Turks and Caicos Islands; and the northern Leeward Islands were exposed to Hurricanes Jose and Lenny. Because of its unusual East-to-West track, Hurricane Lenny also caused damage in the Windward Islands.

The increased incidence may indicate that the subregion has entered a new multi-decadal period of heightened hurricane activity. This follows the period of the 1970s to the middle of the 1990s, which was relatively quiet and from the 1920s to the 1960s, which was relatively active³⁴. This long-term cycle would be more important than any impacts of Climate Change because its effects could affect development patterns and outcomes over, at least, the next decade. Furthermore, current research seems to indicate that neither the frequency nor the intensity of hurricanes will be very much influenced by Climate Change³⁵. This issue continues to be debated, however.

Hurricanes remain the major cause of loss of life due to natural disasters, with a death toll of 1,745 persons during the decade. In the insular Caribbean, the largest loss of life occurred in Haiti, caused by Hurricane Gordon in 1994 and in the Dominican Republic by Hurricane Georges in 1998.

Table 2: Loss of Life caused by Natural Disasters in the Insular Caribbean and Belize³⁶

PERIOD	LOSS OF LIFE			
	Total	Floods	Windstorms	Other
1990 - 1998	1966	155	1745	66
1980 - 1989	1640	925	584	131
1970 - 1979	1829	265	1561	3
1964 - 1969	953	0	953	0
TOTAL	6388	1345	4843	200

Source: EM-DAT: The OFDA/CRED International Database³⁷, Université Catholique de Louvain, Brussels, Belgium.

³¹ Landsea et. al 1996

³² A distinction must be made between the impact of individual hurricanes and frequencies. While the period 1991-1994 was the least active four year period on record it included hurricane Andrew (1992) which caused an estimated US\$33 billion in damage and hurricane Gordon (1994) which caused 1,122 fatalities in Haiti.

³³ Guy Carpenter, 2000

³⁴ Landsea et.al. 1999

³⁵ See, for example, the publications by Landsea or Henderson-Sellers et.al. 1998

³⁶ For the Guianas, there are no recorded deaths in the EM-DAT database

Haiti with 2,598 deaths and the Dominican Republic with 1,862 fatalities over the period 1964 to 1998, account for almost 70 per cent of the death toll in the subregion. This is a reflection of social vulnerability caused by, inter alia, poverty, environmental degradation and policy failures³⁸. This high degree of vulnerability was highlighted in 1994, when rainfall, associated with, then, tropical storm Gordon, caused floods and mudslides which resulted in 1,122 fatalities, even though the centre of Gordon did not pass over Haiti. The Dominican Republic and Haiti are not alone in this vulnerability, as many of the characteristics are shared with other low-income countries and with the poor in higher income countries.

Increasingly fatalities caused during the passage of tropical cyclones are not wind-related but stem from secondary disasters like flood or land- and mudslides³⁹. This highlights the role of environmental degradation and policy failures as major factors that account for the loss of life.

If population growth is taken into account, the data show that there has been only a slight reduction in the crude annual disaster death rate over the last 35 years.

Table 3: Normalized loss of life in the Insular Caribbean and Belize

Period	Ave. no. of deaths/year	Mid-decade population (millions)	Crude annual disaster death rate per 100,000 people
1990 - 1998	218.4	35.13	0.62
1980 - 1989	164.0	31.14	0.53
1970 - 1979	182.9	25.16	0.67
1964 - 1969	158.8	22.90	0.69

Source: ECLAC based on EM-DAT and US Bureau of the Census data

The limited progress is disappointing, especially in view of the advances made in early warning techniques and in prevention and mitigation technologies. Environmental degradation and policy failures may well have offset the application of technological progress, which should have resulted in a faster decline of the crude annual death rate.

Data on economic impacts are less readily available. While ECLAC has carried out a number of immediate post disaster assessments⁴⁰ of projected economic losses for some individual islands, there remains a dearth of evaluations to assess the longer-term economic impact of disasters⁴¹.

³⁷ To be included in the database, at least one of the following criteria has to be satisfied: 10 or more people killed; 100 people report affected; a call for international assistance or the declaration of a state of emergency.

³⁸ The interpretation is only indicative because inter-country comparisons can be carried out only if data are normalised for population and for hazard probabilities.

³⁹ ECLAC

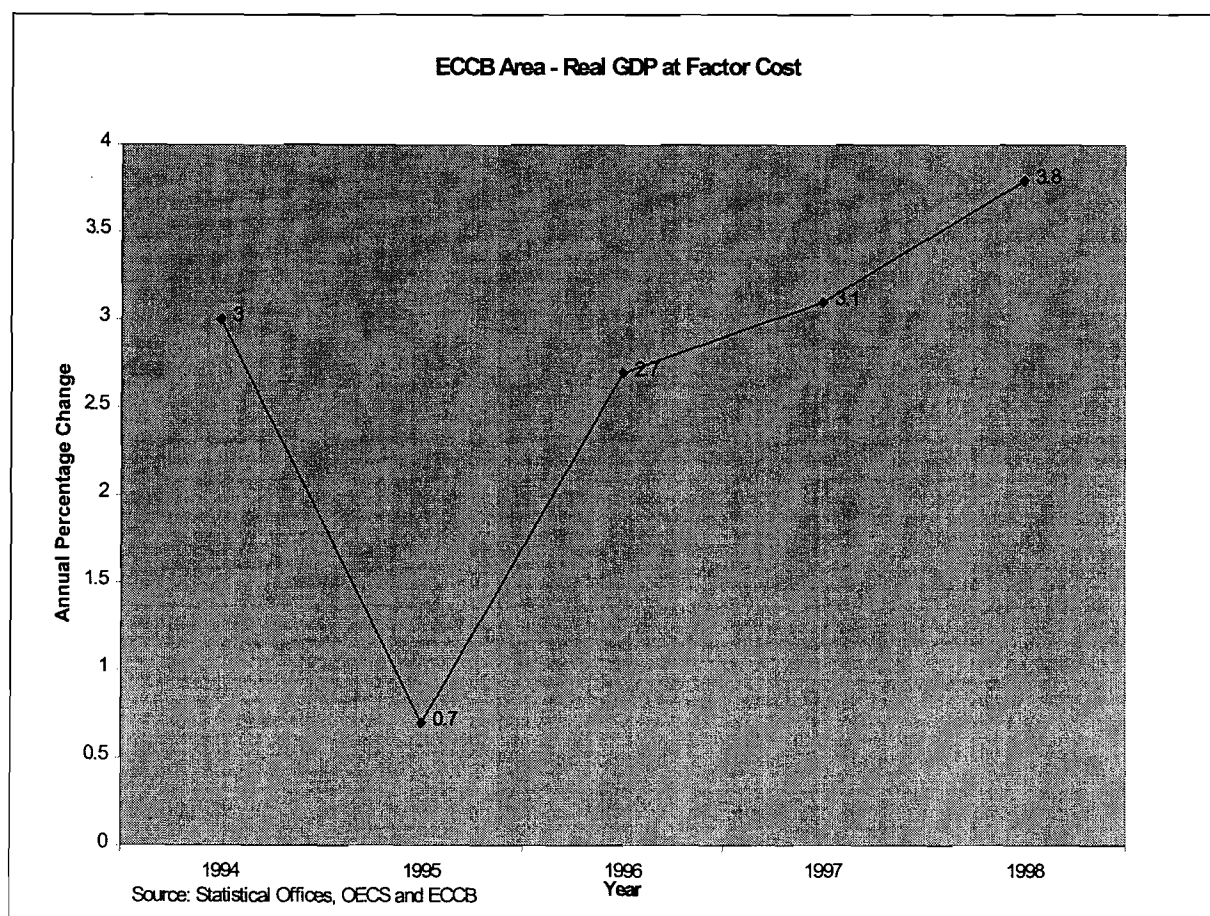
⁴⁰ See for example the assessments of Anguilla and St. Maarten in 1995, the assessment - with ECCB - of St. Kitts Nevis in 1998 - Anguilla in 1999, and Belize in 2000; Jamaica in 2001.

⁴¹ A notable exception is Crowards, 1999.

Clearly, even a small disaster, in terms of monetary damages, can have major economic implications in SIDS, even when larger countries may be susceptible to a larger number of disasters. However, during the second half of the decade, the small islands of the North-Eastern Caribbean seemed to be particularly vulnerable.

The graph below illustrates the impact of the 1995 hurricane season on the economic performance of the ECCB area⁴². During 1995, Hurricanes Marilyn and Luis and tropical storm Iris hit the Eastern Caribbean. The 1995 storm season caused a drop from 3.0 to 0.7 in the annual rate of growth of real GDP in the ECCB area, even though non-affected Grenada and St. Vincent and the Grenadines continued to register high rates of growth. The impact on the individual countries was even more severe with Antigua and Barbuda and Anguilla experiencing a decline in the growth rate to -5.0 and -4.1 respectively⁴³. Tourism, agriculture and real estate and housing were the sectors most affected. In Anguilla, tourist arrivals did not recover until 1997⁴⁴, while by 1999, Sint Maarten had still not recovered.

Figure 2: ECCB Area - Real GDP at Factor Cost



⁴² The ECCB area is the OECS less the British Virgin Islands

⁴³ Based on data from ECCB.

⁴⁴ See ECLAC, 2000

In a large continental or archipelagic country, the economic impacts on given sectors or areas can either be diluted or offset by robust growth in other areas. For example, Hurricane Floyd was classified as a category 4 hurricane when it struck the Family Islands in the Bahamas. Here, the impacts of the extensive damages on Eleuthera and Abaco were counteracted by a strong improvement in tourism in the other islands, notably in Nassau and Paradise Island. Coupled with reinsurance inflows and reconstruction activities, the result was a real economic growth of about 5.5 per cent. On the other hand, the IMF noted that the long-term economic impact of Hurricanes Luis and Marilyn in Sint Maarten contributed to the continued economic malaise which is facing the Netherlands Antilles⁴⁵.

In the Dominican Republic, Hurricane Georges caused an estimated US\$2.2 billion in economic damages in 1998. The sectors most affected were housing, with over 49,000, mostly low-income houses destroyed, tourism and agriculture⁴⁶. Nevertheless, the high buoyancy which characterized the economy in the second half of the decade, was maintained, albeit, at an estimated loss of 1 percentage point of real GDP growth.

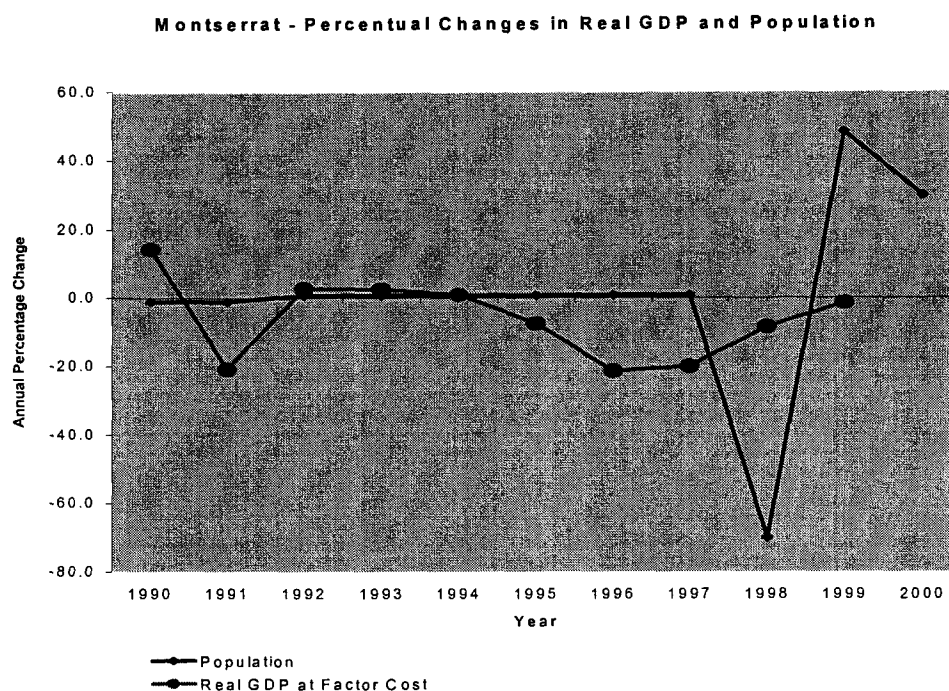
The volcanic eruptions in Montserrat had catastrophic consequences on the island's economy, social fabric and its natural environment. Real GDP declined from EC\$ 132.1 million in 1994 to EC\$ 68.3 million in 1998 as shown in the graph below. This graph also shows the decline in population which accompanied the eruptions. The graph for Montserrat is particularly interesting because it also shows the after effects of Hurricane Hugo, which struck Montserrat in 1989. The GDP increase in 1990 was fuelled by a 60 per cent increase in construction, as compared with 1989⁴⁷. This increase more than compensated for the decrease in tourism, manufacturing and banking and insurance. In 1991 and 1992, most sectors returned to pre-hurricane levels and the temporary boost of reconstruction activities was no longer felt in the economy.

Crowards (1999) concluded that, although broad patterns could be observed in selected macro-economic variables, the considerable variation in individual events and country results made meaningful inter-country comparisons impossible. The table below sets out the broad patterns on selected economic variables in Caribbean countries.

⁴⁵ IMF.

⁴⁶ CEPAL, 1998

⁴⁷ 1989 already a more than doubling of construction

Figure 3 Montserrat - Percentage Changes in Real GDP and Population

Note: 1997-1999 Real GDP Revised
Source: Table 1

Table 4. Economic impacts following a natural disaster

Variable	Year of event	Year after	Subsequent years
GDP	Immediate drop in GDP growth	Rise in GDP growth from reconstruction	Slow down in 2 nd and 3 rd year as boost subsidies
Exports of goods	Reduction in rate of growth	Return to previous levels (1)	Continuation of year after
Imports of goods	Considerable increase in rate of growth	Return to pre-disaster level	Further drop, possibly caused by reduced incomes
Tourist arrivals	Considerable drop	Some recovery	Recovery continued
Cruise ship arrivals	Considerable drop		
External debt	Increase in rate of growth	Drop of the rate of increase to below pre-disaster levels	

Notes: (1) Depending on crop season, the reduction for agricultural exports, etc. may occur in the year following the disaster.

Source: Crowards, 1999

The economic vulnerability of the subregion to natural hazards has been increased as a result of population growth, economic development, a focus on coastal tourism together with policy failures and environmental degradation.

While economic development tends to reduce social vulnerability through improved housing, increased insurance and improved social welfare systems; it obviously increases the economic vulnerability because of the accumulation of wealth.

Caribbean environments have evolved in the presence of disasters. Arguably then, the subregion's natural systems depend on such disasters for ecosystem resilience and diversity. However, many of the subregion's ecosystems are significantly degraded, a process which continues. In such cases, additional stress caused by a disaster can result in damage that is irreparable. Ecosystem restoration may no longer be feasible and vulnerability may be reduced only by recourse to man-made investments.

The cumulative impacts of environmental degradation increase social as well as economic vulnerability. The effect of terrestrial degradation, combined with policy failures, may very well be the increased loss of life as was experienced in Hispaniola following Hurricanes Gordon and Georges, or in Puerto Rico, following the floods and landslides in 1985.

Marine and coastal degradation tend to aggravate economic vulnerability through the increased exposure of coastal infrastructure to high energy wave action and storm surge because natural barriers such as mangroves, sand dunes or coral reefs have lost much of their protective functions.

Because of the concentration of economic activities such as tourism in the coastal zone the increased exposure of coastal infrastructure results in increased economic vulnerability. For example, the earlier quoted decline in real GDP growth rates in the ECCB area following the 1995 hurricane season was for the most part caused by an 11.3 per cent contraction in the value added for hotels and restaurants. Likewise over 80 per cent of the economic damages in Anguilla following Hurricane Lenny are tourism related and a consequence of cumulative environmental degradation⁴⁸.

Policy failures relate to both the public and private sectors and largely stem from a corresponding failure to incorporate disaster prevention and mitigation measures. Policy failures can include the absence of a system whereby pre-disaster information can be made available to the public. This was identified as a contributory factor to the high death toll in the Dominican Republic following Hurricanes Georges in 1998 and in Puerto Rico following the floods in 1985. Policy failures might also relate to poor or corrupt building and construction practices resulting from the non-existence or non-compliance with building standards, or from the lack of incorporating risk into insurance rates. In view of the existence of high levels of environmental degradation and a correspondingly high level of economic vulnerability, the continuing policy of granting permission for the construction of hotels and residences in obviously high-risk environment, is to be construed as an important policy failure.

⁴⁸ ECLAC, 2000.

Table 5. Safir-Simpson Hurricane Scale Values

S-S Category	Maximum sustained wind speed (m s ⁻¹)	Maximum sustained wind speed (mph)	Minimum Surface pressure (mb)	Storm Surge (m)	Relative Damage Value
Tropical storm	18 to 32				
1	33 to 42		>980	1.0 to 1.7	1
2	43 to 49		979 to 965	1.8 to 2.6	10
3	50 to 58		964 to 945	2.7 to 3.8	50
4	59 to 69		944 to 920	3.9 to 5.6	250
5	> 69		< 920	> 5.6	500

Source: Landsea et. al. 1999.

Table 6. Tropical Storms and Hurricanes in the Caribbean

YEAR	CLASSIFICATION	NAME	AREA	DATES
1990	Tropical Storm	Arthur	Tobago/St. Vincent and the Grenadines	22-27 July
	Hurricane	Diana	Yucatan	3-7 August
	Tropical Storm	Fran	Trinidad	11-14 August
	Hurricane	Klaus	Virgin Islands	2-9 October
1991	Tropical Storm	Fabian	Cuba	14-15 October
	Hurricane	Caesar	Trinidad & Tobago/Netherlands Ant.	24-29 July
1992	Hurricane	Andrew	Bahamas	16-27 August
1993	Tropical Storm	Bret	Trinidad/ Belize	4-11 August
	Tropical Storm	Cindy	Martinique	14-17 August
1994	Tropical Storm	Debby	St. Lucia	9-11 Sept.
	Tropical Storm	Gordon ⁴⁹	Jamaica/Cuba/Bahamas	8-21 Nov.
1995	Hurricane	Erin	Bahamas	31 July-06 August
	Hurricane	Iris	Leeward Islands	22 Aug-04 Sept
	Hurricane	Marilyn	Virgin Islands ⁵⁰ /Netherlands Antilles/Leeward Is./Dominica/Puerto Rico	12-22 Sept
	Hurricane	Luis	Leeward Islands ⁵¹ /Netherlands Antilles	27 Aug-11 Sept
1996	Hurricane	Lili	Cuba/ Bahamas	14-27 October
1997		NONE		
1998	Hurricane	Georges	Leeward Islands/Netherlands Antilles/Puerto Rico/Dominican Republic/Haiti/Cuba	15 Sep-01 Oct
1999	Hurricane	Floyd	Bahamas	7-17 Sept.
1999	Hurricane	Jose	Anguilla/Netherlands Antilles/Leeward Islands/British Virgin Islands	17-25 Oct
	Hurricane	Lenny	Netherlands Antilles/ Virgin Islands	13-27 Nov.
	Hurricane	Irene	Cuba	13-19 October
	Hurricane	Dennis	Bahamas	24 Aug-07 Sept.

Source: NHC

⁴⁹ Haiti severely affected. Rain/Floods⁵⁰ US and British Virgin Islands⁵¹ Antigua and Barbuda, St. Barts, St. Maarten, Anguilla

2.3.1 Approaches to Disaster Management

The traditional approach to disaster management in the Caribbean, which prevailed until the late 1970s, was characterised by an uncoordinated and often ad-hoc response to rescue victims and the repair of damages. Preparedness planning was introduced during the 1980's, due largely to the efforts of the Pan Caribbean Disaster Preparedness and Prevention Project (PCDPPP) which also succeeded in raising general awareness on the need for preparedness and prevention. Upon completion of the PCDPPP, CARICOM Heads of Governments recognized the need for a permanent mechanism to coordinate regional disaster management activities and created the Caribbean Disaster and Emergency Response Agency (CDERA) in 1992. The mandate of this agency is focused on disaster preparedness and the coordination of disaster response.

Since the early 1980s, the Pan American Health Organization (PAHO) has operated an extensive programme of disaster preparedness and response in the health sector. It also made significant contributions to vulnerability reduction in health sector infrastructure. Also, during the 1990s, disaster mitigation in housing and infrastructure was the focus of a six-year Caribbean Disaster Mitigation Project (CDMP), financed by the United States Agency for International Development (USAID) Office of Foreign Disaster Assistance (OFDA), and executed by the OAS. The CDMP focused on hazard vulnerability reduction in six primary areas: community preparedness, hazard assessments and risk mapping, hazard-resistant building practices, vulnerability audits of lifeline infrastructure, linking property insurance to quality of construction, and comprehensive mitigation planning.

In 1999, the World Bank launched the Emergency Recovery and Disaster Management loan and credit programme for the OECS countries (OECS/ERDMP). The programme aims to support the physical and institutional efforts of five member countries of the OECS in disaster-recovery and emergency preparedness and management.⁵² The programme consists of individual country-lending operations in the five countries. It is structured as an Adaptable Programme Lending (APL) activity phased over approximately six years.

⁵² The countries associated with the programme are: Dominica, Grenada, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines.

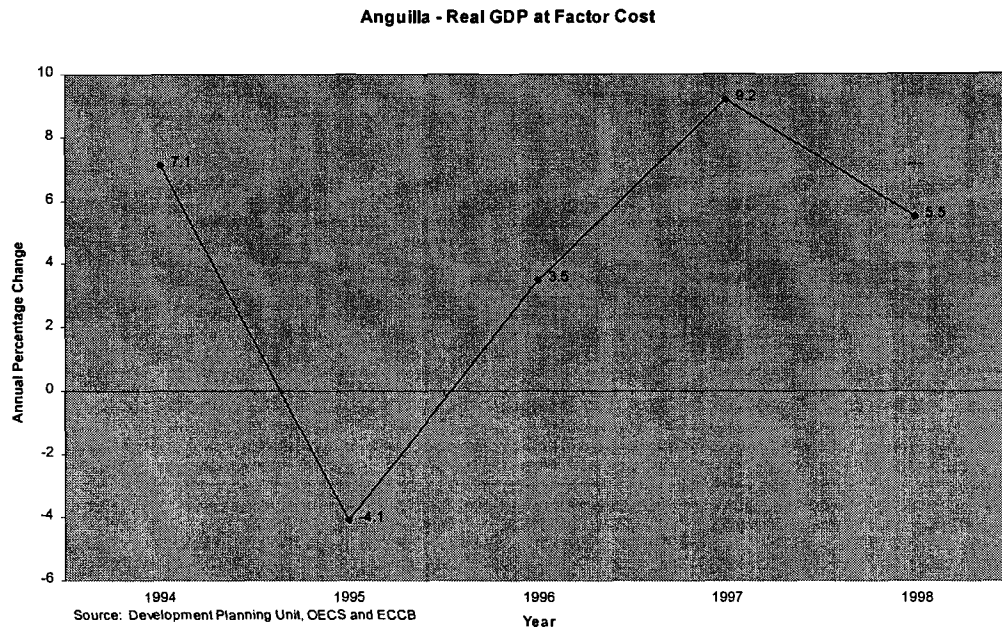
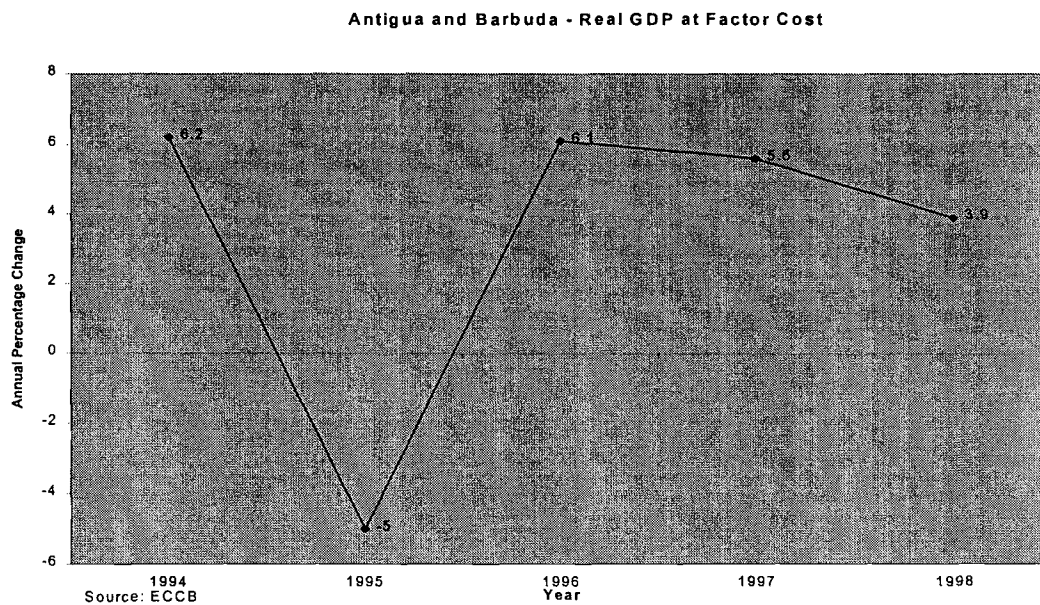
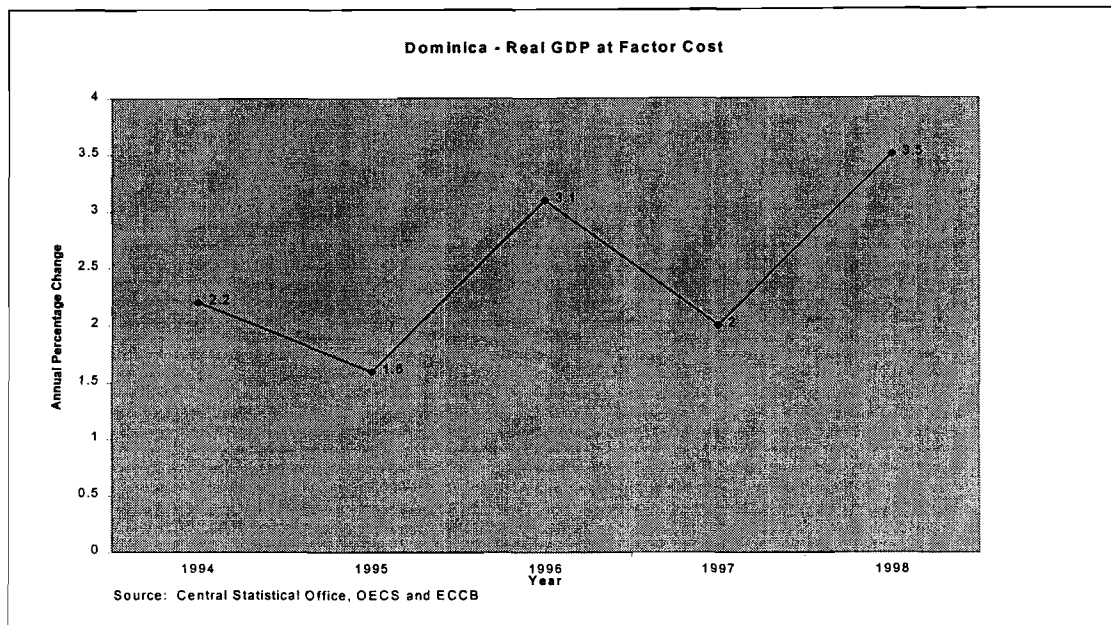
Figure 4: Anguilla-Real GDP at Factor Cost**Figure 5: Antigua and Barbuda – Real GDP at Factor Cost**

Figure 6: Dominica - Real GDP at Factor Cost

The loan and credit programme totals \$55.0 million and supports the following activities:

- Physical investments: Key social and economic infrastructure will be protected and strengthened so as to reduce the likelihood of loss of life and assets arising from disasters. Alternatively, such infrastructure will be rehabilitated or reconstructed in the aftermath of a disaster;
- Capacity building: The capacity of national emergency management agencies will be strengthened;
- Institutional strengthening: This involves increasing the ability and interest of the private insurance industry to share disaster-related risks, and improving and supporting the enforcement of building codes and sound land-use planning;
- Community preparedness: Community-level disaster committees will be organized, trained and equipped to enhance their role in disaster preparedness, mitigation and recovery;
- Contingency funding: To assist participating OECS member nations should a severe natural disaster strike during the programme period.

The Inter-American Development Bank (IDB) has several lending programmes addressing aspects of coastal vulnerability reduction in Caribbean SIDS. The South Coast Sustainable Development programme in Jamaica (\$15m) includes investments in conservation of coral reefs and infrastructure for low impact tourism development. In the Bahamas, a \$30m loan is under preparation for rehabilitation of coastal infrastructure damaged by Hurricane Floyd. In Barbados, the IDB has completed a first loan programme in support of coastal conservation, and a second phase for \$21m. is about to commence.

The Barbados Government established a Coastal Zone Management Unit (CZMU) to implement these loan programmes. The CZMU has been and still is an important resource to the CPACC project, especially in the area of vulnerability assessment.

Belize has been the beneficiary of a Hurricane Rehabilitation and Disaster Preparedness loan, with \$21 million IDB funding and co-financing of \$8 million by the CDB. The project was aimed at reducing the country's vulnerability and at improving its response capacity to disasters through:

- (a) The adoption of structural vulnerability reduction measures; and
- (b) The improvement of institutional capacity focused on national and local emergency management, building codes, hazard analysis and risk assessment, public awareness, education and training programmes.

Text Box 3
Post-disaster assistance to Belize

The provision of assistance to Belize was based on a post-disaster assessment undertaken by the Subregional Headquarters of ECLAC for the Caribbean, utilizing the methodology developed by the Regional Commission. The mission was undertaken over the period, 12-20 December 2000 and was mounted in response to a request from the national authorities following the passage of Hurricane Keith from 30 September-1 October 2000. The assessment embodied sectoral analyses leading to an overall damage assessment and in addition to appraising the macroeconomic, social and environmental impacts, it also proposed guidelines for rehabilitation and reconstruction in the form of a number of project profiles. The mission was supported not only by the national authorities, but also, by a number of international agencies. The Mission Report was presented to a meeting of bilateral donors and international financial agencies, among them, the Department for International Development (DFID), the Inter-American Institute for Cooperation on Agriculture (IICA), the International Monetary Fund (IMF) and the World Bank, on 7 December 2000 to discuss the damages resulting from Hurricane Keith, as well as rehabilitation plans including financing and technical assistance requirements. The ECLAC Mission Report, which had been earlier identified as a key document for the discussions, was well received and pledges were made in respect of some of the accompanying project proposals.

In the aftermath of 1997/1998 El Nino, Guyana received an emergency loan from the World Bank for regeneration of agriculture, improving drainage and irrigation, and restoration of flood protection.

In an attempt to meet the needs of Caribbean SIDS, in the area of natural disasters, the Subregional Headquarters of ECLAC for the Caribbean identified as a priority and has taken action on two main fronts, namely, the conduct of post-disaster assessments utilising the ECLAC Methodology for Assessing the Macroeconomic, Social and Environmental Impact of Natural Disasters; and the conduct of training workshops, at national and regional levels, on the use of the ECLAC Methodology.

2.3.2 Framework for collaboration on natural disasters

There is ongoing collaboration between ECLAC/CDCC and CDERA in the management of responses to natural disasters. The issue remains therefore, one of expanding the scope for

collaboration between the two organizations taking into account the differences in their respective foci. Further areas of collaboration might include:

- Undertaking joint missions in the aftermath of natural disasters with funding possibly from IDB and UNDP⁵³;
- Continued collaboration in the implementation of the SIDS Programme of Action;
- Structured exchange of information;
- Collaboration in appropriate areas of research, including joint formulation of technical assistance packages for presentation to prospective donor agencies;
- Coordination of regional positions for presentation at forums, such as the general meeting between representatives of the United Nations System and the Caribbean Community (CARICOM) and its Associate Institutions.

Text Box 4
Natural Disasters: Activities of the Subregional Headquarters
of ECLAC for the Caribbean

As a result of an initiative spearheaded by the Subregional Headquarters in consultation with ECLAC Offices in Mexico and Santiago, a version of the methodology originally developed within ECLAC, Mexico, for the assessment of the macro-economic impacts of natural disasters, but which reflected the realities of continental Latin America, was prepared for use among the SIDS of the Caribbean subregion in 2002. The scope of the evaluation process has also been amplified to embrace, in addition, the social and environmental impacts. Within the last four years, the Subregional Office has conducted or otherwise participated in evaluation missions to: Anguilla (Hurricane Lenny, November, 1999; Belize (Hurricane Keith, November 2000); Jamaica (Hurricane Michelle, November 2001); and St Kitts and Nevis (Hurricane Georges, November 1998).

The findings of the assessments, incorporating mitigation measures and draft project proposals, are presented to the respective Governments.

Following the convening of a Regional Workshop on the use of the Methodology in July 2000, requests were received for technical support in the conduct of workshops at the national level. To date, such Workshops have been held in British Virgin Islands, Belize, Jamaica and St Lucia and Trinidad and Tobago and represent the commencement of a process aimed at the development of a core of experts with multidisciplinary skills, in various parts of the subregion, to permit the rapid deployment of assessment teams comprising personnel from within or in close proximity to affected countries. The success of this approach was demonstrated by the team of locally trained personnel who undertook a comprehensive assessment of the impact of Hurricane Luis on Belize in 2000.

In order to overcome the financial and other constraints attendant upon the convening of national workshops, training materials, incorporating, inter alia, a field guide and an audio-visual data base have been prepared. All materials used in the assessment as well as the training processes will be kept under review. The Subregional Headquarters has earned the recognition of the international donor community which has expressed the view that the application of the methodology developed within ECLAC should be a precondition for the consideration of requests for financing for reconstruction in the aftermath of natural disasters.

The more pressing needs identified by Caribbean SIDS include:

- Training in information collection for disaster assessment;
- Additional support beyond that provided by USAID/UNDP to initiate a Regional Strategic Programming framework for Disaster Management. This is required for undertaking stakeholder consultations in key sectors, such as agriculture, tourism, education and infrastructure; institutionalization of disaster management training and research in regional universities; hazard mapping and vulnerability assessment.

⁵³ Both IDB and UNDP have in the past provided partial funding to countries for their emergency response missions of CDERA and/or the macro-economic/social assessments of ECLAC.

2.4 Freshwater Resources

Emerging developments in international markets fuelled by globalisation and the recent WTO rulings on preferential access for agricultural commodities, present serious threats, while also offering new opportunities for Caribbean economies. However, those sectors that are widely regarded as providing opportunities for investment and growth, such as agriculture and tourism, face a critical constraint to their sustained development. That constraint is water.

In all Caribbean SIDS, rainfall is the primary source of water, yielding three basic water resources types: direct rain, surface water and ground water. In Antigua and Barbuda, the Bahamas, Barbados, St. Lucia and Trinidad and Tobago, recourse is had to desalination to augment the water supply. In the Eastern Caribbean States, surface water is the main water type and exhibits variability in flow. During the dry season, yields decline significantly, with livestock and farm irrigation being the main casualties. In Belize, a high incidence of cholera and diarrhoeal diseases is reported to be associated with the domestic supply, while in Jamaica, discharges from the rum and bauxite/alumina industries are reported to have polluted significant surface and groundwater resources. Saline intrusion is a major constraint to water availability in Antigua and Barbuda, as well as in Barbados.

Groundwater availability varies significantly among the SIDS of the Caribbean. In some SIDS, such as Antigua and Barbuda, Grenada, St. Lucia, and St. Vincent and the Grenadines, no groundwater is utilized.⁵⁴ On the other extreme, all freshwater in the Bahamas and Barbados is in the form of groundwater within limestone aquifers. The Bahamas has no surface water.⁵⁵

Trinidad and Tobago is endowed with both surface water and groundwater supplies. In the past, saltwater intrusion has presented a problem as a result of over-exploitation of groundwater resources. The Government has responded by limiting abstraction in order to permit recovery. Additionally, measures are now in place to avoid a recurrence of this problem, including the identification of safe-yield amounts, the siting of wells further inland and frequent monitoring.⁵⁶

Text Box 5

Cuba's Water Resources Monitoring Network

Cuba has developed a monitoring system for its groundwater resources, which include three nation-wide networks: the Systematic Observation Network for Groundwater (Red de Observación Sistemática de los Niveles de las Aguas Subterráneas), the Network for Observation of Hydrochemical and Bacteriological Composition (Red de Observaciones de la Composición Hidroquímica y Bacteriológica), and the National Basic Hydrogeological Network (Red Básica Nacional Hidrogeológica). The first two networks monitor water quality and, specifically, salinity. The hydrological network comprises over 1,900 wells (observation stations) whose station is regularly monitored. Some of the other countries in the subregion do not have any sort of monitoring or evaluation system established. This is partly because they may not be exploiting their groundwater resource.

⁵⁴ St. Vincent and the Grenadines National Report, p. 10

⁵⁵ The Bahamas National Report, p. 10

⁵⁶ Trinidad and Tobago National Report, p. 32

Apart from Barbados, Cuba, Jamaica and Trinidad and Tobago, no other Caribbean SIDS has completed a full assessment of its water resources. Jamaica has the most complete assessment, with an inventory of water availability, as well as present and projected demands.

Notwithstanding these deficiencies, all Caribbean SIDS are moving to expand their agriculture and tourism sectors, while improving the delivery of water to the local population. If this goal is to be achieved, Caribbean SIDS would need to urgently address the following deficiencies:

(a) *Fragmentation in water resources management*: in all countries, there are multiple institutions involved in water resources management and conservation. Information provided suggests that the number of national institutions varies from 9 to 23. Moreover there is no mechanism to facilitate integration of the respective priority actions, or to predict their individual or combined impact on development planning for water resources management;

(b) *Inadequate data collection*: The paucity of information on water resources and on water demand and supply, points to weaknesses in data-gathering and information generation;

(c) *Poor inventory of water resources*: Adequate assessment of the nature and distribution of water resources, including current and future demands, are essential to effective management;

(d) *Weak technical capabilities*: Human resource development is a major concern in the water sector. Training and research programmes at the tertiary level are lacking;

(e) *Failure to treat water as an economic good*: Measures related to such aspects as water rights, water markets and pricing are not used to improve water resources management and to ensure that water is treated as an economic good. Issues relating to reuse, recycling and conservation are addressed in only a few of the States and on a very limited basis;

(f) *Absence of participatory and integrated approaches to planning*: There is a general lack of participatory and integrated approaches to policy formulation for water resources management in general and for watershed management in particular. Stakeholder participation is not widely practiced in the design, organization and management of these resources, in order to enhance ownership and sustainability;

(g) *Lack of interaction between freshwater, groundwater and coastal waters*: All but three Caribbean SIDS are Island Systems. In addition, Antigua and Barbuda, the Bahamas, Guyana and Jamaica are experiencing saltwater intrusion into their freshwater systems. Yet the coastal waters are not included in the planning processes for freshwater management.

2.4.1 Threats to sustainability of water resources

The major threats to the management of watersheds and freshwater ecosystems are primarily related to supply/demand dynamics; land-use patterns; pollution; and the competing interests of different stakeholder groups. These threats are not mutually exclusive. As watersheds

and ecosystems demand an integrated and holistic approach to their management, the threats must necessarily be viewed in like manner.

2.4.2 Supply and demand dynamics

Due to economic and demographic changes, demand for water resources is increasing rapidly. Some Caribbean SIDS still have more than sufficient available water resources but find that their infrastructure capacity is inadequate to provide the necessary services. Others simply lack the necessary water resources.

Exacerbating this issue is the structure of water tariffs and rates. For the most part, there is no incentive for consumers to use water efficiently. For example, in Barbados, all metered customers must pay a minimum charge. Accordingly, customers within this category end up paying for water they may not have used. Fixed-rate (un-metered) customers also have no incentive to conserve because they pay the same amount regardless of the volume of water used.⁵⁷ Additionally, many countries have noted that water charges generally do not cover the base cost of the necessary construction and maintenance of infrastructure and the base environmental protection/conservation costs. Essentially, the Government subsidizes water use. This, in turn, creates unsustainable market conditions and significant destruction of the environment.

In particular, the agricultural sector is stressing the system with its increasing demand for water for irrigation. Increasingly, both small and large-scale irrigation practices are being used. In Barbados, irrigation is the second highest water consumer, after domestic use, amounting to 16.2 million cubic metres a year. This quantity has been forecast to increase by 15 to 20 per cent over the next 10 to 15 years, if export markets can be gained and by about 8 per cent, if only local markets are supplied.

The issue of food security as it relates to irrigation is also articulated in the National Report of St. Vincent and the Grenadines. According to the report, *"The system is being used by the banana industry to maintain fruit quality and quantity during the dry season, thus maintaining a place in the European market. The irrigation system is just emerging; hence its demand for water is still growing. Currently, the system supports 1,200 acres, with plans to extend to 2,000 acres by 2001. This acreage is expected to utilize most of the available dry season river flow in the country."*⁵⁸ There are plans to improve extension services to farmers regarding rain-fed agriculture. This is a deliberate attempt on the part of the Government to encourage crop diversification, improve food security and lessen the increasing water demand by the agricultural industry.

Another concern regarding irrigation was highlighted by Barbados, where there is also a growing demand for water, due to the development of golf courses. It is estimated that, on the basis of current plans, the demand for irrigation water for golf courses will increase to five times its present level.⁵⁹ Supply and demand are also closely related to the tourism industry. Other

⁵⁷ Barbados National Report, p. 16

⁵⁸ St. Vincent and the Grenadines National Report, p. 5

⁵⁹ Barbados National Report, p. 15

issues pertaining to that sector will be addressed below in the section dedicated to *tourism resources*.

It is also important to note that the interests of stakeholders often conflict with respect to the use of water resources, watersheds and freshwater ecosystems. For example, a particular agricultural stakeholder may promote the diversion of a stream for irrigation reasons, whereas hydro-electricity stakeholders might require that flow for a dam. Or, for ecological reasons, a decision may be made to keep the public out of a particular watershed, whereas, simultaneously, the population might assume that it is their right, as citizens, to use it.

As the availability and use of these resources vary significantly among Caribbean SIDS, so does the approach to their conservation. Some countries have reported a sense of complacency and very little acceptance of water reuse, recycling, and conservation. Others encourage conservation through their pricing schemes; licensing fees for drilling; and systematic control of the resource.

2.4.3 Land use

Improper land use is one of the factors that most strongly affects the health of freshwater ecosystems and watersheds in the region. As the proposed Land Policy document of Jamaica points out, there is a *“direct relationship between the use of land for domestic, commercial, industrial or agricultural purposes, the generation of waste by these uses and the impact on the quality of both surface and groundwater resources.”*⁶⁰

In most countries, land-clearing practices, inefficient and unsustainable irrigation and the use of agro-chemicals in the agricultural sector are causing significant damage. Within the domestic sector, land clearing and construction on previously uninhabited land are producing sedimentation, deforestation, and pollution. Ecotourism is also not a benign activity. Nature walks through watersheds are resulting in sedimentation, erosion, and pollution. Some Caribbean SIDS also report problems related to industrial effluents and their impact on freshwater resources, although, for the most part, this appears to be more significant in the larger islands.

Within the agricultural sector, land use presents potential conflicts, since it involves issues of land tenure; traditional use; and economic livelihood. Some farmers are often not employing sustainable farming techniques. This may be due to insecurity regarding land tenure, limited economic resources, or lack of knowledge of different farming techniques. The Dominican Republic has noted an increase in the use of agro-chemicals over the last decade because of reduced soil fertility and increased resistance to pests and diseases.⁶¹ Also contributing to this development, is the growing use of low-lying wetlands for rice cultivation, which brings with it, increased pesticide use. St. Vincent and the Grenadines reports that poorer farmers are increasingly deforesting protected areas or planting crops on marginal lands because they have been driven off farmland that they have traditionally cultivated.

⁶⁰ Jamaica National Report, p. 11

⁶¹ Dominican Republic National Report, p. 14

Floods and drought are obviously of concern and their impact is often exacerbated by unsustainable land-use patterns. Jamaica and St. Lucia have experienced severe floods over the past 10 years. Droughts occur periodically throughout the region. Antigua and Barbuda has noted that animal grazing on sparse vegetation during droughts exposes topsoil to the elements. Later, during periods of precipitation, these areas are more prone to erosion.⁶²

2.4.4 Climate Change and natural disasters

Water and Climate

The 2001 Report of the Inter-Governmental Panel on Climate Change (IPCC) notes, in part that because the adaptive capacity of human systems in small island developing States (SIDS) is generally low and vulnerability is high, they are likely to be among the countries most seriously impacted by Climate Change. The Report cautions that SIDS with very limited water supplies are highly vulnerable to the impacts of Climate Change on the water balance. *The greatest vulnerabilities are likely to be in unmanaged water systems and systems that are currently stressed or poorly and unsustainably managed due to policies that discourage efficient water use and protection of water quality, inadequate watershed management, failure to manage variable water supply and demand, or lack of sound professional guidance. The IPCC has recommended that water resource management techniques particularly those of IWRM can be applied to adapt to the hydrologic effects of Climate Change.*

Notwithstanding some positive developments at the national and subregional levels, the water resources management situation in the Caribbean is generally unsatisfactory, with few structures in place to buffer the adverse impacts of hydrologic variability on water quality and supply that can be induced by Global Climate Change. Because of the centrality of water resources to economic, social and environmental sustainability, any negative impact on the water balance will exacerbate the social, economic and environmental vulnerability of small island States.

In a Paper presented at the Third World Water Forum held in Kyoto, Japan, by the Caribbean Environmental Health Institute (CEHI) on behalf of Caribbean SIDS, the view is expressed that Climate Change should be treated as one of the many variables which must be factored into the overall management of water resources. The span and depth of the projected impacts of Climate Change across virtually all sectors of the economy, the society and the environment, strengthen the relevance of IWRM as the basis for sustaining the involvement of all stakeholders in the management of water, in all its aspects and interactions within the hydrologic cycle.

Against this background, CEHI has embarked on a number of initiatives at the subregional and international levels, designed to build the capacity of Caribbean SIDS to implement IWRM techniques and approaches.

One of these initiatives is the Joint Programme of Action on Water and Climate which was agreed between CEHI and the South Pacific Applied Geosciences Commission (SOPAC) at

⁶² Antigua and Barbuda National Report, p. 4

the Third World Water Forum. A delegation from the Caribbean participated in the Pacific leg of the DWC, in Fiji in July 2002 and a delegation from the Pacific took part in the Caribbean leg of the DWC in St. Lucia in October 2002. The two regions coordinated and co-managed the Small Islands Session at the WWF and committed to the implementation of a Joint Programme of Action on Water and Climate. The two institutions have also signed a Memorandum of Understanding committing them to maintaining dialogue and collaboration on the science of water and climate interactions, including through training, information-sharing and know-how.

CEHI is also collaborating with the following subregional agencies in the design and or implementation of several water-related projects and activities including:

- (a) The Caribbean Water Partnership (CWP);
- (b) The Caribbean Basin Water Management Programme (CBWMP);
- (c) The Caribbean Water and Waste Water Association (CWWA);
- (d) The Caribbean Epidemiology Centre (CAREC).

The CWP is devoted to supporting Caribbean countries in the sustainable management of their water resources through the establishment of strategic alliances and the implementation of appropriate actions. The vision of the CWP is the sustainable development and utilization of water resources in the Caribbean to meet the social, economic and environmental needs of present and future generations.

The CBWMP was created in 1975, to provide training on a regional basis for employees of national water utilities, with emphasis on a self-sustaining delivery system and to develop local “in-house” training capability within the utilities themselves. In 1996, CBWMP’s role was expanded to include:

- the development and promotion of performance standards for water utility operations; and
- the promotion of a human resource management culture to support organizational excellence.

Since its inception in 1991, the CWWA has worked towards:

- advancing the science, practice and management of water supply and wastewater disposal;
- promoting education and training in water supply and wastewater disposal;
- encouraging study, research and development and application in water supply and wastewater disposal.

In addition, the Caribbean Epidemiology Centre (CAREC) has embarked on a three-year project to determine whether a relationship exists between Climate Variability/Climate Change and the incidence of Dengue Fever and to use the knowledge gained to influence the appropriate responses at the national and subregional levels.

Natural Disasters

Natural disasters constitute a serious issue for Caribbean SIDS. The subregion is regularly visited by hurricanes. Less frequent, but still damaging, are tornadoes, oil spills, earthquakes and volcanic eruptions. These events often bring about flooding and landslides due to anthropogenic activities, such as deforestation and construction in vulnerable areas. Owing to the frequency of hazards as well as the extensive damage caused, many Caribbean SIDS have focused their efforts on post-disaster response, rather than on mitigation. Not all SIDS have early-warning systems in operation, nor do all have disaster management plans.

Because of its petroleum-based industry, Trinidad and Tobago continues to have a higher risk of occurrence of oil spills, both inland and within its coastal and marine regions. In fact, serious spills have continued to occur and have had short term damaging impacts on the coastlines, particularly within the Gulf of Paria. The beaches of Vessigny, La Brea and Mayaro in the south of Trinidad continue to be affected by the presence of petroleum-based residues emanating from the nearby oil industries and oil tankers.⁶³

2.4.5 Transboundary threats

The only countries that experience transboundary threats in their freshwater ecosystems and watersheds are the Dominican Republic and Haiti. Four watersheds are shared by these countries, which share the island of Hispaniola. On the Dominican side, the principal threat to these watersheds is the indiscriminate exploitation of natural resources by Haitians who are reportedly in the area illegally. Specifically mentioned are indiscriminate fishing practices, which have reportedly affected 15 species.⁶⁴

2.4.6 Pollution

Land-based pollution is a noteworthy problem in the Caribbean subregion emerging from activities in all sectors. In the agricultural sector, it is primarily due to agro-chemical leaching, direct agro-chemical influx from aerial spraying and the indiscriminate and improper disposal of solid waste. Another source of agricultural pollution is waste from agricultural production.⁶⁵ St. Kitts and Nevis also reports a problem of pollution from the agricultural industry, partly because a significant water source is located at a lower elevation than agricultural activities.⁶⁶

The industrial sector contributes to the problem through the discharge of liquid waste. Caribbean SIDS indicate that, often, their industrial sectors discharge effluents directly into rivers and/or store them in unlined holding ponds. Jamaica also contends with the problem of the *“discharge of industrial effluent into sinkholes, resulting in the rapid movement of waste towards local aquifers and nearby springs.”*⁶⁷ Industrial pollution is a particularly pressing problem for Trinidad and Tobago, given its high level of industrialization, compared with its neighbours. Its industries span sugar and oil refining; rum distillation; manufacturing of petro-chemicals; paint

⁶³ Trinidad and Tobago National Report, p. 32

⁶⁴ Dominican Republic National Report, p. 11

⁶⁵ Dominican Republic National Report, p. 13,14

⁶⁶ St. Kitts and Nevis National Report, p. 10

⁶⁷ Jamaica National Report, p. 14

and metal finishing; and agro-processing. The impact of industrial effluents on the water resources is predominant along the foothills of the Northern Range and on the western coast of Trinidad. Industrial activity in Tobago is relatively modest, being concentrated in the south-west portion of the island. Effluents from oil and sugar cane refining particularly affect the rivers in south Trinidad. Other areas in the country are also affected by petroleum products, which are discharged into the water courses from leaking tanks, washings, and improper disposal of waste oils.⁶⁸

Waste from households continues to be a problem. Throughout the subregion, the SIDS lack sufficient solid-waste-collection systems and wastewater-treatment systems. As a result, many citizens inappropriately dispose of their waste in gullies and along riverbanks, thereby polluting rivers, streams and ultimately the coastal waters into which they drain.⁶⁹

All these pollution problems are compounded by sedimentation and erosion, due to deforestation. Siltation is so significant that, often, water for domestic use is heavily laden with sediment, despite having passed through the treatment processes. Additionally, as *"a further consequence of the erosion of this thin layer of soil cover, there is also a reduction in the pollution attenuation capacity of the watershed, with potential negative impact on groundwater quality."*⁷⁰

2.4.7 Tourism impacts

The tourist industry is having a significant impact on freshwater resources, for a variety of reasons. Often, when large hotels or golf courses are developed, vegetation is cleared from the area, which can lead to flooding, soil erosion, destruction of habitat, and poor aquifer recharge. The high demand for freshwater contributes to over-extraction from aquifers and the rapid depletion of surface resources. Waste produced by the tourist industry can contaminate the watershed. The Dominican Republic groups the principal impacts of tourism on watersheds into four categories: (a) changes in natural drainage patterns due to reductions in vegetation and surface absorption; (b) excessive use of water and other resources; (c) pollution of watersheds; and (d) transformation of land and water habitats.⁷¹

Watersheds are also being damaged by the emerging ecotourism industry. Tour operators are now leading groups through forest reserves. The trails that are being cut for mountain biking and hiking are causing additional erosion, resulting in sedimentation. Additionally, many groups leave waste behind in the forest. The Jamaica National Report explains, *"The more recent focus on tourism based on natural ecological systems such as wetlands, natural forests and geological features such as the Cockpit Country requires a system of control. The number of persons accessing these natural environments and the types of activities, which are allowed within these natural environments, if not regulated, may result in the gradual or rapid destruction of these natural environments. The challenge therefore is to meet the need to generate foreign exchange and increase economic activity throughout Jamaica, with the need to maintain the integrity of*

⁶⁸ Trinidad and Tobago National Report, p. 37

⁶⁹ Jamaica National Report, p. 14

⁷⁰ Barbados National Report, p. 20

⁷¹ Dominican Republic National Report, p. 18

*these environments, through carefully considered guidelines and restrictions on the use of these ecosystems.*⁷²

2.4.8 Health impacts

Caribbean SIDS have expressed serious concerns regarding water quality and its relation to the health of their populations. Cuba reports that its health problems related to water supply primarily affect the rural population. In order to address and combat the related illnesses in the rural population, the National Institute of Water Resources, together with the United Nations Children's Fund (UNICEF), is constructing aqueducts and basic sanitation projects, with a view to providing all rural communities with populations of over 300 people, with access to water.

2.4.9 Data, information management and research

In many countries, the data information management and research on water resources are carried out in a fragmented manner by a variety of agencies and offices. The data are often neither easily accessible nor well organized. This appears to be due, principally, to inadequate human and institutional capacity, including the availability of substandard or insufficient equipment; lack of training; poor organization; high levels of dependency on outside consultants; and inadequate funding.

Additional research and data interests and needs include:

- Alternative treatments and reuse of waste water;
- Assessment of effectiveness of zoning policy and restrictions;
- Climate and agro-climate studies;
- Conservation of biological diversity;
- Design and application of a GIS for watershed management;
- Determination of hydro-geological parameters;
- Early alert system for droughts;
- Environmental education;
- Evaluation of potential impact of Climate Change on watersheds and Water resources;
- Identification and quantification of spring sources;
- Impact of agriculture and other land uses on water quality;
- Impact of brackish water abstractions on freshwater lenses;
- Modelling of the groundwater systems;
- Routine measurement of sediment loads in primary river systems;
- Soil conservation, management, improvement;
- Soil management;
- Use and management of natural resources on a watershed basis.

⁷² Jamaica National Report, p. 15

2.4.10 Stakeholder participation/awareness and education

Caribbean SIDS consistently report an increase in stakeholder participation in regard to freshwater resources. Activities promoting this management approach include:

- Agricultural extension courses and training on sustainable farming practices and other technical workshops;
- Media campaigns and regular coverage;
- Annual exhibitions;
- Production and distribution of brochures and pamphlets;
- Use of national television stations for broadcasting short educational films on watershed/coastal area management;
- Educational programme for students;
- Teacher training; and
- Public involvement in environmental impact assessments.

Some Caribbean SIDS, place a high premium on consultations with women and women's groups. Cuba, for example, considers women as integral stakeholders in the watersheds. The Cuba Report acknowledges the need to remain vigilant in ensuring female participation in the management of watersheds, which can be done through training, education, the provision of employment opportunities and incorporation of the tenets of sustainable development into the mountainous region.⁷³ St. Kitts and Nevis, on the other hand, cited the treacherous location of watersheds as an impediment to female input into their management.⁷⁴

2.4.11 Institutional frameworks

The weaknesses cited above, reinforce the need in the water resources sector, for an adequately resourced and properly mandated subregional organization to:

- Design efficient and cost effective projects and programmes that will help build national capacity in Water Resources Management (WRM);
- Coordinate the management of all elements of programming for an integrated approach to WRM, especially resource mobilisation, implementation, monitoring and evaluation aspects;
- Interact with national Governments and subregional and international institutions on WRM-related issues;

A fair amount of work is being undertaken by CEHI, which has been designated by Caribbean Ministers of the Environment, as "*Lead Agency*" for WRM under the SIDS Programme of Action. The Institute has been undertaking extensive research on water quality. World Health Organization (WHO) Guidelines for Safe Recreational Water Environments have recently been released. Subregional workshops have been convened on the certification of

⁷³ Cuba National Report, p. 73

⁷⁴ St. Kitts and Nevis National Report, p. 22

laboratories on micro-biological testing and a Global Drinking and Sanitation Survey is being conducted.

CEHI and PAHO, through the Pan American Centre for Sanitary Engineering and Environmental Sciences (CEPIS), are collaborating to further the accreditation of laboratories within CARICOM Member States. This is being done through a project entitled: *Monitoring and Surveillance in Relation to Water Quality*. These efforts will build on the work already conducted jointly and would also involve the Canadian Association of Environmental Accredited Laboratories (CAEAL).

ENCORE: The Environment and Coastal Resources Project: A Water Quality Monitoring Programme in the Eastern Caribbean - a Case Study

Location: The countries that participated in the ENCORE Project were: Anguilla, Dominica, St. Kitts and Nevis, Antigua and Barbuda, Grenada, St. Lucia, British Virgin Islands and St. Vincent and the Grenadines.

1. Start Date: September 1991
2. End Date: September 1998
3. Extension: October 2000
4. Total Budget: US\$10M (Water Quality Monitoring Component US\$500,000)

Text Box 6
THE ENCORE PROJECT: GRANT AND PROJECT SUMMARY

Source of Grant:	The United States Agency for International Development (USAID)
Grant Recipient Executing Agency:	The Organisation of Eastern Caribbean States, Natural Resources Management Unit (OECS/NRMU) and the Caribbean Environmental Health Institute
Beneficiaries:	Anguilla, Antigua and Barbuda, British Virgin Islands, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines
Responsible Organizations:	USAID approved funding for the ENCORE Project and the USAID Office in Jamaica acted as fund administrator. The OECS/NRMU and the Caribbean Environmental Health Institute executed the Project. The Project Implementation Unit was located at the OECS/NRMU in St. Lucia.

Project Background

The goal of the ENCORE project funded by USAID during the period 1994-1998, with an extension to 2000 was to foster “*sound environmental management in the Eastern Caribbean through a partnership with national agencies, non-Governmental organisations, community-based organisations and the private sector.*” This partnership was intended to stimulate the people and the Governments of the Eastern Caribbean to improve efforts to enhance, preserve and restore coastal marine ecosystems and to coordinate solutions to subregional environmental problems. ENCORE is a regional conservation and development project aimed at demonstrating that collaboration between public, private and community interests can protect the natural resource base and enhance bio-diversity conservation, while promoting viable economic development.

Project Description

The project components included a Local Site Management (LSM) component and the Regional Environmental Management (REM) component, which was implemented by the then Organisation of the Eastern Caribbean States/Natural Resource Management Unit (OECS/NRMU) and the Caribbean Environmental Health Institute (CEHI). The activities under the REM component implemented by CEHI addressed environmental quality issues and reinforced the capacity of relevant Eastern Caribbean institutions involved in the collection, analysis and dissemination of water quality data and other environmental resource management information. CEHI programme activities implemented under the ENCORE project focused on Environmental Quality Monitoring and included the following:

- Enabling institutions to efficiently develop and implement strong water quality monitoring programme and initiative throughout the subregion;
- Developing and promoting subregional approaches and guidelines for responsible environmental monitoring;
- Developing and implementing community-based water quality monitoring programmes in Dominica and St. Lucia to enhance the dissemination of relevant water quality data and information at the community level and to contribute to increasing public awareness on these issues; and
- Developing and implementing a training programme on sanitary surveys to enhance national capabilities to perform sanitary inspections.

Activities implemented under this agreement built on the above activities and focused on drinking, surface and coastal water quality within a subregional context. Activities addressed the issues of data gathering through the use of sanitary surveys, development of data processing and interpretation capacity and the utilization of information to influence policy making at the national and regional levels, and the development for a strategy of water quality improvement in a selected country. The strategic objective was to develop effective stewardship of key natural resources in selected ecosystems in SIDS of the Eastern Caribbean, with a view to improving the capacity of key stakeholders to more effectively manage the natural resources. The component executed by CEHI focused on the upgrading and installation of water quality and database in six countries.

Results Achieved

As a result of the Project, reliable water quality data are now available in all the OECS member States. These States have been equipped with adequate laboratory facilities and trained personnel for the collection, analysis, generation and interpretation of good water quality data. This has strengthened the ability of water utility Authorities and the ministries of health in the relevant States to apply a number of parameters to test the quality of water to determine its suitability for consumption. The critical role of the Ministry of Health to perform its role as a regulatory agency has also been strengthened.

Assistance was also provided to the SIDS to develop and implement sanitary surveys. The generic subregional approach developed for the conduct of sanitary surveys was adapted to permit the establishment of country specific methodologies for the collection of sanitary hazard information, along with the collection of sanitary hazard information. CEHI collaborated with PAHO and national counterparts on the implementation of the activity.

A subregional training course on Water Quality Data Processing and Interpretation was implemented for managers of laboratories and officers directly responsible for converting raw data to reports. Emphasis was placed on the use of spreadsheets, databases, graphics and statistical software packages necessary for the processing and interpretation of water quality data.

A subregional workshop was convened to present approaches on the application of water quality data and analysis to inform policy-makers on water resources management at the national level. The workshop was attended by participants from the OECS SIDS responsible for policies related to water resource management.

In addition, CEHI conducted an assessment that contributed to the development of a strategy for the improvement of drinking water quality in one pilot country. A pilot activity identified three SIDS in which a situational analysis was conducted to inform the process required for the implementation of a water quality improvement strategy for the region. Under this pilot activity, ENCORE funded an assessment in one SIDS. The assessment examined the status and current approaches for drinking water quality management and identified requisite elements of a national action plan that would promote improved water quality. This information served as the basis for the implementation of the recently endorsed policy for drinking water quality in the pilot country. In addition, the findings from all the pilot sites were incorporated by CEHI to develop a regional action plan for improved water quality in the Caribbean.

The outputs included the generation of data on drinking and coastal waters for determination of compliance with the recognized criteria and guidelines; training course material on water quality data interpretation; development of methodologies for sanitary survey systems; an action plan for improved water quality in small island developing states; and a small cadre of policy-makers trained to interpret the implications of water quality data.

Lessons Learnt: The Design of the Water Quality Monitoring Programme

1. Design of the Programme with the active participation of all the main partners to ensure that the real needs and priorities of the beneficiaries, as well as the objectives of the subregional implementing agency and the external funding agency were given due consideration;
2. Conduct of the national consultations for contextual analysis and good understanding of the nature of the eco-logical, socio-economic, institutional and historical issues which would have impacted on, or would be impacted by the Programme;
3. Assessment of capacity of the collaborating organizations to ensure so that the design reflected the various national circumstances;
4. Targeting of well defined institutions-national laboratories, as opposed to more nebulous groups;
5. Development of monitoring of bench marks and indicators with the active participation of the beneficiaries;
6. Projects involving multi-stakeholder collaboration need mechanisms to avoid the generation of unrealistic expectations;
7. Natural resources management projects with built-in mechanism for monitoring and adjustment activities during implementation improve their prospects of success;
8. Real community participation: promoting real community participation in environmental management is time-consuming and requires commitment, patience and skill.

Other initiatives being pursued by CEHI include:

- Strengthening of Environmental Health Units in collaboration with PAHO;
- Implementation of Waste Minimisation/Reduction Projects with the United Nations Industrial Development Organization (UNIDO) Cleaner Production and Environmental Management Branch;
- Establishment of a Caribbean Network for Environmental Compliance and Enforcement (CARIBINECE) with UNEP;
- Establishment of a Workers Health Surveillance System with PAHO and the International Labour Organisation (ILO);
- Preparation of Environmental Health Status Report for the Caribbean with PAHO, the Caribbean Epidemiology Centre (CAREC) and CEPIS; and
- Development of Environmental Health Indicators for Sustainable Development with CAREC.

2.5 Tourism Resources

Tourism is one of the most important economic activities in the Caribbean subregion, contributing between 30-50 per cent of the GDP of most countries. It is arguably, the only industry in Caribbean SIDS that can claim to be internationally competitive, as it thrives without the protection and preferential treatment that have characterised the development of other

productive sectors, such as agriculture and manufacturing. The competitive advantage of the subregion is due largely to its natural, historical and cultural attributes. Over the past 20 years, the member States of the Caribbean Tourism Organization (CTO) with less than 1 per cent of the world's population, have consistently received more than 6 per cent of the world's tourism arrivals.

However, the resource base upon which all of this economic activity is based is fragile. Therefore, sustaining the tourism sector and the economic benefits that it brings will require that the environmental resources, on which the sector relies, be well managed.

The tourism sector in Caribbean SIDS is plagued by a number of major weaknesses. Some of these are inherent in the industry itself, while others derive from the country specific attributes. These weaknesses include:

- Vulnerability to economic shocks in the source markets;
- Susceptibility to natural disasters in the destinations;
- The small size of SIDS and their communities;
- The high import content of tourism expenditure which arises from the un-competitiveness of the sectors that feed tourism and which is causing leakage of precious foreign exchange earnings;
- High operating costs, high investment costs, and the consequent lack of profitability;
- The high failure rate of small, indigenous hotels;
- Inadequate/inappropriate policy, planning and institutional mechanisms to enable the adoption of integrated approaches to tourism development that balance economic growth with human and social development and which preserve the natural environment, cultures and heritage of local communities;
- The absence of effective measures to strengthen backward and forward linkages between tourism and other productive sectors of the economy.

In light of, inter alia, the foregoing aspects, there is a need to take a broader view of the nature of the environment on which tourism depends and the threats faced by it. Although attention has focused on tourism-induced threats, these are not the only ones and may not even be the most important. External threats to the tourism sector appear to be important in some SIDS. In others Governments are seeking to take a more integrated view of population centres and tourism areas and to design environmental interventions, such as sewage treatment and waste management services that can reduce the threat to the tourism resource.

More recently, there have been some noteworthy developments in this regard, both at the national and regional levels. Overall, there is a growing awareness of the importance of the environment in sustaining the social and economic benefits derived from tourism. These several countries have introduced Nature Heritage Tourism Programmes. Some, notably Belize, Dominica and Guyana, are consciously targeting the growing pool of heritage tourists. The private sector is also becoming involved. A growing number of hotels have gone “green” with the introduction of a range of environmental conservation measures, which is promoted by the

Caribbean Hotel Association (CHA) through the Caribbean Alliance for Sustainable Tourism (CAST).

Text Box 7

Sustainable Tourism: Development of a Regional Marine-based Tourism Strategy

At the 1997 Caribbean Ministerial Meeting on the Implementation of the SIDS POA, it was observed, *inter alia*, that while progress was being made on the environmental sustainability of land-based tourism, much less had been recorded in the marine-based sector of the industry. Marine-based Tourism (MBT) is that segment of tourism that focuses on the use of the marine environment and includes yachting, diving, whale-watching, recreational fishing and an array of support and ancillary services, such as marinas or boat-maintenance facilities. Further growth in this sector is anticipated in the Eastern Caribbean. The Subregional Headquarters of ECLAC for the Caribbean is in the final stages of implementing a project on the contribution of marine-based tourism to development in the Eastern Caribbean. The countries and territories include Antigua and Barbuda; Dominica; Grenada; Martinique; St. Lucia; St. Maarten; St. Vincent and the Grenadines; and Trinidad and Tobago. The main outputs of the project are expected to be the preparation of national reports on issues pertinent to marine-based tourism; preparation of draft national marine-based strategies; a subregional assessment of the economic and environmental impacts of marine-based tourism; and a Draft Subregional Strategy and Action Plan on marine-based tourism. This project is being implemented under the Netherlands/ECLAC Technical Cooperation Programme.

The CHA, through CAST, has also been facilitating the design and implementation of programmes aimed at boosting the adoption of sound environmental practices among its membership.

Text Box 8

The Caribbean Alliance for Sustainable Tourism

CAST is a collaborative venture between the CHA, CAREC, the Governing Council of USAID, UNEP, Green Globe and IHEI. It emerged from the recognition of the pressing need to proactively manage the subregion's natural and cultural resources with a view to ensure that they continue to sustain development, in general and the tourism industry, in particular.

CAST delivers practical, hands-on services to the several operators within the subregion's hotel and tourism industries, through a suite of education and training activities. It also promotes the industry's efforts and successes to the travelling public and other stakeholders and serves as a vital link between its immediate constituency and others in the Wider Caribbean with an interest in sustainable tourism.

Both the CHA and the CTO have identified the need for support with:

- The establishment of a Sustainable Development Unit to facilitate implementation of the Regional Sustainable Tourism Strategy and Plan of Action;
- The development of environment standards and indicators for sustainable tourism in the Caribbean to provide a basis for harmonising regional tourism standards;
- The establishment of an appropriate institutional framework for the sector, including laws, regulations and control mechanisms, in order to monitor the

possible negative social, economic and environmental impact of tourism development;

- Formulating and implementing Tourism HRD plans;
- Supporting information and marketing measures.
- Taking full advantage of the telecommunications industry, especially in light of the increasing use of Internet services in hotels.

2.6 Management of Wastes

In the years following the convening of the UNGCSIDS, waste management has remained a key environmental issue for Caribbean SIDS. However, there is now a better understanding of the process by which waste is generated; the behaviour of waste under various climatic conditions; and the constituents of waste that are potentially hazardous to human health and to the health of the environment.

2.6.1 Solid waste management

Encouraging progress has been made with the management of solid waste. The Solid Waste Management Company of Trinidad and Tobago Limited (SWMCOL) is widely regarded as a success story in this field. SWMCOL was established as a limited liability company, in 1980, to implement a Solid Waste Master Plan. The Plan, which was designed in the late 1970s, outlined options for developing a system that addressed the collection, treatment and disposal of waste, including hazardous waste. The operations of SWMCOL are rooted in the following principles:

- The public must be challenged to care for the environment and to actively participate in and demonstrate such care;
- Appropriate training must be provided for the necessary capacity-building towards continuous development;
- The solid waste function must be a national concern;
- There must be a close working relationship with Local Government agencies, as a means of strengthening the operational arm for the implementation of the solid waste master plan.

Initiatives in the OECS have been located within the context of the US\$50 million - OECS Solid Waste Management Project (SWAMP) funded by a consortium of agencies including the World Bank, the GEF, the CDB and six participating countries within the OECS. The project has:

- Facilitated the joint procurement of specialised collection and disposal equipment;
- Produced harmonised legislation on solid waste management;
- Established Solid Waste Management entities in all countries;
- Identified new sites for sanitary landfills;
- Remediated existing dump sites;

- Completed an analysis of the viability of waste recycling options;
- Identified mechanisms for waste reduction recovery and reuse;
- Ensured waste collection.

Like the CPACC Project, the SWAMP has been affected by certain weaknesses in institutional capacity at the national level. The institutional requirements for effective project management were grossly underestimated by the designers of the project, with the result that, with less than six months left in the life of the four year project, new landfill sites were yet to be commissioned in any of the countries. The project failed to bring all the disparate elements such as legislation, training and education, together as an integrated solid waste management project.

Despite the lack of economies of scale, encouraging progress has been made with the recycling of solid wastes. Most Caribbean SIDS do not generate enough waste to support a viable, local recycling facility. However, some Caribbean companies - such as Caribbean Glass and the Solid Waste Management Company of Trinidad and Tobago, Envirotech of Barbados and Caribbean Container Inc. of Guyana, are overcoming this problem by combining local waste with imported waste, from the Dutch and French-speaking Caribbean: Curacao, Guadeloupe and Martinique, as well as from Anguilla, Guyana, St Kitts and Nevis, and St. Lucia.

Caribbean Glassworks, which has been in the recycling business for about 51 years, combines 40 per cent broken glass (cullet) with silica sand and other materials to produce a better quality of glass, more quickly with less energy.

Envirotech - the plastic bottle recycling facility in Barbados, is the result of enlightened Government regulations and a high level of private initiative. In Barbados, manufacturers and importers of plastic bottles must operate a deposit and return system, thus enabling Envirotech to buy the bottles from the public and charge the bottling companies for destroying them. The bottles are then ground and shipped to China where the residue is used to make polyester fabric for T-shirts and other garments. Government-imposed levies on the disposal of used motor vehicle tyres have also enabled Envirotech to become involved in the recycling of tyres into non-slip floor mats, for use in schools and hotel kitchens. Envirotech also collects discarded car batteries, which are shipped to Venezuela, where the lead and electrolyte are re-used.

The Solid Waste Management Company of Trinidad and Tobago collects paper and sorts cardboard from high-grade-office paper and other types, to produce approximately 3,300 half ton bales for export to a recycling plant in Venezuela. However, the operation has sometimes been rendered uneconomical, by frequent price fluctuations and high transportation costs. The advent of Caribbean Container Inc. has helped to reduce transportation costs. The company has begun recycling used cardboard from Barbados, Jamaica, Suriname, and Trinidad and Tobago, to make paper for new boxes.

2.6.2 Liquid waste management

Significant investments have been made by Caribbean SIDS, most notably, the Bahamas, Barbados, Belize, Cuba and St. Lucia, in an effort to improve the management of liquid waste. However, overall progress has been slow, largely because of the high costs of installing

appropriate sewerage systems. Growth in urban population, industrial activity and tourism continue to outstrip infrastructural capacity to handle waste. In the absence of adequate sewage collection systems, waste treatment has, in many instances, been undertaken in an ad hoc and unsanitary fashion. The use of septic tanks and soak away systems is still the dominant method of disposal of liquid waste in nearly all Caribbean SIDS, especially in the OECS countries. In the vast majority of cases, these septic tanks are neither properly designed nor maintained, resulting in disposal of effluent into storm drains and directly into coastal waters. Where sewage treatment facilities have been installed, there are deficiencies in plant capacity and less than adequate plant operation, maintenance and monitoring practice.

This unsatisfactory situation has spawned a catalogue of adverse impacts on the human and bio-geophysical environment, severely eroding the foundation of social and economic development in the process. These impacts include river, beach, and marine pollution, as evidenced by high faecal coliform counts; eutrophication effects in coastal waters; the death of coral and other vital marine life; and contamination of surface and groundwater supplies.

There is considerable potential for a GEF-funded programme to assist Caribbean SIDS to come to terms with the varied dimensions of waste management.

2.7 Land Resources

Generally, the approach to land management in Caribbean SIDS remains inadequate. Many Governments including those of Jamaica, St. Lucia and Trinidad and Tobago have introduced Land Conservation Boards. Some have introduced programmes for the rationalisation of unplanned settlements, while others have established policies mandating the use of environmental impact assessments (EIAs) as part of the process for appraising development projects. The use of Geographic Information Systems (GIS) as a planning tool, is steadily gaining popularity among the countries.

St. Lucia is seeking to strengthen the management of its land resources. With technical assistance from the Subregional Headquarters of ECLAC for the Caribbean and financial assistance from loan and grant sources, the following actions are being undertaken:

(a) The formulation of a National Land, Housing and Shelter Policy and Strategy. This initiative is benefiting from broad stakeholder participation and involvement. It is anticipated that the policy will establish a framework for decision-making by agencies engaged in land use planning and development control. The policy and strategy will also serve as a guide to those agencies engaged in the design and delivery of housing and shelter programmes.

(b) The drafting of a new Physical Planning and Development Control Act, which will, inter alia, make EIAs mandatory for various classes of development;

(c) The design and implementation of a Programme for the Rationalisation of Unplanned Developments (PROUD), an initiative which aims at the general improvement of squatter settlements, primarily in the urban areas. A feature of this Programme is that it allows those squatters with prescription rights over lands, which they occupy, to own these lands, provided

that the lands are not in critical areas. The Programme also allows for land exchanges, as well as for outright purchase of lands by squatters having the means to do so.

The foundation of Barbados' management of its land resources is provided by the new Physical Development Plan and the Environmental and Natural Resources Management Plan. These instruments were generated with a view to infusing future national progress and development with an awareness of, and consideration for, the need to foster sustainable national development.

Barbados is a member of the World Trade Organisation (WTO) and is expected to harmonise national standards with international standards and also to upgrade export certification procedures and laboratory facilities in support of export certification. From this standpoint, the uncontrolled use of pesticides needs to be urgently addressed. At present, there is no system to determine whether the health of the population is being affected by pesticide residues in food. Current legislation, though comprehensive, is not supported by additionally required enactments, such as, might pertain to:

- Controlling the use of pesticides in agriculture, generally, or on particular crops or pests;
- Controlling the use of pesticides on produce during its storage and transportation;
- Prescribing the permissible levels of any pesticide in any particular kind of produce at the time of marketing.

Text Box 9

"Land for the Landless Project" in Barbados

This Project seeks to provide farmers with land, irrigation facilities and capital. Additionally, the project, which is being implemented by the island's Rural Development Commission, is preparing small farmers for self-management, through training in the areas of financial management, farm management and food preservation and processing. In conjunction with this training programme, the Government is decentralising its marketing and distribution systems for local goods and services, through the establishment of community market facilities.

As part of its housing strategy and plan, the Government of Barbados has established a General Workers Housing Loan Scheme and a Housing Credit Fund, to encourage low-income earners to acquire their own homes. A 100 per cent mortgage programme is also available to low-income earners purchasing house spots, terraced units and houses from the National Housing Corporation, under the General Workers Loan Scheme.

An important regional initiative is the development of the concept of Island Systems Management (ISM).

Text Box 10
The Island Systems Management (ISM) Concept

The ISM concept was developed by the former OECS/NRMU and is intended to operate as a framework and process for integrated development. It is being piloted in Antigua and Barbuda, Dominica, St. Kitts and Nevis and St. Lucia. Significant progress has been made with the process in St. Lucia which, under the Ministry of Planning is establishing a framework for the utilization of Integrated Development Planning as a tool for the operationalization of the Island Systems Management Approach. This approach seeks to involve the participation of all stakeholders and can form an effective mechanism for addressing the sustainable development agenda in the OECS countries. The concept views the land and the appurtenant coastal areas as a single unit for planning purposes. There has been no significant movement with this activity in the other three island states.

Despite these laudable developments, comprehensive zoning plans are non-existent in many Caribbean SIDS. Where such plans do exist, they reflect use classifications based mainly on soil type. The requirements of resource management and sustainable land use are not sufficiently being taken into account. Some SIDS, for example St. Lucia, have, at great expense, commissioned comprehensive land-use zoning plans, but these have not been implemented because of the high compensation costs which Governments will have to bear, especially where the value of land depreciates as a direct result of a particular zoning regime.

Unplanned physical development is still the norm in many Caribbean SIDS with clear, negative, environmental impacts, include soil erosion; desertification; reduced land availability for cultivation; siltation of water bodies; death of sensitive marine and freshwater resources; and destruction of watersheds.

Another failing of the land management system in Caribbean SIDS, is the low regard for regional planning at the national level. Where districts have been created, these have been influenced more by electoral and administrative considerations, rather than by the characteristics of space. Consequently, the tendency is to apply policies "across the board" without due consideration being given to the economic and environmental impacts of these policies on a particular district. It is not uncommon to find the same agricultural policies being applied equally to flat and hilly areas.

The situation warrants the following critical actions at the national and regional levels, respectively:

At the national level:

- The introduction of land reform programmes as a means of ensuring more equitable access to and rational use of land resources;
- The development of procedural and legislative action to ensure the integration of EIAs in the decision-making process;

- The design and implementation of systems plans for parks and protected areas;
- The introduction of proper land capability assessment programmes;
- The control of location of human settlements in disaster-prone and important natural areas;
- The use of appropriate technology in flood control, soil conservation and stabilisation and irrigation schemes;
- The introduction of a phased programme of restoration of derelict/unproductive land through reforestation, flood control measures, flood plain management, changes in cultivation patterns and methods;
- Strengthening the capacity of Physical Planning Departments/Development Control Authorities.

At the regional level:

- The implementation of human settlement projects emphasising community-based activities;
- The formulation of standards for agro-chemical use;
- The design of model legislation and regulations on resource management pertaining to land;
- Capacity building in the use of satellite technology in land use planning and management.

2.8 Energy Resources

The energy sector in Caribbean SIDS is at once very similar, yet diverse. In nearly all the islands, the dominant source of energy is imported fossil fuel. The diversity lies in the fact that only Barbados, Cuba and Trinidad and Tobago produce oil and gas, while only Barbados, Cuba, Dominica, the Dominican Republic and St. Vincent and the Grenadines have significant amounts of power generated from geothermal, solar, wind, wood and waste products.

The dependence on fossil fuel has not only deepened the vulnerability of the subregion to global fuel price increases, but also, it has placed a heavy demand on precious foreign exchange reserves: a key macroeconomic determinant for Caribbean SIDS. Current trends offer little hope that energy production costs will either stabilize or decrease, in the short to medium term. Also, indications are that consumption will increase, as the expansion of urbanization and the growth in industry and hospitality services continue to fuel an increased demand for electric power in homes and in the tourism and transportation sectors.

The dramatic increase in electricity consumption is vividly depicted in the Dominican Republic and St. Lucia. Demand for electricity in the Dominican Republic is growing at a rate of 7 per cent per year. The Government has sought to alleviate shortages by buying power from private producers and privatising power plants. However, privatisation has so far not resolved the fundamental challenge of assuring a steady supply of electricity to the population. Between 1995 and 1999, demand in St. Lucia increased from an average of 16.33 megawatts to 21.56 megawatts and is projected to increase to 33.3 megawatts by 2010. Peak power demand is

approximately 30 per cent above average. The consumption of diesel for electricity generation is expected to increase from 411,457 barrels of diesel fuel in 2000 to 604,343 barrels in 2010. The consumption of diesel and gasoline in the transportation sector is also expected to rise from 82,214 barrels of diesel and 338,454 barrels of gasoline in 1999 to 148,380 barrels of diesel and 610,841 barrels of gasoline in 2010.

Ever since the energy crisis of the 1970s, Caribbean SIDS have been giving increasing attention to the development of renewable energy sources. During the past two decades, over 120 projects and studies, estimated at US\$30m, have been undertaken on various aspects of renewable energy. According to the data available, solar energy studies account for some 35 per cent, biomass 35 per cent, hydropower 18 per cent; wind 8 per cent; and geothermal projects 3 per cent of the total.

Two Caribbean SIDS that have given strong attention to encouraging energy efficiency and conservation, as well as the use of renewable sources of energy development, are Barbados and St. Lucia. Barbados now has a significant number of solar water heaters both in residential and hotel properties, partly due to Government's fiscal incentives. Also, solar driers have been profitably used, for example, in drying onions, hay and plastics in Antigua and Barbuda, Barbados and Trinidad and Tobago, respectively. Financial support for these research projects was obtained from international funding agencies. The sugar factories, which burn bagasse for processing and electricity, contribute approximately 15-18 per cent of Barbados' primary energy supply.

The Barbados power company is interested in photovoltaic (PV) energy which is also used to power air conditioners and ice machines, as well as for lighting at some natural touristic attractions.

The projection is that by 2010, Barbados will have 40 per cent renewable energy capability through bagasse in co-generation; wind turbine farms; waste combustion; ocean thermal energy conversion; distributed PV; and the production of hydrogen from renewable energy to power fuel cell vehicles.

Within recent years, the Government of St. Lucia has, pursued the following energy-related initiatives:

- The removal of taxes and duties on renewable energy technologies;
- The removal of consumption taxes on energy efficient compact fluorescent lamps;
- The promotion of Solar Photovoltaic system as a demonstration unit in a remotely located school (Bouton) in the south-west of the island;
- The removal of consumption taxes on table top stoves in order to discourage wood burning in rural poor households;
- The development of a wind farm capable of adding 13.5 megawatts to the national electricity grid;
- The resumption of geothermal explorations on the island; and
- The private sector has also stepped up its profile in energy conservation schemes.

Also noteworthy in this sphere are the efforts of the Caribbean Alliance for Sustainable Tourism (CAST). CAST's main interest in energy is driven by its exceedingly high cost, which ranks as the second highest operational cost for a hotel. A study undertaken in Jamaica, approximately three years ago, indicated that the main user of electrical energy in a typical hotel is air conditioning, followed by artificial lighting.

Using the benchmarks set by the International Hotel Environment Initiative (IHEI) which are based on kilowatt hours per square metre (kwh/m²), it was determined that, for hotels with capacity of under 75 rooms - which account for approximately 60 per cent of the hotel base in the Caribbean - the most efficient properties used 12 kwh/m² per guest night. For those hotels larger than 75 rooms, the most efficient ones used 16 kwh/m² per guest night. CAST has been assisting hotels in reducing their energy consumption working with them by conducting energy audits of their plants. It has also been a leading advocate of:

- Incentives for using energy efficient technology;
- Attractive rates of interest to purchase efficient technology; and
- Development of standards and building codes.

Text Box 11

Energy Conservation within the Hotel Sector: Wyndham Morgan Bay Hotel in St. Lucia

The Wyndham Morgan Bay Hotel in St. Lucia has moved aggressively to address its high energy consumption. About two years ago, an audit and gap-analysis were undertaken. These analyses indicated that there were a number of opportunities to make minor changes, which would achieve energy savings. In terms of hot water heating, the situation existed whereby every two guest rooms used 2.5 kilowatt water heaters, resulting in extremely high electricity usage. Therefore, throughout 2001, a conversion to solar thermal was made with a view to the generation of savings of up to 20 per cent of the hotel's entire electricity bill. With respect to boilers providing the hot water needs of the kitchen, the flat roof was found to offer an ideal opportunity to install an ITS solar system. This resulted in the ability to switch off one boiler completely and hence generate significant savings. With regard to electrical energy, many of the compressors of the refrigeration unit in the hotel's kitchen were over 10 years old. More highly efficient units were bought and changed from a two-speed pump system to one of greater capacity, allowing it to be shut down for six hours every night. The low efficiency 15,000 BTU air conditioning units were replaced with 12,000 BTU units obtaining the same high cooling environment in every room.

Notwithstanding the emphasis placed on the exploitation of renewable sources of energy, in Barbados for example, the impact of renewable energy on the economic development of the respective countries within the subregion continues to be minimal.

OECS member States are seeking to address this issue. Acting on a mandate from the OECS Environmental Policy Committee, the then Natural Resources Management Unit, with assistance from CIDA, convened a Regional Symposium on Energy Management and Energy Efficiency in St. Lucia in February 2001. The Symposium recommended, *inter alia*, that:

- Attention be paid to technology transfer methodologies, such that appropriate technologies which are developed or adapted for the Caribbean SIDS will find broad acceptance amongst stakeholders;
- In developing and adapting technologies, a primary objective should be the development of new employment and business opportunities within the energy sector, for the people of the OECS;
- As far as possible, mature technologies should be chosen over experimental ones, such that the technology's reliability and cost effectiveness are assured;
- Energy use in the transportation sector needs to be addressed. Strategies are required at the national level to rationalise and optimise the use of hydrocarbon fuels. Issues in this regard, include the import of second-hand or refurbished fuel inefficient vehicles and the need to promote the use of more fuel efficient vehicles;
- The OECS Secretariat develop a harmonised framework for Energy Management and Energy Efficiency Policy that could be adopted at the national level by OECS countries. The required policy should address institutional restructuring with a view to ensuring a reliable supply of energy within a framework that establishes, and creates opportunities for: (i) energy efficiency; (ii) flexible options for the generation and distribution of electricity; (iii) application of renewable energy; (iv) more effective regulation of the energy sector; and (v) fiscal and other incentives for application of renewable energy and energy efficient technologies;
- All institutional restructuring initiatives should include consideration of the sustainability, financial and otherwise, of those institutions, independent of donor funding;
- Public awareness activities need to be linked to policy, institutional and legislative frameworks, particularly those that reduce import tariffs for renewable energy and energy efficient equipment and through programmes such as "green certification" initiatives.

2.8.1 Other renewable energy and energy efficiency initiatives in Caribbean SIDS

Other renewable energy and energy efficiency initiatives in Caribbean SIDS include:

(a) Renewable Energy Initiative of the Americas (REIA)

This is an initiative being undertaken by the OAS through its Unit for Sustainable Energy and the Environment, which involves a number of areas outside energy. Currently, REIA is engaged in the services aspects of renewable energy, especially on clean energy technology and the provision of regulatory services between the private and public sectors. REIA seeks to respond to the needs of member countries through partnerships with organizations. The Sustainable Energy Caribbean Islands Initiative is one such activity in which REIA is currently engaged, in collaboration with the Climate Institute, WINROCK International, OAS and other organizations. St. Lucia is being assisted with the development of a Sustainable Energy Plan. In the Dominican Republic, REIA is involved in privatisation; in assessing the impact of clean energy; and in providing alternatives for the incorporation of clean energy technologies. In this area of policy and regulatory reform, REIA has prepared a Renewable Energy Policy Manual.

REIA is also working specifically with the Governments of Guyana and Suriname to develop proposals for rural electrification.

(b) UNDP/GEF/OLADE project on the development of energy efficiency in the Caribbean

Caribbean SIDS are pinning their hopes on the outcome of this project which is aimed at dismantling barriers to energy efficiency in the electric energy sector of 16 Caribbean countries; nine Latin American Energy Organization (OLADE) member countries; and seven non-member countries. Taking into account the current situation of the electric power sector, the CREDP seeks to tap the sub-sector's potential to improve efficiency in electric power distribution and use. It is perceived that the project's activities should focus on the region's electric power distribution utilities, since they would be able to provide the means to gain access to the consumers of electric power service.

The project is inspired by the results of a survey of barriers to renewable energy technologies in the Caribbean, which was jointly undertaken in October 1997, UWICED; the UWI Centre for Resource Management and Environment Studies (CERMES); the Scientific Research Council's (SRC) and the Caribbean Energy Information System (CEIS). The Survey results pointed to a number of barriers to renewable development and stressed issues related to policy, capacity, awareness and financing, as the major inhibiting factors.

As a result of the findings of the 1997 Survey, a UNDP/GEF/PDF "Block B" project on the Caribbean Renewable Energy Development (CREDP) was developed to investigate the removal of barriers to renewable energy through broad-based information gathering, analysis and documentation of the natural energy resources of each Caribbean SIDS. This was seen as a feasibility phase and as a precursor to a much larger project for the region that would enhance understanding of the barriers to renewable energy development, which had existed.

(c) Clean Development Mechanism

The Clean Development Mechanism (CDM) is a proposed method by which developing countries could benefit by selling carbon dioxide credits from projects that achieve greenhouse gas reduction. The overall objective of this Mechanism or Project is to examine subregional capacity-building in the Caribbean, in order to enable the subregion to develop regional capacity on CDM and related areas.

The goal, from a subregional standpoint, was to simplify and renew projects, attract investment and achieve development. Activity in this area focused mainly on plant filter capacity additions. Data were collected on the three most recent capacity additions at fuel sites in each country. Based on the analysis of the data, the study found that the Caribbean power sector met the criteria for a subregional baseline approach. Also, most of the power sector companies were generating electricity from oil with similar technology, with the exception of those in Belize and Trinidad and Tobago. Additionally, it was observed that the CDM potential in the Caribbean was

estimated to generate US\$140 million in 35 emission reductions particularly during the period 2008-2012. It was also estimated that, by 2012, emissions from new power additions would add some 85 million tonnes of fuel emissions. However, it was found that with 15 per cent more of these additions from clean air technology, the subregion could obtain 1.5 million tonnes of fuel reduction. Nevertheless, in developing new CDM projects, the current statistics needed to be updated to reflect more recent estimates. The study also recommended that some additional benchmark studies be examined.

According to preliminary investigations, the use of waste products is seen as having great potential, particularly in industry and, even more so, with the Land Fill Gas Capture Project. The possibility of defining and setting a single benchmark that could apply across the subregion is being examined. Thus, any project having a value higher than the subregional benchmark would be able to claim internal emission rewards for the saving that is realised.

2.9 Biodiversity Resources

Aspects of the implementation of this Programme have already been detailed in the review of Programme. Areas dealing with land resources; freshwater resources; and coastal and marine resources, respectively. Since 1997, activities in the programme area of Biodiversity Resources have been undertaken mainly in fulfilment of the obligations under the CBD. All Caribbean SIDS that are signatory to the Convention on Biodiversity (CBD), have either prepared, or are in the process of preparing National Biodiversity Strategies and Action Plans (NBSAPs). These processes have yielded a wealth of information which should be of immense benefit to these countries in their formulation and implementation of sectoral and cross-sectoral plans aimed at meeting the objectives of the CBD. For many countries, this was their first compilation of a comprehensive inventory of their terrestrial biodiversity.

All Caribbean SIDS face an immense challenge in protecting their biodiversity resources from human-induced forms of degradation. Some countries, for example Barbados, Jamaica and St. Lucia, have designed systems and plans aimed at protecting terrestrial and marine parks and other ecologically fragile areas. Jamaica has published a *Green Paper* on the subject while Trinidad and Tobago has been focusing on the conservation of biodiversity within its national parks and watersheds. However, the implementation of these Plans, especially their enforcement aspects, demand resource outlays that these countries are hard pressed to provide. Consequently, destruction of valuable terrestrial biodiversity continues unabated.

In Barbados, a Gully Ecosystems Management Study has been completed, which provides the basis for the design of a comprehensive integrated management strategy and programme for the country's gully systems. It addresses the preservation and enhancement of biodiversity resources; the maintenance of storm water flow patterns, including the protection of groundwater catchment areas and abstraction zones; the identification of sustainable economic uses of selected gully systems and the design and implementation of an appropriate public awareness and education programme. The monitoring of marine biodiversity is also receiving attention.

Several countries have introduced successful Turtle Watch programmes. Since 1987, the Barbados Sea Turtle Project has collected data on nesting distribution and is the only monitoring programme for rare or endangered wildlife in the country. Much of the data has been supplied by members of the community, who report nesting and hatching events and act as nest caretakers during incubation.

Encouraging progress has also been made with the management of marine biodiversity. Several countries have benefited through the Regional Marine Parks and Protected Areas Management Project. Jamaica has established marine parks in Negril, Portland Bight and Montego Bay. Another significant success story has been the Soufrière Marine Management Area (SMMA) in Saint Lucia.

Text Box 12
The Soufrière Marine Management Area

The success of the programme is rooted in the community-based approaches which were adopted by the Soufrière Marine Management Authority, in resolving multiple long standing and emerging conflicts among users of the coastal and marine space, including fishers, dive operators, hotel owners/operators, cruise ship operators and yachtsmen. The bedrock of the management approach employed by the Authority, has been a sustained education and awareness programme, which has helped to promote a better understanding among users of the Area, of the importance of conservation. The SMMA has functioned largely without direct involvement of the Government. Moreover, the Authority has been able to recover its operating costs through user charges.

2.10 National Institutions and Administrative Capacity

Viewed in any context, capacity-building for sustainable development is an extremely important remit. However, in the context of the small, open, underdeveloped and vulnerable Caribbean SIDS, it assumes vital importance, as these countries attempt to respond to the many daunting challenges of the new millennium, such as globalisation; trade liberalisation; rapid changes in technology; and the imperative of achieving international competitiveness in the production and delivery of goods and services.

Several institutional mechanisms have been introduced in Caribbean SIDS, ranging from full fledged Ministries of the Environment (Antigua and Barbuda, Barbados, Dominica, Grenada, St. Vincent and the Grenadines), to Ministries for Sustainable Development (St. Lucia) to quasi-Governmental agencies (Cuba, Guyana, Jamaica, and Trinidad and Tobago). Further, there are wide variations in the resource bases of these institutions, with staffing complements ranging from three persons, to as many as 100 persons in Jamaica.

Text Box 13

The Environmental Management Authority (EMA) of Trinidad and Tobago

The EMA was established in 1995, through the passage of The Environmental Management Authority Act, (No. of 1995). Funding was made available through a World Bank loan, with additional financial support from the UNDP and the Government of Trinidad and Tobago. The EMA's mission is to facilitate cooperation among Government agencies, NGOs and community-based organizations (CBOs) in the management of the natural environment. The Act mandates the EMA to: develop and implement policies and programmes for the effective management and wise use of the environment; educate the public about environmental issues, and take action to prevent and control pollution, as well as for the conservation of the environment. The Act also requires the establishment of a Tribunal known as the Environmental Commission, as a superior Court of Record that considers appeals of decisions taken by the EMA.

Policies governing various aspects of sustainable development have been introduced in nearly all Caribbean SIDS. Noteworthy in this regard, are the efforts of Jamaica and St. Lucia. St. Lucia is pursuing the development of a National Sustainable Development Policy by the Ministry of Planning, Development, Environment and Housing. The policy which was developed with technical support from the Government of Canada.

As the information contained in the Text Box below confirms, The Government of Jamaica is endeavouring to "green" its operations.

Text Box 14

The Greening of Government - Jamaica's Example

This programme is being undertaken by the Government of Jamaica, with support from CIDA and the Environmental Action Programme (ENACT) and is being executed through the National Environmental and Planning Agency (NEPA). The programme aims at: (a) promoting environmental stewardship of Government operations; (b) incorporating environmental conservation into strategic planning and corporate planning; (c) increasing the awareness of Government employees of environmental issues; (d) incorporating environmental considerations into the policy-making machinery of Government; The Programme emerged out of a 15-month, participatory planning process undertaken between 1997 and 1998, involving key stakeholders in the public sector. As part of the preparatory stages of the programme, an assessment of the training needs for the public sector was undertaken and relevant areas of training identified. Additionally, an Environmental Management System was developed and is being implemented in five ministries of Government. The focus of the Greening Programme is on: (a) ensuring that activities undertaken by ministries and agencies make the most efficient use of resources, and (b) minimising the negative impact on Government's activities on the environment. The outcome will be strengthening of the capability of the Government of Jamaica to articulate and adopt sustainable development strategies. The Programme aims to provide the foundation for a holistic approach to the planning and management of economic, ecological and social parameters of Government development policies.

2.10.1 Review of capacity-building initiatives

Several capacity-building initiatives in the Caribbean arose out of UNCED and the UNGCSIDS which reiterated the need for environmental stewardship and stronger linkages between development and the environment.

UNDP - Capacity 21 Programme

The UNDP Capacity 21 Programme (1994 -1998) aimed to act as a mechanism to assist developing countries to implement Agenda 21 and to assist selected SIDS specifically in strengthening their capacity to implement the SIDS POA. Implementation of the Programme was coordinated by CARICAD, in association with CDB and UNDP. It was intended that by the end of the pilot phase of the Programme, the following outputs would have been achieved:

- Consultative and collaborative processes, incorporating Government and its social partners, would have been sufficiently developed to effectively ensure the implementation of Agenda 21 and the SIDS POA;
- National sustainable development mechanisms, i.e. Sustainable Development Councils (SDCs), would have been created in each of the selected islands and assigned responsibility for strengthening public environmental administration and economic planning;
- A Sustainable Development Network would have been developed among the islands to share information, human resources and valuable experiences;
- Selected training in updated processes would have been provided so that SDCs and other support agencies would have been more effective;
- Communities would have been strengthened through the promotion of community-based initiatives as demonstration projects, to encourage self-maintained, sustainable programmes;
- Case studies would have been developed to exchange strategies and experiences for addressing technical issues and problems related to the sustainable development of SIDS.

An evaluation of the Programme, undertaken in 1998, concluded that the overall impact of the Programme was encouraging, especially given the many constraints within the external environment and the relatively immature state of national institutional arrangements for sustainable development. SDCs or similar coordinating mechanisms were established in all countries and, while they functioned with varying degrees of effectiveness, each country threw out its own glimmer of hope that future interventions, if properly focused and adequately resourced, would yield better results.

The following outcomes were achieved at the end of the programme:

- Sustainable Development Councils were established in each of the six pilot countries;

- Through the Councils, a process of widespread consultation was engendered, involving the public and private sectors and communities, in assessing sustainable development challenges and developing strategies to address these;
- A Sustainable Development Network was established among the SIDS, in the sharing of information, human resources and valuable experience linking to existing networks such as AMBIONET and INFONET;
- Selective training in computer-based networking and administration was conducted, as well as training in techniques of economic valuation of environmental resources, legislation for sustainable development and community awareness and participation.

Despite these outputs, long-term capacity-building remains elusive in the subregion. As in the case of many other programmes, funding for Capacity 21 came to end, resulting in the reduction of activities being undertaken by the Councils. Governments failed to absorb these Councils into their existing framework. The Councils are functioning in Barbados and Grenada. However the principle of Participatory Decision-Making (PDM) which was espoused by the Project, is being increasingly practiced in all participating countries.

The Evaluation Team recommended that attention be paid to the following issues in designing any successor programme:

- Building the capacity of key national institutions to enable a more active role in the decision-making process;
- Establishing a regional mechanism to coordinate activities to address sustainable development;
- Ensuring continuous networking among SDCs and other such organizations, as well as among countries in general; and
- Linking successor programmes with on-going and planned public sector modernisation programmes, wherever possible.

Global Environmental Facility Small Grants Programme.

This programme was launched in 1992 as a pilot, specifically to ensure that non-Governmental organizations and community groups have access to GEF funds for small-scale activities in the following four thematic areas:

- Reduction of global warming;
- Conservation of biodiversity;
- Protection of international waters;
- Reduction in the depletion of the ozone layer.

The programme's principal objective is to identify and demonstrate small-scale community-based activities which, if scaled up, could reduce the threats to the global environment, if replicated successfully over time. The programme is being offered in the ten islands assisted by the UNDP Barbados office. The Programme has helped to boost the capacity

of institutions involved in the implementation of approved projects. It has also helped to promote community participation and has strengthened communications between NGOs and Governments.

SIDSnet

The SIDSnet Programme was initiated as a result of the UNGCSIDS and built on the experience of the Sustainable Development Networking Programme (SDNP) of UNDP. SDNP has been in operation since 1993, building sustainable development communities and establishing Internet access into over 30 developing countries. SIDSnet was conceived to provide tools and training on leading internet based technologies to communities of people who are engaged in sustainable development in SIDS, associated with AOSIS in the United Nations. The essential purpose of the SIDSnet Programme is to enable people involved in sustainable development and island issues to share experiences and information across the globe.

Specifically, SIDSnet undertook a project to provide tools and training to communities of people who are involved in sustainable development on islands, to facilitate the sharing of information and experiences. The initiative involved the convening of 30 national workshops, 10 of which were allocated to the Caribbean SIDS. Following the conclusion of a Memorandum of Understanding with UNDP, SIDSnet and the CPACC Regional Project Implementation Unit coordinated and executed the Caribbean workshops using mainly professionals from the subregion. Over 150 persons were trained. The objectives of this training exercise were to:

- (a) Promote awareness of Internet applications for development;
- (b) Familiarize users with SIDSnet;
- (c) Train on Internet skills (basic Internet skills, creating web pages, specialized technical training where requested);
- (d) Motivate and invite participants to become part of the SIDSnet and CPACC communities;
- (e) Facilitate the use of the Internet for sustainable development activities.

The Subregional Headquarters of ECLAC for the Caribbean also provided assistance to SIDSnet, mainly through the provision of training courses.

The NGO dimension

One of the more encouraging developments since UNCED and the UNGCSIDS has been the emergence of new and/or strengthened NGOs, especially in the environmental protection and social development spheres. Equally encouraging, is the fact that the majority of these NGOs are receiving reasonable financial support from Governments and the private sector. The older NGOs, especially those involved in environmental conservation, such as national trusts and conservation societies, have moved to strengthen their capability in project design and implementation, which has, in turn, enabled them to access larger pools of financing from traditional and non-traditional sources. For example, the St. Lucia National Trust recently became the first NGO to receive GEF Block B financing, for a Coastal Wetland Ecosystem Conservation and Sustainable Livelihoods Project. Regional NGOs, such as the Caribbean

Natural Resources Institute (CANARI) and the Caribbean Conservation Association (CCA) have also begun to attract long-term financial support from established development partners such as DFID/Caribbean, CIDA, USAID and CARIFORUM. This is being interpreted as an expression of growing confidence in and satisfaction with the work of these NGOs over the years.

Some environmental NGOs are making a conscious effort to eliminate the perception that they are more interested in the conservation of nature at the expense of overall human development. They are being assisted, in this regard, by increased coverage of environmental issues by national, regional and international media, as well as by the pronouncements of persons in authority in Government, the private sector and international development agencies. Those NGOs that have been able to shed the negative perception most successfully have begun to realise an increase in membership, as well as greater involvement in the decision-making process of public sector agencies.

Over the past decade, there has also been a dramatic increase in the number of non-environmental NGOs, especially those concerned with improving the plight of marginalised groups, such as women, the youth, the elderly, and the physically challenged. A recent phenomena, has been the emergence of groups with a human rights agenda, addressing diverse issues such as police brutality, the conditions of prisons, children in special circumstances, governance and labour relations.

Text Box 15

The Future Centre of Barbados: An Example of Effective Public Education and Awareness

One of the enduring legacies of the UNGCSIDS is the Future Centre located in Barbados. The Centre first emerged during the Conference, as an interactive, NGO-forum exhibition, entitled "The Village of Hope". Through the efforts of the Future Centre Trust of Barbados, the 300 exhibits depicting "The Horror" (environmental degradation) and "The Hope" (environmental protection if special action is taken) have been given a permanent home. The Future Centre Trust was established by a group of concerned citizens, first, under the patronage of the Governor-General of Barbados and now, under the patronage of the President of the CDB. It focuses on sustainability, through best practices provided from Barbados and other Caribbean SIDS. It also offers practical demonstrations on eco-fanning, permaculture, composting, alternative energy, recycling of waste water, as well as other examples of positive linkages between environment and development. The Future Centre Trust, in collaboration with other NGOs in Barbados, is actively involved in the decision-making process relating to the environment and development. The Trust is also examining ways of recycling solid waste. In 1998, the Trust, in conjunction with the Recycling Council of Alberta, Canada, conducted an exploratory project focussing on recycling technologies. The Centre has also helped to promote public education and awareness of sustainable development issues and approaches. To ensure the sustainability of the Centre, a restructuring exercise was recently undertaken, which resulted in the establishment of firm linkages between the Trust and an international NGO - Counterpart International.

2.11 Regional Institutions and Technical Cooperation

Reference has already been made to the implementation of the JWP approved at the 1997 Caribbean Ministerial Meeting. Reasonable progress has been made in this programme area. On the supply side, the Development Partners that are active in the subregion have all made encouraging attempts at coordinating their respective interventions. Some of the Partners are

endeavouring to pay closer attention to the expressed needs of the countries. A feature of the operations of nearly all Partners has been the formulation of Country Assistance Strategies, as the basis for channelling financial and technical assistance to the countries. The downside of this approach lies in the heavy demands, which are made on an already limited and stressed staffing situation in the SIDS. Another welcome trend is the strategy of co-financing, which has been used successfully in such interventions such as: the OECS Solid and Ship Generated Waste Project; the OECS Telecommunications Reform Project; and the Barbados Education Reform Project.

The United Nations system agencies such as ECLAC, UNDP, UNEP as well as the World Bank, have all played pivotal roles in bringing about improved cooperation and collaboration among the Development Partners, as well as among the indigenous regional institutions, the coordination of the Joint Work Programme by the Subregional Headquarters of ECLAC for the Caribbean has produced encouraging results. The UNDP Regional Office in Barbados, through the OECS, has formalised an arrangement with these countries to facilitate unified action through United Nations system coordination. This arrangement also provides a mechanism for mobilising resources to support the implementation of development projects, focusing on poverty eradication. The programme seeks to integrate proactive poverty alleviation community strategies into macro-economic and social plans. A special programme to support gender mainstreaming is also being supported.

The World Bank has continued its coordination of the Committee of Caribbean Member Countries (CCMC) of the CGCED. The CCMC proposes areas of focus for meetings of the CGCED which are held every two years in Washington, D.C. These meetings facilitate face-to-face dialogue between high level representatives of CGCED member States (usually Prime Ministers and/or senior Government Ministers) and representatives of Development Partners. The agenda for CGCED Meetings is set by a Steering Committee comprising countries and agencies. The 2000 CGCED meeting addressed the following thematic areas:

- Education;
- Governance, with emphasis on judicial reform and capacity-building;
- The financial sector, with emphasis on fostering the availability of credit in the subregion
- The Caribbean at the dawn of the twenty-first century;
- Haiti's development and integration into CARICOM; and
- Climate Change.

A greater sense of order and organization has been brought to the workings of regional and subregional institutions, particularly over the past five years. The allocation of responsibility for the coordination of the respective programmes in the SIDS POA has helped to reduce the potential for overlap and duplication. Generally, regional institutions have pursued their respective mandates with a great deal of alacrity. Some agencies such as CARICOM, CCST, CDERA, CEHI, ECLAC, OECS, UWI, and UNEP/RCU, have actually designed programmes and projects and have sought to mobilise funding for their implementation.

In the case of the Subregional Headquarters of ECLAC for the Caribbean, a major development relates to the increasing number of requests for technical assistance that are being received from its member countries, as well as from other regional agencies within recent years. During the calendar year ending mid-May 2001, for example, just over 70 such requests had been received. Of these, 55 were completed during the same period and 11 are ongoing. The requests span such areas as the modernization of physical planning standards and procedures; policy formulation towards economic diversification; land reform; post-disaster assessment of macroeconomic, social and environmental impacts, including the provision of training in the use of the ECLAC post-disaster assessment methodology; tourism; and statistics. Beneficiary countries include Anguilla; Antigua and Barbuda; Belize; British Virgin Islands; Montserrat; Netherlands Antilles; St Kitts and Nevis and St. Lucia. The Secretariat of the Association of Caribbean States (ACS) and the CARICOM Secretariat have also benefited from such technical assistance.

Also within the subregion, the OECS Secretariat continues to play a critical role in mobilising and channelling financial resources and technical assistance to its Member States. The then OECS Natural Resources Management Unit (NRMU) was particularly effective in both these roles. The NRMU, currently manages the following technical programmes and projects:

- Small Projects Facility;
- Coastal Resources Management;
- Fisheries Management and Development;
- Watershed management;
- Environmental Planning; and
- Information, Communication and Public Awareness.

All the above programmes emphasise the sharing of technical expertise among OECS member States as a principal operational modality. A poignant example of the efforts of the OECS at promoting sustainable development can be found in the St. George's Declaration of Principles for Environmental Sustainability in the OECS which has been reviewed in an earlier section.

Technical Cooperation is also being facilitated by the CARICOM Secretariat through its Sustainable Development Programme. An important and relevant initiative has been the reconvening of the CARICOM Task Force on Environment and Development, which played a vital role in assisting CARICOM Member States to prepare for and participate in the Preparatory Committee Meetings leading up to the UNCED and UNGCSIDS.

2.12 Transport and Communications

Transport and communications constitute important sectors of economic activity, in their own right, with the potential for: (a) providing direct and indirect employment; (b) adding to the regional skills pool; (c) income generation; (d) contributing to the Gross Domestic Product; and (e) earning and saving foreign exchange. Additionally, for CARICOM member States, transport and communications are vital to the goal of social and economic integration, as expressed in the thrust towards the establishment of the CARICOM Single market and Economy (CSME). To

this end, the CARICOM Secretariat and the Secretariat of the ACS are seeking to develop definitive policies that will help ensure not only the fulfilment of the requirements for intraregional movement of goods, services and people, but also, air, sea and telecommunications links with extra-regional destinations to facilitate tourism and non-tourism travel and the exchange of goods with the outside world.

These efforts are being conditioned by the ongoing profound changes within the global air, sea and telecommunications industry. In the air transportation sector, high levels of regulation and Government ownership are being replaced by deregulation, privatisation, market alliances and "hub and spoke" route structures.

2.12.1 Air and sea transportation

Similar changes are taking place within the marine transportation system, although not at the same pace or with the same thrust towards concentration. The slower pace of change is probably due to the absence of sea route rights. However, the volume of international sea-borne trade is increasing. Control of the world merchant fleet remains heavily concentrated in about five major maritime countries and the ratio of the element of freight to the full cost insurance and freight (c.i.f.) value of imports is invariably higher for developing countries compared with that of developed countries.

Mindful of these considerations, Caribbean SIDS are seeking to address the following challenges within the transportation system:

- The commercial consolidation of the structure and operation of subregional air and sea transportation services;
- The need for predictability, reliability and competitiveness in the structures and operations that emerge;
- The provision of adequate land-based infrastructure that satisfy international requirements;
- The identification and implementation of strategies that improve the operating results of the regional air transportation industry and, at the same time, provide scope for the region to maintain and participate in the provision of assured services.

At present, both the air and sea transportation systems within the Caribbean are somewhat disorganized. The efforts at consolidation and amalgamation, which characterised the regional air transportation system, at the start of the decade of the 1990s, degenerated at the close of the decade, into to an intense rivalry among subregional carriers for the subregional air transportation market. At the start of 2001, a greater sense of calm and realism was been introduced into the sector, with former competitors entering into joint ventures and functional cooperation agreements. However, the situation within the air transportation system, as a whole, remains grave with the subregion still heavily dependent on foreign airlines to produce much needed airlift. At the end of 2000, American Airlines accounted for more than half of all the seats into the Caribbean, out of North America. The level of dependence on foreign airlines flying between Europe and the English-speaking Caribbean is estimated at 70 per cent.

Among the more positive developments in air and sea transportation over the past decade are:

- The passage of harmonised civil aviation legislation, especially among the OECS countries;
- Improvement of communication and air safety facilities, partly in fulfilment of United States Federal Aviation Administration (FAA) regulations;
- The licensing of aircraft and pilots through the Directorate of Civil Aviation of the OECS;
- The privatisation of State airlines in the Bahamas, Jamaica and Trinidad and Tobago;
- The formalisation of cooperation agreements between regional airlines and counterparts in Europe and North America;
- The modernisation and harmonisation of maritime legislation;
- The promotion of maritime safety; and
- The development of training of maritime transportation personnel and cooperation in port development.

2.12.2 Telecommunications

Telecommunications, ranging from basic telephone services and cellular telephony, to Internet access and next-generation personal communication services, has become a dominant item of the agenda of Governments of Caribbean SIDS over the past decade. Recognising that the Internet has removed the need for ownership of every element of the value chain, companies are making unprecedented use of the Internet to make direct connections with their customers; intensify relations with their trading partners; enter new markets; and redefine business relationships.

Faced with the imperative of diversifying their economies; improving private sector competitiveness; and boosting employment levels, Caribbean SIDS, especially those within the OECS sub-grouping, have been endeavouring to reform their telecommunications sectors, with an ambitious programme that includes regulatory policy and tariff reform, revision of telecommunications concessions and the promulgation of modern legislation.

Supported by technical expertise and financing provided through a World Bank-funded OECS Telecommunications Reform Project, OECS Governments are seeking to develop an efficient and effective liberalisation of the sector to produce a competitive environment benefiting all sectors of the economy. The project also seeks to increase the capacity for regulation and enforcement that will be required under the new environment, both in terms of new national legislation with respect to telecommunications and competition; and new telecommunications sector regulations.

Accordingly, OECS Governments have established a harmonised regulatory framework and a competent regional regulatory authority, namely, the East Caribbean Telecommunications Licensing Authority (ECTEL). The Authority is mandated to, *inter alia*:

- Develop transparent, objective and investor-friendly, license award procedures to be implemented at the national level;
- Allocate and assign the radio spectrum; and
- Act as a forum for coordination of OECS Governments' policy for the subregion.

Another significant achievement of the Authority, thus far, has been the conclusion of an agreement with the monopoly telecommunications provider - Cable and Wireless, on a phased programme of liberalisation of telecommunications services. Other non-OECS countries such as Barbados and Jamaica, are also set to liberalise their telecommunications sectors.

Text Box 16

Barbados' Approach to Telecommunications Reform

Barbados has recently published a Green Paper on Telecommunications Sector Policy. The policy thrust is fuelled by the vision of the Government of Barbados as the centre of excellence for Information Technology and telecommunications in the Caribbean. The Green Paper identifies the following communications policy objectives:

- providing access for customers to basic telecommunications services in accordance with Universal Service Obligations;
- promoting state-of-the-art telecommunications technology, to ensure services that are comparable with those offered in developed countries;
- encouraging continued investment by offering a reasonable rate of return to investors;
- providing a reasonable and equitable basis for new telecommunications service providers, to be able to enter the market in the long-term (subject to the re-negotiation of the Cable and Wireless licenses) thus allowing competitive market forces to assist in price setting and regulation;
- promoting a more efficient and responsive regulatory environment for communications services.

Notwithstanding these positive developments, Caribbean SIDS face considerable challenges in developing the telecommunications sector, in particular, and the Information Services industry, in general. These challenges include:

- Promoting increased domestic and foreign investment;
- Expanding access to telecommunications services;
- Increasing the competitiveness of the region's information services within the global economy; and
- Making timely policy adjustments based on sustained monitoring of trends within the sector and the industry as a whole.

2.13 Science and Technology

At the basic level, developments in science and technology are rapidly stimulating demand for a labour force with greater conceptual and cognitive skills, including the capacity to innovate, analyse, and solve problems in production process and, above all, to transform information into economic value. Hence, the possession of natural resources is becoming relatively less important in the process of economic development. Caribbean SIDS can no longer expect to base their development on their comparative advantage that is based on cheap industrial labour. Contending with the challenges posed by advances in science and technology requires Caribbean SIDS to operationalise their thinking and practice in the field of education.

The central aspect of developments in science and technology, which is already having an impact on the economies and societies of Caribbean SIDS is *Information Technology (IT)*. Thus, it is not surprising that the immediate objective of several national and subregional development strategies is the rapid expansion of the use of IT.

Scientific and technological development within the majority of Caribbean SIDS, especially those comprising the OECS, is being hampered by:

- Lack of capacity to formulate policies linking science and technology with national development imperatives;
- Absence of research and development institutions and mechanisms to link the activities of these institutions with the needs of the productive sectors and the society as a whole;
- Unavailability of scientists to serve these institutions on a sustained basis;
- Absence of science and technology ethic within the formal and informal education system;
- Lack of sustained funding for development research; and
- Absence of a research culture.

The subregion's response to the aforementioned concerns is being led by the Caribbean Council for Science and Technology (CCST). For all but the last three years of the Council's existence, that is to say, for some 20 years of the Council's existence, full administrative and technical support was provided to CCST by the Subregional Headquarters of ECLAC for the Caribbean based in Trinidad and Tobago. The CCST is currently housed within the National Institute for Higher Education, Research, Science and Technology (NIHERST). The mandate of the CCST is to foster subregional cooperation and develop institutional linkages through the mobilisation of human resources and information.

The current and planned programmes of the include the following:

- Improving the teaching of science and mathematics in the Caribbean;
- The formulation (revision) of a subregional policy for science and technology;
- The determination of priorities for science and technology;

- Food processing and fresh preservation of foods;
- The establishment of entrepreneurial development centres for the OECS;
- Diversification of the banana industry;
- Integrated natural resources and environmental management;
- Quality certification of products, especially in the sea foods sector;
- The promotion of renewable energy; and
- Biological pest control.

Largely as a result of the work of the CCST, science and technology is receiving increasing attention within Caribbean SIDS. Institutions dedicated to scientific research exist in Cuba, Jamaica (Scientific Research Council) and Trinidad and Tobago (NIHERST). Grenada and St. Lucia have recently established National Councils for Science and Technology for Sustainable Development. In addition, attempts are being made to establish a regional network for cooperation in science and technology in areas of common interest. This initiative is being piloted by Cuba through the Special Committee on Science, Technology, Education, Health and Culture of the ACS.

Text Box 17

Cuba's National System of Biological Safety

Biological safety-related activities gained momentum in Cuba, with the creation in 1984, of the Bio-safety Committee by the Academy of Sciences. The initiative had its roots in Cuba's long standing involvement in research activities in the field of genetic engineering and biotechnology, as well as its participation in the negotiation of international agreements on the subject. The Committee evolved into the National Centre of Biological Safety, which is charged with organising, implementing, supervising and monitoring all the activities pertaining to biological safety in the country. In addition, the Centre monitors the fulfilment of international agreements on bio-safety. In support of this mandate, several laws and decrees have been passed that establish general principles to regulate the use, research, testing, production, import, export and release of biological agents, organisms and fragments with genetically modified profiles. Laws have also been passed that:

- establish an official list of biological agents that can harm human, animal and plants;
- promote and enforce biological safety in facilities where biological agents, organisms and parts of them with genetic profiles are handled;
- establish the functions of the biological safety structures for the facilities, as well as the requirements for the safe handling and transport of infectious substances.

Against this background, stronger efforts are being made by Caribbean SIDS with respect to the popularisation of science. This is being done through national exhibitions and science competitions among schools. Several SIDS successfully hosted Yapollo, a mobile science fair organized by NIHERST.

2.14 Human Resource Development

2.14.1 The Education and Training Dimension

The consensus within Caribbean SIDS is that the development of human resources is both a cause and an effect of economic development. Several studies have confirmed the central role of education, skills, the knowledge base and entrepreneurship in the production process and in economic growth. The role of these elements is being considerably enhanced with the emergence of new technologies in fields such as telecommunications, biotechnology, robotics, computers and hardware. These technologies are transforming the services sector and opening a new range of services as internationally tradable items. New skills, more vigorous entrepreneurship and research and development skills are needed to maintain and strengthen the international competitiveness of sectors such as export agriculture, involving both unprocessed and processed products; manufacturing; tourism; and other services. Moreover, it has been recognised that the subregion's capacity to attract new investment will very much depend on its relative endowment with these inputs.

Caribbean SIDS are endeavouring to adapt to this new situation by developing a larger stock of knowledge for use in both their traditional and new industries. The goal is to supply the human resource needs of a knowledge-based economy, by facilitating universal access to relevant, pre-school, primary, secondary and higher education. The expectation is that the system will supply adaptable workers who can readily acquire new skills and can easily cope with stresses and shocks in the society and the economy.

Several challenges will need to be overcome if these broad goals and objectives are to be achieved. A major challenge is posed by the lack of a critical minimum pool of expertise to effectively tackle issues such as curriculum development; the use of new technologies in teaching; the measurement of student and school performance; and the achievement of sufficient depth in teaching across disciplines. Other critical challenges include:

- Increasing investments on education at all levels all types especially technical and vocational training;
- Improving information about the quality, cost and relevance of education and training programmes;
- Reducing illiteracy and ignorance;
- Improving education financing and management;
- Increasing levels of educational attainment;
- Increasing levels of poverty and unemployment;
- Disconcerting levels of underachievement, especially among young males.

Notable efforts are being made to address the education and training aspects of these challenges. The OECS Education Reform Project supported by CIDA and the OECS Human Resources Development Tertiary Level Programme are two examples of such efforts. The former aims at strengthening capacity for subregional policy and decision-making. It also seeks

to establish a subregional coordinating structure and to implement education reform systems. The latter, which was completed in 1998, focused on physical improvements to tertiary institutions, strengthening of subregional cooperation, training of secondary school teachers and tertiary education reform.

Barbados is implementing a CDB-funded project, - the EDUTECH 2000 - that aims to place computers in all schools. This project is a sub-component of the IDB and CDB co-funded Education Sector Enhancement Programme (ESEP), which aims to help the Ministry of Education, Youth Affairs and Culture to implement the education reform measures outlined in its White Paper. The entire Programme includes five components valued at US\$213.1 million. The components are school rehabilitation; technological infrastructure; human resource development and training; curriculum reform; and evaluation and institutional strengthening.

In St. Lucia, a 10-year Education Development Plan has been designed and is currently being implemented. This Plan emerged after extensive consultations at all levels. The Plan proposes to strengthen the administrative capabilities of school principals through exposure to in-service training in management at post-graduate diploma level. It also proposes to facilitate the transition to a knowledge-based society, by, *inter alia*, accelerating the introduction of computers into all primary and secondary schools. The Plan also emphasises technical and vocational training at the formal and informal level. The effectiveness of the Plan's implementation is being assessed by means of monitoring and evaluation mechanisms, including a National Labour Market Information System which has recently been established, with technical assistance from the ILO. The Education Plan is complemented by a National Youth Policy and a National Sports Policy.

The Government of St. Lucia is accelerating the provision of adequately equipped Human Resource Development Centres (HRDCs) in all major communities to support the delivery of adult literacy and skills training activities. A National Skills Training Centre has also been established, to coordinate the design and delivery of skills-training programmes. These initiatives are being supported by the activities of the Poverty Reduction Fund and the Small Enterprise Development Unit respectively.

2.14.2 Human resources development and environmental management

Significant progress has also been made, over the past decade, towards the goal of increasing the supply of trained expertise in environmental management. Judging from the CARICOM Data Base of Trained Caribbean Nationals in Environmental Management, a sizeable cadre of trained personnel is available. Further, the Caribbean subregion now boasts a number of institutions dedicated to education and training in Resources Management, for example, CERMES, UWICED, based in Jamaica, which is financed largely by the private sector and, more recently, the Sustainable Economic Development Unit (SEDU), based at the St. Augustine Campus of the UWI.

The major shortcomings in the current arrangements regarding HRD in resource management and sustainable development, both at the national and subregional levels, are:

- (a) Absence of a Technical Cooperation among Developing Countries (TCDC) type arrangement at the broader Caribbean level, which can facilitate the transfer of trained nationals from one country to another, as and when the need arises;
- (b) The dearth of trained personnel in critical areas such as EIA, environmental law, environmental engineering, environmental diplomacy, community-based resource management, marine law, environmental economics, natural resource accounting, remote sensing and climatology;
- (c) Absence of a policy to retain, within the Caribbean, nationals trained in resource management and/or sustainable development.

A basis for addressing many of the above deficiencies has been provided by the recent decision taken by CARICOM Heads of Government, to permit the free movement and employment of qualified CARICOM nationals throughout CARICOM Member States. However effective supervision of the TCDC-type modality is required. This might best be performed by UNDP, given its organic links between its TCDC Unit based in New York and CARICOM Member States.

2.14.3 The health dimension

Over the past four decades, Caribbean SIDS have generally experienced a comparably good health status and have managed to eliminate many of the basic health problems that are normally associated with the developing world. However, over the past decade, in particular, these admirable health care standards appear to be faltering somewhat in several countries, with growing complaints about a deterioration in the quality of the service, coupled with the growing inability of health administrations to respond effectively to the changing needs of users. Consequently, the processes of health-sector reform that are underway in many countries, are facing strong pressures to cope with the demands of people.

Among the processes that have had the most significant impact on the living conditions and on the health situation and that can be expected to continue, are the following:

- Fiscal constraints;
- Changing family structures;
- Shifts in the age structure of populations;
- Rapid urbanisation;
- Changes in the composition of the workforce;
- Relatively high rates of unemployment and poverty;
- An upsurge in communicable diseases such as HIV/AIDS, Tuberculosis and Gastroenteritis;
- An increase in the level of substance abuse, especially among the youth;
- Changes in the organization of public services and in the Government's role in providing them; and
- Poaching of health care professionals by the developed countries.

Caribbean SIDS that are members of CARICOM are attempting to address some the more direct health-related challenges through their participation in the Caribbean Cooperation in Health Initiative (CCHI).

Text Box 18
The Caribbean Cooperation in Health Initiative 2

The Initiative includes a comprehensive set of targets, policies and programmes for the improvement of health care in the subregion. Strategies being employed include:

- Strengthening the leadership and regulatory role of health authorities, through sustainable reforms of the health sector and through the enactment of legislation that promotes wellness of the populations;
- Strengthening the capacity of health care personnel through training and through the establishment of appropriate organizational structures and staffing policies;
- Extending the coverage of health services by, amongst other things, pursuing policies that will increase funding available for health to at least 5 per cent of GDP and by emphasising policies that promote efficient use of health resources;
- Promoting and protecting the health and well-being of the elderly by sensitising health workers about the special needs of the elderly and by establishing norms and standards for institutional care of the elderly;
- Developing a coordinated approach to HIV/Aids mitigation and management through the joint procurement of anti-retroviral drugs; continuing professional education for physicians and other health care workers and the adoption of a common legal framework for treating HIV/AIDS.

2.14.4 The poverty dimension

In 1997, the World Bank estimated that 38 per cent of the population of Caribbean SIDS, representing approximately 7 million people, lived in poverty. This ranged from a high of 65 per cent in Haiti, to a low of 5 per cent in the Bahamas.

The subregion's poor can be classified into three broad groups:

- (a) The "traditional or endemic poor", whose condition can be attributed to the marginalising effect of economic structures such as skewed asset ownership;
- (b) The "new poor" which included those that had descended into poverty as a result of economic decline or an unintended result of stabilisation programmes and;
- (c) The "unemployed and underemployed" which included mainly young people without marketable skills.

All Caribbean SIDS have committed to the eradication of poverty as a principal development priority. To this end, many, if not all, Governments are seeking to create an appropriate climate for investment, macroeconomic stability and growth and development with equity.

Jamaica has been implementing a community-focused and community-centred programme, built around the principles of partnership and integration. Its thrust is the

empowerment of families and communities to marshal their energies to lift themselves from poverty, with the Government playing the role of enabler and facilitator.

The efforts of the Government of Trinidad and Tobago are being coordinated by its National Social Development Council. The programmes of the Council cover a wide spectrum of activities, ranging from measures to facilitate economic development; improve access to basic services; improve the status of women; stimulate income generating activities and productive employment; and promote social funds and safety nets.

Haiti has established a National Council for the Eradication of Poverty comprising Ministries of Social Affairs, Women's Affairs, Planning, Finance and the Office of the Prime Minister. In addition to the establishment of a Poverty Reduction Fund and Programme, the Government of St. Lucia has created a Special Fund, the James Belgrave Fund, to stimulate the growth of micro-enterprises, targeted at unemployed persons in depressed communities. The Government has also introduced a regime of incentives to entice private investors to locate businesses within depressed communities.

A major failing of the Poverty Reduction Funds and/or Social Investment Funds and other initiatives that have been established to address the problem of poverty, is that they appear to be driven by assumptions that the poor are powerless and have no strengths. Overlooking these strengths has meant that the poor are inevitably being encouraged to become more dependent, for longer periods, on assistance from the public sector, in the process, ignoring their own innate ability to pull themselves out of the poverty trap.

The problems faced by poor communities are caused mainly by inappropriate development strategies that were employed in the colonial and immediate post-colonial era. Caribbean SIDS are aware that they must commit to the implementation of balanced development policies and programmes that will have a positive impact on the quality of life of the poor. Two integral elements of such interventions must be education and employment creation.

Several Development Partners are either supporting, or have pledged support to national and regional poverty-reduction initiatives in Caribbean SIDS. DFID, USAID and the European Union, all have major programmes in Guyana and in the OECS. The UNDP is assisting the OECS Secretariat with the design and implementation of a Social Development Programme, which includes the preparation of a Human Development Report and the provision of technical support to OECS countries in the elaboration and implementation of social development programmes. The Subregional Headquarters ECLAC for the Caribbean provided pivotal support to Caribbean States in their preparations for the World Summit on Social Development; and the World Conference on Women. It also hosted the first Ministerial Meeting on Poverty Eradication in Trinidad and Tobago, in 1996, at which a directional plan of action for poverty eradication was developed and approved.

Since 1999, IICA has been coordinating the implementation of a Sustainable Livelihoods Project in three Windward Islands, namely, Dominica, Grenada, and St. Vincent and the

Grenadines. The overall goal of the project is to improve employment and generating income in agriculture-related areas. Its main objectives are:

- To assist unemployed persons, particularly single mothers and other women, in achieving sustainable livelihoods from agriculture in selected communities;
- To build managerial and administrative capacity of selected NGOs/CBOs to enable them to conceptualise and implement sustainable community-based agricultural initiatives.

The project has helped to establish community groups in the participating countries. Women and young people from the communities of River Sallee, Grand Roy and Clozier, in Grenada, have been trained in various craft skills, which are being used to earn income. In St. Vincent and the Grenadines, the project has introduced into the banking system, rural women who had no history of being clients of a Bank and had very little chance of accessing a loan. Further, NGOs are now better equipped to provide technical and administrative support. However, there is still need for team-building and leadership development among the beneficiaries.

2.14.5 The unemployment dimension

The following observations can be made on the labour market in the subregion:

- Unemployment is higher in the agriculturally-oriented economies, perhaps reflecting the limited employment opportunities generated by expansion in that sector;
- Unemployment is higher among women, despite the fact that most of the jobs created in the services and manufacturing sectors are absorbed by women;
- Unemployment is highest among the youth, especially first-time entrants to the labour market;
- Labour administration is cumbersome and labour laws are outdated, especially in the OECS;
- There is a significant movement of labour among Caribbean SIDS, in response to changing economic circumstances.

Caribbean Governments recognise that failure to solve the unemployment problem may result in further increases in poverty, crime and general social unrest. However, Governments are also aware that increasing employment and reducing poverty require sustained economic development. The issue of financing such development becomes paramount. For this reason, some of the traditional approaches, such as absorbing a portion of the excess labour by increasing the number of non-established posts in the public sector, are no longer prudent or acceptable. Such approaches run contrary to efforts being made by the Governments to reduce their annual recurrent expenditure on wages and salaries, in order to generate enough savings to finance vital public sector investment programmes.

Several Governments, including those of Jamaica, St. Kitts, St. Lucia and Trinidad and Tobago, have resorted to short-term employment programmes. While the merits and demerits of

these programmes have not been scientifically evaluated, there is a strong body of opinion to the effect that they operate more as mechanisms for the indirect payment of unemployment benefits.

The long-term employment-generating strategies that are being pursued by Caribbean SIDS include:

- The development of programmes that are driven by the requirements of the most promising sectors such as tourism and non-tourism services;
- Ensuring continuing compatibility between labour supply and demand mechanisms;
- Strengthening the institutional capacity for effective management of the labour market; and
- Boosting employment in socially and economically depressed areas, through fiscal and other incentives.

CHAPTER 3

The Contribution of the Inter-Agency Collaborative Group to the Implementation of the SIDS POA and related International Decisions

3.0 Introduction

Agencies remain an indispensable element of implementation process of the SIDS Programme of Action in the Caribbean subregion. As partners in the Inter-Agency Collaborative Group (IACG), they bring, *inter alia*, technical expertise, financial assistance, capacity- building opportunities and international exposure to activities taking place or envisaged in the subregion. They also assist by forming vital links to global initiatives that are of major concern to the Caribbean, for example, Climate Change and its effects; the Global Coral Reef Initiative; efforts to contain and treat with HIV/AIDS; new labour policies; and other such programs, policies and projects that are critical to the sustainable development of the subregion. In an effort to highlight the work of agencies within the region, the Subregional Headquarters of ECLAC for the Caribbean circulated questionnaires to the relevant Agencies during the first quarter of 2003, requesting information on, *inter alia*, their activities, successes and challenges, as well as recommendations in respect of the way forward.

The following tabulation sets out the responses received to the questionnaire and offers an overview of the activities undertaken in a number of areas of the SIDS POA by the Agencies indicated, as well as those in progress and envisaged. Also incorporated into the tabulation, are activities undertaken in the context of the implementation of a number of international decisions related to the SIDS POA, such as those emanating from the twenty-second special session of the United Nations General Assembly and the World Summit on Sustainable Development. All such decisions have been effectively subsumed under the Millennium Development Goals which now constitute the definitive international agenda for sustainable development. The information contained in this tabulation does not pretend to be exhaustive and reflect the responses to the questionnaire that was circulated to them by the Subregional Headquarters of ECLAC as well as statements made at relevant meetings.

A major issue that arose in the presentation of the respective activities relates to the fact that a number of projects might have been tabulated under more than one priority area. Thus, a given project might have been tabulated under *Technical Cooperation* or science and technology, as well as under the substantive area of the technology's application, such as *Health*. Should the thrust of the science and technology activity have been directed to information management and research in the health sector, then that would have provided yet another option with respect to its tabulation.

3.1 Climate Change and Sea Level Rise

Among the major long term challenges to the sustainable development of SIDS and other low lying countries of the Caribbean subregion, are those presented by the phenomenon of Global Warming and Climate Change. The change in weather patterns associated with increased sea temperatures, can have deleterious effects on SIDS with their very limited land resources and in which the low lying coastal areas constitute the major sites for settlement, infrastructural development and development pursuits generally. In recognition of this situation, proactive studies and actions are recognised to be needed to mitigate the effects of the scenario that has been depicted. The major activities that have been executed by Agencies of the IACG in the area of Climate Change and Sea Level Rise are set out below:

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Climate Change and Sea Level Rise	CMO	<p><i>Seasonal climate forecasts</i> are prepared by the Caribbean Institute for Meteorology and Hydrology (CIMH) - an organ of the CMO – in collaboration with research partners, for use in climate change studies and other applications.</p> <p>Since the UNGCSIDS, National Meteorological Services in CMO countries operate a large number of tide gauge & weather monitoring stations in GEF-funded <i>OAS CPACC Project</i> to monitor sea level rise and other parameters relating to climate change. A new MACC project has replaced CPACC. The Caribbean Community Climate Change Centre (CCCCC) became a legal entity on 5 February 2002, as a permanent mechanism to address Climate Change in the subregion.</p> <p>Since the UNGCSIDS, CMO has collaborated with WMO in the implementation of the Finland-funded <i>SIDS-Caribbean Project</i>. This Project strengthens climate observing in Meteorological Services of CMO and other countries; undertakes historic climate data rescue; and provides support to the CMO post-graduate course in climatology at CIMH/UWI.</p> <p>CMO and partner scientific organizations, academia and special interest groups are collaborating on an IDB-funded WMO Project to assess the <i>regional impacts of the El Niño climate phenomenon</i>, which can impact, positively or negatively on long-term sustainable development in SIDS.</p>
	UNEP	<p>Development of an Index of Comparative Vulnerability to Climate Change for application at national, regional and global levels; development of strategies for climate change adaptation in SIDS in the South Pacific, Western Indian Ocean and Caribbean regions.</p> <p>In cooperation with WHO and WMO, UNEP convened International Conference on the Climate and Health in Small Island States 24-25 July 2000, Western Samoa.</p> <p>In collaboration with CARICOM, UNEP organized workshops on</p>

		<p>the regional impacts of climate change. A policy document was developed and a report "Climate Change in the Caribbean and the Challenge of Adaptation" was issued.</p> <p>UNEP supported the conference "Climate variability and change and their health effects in the Caribbean", 21-25 May 2002.</p>
	CEHI	<p>Climate and Water Dialogue</p> <p>The Caribbean Dialogue on Water and Climate emerged out of preparations for the 3rd World Water Forum which took place 16-23, March 2003 in Kyoto, Japan. This process links with a global Dialogue on Water and Climate which has been designed to identify strategies to improve capacity in water resources management to cope with the impacts of increasing variability of the world's climate. This can be achieved through the establishment of a platform through which policy-makers and water resources managers have better access to, and make more effective use of information generated by climatologists and meteorologists. CEHI has proposed a sustained programme of activities to promote improved understanding of the phenomenon of climate variability and change and its impact on freshwater resources.</p> <p>Climate and Health</p> <p>CEHI and SENES Consultants Ltd. of Canada are implementing activities in component 7 of the Adapting to Climate Change in the Caribbean (ACCC) Project "Formulating Adaptation Strategies to Protect Human Health. The objective of this component is to develop analytical tools, methodologies and procedures to facilitate a more methodical and systematic identification of climate change impacts on human health with a view to ensuring that appropriate intervention options can be identified and implemented.</p>
	PAHO	<ul style="list-style-type: none"> ▪ In partnership with CPACC, CEHI, WHO, USEPA, UNEP, NOAA, and Health Canada, PAHO convened in May 2002 an International Symposium, in Barbados, on "Climate Variability and Change and their Health Effects in the Caribbean". The aim of the symposium was to inform stakeholders in the Caribbean about the status of health (including current risks), the potential vulnerabilities that present climate variability, the risk from potential sea level rise and climate change, and adaptation options for the reduction of current and future risks and vulnerabilities.
	UWICED	<p>Prepared the Caribbean Climate Change document which gives an overview of the social and economic environmental conditions of the Caribbean. Areas covered included: Socio-economic</p>

		conditions; Tourism - As a Major Economic Sector in the Caribbean Region; the effects of Globalization on the Regional Economy; An overview of the state of the Caribbean Environment; Coastal Pollution; the Destruction of Coral Reefs, Mangroves and Seagrass; Deforestation; Deforestation and Soil Erosion; Water Resources; Biodiversity; Environmental Globalization – Global Climate Change
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3.2 Natural and Environmental Disasters

The susceptibility of SIDS to natural and environmental disaster is a major aspect of the *vulnerability* of these entities. The small size of these States creates a situation in which the impact of extreme events is seldom limited to a single area. The ability to move to other safer areas is also compromised. Further, the remoteness of some SIDS makes communication and timely response to problems arising from disasters critical issues that impact on their development potential. Selected activities of the Agencies towards reducing the vulnerability of SIDS to natural and environmental disasters and in reducing the impact of such disasters on SIDS are summarised hereunder:

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
	CDERA	<ul style="list-style-type: none"> • Developed model legislation for disaster management. Legislation was adopted or is being considered in 13 Caribbean SIDS (Anguilla, Bahamas, Barbados, Belize, British Virgin Islands, Dominica, Grenada, Guyana, Montserrat, St. Lucia, St. Kitts and Nevis, Trinidad and Tobago and the Turks and Caicos Islands; • Produced a Disaster Management Resource Guide for teachers; • Developed building codes and standards legislation for adoption by Caribbean SIDS.
Natural and Environmental Disasters	CMO	<ul style="list-style-type: none"> • CMO Member countries operate an early warning system for tropical storms, hurricanes and other severe weather that cause natural disasters and impact on sustainable development. The system includes a back-up arrangement among the States in case of damage at any Weather Forecast and Warning Office. • 2003 start-up of EU-funded 13.2 million <i>CMO Weather Radar Project</i> to replace obsolete radars and create a modern and continuous radar network across the Caribbean to enhance early warning system against weather-related natural disasters. • One National Meteorological Service within CMO i.e. the Meteorological Service of Trinidad and Tobago, has been designated by ICAO to monitor and predict atmospheric dispersion and fall-out of volcanic ash from eruptions in Montserrat. • A new project is being launched to provide weather radar, weather satellite and tropical storm/hurricane information from CMO Meteorological. Services to decision-makers in national disaster preparedness agencies.

	CEHI	<p>Health Sector Disaster Preparedness for Floods</p> <p>The main objective of this project is to strengthen the capacity of the health sector to mitigate and respond to environmental issues related to floods following hurricanes or torrential rains and to improve disaster response. It is envisaged that this will be achieved through institutional strengthening of environmental health units in the respective Ministries of Health and the development of human resources through training. CEHI and PAHO have agreed to collaborate to achieve these goals</p>
	ECLAC	<p>ECLAC has (a) updated the Manual for Estimating the Socio-Economic Effects of Natural Disasters (2002) to reflect the needs of Caribbean SIDS. The Manual also provides a useful tool for formulating short and medium-term rehabilitation and reconstruction plans following the emergency phase;</p> <p>(b) provided training in natural disaster assessment in Belize; British Virgin Islands, Jamaica; and St. Lucia;</p> <p>(c) convened a regional training workshop on the Methodology for Disaster Assessment for several Caribbean States and</p> <p>(d) carried out macro-economic assessments of damage from natural disasters for Anguilla (Hurricane Lenny, November 1999); Belize (Hurricane Keith, November 2000); Jamaica (Hurricane Michelle, November 2001); and St. Kitts and Nevis (Hurricane Georges, November, 1998).</p>
	PAHO	<ul style="list-style-type: none"> ▪ The PAHO Programme for Disaster Preparedness and Mitigation carries out, each year, several training activities in the member states including courses, seminars and workshops on the management and planning of emergencies prevention and disasters; vulnerability analysis; and mitigation, in the face of the natural and technological disasters.
	UWICED	<p>Prepared Chapter 3 of the Climate Change Report, Natural Disasters: The likely consequences and Impact of Global Climate change. UWICED is currently creating a Natural Disaster Database, with a grant from the Foster Wheeler foundation. The database will cover areas such as (a) Number of Floods, Hurricanes, Earthquakes, Land Slides, Extreme Temperatures, Volcanic Eruptions (b) Vulnerability to Natural Disaster and the estimated cost associated with natural disasters.</p> <p>UWICED has also published a SIDS Vulnerability Study under its UNOPS project UWICED Working Paper Series # 2: Economics of Disasters With Special Reference to the Jamaican Experience which paper examines in brief, the impact of natural disasters on Macro-economic performance and on the essential steps required for the restoration of normalcy in the operations of the economy. The steps which may be taken on an ongoing basis to moderate the economic impact of natural disasters are identified and links between these measures and the performance of the economy during the post disaster period are examined.</p>

3.3 Freshwater Resources

The availability and purity of freshwater remain key developmental issues for SIDS. The contamination of the water supply; destruction of watersheds; lack of adequate aquifers; increasing populations; development conflicts; and lack of capacity to effectively manage freshwater resources, have given rise to serious concern with respect to the continued supply of freshwater in many SIDS.

Selected activities of the agencies that have responded to the *freshwater resources* challenge in Caribbean SIDS are summarised as follows:

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Freshwater Resources	CMO	<p><i>Seasonal climate forecasts</i> are prepared by CIMH/CMO and used for medium to long-term economic and development planning in various sectors, such as freshwater resources management, agriculture, and several private sector industries.</p> <p>CMO is collaborating with WMO towards the implementation of a major subregional programme in hydrology, called <i>Caribbean Hydrological Cycle Observing System</i> (CARIB-HYCOS), to improve hydrological data collection and assessment and management of freshwater resources. The System will also assess salt water intrusion as a result of sea level rise (see climate change above). The project is to involve CMO members, among other countries.</p>
	UNEP	<p>Compiled 'Source Book on Technologies for Freshwater Augmentation in SIDS' in 1997.</p> <p>Conducted a workshop on "Integrated Water Resources Management" attended by representatives from all SIDS regions in December 1998</p>
	CEHI	<p><i>Integrating Watershed and Coastal Area Management in Small Island Developing States of the Caribbean (IWCAM project)</i></p> <p>CEHI and UNEP-CAR/RCU are currently the co-implementing agencies for the GEF project on Integrating Watershed and Coastal Area Management in Small Island Developing States of the Caribbean. The participating countries are Antigua and Barbuda, The Bahamas, Barbados, Cuba, Grenada, Dominica, Dominican Republic, Haiti, Jamaica, St. Kitts and Nevis, St Lucia, St Vincent and the Grenadines and Trinidad and Tobago. The project aims to build capacity in participating countries for the implementation of an integrated approach to the management of watersheds and coastal areas. The project focuses on integrated and coastal area management demonstration projects, stressing the need for the development of a cross-sectoral management approach. It addresses the root causes of coastal degradation and seeks to build capacity, initiate institutional</p>

		<p>and infrastructural changes and examine relevant social and economic factors, in an attempt to allow the countries to sustainably manage their aquatic ecosystems and water resources.</p> <p>Project on Freshwater Resources Management in Caribbean Small Island Developing States.</p> <p>The overall objective of this project was to provide assistance participating countries with implementation of the initiatives established in the Summits of the Americas in Miami, Santa Cruz and Santiago, and the SIDS POA, dealing with freshwater resources. In particular, the project provided funding for the organization of a consultation meeting with Caribbean governmental and non-governmental organizations working on freshwater resources management, to review existing regional and national assessments of problems and management strategies, and to provide national counterpart agencies with Internet access through purchasing modems. The basic goals included ensuring that policy-makers, researchers, and other stakeholders were able to access all relevant technical information, methodologies and data in a useful format. This project has terminated and its outputs fed into the IWCAM project mentioned above.</p>
	PAHO	<p>PAHO convened a regional Workshop on Fundamentals of Safe Drinking Water, in Trinidad and Tobago, in June 1999, in collaboration with CEHI. The objective of the workshop was to adopt a common strategy for the application of the WHO Drinking Water Quality Guidelines in the Caribbean.</p> <p>During the last five years, PAHO assisted several OECS countries in the development and implementation of water quality surveillance programmes.</p> <p>With the support of PAHO, low cost technology for water disinfection was experimented and implemented in Guyana, St Kitts and Nevis and Dominica.</p>

3.4 National Institutions and Administrative Capacity

For a number of reasons, including the inadequate supply of skilled personnel and the limited financial resources available, the development and adoption of required measures, including the enforcement of the provisions of relevant treaties and other instruments, present significant challenges to SIDS. There is thus a deficit of the range of resources needed to establish and sustain national institutions. Activities of selected agencies engaged in the area of National Institutions and Administrative Capacity in support of the SIDS of the Caribbean are set out below:

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
National Institutions and Administrative	CMO	An increasing number of professionals from National Meteorological Services are enabled to serve on regional and international scientific

Capacity		groups and administrative bodies. A major regional technical conference is held every 4 years to improve technical and administrative capacity of managers of National Meteorological Services.
	UWICED	SIDS Net Project: This was established to assist SIDS with information technology. The project will highlight the use of information technology in integrated ecosystem management and in sustainable development endeavours of relevance to the Rio Conventions.
	IMO	<p>Provision of Advisory services for the development of national maritime legislation</p> <p>The regional programme of IMO was selected by the UN as a "SIDS Success Story" -providing support to the maritime administrations of the Caribbean in the development of legislation to give effect to international maritime standards.</p> <p>The programme has developed and distributed: (a) a model Shipping Act; (b) a model Shipping (Marine Pollution) Act; (c) a Code of Safety for Small Commercial Vessels; and (d) a comprehensive set of model implementing regulations, to give effect to the first three elements. These models have also been distributed to other developing regions, thereby providing a truly global benefit. Where needed, technical support is being provided to adapt all models to individual country requirements.</p> <p>The Programme is financed by IMO, UNDP and the Government of France. It started in 1997 and will be completed in 2003, at a cost of US\$194,000.</p> <p>Further development of Flag and Port State Control Capacities</p> <p>This subregional programme provided training to ship surveyors and inspectors of the maritime administrations of the Caribbean in the exercise of effective Flag and Port State jurisdiction over Caribbean-registered vessels, as well as foreign vessels calling at Caribbean ports.</p> <p>The programme was financed by IMO and the International Transport Workers' Federation. It commenced in 1997 and was completed in 2002, at a cost of US\$651,000.</p> <p>Programme on port safety and security</p> <p>Regional programme covered both Latin America and the Caribbean and promoted increased awareness and more effective implementation of global standards relating to the ship/port interface (SPI). The programme developed a manual on implementation of SPI standards and delivered training courses on: (a) port safety and security. (See programme on Maritime and Port Security); and (b) prevention and control of illicit drug-trafficking on board ships. The programme was financed by IMO and the European Commission. It started in 2000 and was completed in 2002, at a cost of US\$234,000.</p>

3.5 Regional Institutions and Technical co-operation

In order to avoid duplication of effort among SIDS and also to foster information gathering, sharing of best practices and rational use of the limited assistance available to SIDS, regional institutions, together with intra-regional, as well as inter-regional co-operative efforts are necessary. In many instances, organizations are established either to serve SIDS in specific areas of expertise, or to facilitate the procurement of technical assistance. Very often, it is more effective to have assistance to multiple beneficiaries channelled through a single institution or project, in order to avoid the higher logistical costs that would otherwise accrue. Activities of the institutions providing technical assistance to Caribbean SIDS in the area of *Regional Institutions and Technical Cooperation*, towards their sustainable development, include the following:

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Regional Institutions and Technical Co-operation	CMO	<p>CIMH has been designated by WMO as the Regional Meteorological Instrument Centre, primarily for SIDS. Capacity in instrument maintenance & calibration is being strengthened under a WMO/Finland <i>SIDS-Caribbean Project</i>. The project was launched in May 2001 and is scheduled to end on 30 April 2004. As at September 2003, the project was approximately 80 per cent completed.</p> <ul style="list-style-type: none"> • Concluded Memoranda of Understanding (MOUs) with similar extra-regional Organizations for exchange of technical and scientific expertise at the level of regional institutions, aimed at strengthening SIDS institutions. <p>Technical co-operation is undertaken by CMO through (i) partial funding of initiatives among Member countries, (ii) multilateral assistance with extra-regional partners and (iii) programmes of WMO.</p> <p>CMO acquired access to Technical Co-operation resources to assist in rapid rehabilitation of National Meteorological Services that suffer severe damage as a result of natural disasters.</p>
	PAHO	<p>PAHO contributes to the evaluation and control of environmental health risk factors through permanent contact with public and private institutions, community organizations, and international cooperation agencies.</p> <p>PAHO cooperation is provided primarily through the dissemination of information; training of specialized staff; and direct technical advisory services. Special attention is given to the development of appropriate technologies oriented towards rural and urban-marginal areas. The choice of technologies is informed by sustainable approaches.</p>

	IMO	<p>Development/updating of national and regional contingency plans</p> <p>This Regional Programme covered Latin America and the Caribbean and provided support for the development and updating of national and regional contingency plans to respond to, combat and control marine pollution caused by ships. The programme also provided training for personnel involved in marine pollution combat operations.</p> <p>The programme was financed by IMO and the Governments of Finland and France. It commenced in 2000 and was completed in 2002, at a cost of US\$147,000</p>
		<p>Enhancement of maritime safety</p> <p>This is a global programme to promote the effective implementation of the International Maritime Dangerous Goods Code and the STCW-F Convention 1995 (training and certification of fishing vessel personnel). The programme provides for two workshops on these subjects to be delivered in the Caribbean.</p> <p>The programme is financed by IMO (US\$160,000 for the Caribbean. It commenced in 2002 and will be completed in 2004.</p> <p>Programme on maritime/port security</p> <p><i>Following the terrorist attacks in the USA on 11 September 2001, IMO launched a global programme to assist Governments to put in place and enhance appropriate security measures and infrastructure to prevent and suppress all manner of illicit acts – including terrorism – that may affect the safety and security of shipping and port operations.</i></p> <p><i>New security measures were formally adopted by a Diplomatic Conference held at IMO in December 2002, and will become mandatory as of July 2004 for countries that are parties to the SOLAS Convention. This global programme therefore provides for a workshop on maritime security to be delivered in the Caribbean in mid-2003, together with further advisory and training support, as required, at the national level. The programme is financed by IMO (US\$105,000 for the Caribbean). It commenced in 2002 and will be completed in 2003.</i></p> <p>Regional Marine Pollution Emergency, Information and Training Centre (REMPEITC-Carib)</p> <p>The Centre was established by IMO in 1995 to support the countries of the Wider Caribbean in the effective implementation of the OPRC Convention dealing with the response to, combat and control of marine pollution caused by ships. Now formally institutionalized as a Regional Activity Centre under the Cartagena Convention and UNEP's Caribbean Environment Programme, the Centre continues to: (a) provide on-scene coordination and technical advice during marine pollution emergencies; (b) assist in preparing, updating and</p>

		<p>exercising contingency plans; and (c) train personnel engaged in marine pollution combat operations.</p> <p>The Centre's operation is financed by the Governments of France, the Netherlands Antilles and the USA. It was launched in 1995 and will continue in existence indefinitely</p>
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3.6 Transport and Communication

Arising from, *inter alia*, the remote location of many SIDS, implying their distance from markets, the modest volumes transported; and the typical inadequacy of their communication systems, transport of persons and goods to and from SIDS and the objectively desirable integration with other States present many challenges. High freight costs and the high per capita cost of providing the required infrastructure also have significant implications for trade competitiveness. In recognition of the plight of Caribbean SIDS arising from these circumstances, a number of activities have been developed by several agencies, among them, the following:

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Transport and Communication	CMO	Regular <i>upgrade of regional meteorological telecommunication systems</i> within CMO countries. Special low-cost systems are installed for the very small SIDS. All allow for the free and unrestricted international exchange of data, forecast and climate products and warnings. Two upgrades of these have been effected since the UNGCSIDS.
	ITU	Provided assistance in telecommunications liberalization; establishment and operation of regulatory bodies; and advancing the agenda for connectivity in the subregion.
	UWICED	UWICED published Occasional Paper Series No. 16: The role of the Physical Development Plan in Small Island Developing States, covering, <i>inter alia</i> , transport and communication aspects.
	IMO	<p>Maritime safety administration</p> <p>Conducted a regional programme to further develop capacities in the Caribbean for: (a) maritime search and rescue operations; (b) maritime training provision; (c) effective implementation of maritime safety standards; and (d) ship surveying and inspection.</p> <p>Total funding required was US\$1,150,000, of which IMO is presently financing US\$461,500. The programme commenced in 2002 and will be completed in 2003.</p> <p>Strengthening effective maritime administration in the Caribbean</p> <p>This on-going subregional programme for the Caribbean provides for</p>

		<p>a Regional Maritime Adviser, stationed in Trinidad and Tobago, to support the development of national and regional maritime action plans and to provide continuous technical advice on effective maritime administration in the subregion.</p> <p>It is financed by UNDP, with parallel financing from IMO. It started in 2000 and will be completed in 2003 at a cost of US\$175,000 (excluding IMO's parallel financing for the Adviser's fees, travel, equipment and office costs).</p>
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3.7 Science and Technology

The acquisition of technological tools that are relevant to the peculiar situations of SIDS, as well as the acquisition of training in their application, in promotion of sustainable development, are pressing issues among Caribbean SIDS. Following are selected activities executed by reporting Agencies in these contexts.

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Science and Technology	CMO	Upgrades in science & appropriate technologies are undertaken routinely, in relation to a number of priority areas of the SIDS POA.
	CEHI	<p>CEHI carries out Environmental Health research on various environmental topics. For example, in 2002, it conducted a study on the Impact and Amelioration of Sediment and Agrochemical Pollution on Caribbean Coastal Waters in conjunction with the University of York/Marine Resources Assessment Group.</p> <p>Additionally CEHI carries out hi-tech environmental quality testing services for its Member States including drinking and recreational water analysis; industrial and sewage effluent testing; heavy metal testing; and pesticide residue analysis in, inter alia, Water; Wastewater; Soil / Sediments; Fatty foods; Non-fatty foods; Fruits / Vegetables; and other manufactured products.</p> <p>CEHI has also provided equipment to its Member States under the ENCORE Project, reviewed above, to enhance their individual water testing capabilities.</p>
	ECLAC	<ul style="list-style-type: none"> Produced a study entitled "New Technologies in Agriculture" (October 2001), exploring the need for new technologies in agriculture. Prepared: The Development of Science and Technology Indicators in the Caribbean (June 2002) Prepared: The Adoption and Application of Information Technology in the Caribbean and its Contribution to Scientific, Technical and Industrial Development (January 2003) Prepared: The Impact of New Technologies on the Development Process in the Caribbean (January 2003)

	PAHO	<ul style="list-style-type: none"> ▪ PAHO developed, during 1997-2002, a low cost alternative technology for submarine outfall for final disposal of sewage for coastal residences. ▪ <i>Strengthening of Laboratories for Environmental Samples</i> <ul style="list-style-type: none"> - Establishment of quality assurance and quality control programs. - Establishment of programmes for the qualification, certification and accreditation systems of environmental laboratories, according to international standards. - Application of standardized analytical methods. - Development of monitoring and methodological research programs.
	UWICED	Prepared UWICED Occasional Paper Series No. 6 - The Asbestos Problem in Jamaica - a Review of the nature, sources of exposure and health effects of asbestos minerals in Jamaica.

3.8 Human Resource Development

As recognised in the SIDS Programme of Action, the small populations of most SIDS present a situation in which, in many instances, the required number of skilled persons is not available to perform the range of technical and other functions that are required for the promotion of sustainable development. Added to this is the phenomenon of the emigration of SIDS nationals who have been trained at considerable expense to the State leading to the importation, at even greater cost, of trained personnel. Within the Caribbean, a number of institutions attempt to provide resources to train nationals of SIDS with a view to promoting self-sufficiency in skilled personnel. Some of the activities undertaken in this context are set out hereunder:

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Human Resources Development	IMO	<p>Capacity-building for ship surveying and inspection</p> <p>Under this programme, IMO executed a national programme for Trinidad and Tobago which: (a) developed systems and procedures for the national maritime administration in respect of the survey of national vessels and the inspection of foreign vessels calling at the country's ports; and (b) trained national ship surveyors and inspectors locally, through study tours abroad, including at the World Maritime University.</p> <p>The programme was financed by the Governments of Trinidad and Tobago and the United Kingdom, and the International Transport Workers' Federation. It started in 1997 and was completed in 2002, at a cost of US\$290,000.</p>

		<p>Further assistance in maritime training</p> <p>Execution of a subregional programme for the development of capacity in the maritime administrations and training centres of the Caribbean for the effective implementation of the revised STCW Convention dealing with the training and certification of seafarers.</p> <p>The programme was financed by IMO and the International Transport Workers' Federation. It started in 1997 and will be completed in 2003 at a cost of US\$200,000.</p>
	CMO	<ul style="list-style-type: none"> • A large number of short-term fellowships and a limited number of long-term fellowships have been awarded to the Meteorological Services of CMO countries in meteorology, hydrology, climate applications, agrometeorology, computer sciences, management, etc. <p>Attempts are being made to increase the number of female professionals in meteorology, hydrology and related sciences.</p>
	ITU	<p>Organised seminars in capacity-building, some through the development of a Centre of Excellence for the Americas region. This is a virtual centre in which a significant Caribbean component is envisaged, particularly from the tertiary institutions such as UWI.</p>
	CEHI	<p>CEHI has recently submitted proposals for two regional training projects. The first is to be carried out in conjunction with Université de Laval in Quebec, Canada. This is a capacity-building project with the long-term goal of enhancing knowledge-based decision-making for sustainable development in the Caribbean. Expected outputs include the improved capacity of national authorities to address health and environment issues by integrating EH criteria into public and private decision-making. The training project will focus on delivering problem-based on-site or through distance training to local EH professionals to allow for flexibility in adapting to local contexts.</p> <p>The second training project is a long-term Wastewater Operator Training and Certification Program for the Americas that includes application training for environmental health officers. The programme includes treatment plant visits to audit plant and operator performances, and make recommendations for improvement.</p> <p>Apart from these two large-scale upcoming projects, training is one of CEHI's key focal areas. The Institute has conducted national and regional workshops, in-country training, and one-on-one training through attachments, associate and internship programmes at CEHI headquarters in St. Lucia. Recent capacity-building programmes include training in Environmental Health Impact Assessment; Water Quality analyses and Microbiological Techniques; Pesticide analyses; Information systems; Landfill Monitoring; Operation and Maintenance of Sewage Treatment Facilities; Advance Anaerobic</p>

		Wastewater Treatment, Best Practices in Liquid and Solid Waste Management for the Tourism Industry; and Sanitary surveys
	PAHO	<ul style="list-style-type: none"> ▪ PAHO collaborated with CARICOM and CEHI to harmonize the curriculum of the Environmental Health programs of the Tertiary Training Institutions. • A Human Resource Strategy for Environmental Health professionals was developed by PAHO in collaboration with CARICOM and CEHI. This strategy is currently called the "Three Step-Training Program". The objective of this initiative is to enhance the management of the Environmental Health Programme in the CARICOM States and introduce a cost-effective approach to the training of Environmental Health professionals in the Caribbean
	UWICED	<p>Published: UWICED Occasional Paper Series No. 3 - A Review of Tertiary Level Courses in Barbados Relevant to Sustainable Development in the Caribbean; UWICED Occasional Paper Series No. 4 - Education for Sustainable Development: An Assessment of Graduate Programs at Selected Canadian Universities; UWICED Occasional Paper Series No. 8: Trends in Employment for Persons with Training and Qualifications in Environmental Studies in the Caribbean which provides information on a number of labour market issues in order to guide programme development in CED i.e. to determine the employment marketability of local graduates in environmental studies; to determine whether courses and research programmes presently available in the subregion adequately equip students for the Caribbean 'Environmental Market place'; to establish the current and future needs of the job market for environmental professionals; and to establish what improvements would be necessary in coursework and research within UWI and other tertiary institutions to meet these needs.</p> <p>Published UWICED Occasional Paper Series No. 14: Bluefields - A socio-economic Baseline Study to Be used in The community Development Process.</p>

3.9 Management of Wastes

Caribbean SIDS have been making steady progress in the processing, disposal and overall management of wastes, assisted by a number of projects. The issue of waste from ships and medical institutions and the disposal of hazardous wastes are among the areas requiring greatest attention. Activities undertaken, as well as envisaged, by the agencies members of the Inter-Agency Collaborating Group (IACG) in this area are summarised as follows:

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Management of Wastes	UNEP	<p>Published: " IMA/SIDS Waste Management Strategy with special emphasis on Minimization and Resource Recovery" (in French and English); (ii) "A Directory of Environmentally Sound Technologies for the Integrated Management of Solid, Liquid, and Hazardous Waste for Small Island Developing States (SIDS) in the IMA/SIDS region" (in French and English) and (iii) "Guidelines for Integrated Management of Solid, Liquid and Hazardous Waste in SIDS" (in English), (iv) A Directory of Environmentally Sound Technologies for the Integrated Management of Solid, Liquid, and Hazardous Waste for Small Island Developing States (SIDS) in the Pacific region</p> <p>UNEP/GPA organized multi-stakeholder regional meetings to implement the UNEP/WHO/Habitat/WSSCC strategic action plan on municipal wastewater.</p> <p>Conducted a workshop to encourage and facilitate early ratification of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain hazardous Chemicals and Pesticides in International Trade and related conventions (e.g. the Basel Convention) was held for the English speaking Caribbean countries in Jamaica, in April 2002</p> <p>UNEP Chemicals and GEF held a workshop to promote the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) for the English-speaking Caribbean countries in Trinidad and Tobago, from 4 - 8 June 2002.</p>
	CEHI	<p>Biomedical waste management</p> <p>The Caribbean Environmental Health Institute (CEHI) was requested by agencies within its member states to provide assistance to address the issue of Bio-medical Waste disposal. The Institute, in addressing these concerns, has conducted a regional biomedical waste management training workshop. The workshop targeted: Hospital Managers and other administrators of health care establishments. Environmental Health Professionals.</p>

		<p>Solid Waste Managers or personnel with responsibility for waste collection, treatment and disposal.</p> <p>CEHI plans to further develop its Biomedical Waste programme, initially through the development of a biomedical waste management page on its website.</p> <p>Cleaner Production Project:</p> <p>The overall objective of CEHI's involvement in this area is to contribute to sustainable development by assisting Small, Medium Sized and Micro-Enterprises to adopt cleaner production technology and processes so as to more effectively preserve the environment and reduce pollution while remaining economically competitive and viable. Waste management is a significant aspect of this project. The Project is being undertaken by CEHI in partnership with subregional agencies such as the Caribbean Export Development Agency (CEDA); the Caribbean Association of Industry and Commerce (CAIC); the Caribbean Tourism Organisation (CTO); and CARICOM. At the national level, national small enterprise development units (SEDUs) and manufacturers associations are also involved.</p>
	PAHO	<ul style="list-style-type: none"> ▪ PAHO's technical cooperation in waste management includes training in different aspects of management of solid waste and hazardous waste and provision of assistance to countries for development of national policies. Other activities include: <ul style="list-style-type: none"> - Development of a Distant Education course in collaboration with ECLAC on Municipal waste Management for the Latin America and the Caribbean region; - Evaluation, in 2002, of Municipal Waste Management in all countries of the Americas <p>Development of sectoral studies in Haiti and Suriname and in several countries of Latin America.</p>
	UWICED	<p>Foster Wheeler Waste Management Project: This is an initiative to address the subregion's growing pollution situation arising from waste management problems. The project addresses and defines the complexity of waste generation and disposal systems: the weaknesses and the opportunities. Its objectives are based on the work done by UWICED over the last five years and include workshops, business plans, feasibility studies and consultations. The specific goals of the project are to:</p> <p>[a] Increase awareness among the public and private sectors and the general population, on the extent of the current problem, through the preparation of a subregional report [b] Assist in building the local capacity for waste management through the development of new graduate courses and specialized diploma and certificate courses at the UWI and community colleges across the region [c] Provide information support [d] Implement two commercial ventures in collaboration with the private sector that demonstrate cost recovery approaches to waste management [e] Collaborate with researchers at foreign universities, who are investigating waste management</p>

		capacity-building in the Caribbean and similar developing countries. UWICED Occasional Paper Series No. 12: Gasification - a Solution to Solid Waste Disposal Problems for Belize has also been published.
	IMO	<p>Prevention and control of marine pollution</p> <p>Execution of a regional programme to further develop capacities in the Caribbean with respect to the effective implementation of: (a) the MARPOL Convention dealing with the prevention of marine pollution from ships; and (b) the OPRC Convention dealing with combating and control of marine pollution caused by ships.</p> <p>Total funding required for the programme was US\$320,000, of which IMO is presently financing US\$200,000. The programme started in 2002 and will be completed in 2003.</p>

As recognised in the SIDS Programme of Action, sustainable development in SIDS depends largely on coastal and marine resources. The heavy dependence on these resources therefore underscores the need for their effective management. Further, the development and management of programmes designed to achieve the ecologically and economically sustainable utilization of coastal and marine resources remain major challenges for Caribbean SIDS. Some of the major activities executed or envisaged by regional and regionally based agencies in the area of *coastal and marine resources* are summarised hereunder:

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Coastal and Marine Resources	UNEP	<p>Initiated an integrated environmental assessment of coastal and marine areas of the Caribbean. This is a result of the environment outlook process 2000 in the Caribbean.</p> <p>UNEP is the regional coordinator for the UNEP GEF Project on Rehabilitation of Contaminated Bays and the implementing agency for the GEF project "Integrating Management of Watersheds and Coastal Areas in Small Island Developing States of the Caribbean"</p> <p>UNEP/GPA held consultative, multi-stakeholder Regional Meetings to further implement the UNEP/WHO/Habitat/WSSCC Strategic Action Plan on Municipal Wastewater. Workshops were held for the South Pacific, Wider Caribbean and East Africa in 2001.</p> <p>The Caribbean Environment Programme (CEP) is responsible for co-ordinating subregional action for the protection and development of the marine environment of the Wider Caribbean. This contributes to the implementation of UN General Assembly Resolution 55/203 "Promoting an integrated management approach to the Caribbean Sea area in context of sustainable development"</p> <p>Establishment of UNEP/GPA Clearing house mechanism- Regional nodes have been developed through the Regional Seas programmes.</p>

		<p>Through the International Coral Reef Action Network (ICRAN), UNEP is working with a number of SIDS to improve coral reef management, assessment and community involvement.</p> <p>Developed guidelines for Integrated Coastal Zone Management in the Caribbean. This includes sand dune recovery and sustainable tourism guidelines.</p> <p>UNEP/GPA organized brainstorming meetings on Physical Alteration of Habitats (PADH). Regional meetings were held in Cancun, Mexico, in June 2002 and Eastern Africa, in mid- July 2002.</p> <p>CAR/RCU and CEP supported sustainable tourism activities in the Caribbean, including capacity- building and technical assistance</p> <p>CEP is developing a methodological guide to studies of contaminated bays in the Caribbean. A workshop of experts from the countries that participated in the projects (both UNEP and UNDP projects) was convened in June 1999, to review the draft guide.</p> <p>CAR/RCU in co-ordination with REMPEITC-Carib, sponsored a second course for On-Scene Commanders (OSC) in Ft. Lauderdale, Florida from 22-26 February 1999. The "IMO Model Course Level II provides information and training for the OSC in the event of an oil spill in marine waters.</p> <p>Workshop convened by CAR/RCU and IMO in May 2002, in Jamaica, on Marine Pollution Prevention and Environmental Management in Ports in the Wider Caribbean Region</p> <p>Convened forum for presentations and papers from each member country of the Caribbean Environment Programme at the workshop on Environmentally Sound Technologies for Sewage Treatment in collaboration with UNEP's International Environmental Technology Centre (IETC) in Osaka, Japan.</p> <p>CAR/RCU has developed training manual and modules for managers of marine protected areas (MPAs) in collaboration with several partners and with funding provided by the CZMC, UNEP and the US Government (English and Spanish, 1999 to 2002).</p>
	CEHI	<p>LBS Protocol</p> <p>CEHI has collaborated with UNEP-CAR/RCU on the development of the Protocol Concerning Pollution from Land-Based Sources and Activities (LBS Protocol) to the Cartagena Convention. The Institute carried out technical work and provided input into the Protocol, in particular, to Annexe 3 on domestic wastewater guidelines. The Institute also hosted, in conjunction with UNEP-CAR/RCU, subregional meetings for the development of the LBS Protocol</p>

		CEHI also routinely carries out coastal water quality testing and has conducted detailed coastal water pollution studies in its Member States.
	PAHO	<ul style="list-style-type: none"> PAHO's contribution to coastal and marine protection has been effected through technical assistance to the member countries in training on sewage disposal and development of sectoral policies, regulation and legislation regarding wastewater management. In collaboration with the University of the West Indies (UWI) and the Water and Wastewater Association (CWWA), PAHO sponsored, on 8-12 July 2002, an international course on "Alternative for Submarine Outfall for Final Disposal of Sewage for Coastal Cities in The Caribbean". Participants included Caribbean professionals from water and wastewater companies, control agencies, consulting firms, construction firms, and tourist industry and university professors attended the course. With the technical assistance of PAHO, sectoral policy and regulation for wastewater disposal was developed in Grenada and St. Lucia, in 2000 and 2001. In Anguilla and Montserrat, training was provided in wastewater treatment in 2003.
	UWICED	Publication by UWICED et al of GEO Marine Report for the Wider Caribbean Region . This report focuses on: [a] the state of the Coastal Marine Environment [b] Pressures on the Coastal Marine Environment [c] Exploitation of Coastal and Marine Resources [d] Land-Based Contaminants [e] Vulnerability of Natural Disasters and Climate Change [f] Natural Disaster effects on the coastal-marine environment [g] Climate Change effects on the coastal-marine environment [h] Multilateral Environmental Agreements - Regional and Global [i] National Legal and Institutional Frameworks.

3.10 Tourism

Tourism remains the mainstay of the economies of many Caribbean SIDS and, in some instances, contributes more than 80 per cent of GNP. The continued vibrancy of this industry demands proper management of the environmental and other resources on which it is based, especially the coastal and marine areas which manifest an inextricable inter-dependence. The development and enforcement of standards to prevent degradation of the natural environment are major considerations in this regard. The major activities of regional and regionally based agencies in the area of Tourism Resources are summarised as follows:

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
	ECLAC	(1) Completed studies on the contribution of the yachting sector to the economies (Antigua and Barbuda; Grenada, Carriacou and Petite Martinique; St. Lucia; St. Maarten; St. Vincent and the Grenadines; and Trinidad and Tobago).

		<p>(2) Devised a Regional Yachting Policy (2001-2002) for the continuation and development of the sector in the Caribbean.</p> <p>In collaboration with the Caribbean Alliance for Sustainable Tourism, published a book "Environmental Technology in Caribbean Hotels" in 2000, which outlines technologies that could be used in waste management, to mitigate health problems in the tourism sector.</p> <p>Produced a post-disaster tourism policy for Montserrat.</p>
Tourism Resources	UNEP	<p>Convened the Global Conference on Sustainable Tourism in Small Island States (Lanzarote, October 1998) and a regional seminar on 'Sustainable Tourism and Competitiveness in the Small Islands of the Mediterranean' (Capri island, Italy, 17-20 May 2000) in cooperation with the World Tourism Organisation.</p> <p>Promotion of voluntary initiatives and partnerships in sustainable tourism development via UNEP/UNESCO/WTO Tour Operators initiative for sustainable tourism development (Berlin, March 2000).</p> <p>Contributed to the International Coral Reef Information Network (ICRIN) tourism component. Communication products designed. The objective of this activity is to support and amplify local, regional and global efforts to protect coral reefs.</p> <p>UNEP- CAR/RCU, in co-operation with U.S. AID implemented the Caribbean Environment Network (CEN) Project with the goal of promoting the rational use and conservation of coastal zones and resources in the Wider Caribbean region, through: improving environmental quality and the conservation of natural resources and reducing environmental impacts by tourism on coastal and marine resources</p>
	CEHI	CEHI routinely conducts wastewater and water testing for hotels
	PAHO	<p>In 1993, PAHO convened, in The Bahamas, the first subregional meeting in the Caribbean focusing in linkages between health and tourism. This conference on Environmental Health and Sustainable Tourism Initiative was organized in collaboration with CEHI, OAS and the Government of The Bahamas.</p> <p>Following this conference, PAHO supported several activities dealing with health and tourism issues in collaboration with CTO, and in particular the Health and Tourism Sensitization project whose objective was to sensitize health and tourism managers on the linkages between health and tourism. As part of this project, Four Training of Trainers workshops were held: in Barbados in December 2000, in St Kitts and Nevis, in June 2001; in Guadeloupe in November 2001; and in the Dominican Republic, in March 2002.</p>

		<ul style="list-style-type: none"> CAREC/PAHO has developed environmental standards for hotel management through the Caribbean Tourism, Health & Resource Conservation Project (QTC Project) executed in collaboration with CAST. PAHO developed a manual on "Health and Hygiene in the Hospitality Sector: A Guide, addressed to the hospitality sector which was published in June 2000. <p>PAHO provide continuous advisory guidance to CTO on health matters.</p>
	UWICED	<p>UWICED published Occasional Paper Series No. 2 - Welcome to the Beachettes: A Study of the Development of Residential Tourism in Montserrat which sets out to trace the history of the development of residential tourism in Montserrat and to assess its economic, social and environmental impacts. UWICED Occasional Paper Series No. 2: <i>The Eco-Tourism Opportunity in the Caribbean</i> examines the role of tourism in the Caribbean and the emerging eco-tourism opportunities. More specifically, UWICED examines the role that tourism can play as a lead sector in conserving the natural and built environment. UWICED Occasional Paper Series No. 17: <i>Eco-tourism in Guyana</i> presents an overview of Guyana's Tourism Industry focusing on the country's eco-tourism thrust, given that this large country has been able to retain its pristine environment.</p>

3.11 Biodiversity Resources

SIDS are typically endowed with a wide species diversity and endemism; and relatively small, fragile ecosystems which manifest low degrees of resilience but which, at the same time, provide a wide range of environmental services. This biodiversity faces a number of threats so that the development and effective implementation of effective schemes for the preservation, management and rational use of these resources are critical to the sustainable development prospects of SIDS. The activities of regional and regionally based Agencies involved in maintaining and promoting the wise use of the biodiversity resources in the SIDS of the Caribbean are set out below:

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Biodiversity Resources	UNEP	<p>Support ICRAN pilot activities in Caribbean, East Africa and East Asia. SIDS are included in the Global Coral Reef Monitoring Network (GCRMN), partner of ICRAN and "Reefs at Risk" reports.</p> <p>Supports the development of National Biodiversity Strategies and Action Plans; and national bio-safety frameworks in SIDS.</p> <p>In support to the Specially Protected Areas and Wildlife (SPA) Protocol, UNEP has assisted Caribbean SIDS with species recovery</p>

		plans and guidelines with respect to turtles, manatees and other marine mammals, coral reef assessment, monitoring and management education and awareness and provided funds for technical assistance. UNEP-CAR/RCU has produced guidelines and training for management of marine protected areas
	UWICED	Published a Paper embodying <i>An Economic Analysis of Coral Reef Protection in Negril, Jamaica</i> which investigates the preservation in Negril, Jamaica, from an economic perspective, by determining the economic benefits that would accrue to visitors and to Negril's tourism industry, from the implementation of projects aimed at protecting the Town's Coral Reefs.
PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Land Resources	CEHI	The UNCCD and CARICOM are currently collaborating to address desertification in the CARICOM countries. The two bodies have established a joint framework of action to fight land degradation, drought and water shortages. Priority actions to be undertaken include workshop preparation; national awareness activities, capacity-building and development of national programmes. CEHI, as the technical arm of CARICOM, providing technical and advisory services to Member States in all areas of environmental management and environmental health management, is acting on behalf of CARICOM in this joint venture.
	ECLAC	<ul style="list-style-type: none"> • Through the Planners Network, will be examining and inviting discussion on land-use in the Caribbean and alternative land-use systems. The Network is no longer housed at ECLAC and is to operate from another institution in the near future. • Developed a new land-use policy for St. Lucia towards the development of a new Physical Planning and Development Control Act. The project was completed and the Act passed. • Concluded studies in the British Virgin Islands, St. Vincent and the Grenadines, and Tobago, 2001-2002, on the impact of tourism on the market price of land and on possible mechanisms for preventing or dealing with the adverse effects of the change of land ownership from locals to aliens.
	UWICED	The Vetiver (<i>Vetiveria zizanioides</i> aka "khus-khus") grass barrier will be used as an effective and relatively inexpensive soil and water conservation measure, a method which is promoted globally by organizations such as FAO and the World Bank. The goal of this project is to offer a method to rapidly reduce soil erosion and, as a result, assist in improving and maintaining the sustainability of the natural resource base of the middle and upper catchments of watersheds island-wide. The income levels and welfare of the rural communities within the watersheds are also expected to improve.

3.12 Health/HIV/AIDS

HIV/AIDS has emerged as a particular challenge for a number of Caribbean SIDS. It has a disastrous impact on human development, poverty, social cohesion and gender equality in the subregion. Evidently, the Caribbean is the site with the highest incidence of cases in the Americas and the fastest growing prevalence rate after sub-Saharan Africa.

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Health/HIV	PAHO	<p>PAHO, in collaboration with CARICOM, has developed a Strategic Plan for Non-Communicable Disease (NCD) prevention in the Caribbean. Work is ongoing on the implementation of the Caribbean Lifestyle Initiative to address the risk factors for NCDs.</p> <p>Health promotion strategies have been applied for the implementation of the Caribbean Cooperation in Health Initiative Phase II.</p> <p>A Strategic Plan for Mental Health has also been drafted. Emphasis has been placed on supporting mental health reform activities including updating of legislation. One approach used is Technical Cooperation among Countries to strengthen the mental health programme.</p> <p>In collaboration with UNAIDS and CAREC, strategic plans for HIV/AIDS were drawn up for all countries. This entailed situation and response analyses and sector-wide planning. During the last year, PAHO has helped the countries with operationalization of the strategic plans.</p> <p>PAHO has assisted the countries with the formation of the Country Coordinating Mechanism (CCMs) for HIV/AIDS involving elements of civil society.</p> <p>PAHO facilitated the collaboration with the Clinton Foundation for other resource mobilization activities.</p> <p>The Family Health Unit facilitated the institutionalization of the integration of the prevention of the Mother-to-Child-Transmission (p-MTCT) into the traditional Maternal and Child Health (MCH) services.</p> <p>PAHO/CPC coordinated the collation of the MDG core data set for reporting purposes.</p> <p>PAHO/CPC coordinated the health aspects of the CARICOM task forces on Gender mainstreaming with HIV/AIDS programs and child rights and child protection with respect to HIV/AIDS.</p>
PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Energy Resources	UWICED	<p>A) UWICED/OLADE/GTZ/ECLAC ENERGY AND SUSTAINABLE DEVELOPMENT PROJECT Convened a Workshop on Energy and Sustainable Development Kingston</p>

		<p>Jamaica, April 27-30, 1998 Topics covered: [a] Current Situation and Energy Forecasting for Latin America and the Caribbean: An Overview [b] Technological Options for Sustainable Energy in the Caribbean [c] Energy Sector Modernization in Latin America and the Caribbean: General Aspects [d] Status of Reforms in the Energy Subsectors in the Caribbean, 1997[e] Energy and Sustainable Development: Concepts Dimensions and Indicators [f] Energy and Sustainable Development in the Caribbean: Preliminary Results of E&D Project OLADE/ECLAC/GTZ [g] Approaches to energy policy formulation: target approach, instruments approach, process approach [h] Classification of problems. Analysis of actors.</p> <p>(B) UNDP/GEF/OLADE PDF PROJECT: DEVELOPMENT OF ENERGY EFFICIENCY IN THE CARIBBEAN Kingston, Jamaica, November 8-9, 2001, Review of Research Issues and Foci for Executing Agencies and OLADE, viz:</p> <ol style="list-style-type: none"> 1. Energy efficiency: concepts, terminology, financing; 2. Gap between primary energy and final service: conservation and efficiency potentials. 3. Policies: energy efficiency in the different structures of the sector; 4. Barriers: identification of foci. UWICED Occasional Paper Series No. 7: The Solar Water - Heating Industry in Barbados - An Illustrative Approach; UWICED Occasional Paper Series No. 9: Power By Efficiency in St.Lucia- The Prospect of Meeting Electricity Needs through Energy Efficiency; UWICED Occasional Paper Series No. 10: Electricity Generation From Woodwaste - examines the level of wood waste produced by sawmills in Crabwood Creek, and utilizes this information to determine the capacity and economic viability of a power plant that could be fuelled from wastes. UWICED Occasional Paper Series No. 15: Energy Policies for Caribbean States - The Case of St.Lucia.
PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Sustainable Development	ECLAC	<p>Prepared: Implementation of the SIDS Programme of action in the Caribbean: A conceptual framework (March 2003).</p> <p>Prepared: Developments in relation to the proposal for securing the international recognition of the Caribbean Sea as a special area in the context of Sustainable Development (March 2003)</p> <p>Currently working on the development of a Social Vulnerability Index (SVI) as part of the process of developing an overall vulnerability index for SIDS.</p> <p>Published: Development of Services in the Caribbean (January 2003).</p> <p>Conducted seminars on (1) Protocol, Diplomacy and Ethics and (2) the CARICOM Single Market and Economy (Montserrat, December 2002)</p>

3.13 Trade and Globalisation

The more strategic and profitable integration of Caribbean SIDS into the wider international economy is a necessity if the benefits of the process of globalisation are to be garnered towards their sustainable development. The constraints on the capacity of SIDS to diversify their economies and to overcome issues related to their degree of competitiveness and to find effective insertion into the increasingly globalised economy have been well recognised the SIDS Programme of Action. To promote the integration of SIDS into the global economy, the following activities have been undertaken by the institutions are mentioned:

PRIORITY AREA OF SIDS POA	AGENCY	ACTION
Trade and Globalisation	ECLAC	<ul style="list-style-type: none"> • Conducted a social audit of the sugar industry in St. Kitts and Nevis, incorporating recommendations and scenarios in the context of the scaling down of the industry (2002). • Provides technical support to Caribbean countries and is represented at the FTAA meetings. Also continues to support FTAA negotiations through membership on the Tripartite Committee of the FTAA Consultative Group on Smaller Economies. • Conducted workshops on the FTAA, competitiveness and standards (Oct-Nov 1999). • Developed a trade database for Member States (2003) and has been training officials from member States in its use. • Prepared Study on Incorporation of Special and Differential Treatment in International Trade Agreements and the Implications for Caribbean Countries (May 2002). • Prepared Study on the offshore financial sector and its contribution to employment, revenue and foreign exchange in selected Caribbean countries. • Prepared Studies on (i) the Implications of Trade Liberalisation and Fiscal Policies on the Smaller Economies of Latin America and the Caribbean (Sept. 1999; (ii) on Trade Policy in the Caribbean, incorporating an overview of the main trade measures utilised in the subregion, and their effectiveness and (iii) progress made by Caribbean countries in the WTO built-in agenda on services and intellectual property rights (June 2001). • Published document "The Impact of Foreign Direct Investment on Patterns of Specialisation in the Caribbean" (2003)
	ILO	<ul style="list-style-type: none"> • Produced a paper for ECLAC outlining the impact of world trade and liberalisation on the Caribbean Economies and possibilities within this context (2001). • Conducted a subregional tripartite seminar (Nov. 2001) "On the high-road to productivity and competitiveness in the Caribbean through worker participation and equality" • Conducted the "First Caribbean Enterprise Forum" (January 2001) which examined ways to increase the competitiveness, profitability and productivity of regional firms.

	ITU	<ul style="list-style-type: none"> Has proceeded with the reform of the telecommunications sector in accordance with the WTO and ITU agreements, by addressing legal, financial and technical issues and providing relevant advice on projects.
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3.14 Crime and Drugs

Due to their limited capacity to undertake effective surveillance of their air and sea spaces, Caribbean SIDS are often used as transshipment points for the traffic in illicit drugs. There is also the growing threat of drug addiction, fuelled by high levels of poverty and unemployment, especially among young persons. The Caribbean is regarded as a major transshipment point for the illicit drug trade and the need has been recognised for the introduction of programmes to safeguard the societies from the effects of illicit drug use and to suppress the related activities. The organization most active in this area is the United Nations Office on Drugs and Crime (UNODC) a number of whose activities are set out below:

PRIORITY AREA OF SIDS	ACTIONS
Drugs and Crime	
Drug demand reduction programme for Guyana	This project represents an integrated approach to drug demand reduction in Guyana. It targets children, youth and women in especially difficult circumstances. It focuses on community-based drug demand reduction; preventive education; and treatment and rehabilitation. It aims to build capacity in communities, NGOs and institutions to deal with drug-related issues.
Drug abuse prevention programme for youth at risk in Jamaica	The overall objective of the project is to reduce the vulnerability of youth in the 14 to 24-age cohort to substance abuse, trafficking and related high-risk behaviour. Also, to obtain a better understanding of the use of drugs among young people and establish an easily-accessible body of information, which will sensitize and inform stakeholders in the planning, monitoring and evaluation of anti-substance abuse initiatives. Activities focus on research, preventive education, skills training, information, policy support and capacity- building of youth programmes operated by NGOs and the Government in the prevention of substance abuse and high-risk behaviour.
Prevention of high-risk behaviour among adolescents and youths in Los Alcarrizos, Dominican Republic	The project targets youth-at-risk in Los Alcarrizos, a marginalized district of the capital, Santo Domingo. In order to address some of the risk factors, the project will work around three strategic components: (a) preventive education in schools; (b) promotion of healthy lifestyles; and (c) alternatives to drug abuse and violence.

Assistance to the Direccion Nacional de Control de Drogas in the strengthening of the National drug prevention programme	This project aims at contributing to the formulation of a National Drug Control Plan and ensure implementation of the drug demand reduction component of that Plan at the national, provincial and municipal levels.
Demand Reduction in the Republic of Haiti	The project provides concrete data about the prevalence of drug abuse in Haiti. Based on the drug abuse assessment and following research, coherent and credible projects will be identified, formulated and presented for support and financing to the donor community.
Global Assessment Programme (GAP)	UNODC assists in the implementation of the Caribbean Drug Information Network (CARIDIN) whose primary objective is to strengthen the capacity of the Caribbean Forum (CARIFORUM) governments; technical entities; and regional agencies to respond to changing drug abuse patterns and trends; and to contribute to the abatement of drug abuse in the subregion. Under the umbrella of CARIDIN, GAP has been providing support to Antigua and Barbuda; the Bahamas; St. Lucia and St. Vincent and the Grenadines, for the implementation of national school surveys. In addition, GAP has been providing support to 11 countries for the establishment of national drug information networks that will feed into CARIDIN. GAP also supports the implementation of focus assessment studies that use qualitative and quantitative methods to collect information among difficult- to- reach groups and vulnerable populations. A focus assessment study is being implemented in St. Kitts and Nevis. Further focus assessment studies are being undertaken in 2003.
Precursor control legislation in the Caribbean to combat illicit drug production	The objective of this project is to develop or update national precursor control laws and regulations in 14 Caribbean countries. Full account will be taken of the provisions of article 12 of the 1988 United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances and related UN resolutions, and of the Model Regulations of the Inter-American Drug Abuse Control Commission (OAS/CICAD) to Control Precursors and Essential Chemicals. The project will cooperate closely with OAS/CICAD on all substantive aspects.
Upgrade the judicial system to fight drug-related crime in the Dominican Republic	To increase the capacity, through intensive training of Dominican drug control, anti-money laundering and anti-corruption officials. To increase the capacity and experience, through direct strategic advice, in specific cases, of Dominican drug control, anti-money laundering and anti-corruption officials. To increase the capacity, through the design, development and installation of a comprehensive national computer database system, of

	Dominican drug control, anti-money laundering and anti-corruption officials.
Drug control and demand reduction assistance to Cuba	The project allows for enhancement of human resource capacity through specialized training at both in and out – of- country levels, together with experts from the subregion and elsewhere, to assist in developing training programmes for the specialized departments in both demand reduction and interdiction fields.
Regional Coordination of Drug Control Activities in the Caribbean Region	The Caribbean Coordination Mechanism (CCM) has 3 mandates: (i) monitoring the implementation of the SIDS POA; (ii) publishing documents to assist with policy decision making; and (iii) compiling donor assistance information.
Regional drug control communication and advocacy programme	This Programme aims at increased public awareness of the social harm caused by drug trafficking and abuse. It aims to promote a popular culture that is resistant to the temptations related to drug use and trafficking and one that is supportive of anti-drug and anti-corruption policies and actions. A Caribbean-wide multi-media programme will be launched, including press relations, journalist training, the production of TV and radio spots and shows, as well as some Internet activity. The media work is to improve drug-related information available to the public, but also, to provide a forum for public discussion. The project will engage in activities to promote healthy lifestyles around the theme of sports.
Sentencing for drug and drug-related offences in Barbados and the OECS	The project aims to reduce the existing disparities by providing the member States of the OECS and Barbados with an analysis of the current practice and sentencing guidelines with a view to the adoption of a harmonized approach to this matter.
Youth-centred drug abuse and HIV/AIDS prevention in Antigua and Barbuda and Grenada	This project undertakes research to better understand the relationship between drug use and HIV/AIDS in Antigua and Barbuda and Grenada. In order to provide appropriate information to youth, a peer education programme and alternative activities will then be developed. These will not only provide life-skills training to youth, but also aim to empower them by ensuring their participation in the planning, implementation and organization of these activities. A youth forum will be established to facilitate the exchange of information, to discuss issues and problems affecting youth and to identify possible solutions.

3.15 The Inter-Agency Collaborative Group (IACG): Success Stories

In the responses provided by the Agencies to the questionnaire administered by the Subregional Headquarters of ECLAC for the Caribbean, particular attention was drawn to what they consider to be their most successful implementation experiences; the major contributing to such successes; and the principal lessons learned. These are tabulated below:

International Maritime Organisation

Successful initiatives	Major contributing factors	Lessons Learnt
Development of model maritime legislation	Recognition of a need that was common to most Caribbean SIDS.	The development of models that can be adapted to national requirements provides more efficient support in a sector that has permanently evolving rules and standards to be applied.
Establishment of REMPEITC-Carib (a regional marine pollution response, information and training Centre)	Success of initial pilot phase subsequently recognized by States Parties to the Cartagena Convention through the formal institutionalisation of the Centre	In addition to the political will to establish regional institutions providing environmental support, it is also necessary to continuously promote Government and industry inputs and coordination.
Re-instatement of a Regional Maritime Adviser	Willingness of CARICOM and UNDP to ensure support for maritime transport development in the Caribbean.	The availability of maritime safety support at field level within the subregion, has enabled greater progress to be made over the last 5 years than previously, especially in terms of identification of requirements and preparation of national/subregional action plans.

Caribbean Meteorological Organisation

Successful initiatives	Major contributing factors	Lessons Learnt
Strengthening of National Meteorological Services through WMO-Finland SIDS-Caribbean Project to improve regional ability in relation to climate change issues.	Close relationship between CMO, participating countries, donor country and WMO, which is implementing on behalf of CMO and other regional SIDS.	Donors prefer to implement regional projects through regional institutions with international links.
Upgrade of regional meteorological tele-communication systems, workstation and data	Common international data needs between Caribbean SIDS and non-regional countries facilitate rapid project implementation.	SIDS governments have difficulties keeping up with rapidly changing technologies and increasing costs. The subregional approach has proven more

processing capabilities for international exchange of weather, climate and related scientific data.		successful in keeping systems and training up-to-date.
Regular specialized meteorological training.	Well-established & well-financed training programme in place.	Annual demand exceeds capacity. Participation by extra-regional SIDS is feasible on a periodic basis.
Upgrade of regional early warning system for severe weather in Caribbean with new meteorological satellite systems, weather radar systems.	Joint EU, CARIFORUM and CMO efforts in radar project. Major support to CMO by WMO in all areas. Collaboration with other non-English-speaking Caribbean SIDS.	Large complicated projects take long to implement require longer periods of implementation.

United Nations Environmental Programme

Successful initiatives	Major contributing factors	Lessons Learnt
Initiated an integrated environmental assessment of coastal and marine areas of the Caribbean, a result of the environment outlook process 2000 in the Caribbean.	The effectiveness arising from its status as the first regional assessment embodying a complete and integrated perspective	Funds should be retained to finance periodic assessments. Greater advantage should be taken of modern IT technologies for dissemination of information.
Through the International Coral Reef Action Network (ICRAN), UNEP is working with number of SIDS to improve coral reef management, assessment and community involvement.	Ongoing regional implementation of a global initiative based on various sources of information and experiences.	Network development and strengthening are central to success of actions.
CAR/RCU has developed training manual and modules for managers of marine protected areas (MPAs) in collaboration with several partners and with funding provided by the CZMC, UNEP and the US Government (English and Spanish, 1999 to 2002).	Achievement of extensive outreach at the community level, supported by the utilisation of local technical capabilities.	Further support for replicability and update is necessary to increase positive impact of activity.
UNEP-CAR/RCU, in co-operation with U.S. AID	The recognized relevance of the project to a large number of	The importance of increasing the use of the materials produced during the

implemented the Caribbean Environment Network (CEN) Project. The goal of the CEN Project is to promote the rational use and conservation of coastal zones and resources in the Wider Caribbean region, through: improving environmental quality and the conservation of natural resources and reducing environmental impacts by tourism on coastal and marine resources	agencies and public/private sector interests. This has generated continued support from all sectors.	project in order to further expand the geographic reach of the tools developed.
In support to the Specially Protected Areas and Wildlife (SPA) Protocol, UNEP has assisted the Caribbean SIDS with species recovery plans and guidelines (turtles, manatees and other marine mammals, coral reef assessment, monitoring and management education and awareness and provided funds for technical assistance.	Efficient coordination with many local, national and regional NGOs to gather information and prepare adapted plans.	More regional coordination and national commitments are needed to produce plans for other countries.

International Telecommunication Union

Successful initiatives	Major contributing factors	Lessons Learnt
Caribbean ICT Roundtable	The recognized need for ICT development in all sectors	Need for an adequate institutional framework.
Capacity building seminars	Development of Centre of Excellence and the recognized need for more training opportunities	
Workshop on Costing and Interconnection	Liberalized telecommunication sector	Difficult for newcomers to enter the Caribbean market.
Caribbean Telecommunications Policy Forum	Recognition of the need for countries to have sound policies for the development of telecommunications/ICT	Much remains to be done in this area.
Increased cooperation with Caribbean/international organizations	The existence of cross-sectoral issues, coupled with the recognition that a number of agencies were dealing with the same issues, with insufficient.	Cooperation among agencies operating in the Caribbean needs to be improved

3.16 The Inter-Agency Collaborative Group (IACG): Constraint to Implementation and Proposals to overcome constraints

In their implementation of the SIDS POA, a number of constraints have been identified by the Agencies. These constraints span such headings as Policy; Institutional Capacity; Technical; Financial; Information Management; Training; and Legislative. Proposals for overcoming the constraints identified are tabulated as follows:

Policy

	Constraints to Implementation	Proposals to overcome Constraints
Caribbean Environmental Health Institute (CEHI)	Limited stakeholder participation in policy development.	Promote or institutionalise mechanisms for stakeholder involvement.
	Fragmented policies.	Develop holistic integrated environmental policies.
	Lack of political support for environmental policies	
Caribbean Agricultural Research and Development Institute (CARDI)	Certain countries view given subregional actions as conflicting with national sovereignties.	Need to foster greater understanding as to the benefits of subregional approaches and to address the political dimensions of subregional initiatives.
	Lack of regional co-ordination	
United Nations Development Program (UNDP)	Lack of political will to facilitate or promote policy formulation.	Need to devise awareness programmes for leaders.
Caribbean Meteorological Organisation (CMO)	National policy issues lack financial backing.	Prior commitment of finance for policy implementation

Institutional Capacity

	Constraints	Proposals to overcome Constraints
Caribbean Environmental Health Institute (CEHI)	Dispersed and fragmented responsibilities among government agencies.	Institutional restructuring with a clear definition of the roles of agencies
	Multiplicity of organizations and duplication of effort.	Implement mechanisms for institutional co-operation at the national/regional level
		Establish and strengthen regional networks
United Nations Development Program (UNDP)	Lack of financing for relevant institutions.	Need for assistance in accessing international funding.
Caribbean Meteorological Organisation	National support confined to traditional areas. Lack of support for new initiatives.	Greater use of regional institutions to guide national programmes in new areas of interest.
United Nations Environmental Program (UNEP)	Lack of clear institutional arrangements.	Co-ordinated actions and resource allocation by donors and greater commitment from national authorities.

Technical

	Constraints	Proposals to overcome Constraints
Caribbean Environmental	Lack of technical expertise.	Strengthen human resource capacity.

Health Institute (CEHI)		Develop subregional mechanisms for sharing expertise among countries.
	Absence of relevant research and data.	Develop appropriate research programmes.
United Nations Development Program (UNDP)	Lack of specialised expertise in certain critical areas.	Provision of the required training to obtain specialists.
Caribbean Meteorological Organisation (CMO)	In some cases, national capacity to handle new issues lags behind subregional and international levels.	Regional institutions need to help countries build capacity.
United Nations Environmental Program (UNEP)		
	Lack of co-ordinated response to technical needs or requests.	Improved dissemination of lessons learnt and increased replicability of training opportunities.

Financial

	Constraints	Proposals to overcome Constraints
Caribbean Environmental Health Institute (CEHI)	Inadequate budget allocation for environmental issues.	Mechanism for increased public awareness of the relevance of environmental issues and creation of a lobby for financial allocation.
	Lack of financial resources.	Mechanisms for improved fiscal management.
United Nations Development Programme (UNDP)	Prioritisation of scarce resources leading to inadequate funding for certain important projects.	Need for improved resource allocation
Caribbean Meteorological Organisation	Imposition by SIDS governments of "significant financial constraints annually"	More effective lobbying for resources.
United Nations Environmental Programme (UNEP)	Limited financial and human resources. UNEP has a limited budget that is specifically allocated for implementation of the SIDS POA	Increase co-ordination of donors and agencies and increase transparency of local authorities.

Information Management

	Constraints	Proposals to overcome Constraints
Caribbean Environmental Health Institute (CEHI)	Dispersal of required information among various agencies.	Develop and strengthen national and regional information networks.
	Lack of data quality standards.	Develop and implement data quality standards.
	Limited mechanisms for information sharing.	Mechanisms needed for information sharing at the national level.
	Limited mechanisms for data management and data interpretation for decision-making.	Facilitate appropriate training in information management.

United Nations Development Program (UNDP).	Lack of proper organisation and/or deregulation of the IT industry.	Policies with a view to deregulation need to be promoted and enforced.
Caribbean Meteorological Organisation (CMO)	SIDS are slow to recognize the importance of IT, so that assignment of human and financial resources to this area is hindered.	Introduction of programmes or initiatives to promote the importance of Information management
United Nations Environmental Program (UNEP)	Lack of use of modern technologies to facilitate the provision of assistance.	Increase the use of modern opportunities created by IT technologies and the Internet in particular.

Training

	Constraints	Proposals to overcome Constraints
Caribbean Environmental Health Institute (CEHI)	Inadequate human resources	Develop appropriate environmental curricula at relevant training institutions.
		Institute relevant training programmes at the national and regional levels.
United Nations Development Program (UNDP)	Lack of finance for training	Greater access to financial resources.
	Lack of training leads to inability to connect capacity needs and market needs	Training in labour policy
Caribbean Meteorological Organisation (CMO)	National and Donor emphasis on short-term training. Insufficient long-term fellowships (graduate and post-graduate) available to SIDS. Inability to address gender issues since few females are entering the professional field (meteorology).	National Governments and Donors need to balance resources between short and long-term training
United Nations Environmental Program (UNEP)	Lack of awareness of training opportunities.	Improved communication on training opportunities and improved identification of priorities.

Legislative

	Constraints	Proposals to overcome Constraints
Caribbean Environmental Health Institute (CEHI)	Inadequate, outdated or fragmented legislation.	Constraints. Development of harmonized, integrated, updated legislation.
	Lack of expertise in the region to draft appropriate legislation.	Strengthen human resource capacity for legislative drafting.
Caribbean Meteorological Organisation (CMO)	National institutions of several SIDS are not fully supported or governed by legislation.	Subregional or international assistance should be sought to develop an adequate legislative base.
United Nations Environmental Program (UNEP)	Legislation tends to be country-specific.	Need more co-ordinated and harmonized legislation to bring national and subregional policies in tandem.

SECTION II

Review of Implementation of the SIDS POA and of other selected aspects of sustainable development in Selected Caribbean SIDS

In order to illustrate the range of experience in the implementation of the SIDS POA and also to afford an appreciation of the general *sustainable development* approaches that are being pursued across the Caribbean subregion, this section is dedicated to a review of activities that have been implemented, as well as envisaged, by a selection of eight Caribbean SIDS. The review pays particular attention to selected sectors of the sustainable development problematique of the SIDS in question, in the context of, *inter alia*, the opportunities that have been exploited, as well as the challenges and constraints that have been encountered. The sectors, the implementation of which also lends itself to some measure of comparison, broadly cover Poverty Alleviation; Disaster Management; Waste Management; Freshwater Resources; Planning/Land Management; Tourism; and Trade/Globalisation.

Information for the preparation of this section was obtained from questionnaires administered by the Subregional Headquarters of ECLAC to the Caribbean to the respective countries, supplemented, in seven of the eight cases, by visits by an ECLAC staff member. In the case of Cuba, the review is based on material compiled by a Cuba-based consultant. Notwithstanding the foregoing and bearing in mind that the information-gathering exercise took place earlier in the year i.e. prior to the specific national preparatory processes for the 2004 International Meeting that have since been undertaken, or which are currently underway in some of the SIDS concerned, it is recognised that the reviews here presented are subject to refinement in the course of interventions by the corresponding country representatives to the Subregional Preparatory Meeting. As suggested above, the intention of this section is to illustrate the range of implementation experiences, as well as of the overall orientations towards the implementation of *sustainable development* in the subregion by reference to a selected range of priority areas.

SECTION II**REVIEW OF NATIONAL LEVEL IMPLEMENTATION**

CHAPTER 4	Barbados
CHAPTER 5	British Virgin Islands
CHAPTER 6	Cuba
CHAPTER 7	Curacao
CHAPTER 8	Jamaica
CHAPTER 9	St. Kitts and Nevis
CHAPTER 10	St. Lucia
CHAPTER 11	St. Vincent and the Grenadines

CHAPTER 4

Barbados

4.0 Introduction

Barbados is the most easterly island in the Caribbean chain and has an area of 431 square kilometres. Its population is estimated at 268,000. The principal economic activities comprise financial services, tourism and the manufacture of such products as sugar and rum. The services sector, the industrial sector and the combined agriculture, forestry and fisheries sector account, respectively, for 76 percent, 18 percent; and 6 percent of GDP.

This review outlines selected aspects of the Barbados experience in the implementation of the SIDS POA and covers the following areas:

- Planning for Sustainable Development
- Waste Management
- Land Resources
- Freshwater Resources
- Natural Disasters
- Trade and Globalisation
- Agriculture
- Tourism

4.1 Planning for Sustainable Development

Planning for sustainable development in Barbados is pursued through three major mechanisms, namely, the National Sustainable Development Commission (NSDC); The National Strategic Plan; and The Environmental Management and Land Use Planning for Sustainable Development (EMLUP) Project.

(a) The National Sustainable Development Commission (NSDC)

The NSDC which was established in 1994, comprises representatives of the public and private sectors, NGOs and other stakeholders. The NSDC has produced a draft National Policy which outlines strategies for achieving sustainability in a number of sectors and is currently being revised. The NSDC has also produced a set of National Indicators of Sustainable Development. In 2000, the NSDC was reconstituted and charged with finalising the National Sustainable Development Policy; development of an Action Plan; development of a Public Awareness/Education Strategy; preparations for the SIDS+10 review; and identifying and preparing national sustainable development projects.

(b) The National Strategic Plan

Barbados has embarked upon the preparation of a series of Sectoral Strategic Plans which will be used to facilitate the incorporation of social, economic and environmental issues into national planning, utilising inputs from a broad-based consultative process.

(c) The Environmental Management and Land Use Planning for Sustainable Development (EMLUP) Project.

This project has its genesis in a study which was undertaken to provide a policy framework conducive to long term economic growth and development. A number of concrete outputs have emerged from this project namely: a proposed Environmental Management Act; an Environmental and Natural Resources Management Plan; the Proposed Institutional Framework for Environmental Management; National Environmental Impact Assessment (EIA) Guidelines and Procedures; a National Park Development Plan; and a revised National Physical Development Plan, informed by an EIA of the revised Physical Development Plan.

While much has been achieved through the instrumentality of the NSDC, a number of constraints remain, with important implications for the effectiveness of the process. Among these constraints, are the need for a clear, long-term mandate for the NSDC; lack of legal authority and institutional capacity; lack of human and financial resources; and the voluntary nature of the NSDC. Effective planning for sustainable development would require the procurement of the necessary resources, the formulation of appropriate public awareness and education strategies; and the implementation of appropriate regulatory frameworks for sustainable development, inclusive of legislation to empower the relevant agencies.

4.2 Waste Management

Traditionally, responsibility for waste management has been fragmented among several agencies, many of which were either a part of, or in some other way associated with the Ministry of Health. This dispersed arrangement led to lack of integration and co-ordination, duplication of tasks, overlapping responsibilities and the formulation of inconsistent policy recommendations. Recognition of this state of affairs prompted the creation of the Integrated Solid Waste Management Programme (ISWMP) which outlines a 20-year vision for the management of solid waste on the island, based on the sustainable practices that encourage re-use, reduction and recycling of waste.

Under the ISWMP, the Sewerage and Solid Waste Project Unit (SSWPU) is charged with the development of legislation and environmental education with respect to solid waste management. The Sanitation Service Authority (SSA) manages the private sector agency that operates the waste disposal facility and retains responsibility of the collection of municipal waste, while the Environmental Engineering Division has responsibility for monitoring and enforcement issues pertaining to solid waste management.

The principal method of waste disposal in Barbados is by sanitary landfill. The ISWMP had identified as key issues to be addressed, the lack of integration in approach to waste

collection and disposal; littering; illegal dumping, handling and disposal of special waste; the need for organizational change; and the need for a cost-recovery mechanism.

Ship-generated waste tends to be incinerated on the port in order to prevent health risks and the ash is transported to the landfill for disposal. Some ships also claim to store waste on board until they return to their homeport. Such a practice would reduce the quantity of waste to be handled at the Barbados Port. The recent installation of an incinerator has permitted waste from the airport to be incinerated on-site.

Locally generated waste consists, for the most part, of organic waste, yard waste, paper, plastic, bulky waste and special waste. Approximately 62 per cent of all waste is generated by the commercial sector and the rest by households. The SSA collects commercial and household waste by means of a daily collection service to Bridgetown; a twice weekly service in areas along main roads; thrice weekly in some districts; and once weekly in rural areas.

Recycling remains a private sector initiative. Most of the recycling and reuse is with respect to glass, newsprint, PET bottles, non-ferrous materials, except lead and batteries. At present, the promotion of recycling has not been wholly effective due to the low price being offered internationally for recyclable items.

Generally, the progress of implementation of solid waste management measures has been slower than expected due to untimely access to funds; inadequate staffing; lack of timely compliance by other agencies; and changes in project personnel, among other factors.

Among the measures that have been suggested with a view to taking the entire waste management process forward are the completion of the necessary physical facilities and attendant infrastructure for waste disposal; greater involvement of the private sector the development of legislation and operating standards; greater and more culturally effective public education and awareness programmes, including community-based initiatives; and an economic policy to make optimal use of the opportunity afforded by solid waste management for revenue generation.

4.3 Land Resources

In Barbados, the pressure on land resources is reflected in a population density of approximately 620 persons per square kilometre. Steady population growth and demand for land for housing and commercial development are forcing small-scale agriculture and subsistence farming to shift to marginal lands. The major concerns with respect to land-use in Barbados, include the following:

- **Change in Land Use:** The change in land-use over the last three decades indicates that land previously allocated to agriculture is being converted to residential and other development. This growing practice removes productive land from agriculture and increases the coverage of hard surfaces, resulting in an increase surface run-off and potential for flooding.

- **Changes in fiscal policies:** whereby the vendors of land add the tax payable to the sale price. With the increase in property value, the tax rises and the prices of properties escalate. The land then becomes too expensive for agriculture to be profitable and alternate uses are sought.
- **Land Conservation:** Insufficient attention is being paid to the need to conserve certain land ecosystems and features which may serve particular functions e.g. sand dunes that offer protection to coastline and inland areas. When these features of systems are destroyed, the land itself becomes threatened.
- **Socio-cultural factors:** Culturally, residential homeowners tend to design buildings which occupy more horizontal space, which leaves less space for other uses, in addition to driving up the value of the scarce land area left.

In order to address these concerns and others which may occur in the future, a revised *Physical Development Plan* has been developed. The concept of *Sustainable Development* has been the cornerstone of the conceptualisation of the Plan and this has led to the required emphasis being placed on the following areas:

- the protection of the natural environmental and cultural heritage resources;
- an attempt to contain the damage caused by scattered urban development;
- the protection of agricultural land forms that are incompatible with urban development;
- the maintenance of Central Bridgetown as the financial and commercial centre of the State;
- a broadening of the tourist experience and modernisation of older beach- front properties;
- the diversification of the economy and the establishment of criteria and procedures for Environmental Impact Assessments.

The revised Physical Development Plan identifies four general growth management areas, namely: the Urban Corridor; the Rural and National Park Villages; Agricultural areas; and The National Park areas. Within this structure, the Government is promoting the use of agricultural lands for agricultural activity while attempting to provide residential choices in urban, suburban and rural areas, including through the creation of diverse, self-contained communities. Attention is also being given to the use of public infrastructure by directing the majority of new growth to a clearly defined Urban Corridor and to Rural Villages. Further, in order to obtain approval of proposed land development, developers must submit plans outlining measures to be taken in respect of preservation and conservation and, also, the management initiatives that will be applied to safeguard the land from degradation.

Already, several benefits have become evident as a result of this new approach to planning. The complement of planning staff at both the professional and technical levels has been increased and their competence has been improved through additional training. The research and policy aspects of Planning are now informed by a comprehensive and detailed programme that focuses on a range of planning issues and guides sustainable growth and development. Further, through the use of technology applications, policy formulation and ongoing monitoring of development activities are being enhanced. An interdisciplinary EIA

Committee has also been established. In addition, consistency and transparency in the decision-making process are also being emphasised in several instruments and the proposed amendment of the Town Planning Legislation and the Physical Development Plan will bring about a comprehensive modernisation of the system.

4.4 Freshwater Resources

In Barbados, a low-lying, coral base island, ground-water supplies are limited and protected by a thin permeable soil. Even in times of abundant rainfall, lack of adequate storage facilities and delivery systems may yet restrict the reach of freshwater to the island's inhabitants.

More than 90 per cent of the potable water supply comes from ground water aquifers. Sixty four percent (64%) of private well abstractions take place in the freshwater lens or sheet-water zones. Barbados has been designated a water-scarce country, not so much in relation to the availability of potable water, but in relation to its lack of freshwater resources. Potable water production has already had to be augmented through the establishment of a brackish water desalination plant. Significantly, based on present technologies, all economically-viable sources of potable water have already been developed.

The water resources of Barbados have been estimated at 59.0 million cubic metres per year, based on a 1996 estimate, based on 56 ins. of annual rainfall. Water abstraction rates are in the region of 49.5 million cubic metres, so that Barbados is currently extracting quite close to the limit of its resources. Allocation policies have not been clearly-defined for specific users, nor are there set priorities for long term and emergency shortages. Concern has been expressed about saline intrusion since the desalination plant and the Belle pumping station are extracting from the same aquifer. Thus far, no lateral movement of sea water has been observed.

Inadequate attention to safeguarding watershed areas and groundwater resources poses a long-term threat while, in urban areas, rapid population growth, changes in economic strategies and a growing demand for freshwater remain as significant challenges.

The use of freshwater in Barbados is governed by four legislative enactments, namely:

- *The Three-Houses Spring Act, 1713*, which allows inhabitants in the Parish of St. Phillip to retain water for use, provided it does not have negative effects downstream. This Act needs either to be reviewed or repealed because of current conflicts generated;
- *The Porey's Spring Act, 1864* which allows the vestry of the parish of St. Thomas to construct and maintain works for the collection and delivery of water to persons other than the inhabitants of the parish;
- *The Underground Water Authority Act 1953 (cap. 283)* which stipulates that a license is needed for the abstraction of underground water;
- *The Barbados Water Authority Act 1980 (Cap. 274A)* which controls all water resources except those under the Three Houses and Porey's Spring Acts. The Act manages, allocates and monitors the water resources with a view to ensuring their best development, utilisation, conservation and protection in the public interest.

The outdated provisions of this statute often serve to frustrate the application of effective management measures.

On the other hand, water management and development have been moved along by several recent initiatives including: Public Education Programmes which have been implemented since 1994; preparation and approval, in 1997 of a Draft Policy Framework for Water Resources Development and Management; upgrading of the hydrological monitoring network; institutional review and strengthening of the Barbados Water Authority ((BWA); preparation of a GIS database for each zone; and the Development and approval of National Emergency and Drought Management Plan in 1998. The BWA also requires certain large-scale development projects to provide separate water resources. This approach is exemplified by the construction of a 1 Million Gallon per day Seawater Desalination Plant for golf course irrigation, in 2000.

There remains a need for more promotion of water-saving devices; replacement of water mains; adoption of universal metering; optimised use of rainwater; and a reduction of water loss that cannot be accounted for. A review of the current organisational and management systems in Barbados, reveals the following:

Water Quality Management is controlled on the basis of the national *Groundwater Protection Zoning Policy, 1963* which protects the groundwater resource. The water at the pumping station is disinfected and once the water is in the distribution system, the water quality is monitored to ensure the wholesomeness of the product, which, at present, meets all international standards.

Land Use and Zoning: The "*Revised Policy of Private Sewerage and Waste Water Disposal Systems*" seeks to control the development of any liquid waste disposal system that could be injurious to the national water resources. The Groundwater Protection Zoning Policy divides the island into five zones: zone 1 being the most restrictive and zone 5, the least restrictive. The prohibition of new development in Zone 1 has been incorporated into the *Development Order* under the *Town and Country Planning Act*.

Pollution Prevention and Control: Recognising that the 30 year old zoning policy does not provide adequate protection from modern industrial and agricultural chemicals, continuous review is recommended to ensure that policies remain relevant to the protection of water quality. Constant attention needs to be paid to protection from degradation and depletion of groundwater resources by monitoring any degradation that takes place at the freshwater-saline interface and the response of the interface to pumping. At present, there is active monitoring to detect any saline intrusion at its early stages.

4.5 Natural Disasters

The natural hazards of particular relevance to Barbados include:

- Meteorological hazards, such as tropical storms and the attendant effects such as winds, storms surges and floods;

- Coastal vulnerability, soil erosion and landslides and the much less frequent seismic hazards such as earthquakes and volcanoes.

Responsibility for *Disaster Management* is spread among several agencies in the absence of a comprehensive vulnerability study undertaken within a management perspective. However, a comprehensive integrated disaster management plan is being developed by the Central Emergency Relief Organization (CERO) which was established in 1978.

Set out in the following sub-sectors is an outline of the actions that have been taken with respect to each of the areas of vulnerability that have been identified, namely, Control and Prevention of Flooding; Coastal Vulnerability; Soil Erosion; and Hurricanes:

Control and Prevention of Inland Flooding: The completion of the Barbados Storm water Drainage Study (1995) has led to the creation of a Drainage Unit within the Ministry of Public Works and Transport. Institutionally, responsibility for approving drainage plans for projects of a certain scale has been transferred from the Town and Country Planning Office to the Drainage Unit. Consequently, customised designs and construction of drainage structures are used to allow recharge and retention ponds were constructed to accommodate the powder-like silt after rain events. Thus drainage reserves are a pre-condition of development and a detailed drainage plan, together with a topographical map of the subject area, are to be presented with the application. The Drainage Unit has also been provided with, *inter alia*, staff trained in research and development; improvements in storm-water management guidelines and criteria; flood plain mapping; and data collection.

The Flood Prevention and Highways Act was amended primarily to allow mandatory implementation of structures on private land. The definition of a *highway* has been extended to include watercourses. Constraints to effective implementation tend to come from the public who periodically cover drainage grilles and illegally dump solid waste in drains and gullies.

Coastal Vulnerability: The Coastal Zone Management Unit was established in 1983 and is especially concerned with issues relating to coastal erosion and the application of management studies for dealing with coastal vulnerability. The long term objective is to design and implement a comprehensive and effective Coastal Zone Management Plan to ensure that the coast can fulfil its vital role in the country's development. The Unit's work is currently divided into five areas namely: Oceanographic Assessment; Coastal Research; provision of advice on Coastal Engineering issues; Education Outreach; and Development Control.

Legislative support for the Unit is provided through the Coastal Zone Management Act and the Marine Pollution Control Act, supported by approved Integrated Coastal Zone Management Plans for the West, South, South-East, East and North West Coasts of Barbados. Since some of the regulations required for enforcement are not yet in place for the Coastal Zone Management Act, the full impact of the legislation is yet to be felt. Further, the full output of the Unit is affected by the lack of sustainable hazard prediction models for the island. This deficiency will be addressed with the implementation of the Regional Global Ocean Observing System (IOCARIBE- GOOS).

Barbados was also heavily involved in the activities of the Caribbean Planning for Adaptation to Climate Change project.

Soil Erosion: Within the last decade, there has been increasing evidence of soil erosion over the landscape of Barbados. This phenomenon is more apparent in the Scotland District whose proneness to land slippage is exacerbated by its geologic and topographic features, that is. soft bedrock; soft and incompetent soils; and topographic characteristics. In the limestone regions, soil erosion is due mainly to human activities such as the clearing of land for construction and the application of inappropriate agricultural practices. The main efforts towards the control of soil erosion, especially in the Scotland District, include engineering works such as bench terracing; slope reduction; installation of solid and perforated pipes at various depths beneath the soil surface; and excavation of silt dams at strategic locations. Biological practices such as reforestation, using fruit and forest species, are used to reinforce the engineering works. Legislation that applies to the Scotland District is used to address issues such as stray livestock; settling and construction; and the types of agricultural practices and techniques used by farmers.

Outstanding issues to be addressed in the context of the management of soil erosion include the need for more technology, equipment and training; community participation; updated legislation; and enhanced co-operation and collaboration between governmental and non-governmental agencies.

Hurricanes: At present the Central Emergency Relief Organization (CERO), now responds not only to hurricanes, but also to all other emergencies such as flooding and landslides, hazardous material events and industrial fires. The disaster management structure of CERO, comprises, *inter alia*: the Co-ordinating Advisory Council; 12 specialised Sectoral Standing Committees; the CERO Secretariat which manages the National Disaster Management Programme; the Parish Emergency Response Teams (PERTs); the Voluntary District Emergency Operations (DEOs); the Emergency Operations Centre (EOC); and the 24-hour Emergency Management Teams.

Between 2001-2002, CERO conducted training in Shelters and Shelter Management; Basic Disaster Management; Radio Operation; and Hazard Resistant Construction, among many others that helped to strengthen capacity in all sectors to deal effectively with a disaster or an emergency situation. Public awareness was addressed to ensure that the general public is aware of the varying characteristics of disasters, dangers, preparedness and the response mechanisms and policies. The lecture/discussion series encompassed Maintenance of Drainage Systems; Hurricane Resistant Construction; Storage, Disposal and Handling of Hazardous Wastes; the characteristics of Natural and Man Made Disasters; and other topics that will enable the public to have a comprehensive understanding of Disaster Preparation and Management.

A number of challenges remain in the area of *Disaster Management*. These include: financial constraints; the low level of acceptance at the senior levels of decision-making; the lack of legislation that provides the requisite authority and institutional framework for disaster management; inadequate promotion of the Building Code; poor enforcement of zoning and land-use regulations; and inadequate public awareness.

CERO has circulated a First Draft of a *National Disaster Plan* which incorporates sections covering Administration; Mobilisation and General Policy; Hazard Specific Plans; Sectoral Response Plans; and Departmental Plans. The Plan is currently under review as a result of the significant changes that have been introduced into the subregional and international Disaster Management environment, as well as of lessons learned from countries that have been impacted by disasters.

It is envisaged that that Disaster Management in Barbados, will become more holistic and embrace the full range of elements, including Prevention, Mitigation, Preparedness, Response, Recovery and Reconstruction, as well as having a more co-ordinated inter-agency approach.

4.6 Globalisation and Trade

The economy of Barbados has continued to grow annually over the last decade. There has been significant growth and expansion of output, which has led to a rise in employment and an improved fiscal and monetary performance. Between 1993 and 2000, unemployment decreased from 24.3 per cent to 9.3 per cent. Economic ascendancy has been assisted by several innovative efforts, for example, the Prices and Incomes Protocols I and II which were tripartite agreements primarily among the private sector, Government and Trade Unions. The Protocols sought to safeguard the country's exchange rate, slow the growth of inflation, restrict the demand for imports, encourage dialogue among social partners and improve industrial relations.

Protocol III, which covers the period 1998-2000, provided a broad framework for tripartite consultation on all matters affecting macroeconomic performance, with the aim of creating a genuine participatory democracy. The Protocol thus embraced a national employment policy; a framework for industrial harmony and cohesiveness; a charter for the productive sectors; a charter for the reduction of social disparities; a new dispensation for training; and discrimination in all its aspects.

The Government also established a Fair Trading Commission to regulate issues relating to the utilities and other matters of trade in Barbados.

Faced with the problems normally associated with trade liberalisation, Barbados has moved to devise policies aimed at improving present patterns of specialisation and at exploring new models of re-specialisation to arrest the marginalisation of domestic products. Barbados has approached economic specialisation in terms of the creation of a competitive environment that would attract foreign investors, while further developing trade relationships with a restricted number of partners. In addition, the development of "niche" markets is being pursued whereby certain markets obtain protection from competition, internationally, through ongoing partnerships with "global" companies and using "global" methodologies and processes to support the partnership. Recognising that this approach requires a fairly sophisticated communications technology, telecommunications reform is high on the agenda of the economic restructuring policy.

With a view to attracting foreign investment, Barbados has provided generous tax incentives, including tax holidays, for investors setting up business in the country; a low tax

framework; protection of intellectual property rights; and a liberalised approach towards the movement of persons and capital. In order to combat globalisation which can induce an influx of cheaper foreign goods and push local producers out of business, Barbados is actively seeking to have the CARICOM Single Market and Economy (CSME) implemented comprehensively and as a matter of urgency. Barbados has also concretised its participation in the Free Trade Area of the Americas (FTAA) process and expects to enjoy, eventually, unrestricted access for its goods and services to the large hemispheric market. It is also envisaged that the FTAA will provide expanded opportunities for local investors and business persons who are now restricted by the existence of national barriers. A significant observation, in this regard, relates to the perceived need for special and differential treatment to be granted to small economies such as Barbados if the anticipated benefits of the FTAA arrangements are to be secured.

To address any obstacles that might arise from its geographical location, Barbados is moving to develop policies to facilitate technology transfer with a view to enhancing trade efficiency through e-commerce. Further, Barbados is developing its human resources so that it might be in a position to provide higher value-added services in such sectors as informatics and information technology, while encouraging state-of-the art air and seaports to promote the island as a point of trans-shipment for cargo to the other countries of the Caribbean Community (CARICOM), Latin America and the European Union. The improved telecommunications infrastructure also assists specialisation in international services such as tourism and offshore banking.

Trade efficient policies which relate to such areas as trade information; trade facilitation, involving transport and customs procedures; and improving access to appropriate banking and insurance services; aim to create an environment in which the best practices in a particular field are transferred and adopted in Barbados. All these outputs and efforts send favourable signals to existing and possible trade operators and their foreign associates.

4.7 Agriculture

Barbados is a "*Net Food Import Country*". In this section, particular attention will be given to the fishing industry which remains a key component of national development efforts.

Fisheries: Barbados is currently implementing a Fisheries Management Plan covering the period 1st January 2001 to 31st December 2003. This Plan forms the basis for "*...fisheries policy, management, administration and the formulation or implementation of fisheries-related legislation*". The Plan is, at least partially, based on the *FAO Code of Conduct for Responsible Fisheries* and its voluntary compliance regime, especially those elements listed under its Article 6, occupies a prominent place in its design. Among the objectives of the Plan are the management and development, as appropriate, of shallow-shelf reef fish, deep slope fish, coastal pelagics, large pelagics, flying fish, sea urchins, turtles, lobsters and the conch.

The current fishery policy comprises four major aspects, namely, Planning; Services; Development; and Resource Management.

Within the *Planning* area, the Fisheries Division will, *inter alia*, pursue adherence to international agreements that facilitate the management of local and foreign fishing; pursue

bilateral and regional fisheries access through other management mechanisms, including the conclusion of Fishing Agreements and maritime boundary delimitation; devise an inter-agency informed oceans policy; and re-orient the Fisheries Division towards scientific and technical fisheries management as *"...part of an institutional analysis and strengthening programme to meet industry needs."*

In the *Services* sector the aim of the Plan is to finalise and implement local fishing vessel safety and inspection regulations aimed at the improvement of marine safety, the strengthening of technical capability in boat construction, using the available technologies; and providing services to fish vendors and processors, bearing in mind the objectives of the proposed Fish Quality and Inspection Act.

In the area of *Development*, the objectives are to increase education on fishery-related matters; to facilitate the development of fisher-folk organisations; to promote reliability and improve profitability for fisher-folk; to provide skills and training in new fishing techniques; and to expand boatyard services to reduce the number of derelict or inactive vessels.

Still in the context of *Development*, attention might be drawn to the major types of subsidies offered by the Fisheries Division. These include tax and duty concessions on marine fuel and gear for boats, non-commercial fees for the tractor service used in small vessel haul-out; a maintenance subsidy of up to \$300 per boat per year; free registration and licensing inspection; and other statutory services and grants to fishing industry organisations for approved projects.

In the *Resource Management* area, efforts are directed at improving the catch; effort; biological, economic and social data collection systems; facilitating policy formulation and decision-making; the development of legislation; and improving the technical ability to assist and monitor coastal and inland aquaculture. Among the goals of this initiative is the acquisition of membership of the International Commission for the Conservation of Atlantic Tunas (ICCAT); to secure the long-line fishery for tuna and swordfish; and to ensure the implementation of the Fisheries Management Plan.

The Fisheries Management Plan also seeks to address the problem of over-fishing and habitat degradation in some areas; as well as user conflicts with the tourism and coastal recreation activities, addressing also, in that context, the difficulty in making trade-offs between the sectors. On the other hand, there is the potential for tropical fish for the aquarium trade. Also the marine reserves and protected areas used for recreational and tourism purposes may act as population reservoirs for adjacent fished areas.

Other Selected Aspects of the Agriculture Strategy: Agriculture, like fisheries, falls within the purview of the Ministry of Agriculture and Rural Development which is mandated to support commercial agricultural production, especially for export markets. As a result, domestic production which contributes to self-sufficiency tends to be overlooked in the process. The agreed agenda is now to promulgate efforts that achieve at least the minimum level of self-sufficiency in food production, in order to be able to counter possible difficulties with supply that might arise from external sources. Nor is this policy aimed at entirely replacing food imports

with domestic production. Rather, the objective is to maximise returns from resources invested in the agricultural sector within the context of national requirements.

The agriculture strategy incorporates a number of mechanisms to address the range of issues pertaining to the sector and in particular, the availability, stability and access to food supplies. These mechanisms include the Animal and Plant Quarantine Service to guard the health of local agriculture and the population; and the Agricultural Marketing Co-ordinating Committee which reduces the costs of basic outputs of the agricultural sector and encourages NGOs to promote youth development in agriculture. The Barbados Agricultural and Marketing Corporation attempts to provide landless farmers with land on a leasehold basis. It also provides irrigation services at minimal cost and promotes the establishment of co-operatives among farmers.

Research and Development in the agricultural sector is enhanced by functional, well equipped, research and extension services. Policy and programme initiatives include the mechanism whereby the Government balances domestic food production with selective importation, with a view to ensuring that local producers have reasonable access to the local market, while meeting the nutritional requirements of households.

Recommendations on the Way Forward in Agriculture: To take the agricultural sector forward, there is need for improved data collection to inform improved planning. There is also the need for a better appreciation of the relevance of intellectual property rights in relation to indigenous crops and for a clear policy on the foods whose production should be promoted, and the value-added products that should be encouraged. In addition, a food security policy should be devised which addresses the need for management and entrepreneurial skills; concessions to farmers; the availability of appropriate technology; and timely access to credit facilities. Finally, much of the existing legislation needs to be updated and strengthened. Particular attention might be drawn in this regard, to the Agricultural Development Act under whose purview all activities relating to agriculture should be incorporated.

4.8 Tourism

The **Green Paper on the Sustainable Development of Tourism in Barbados**, produced in May 2001, is intended to guide the sustainable development of tourism in the short to medium term. Included in the Green Paper is a vision statement, according to which "*.... the tourism industry, as the main catalyst for economic development in Barbados, will be the primary vehicle for ensuring that Barbados is transformed into a high quality export service economy*".

Tourism remains probably the most dynamic and competitive of the productive sectors in Barbados, so that the factors, which impact it, should receive special attention. The *Green Paper* proposes that Barbados market itself as "*friendly*" and "*clean*" and providing a safe and secure environment for visitors. Also proposed, is the repositioning of Barbados as an upmarket, quality destination.

The numerous sectoral linkages manifested by the tourism sector militate in favour of the development and maintenance of strong partnerships between and within the public and private sectors, labour unions and civil society.

The key factors that impact on the Tourism Industry of Barbados are illustrated Table 8 below.

Table 8: SWOT Analysis of Barbados' Tourism Sector

Strengths	Weaknesses	Opportunities	Threats
a diverse product; year-round activities; excellent transportation systems, tourism and hospitality training at vocational and tertiary levels; a stable currency; a mature destination; established tourism institutions and organisations; a stable political climate.	insufficient focus on service; relatively high operating costs; physically run -down accommodation plants in some areas incidence of garbage pollution inadequate foreign language skills in the work force; little or no participation of local communities in planning and development; no clearly stated vision; limited national focus on intra-regional tourism.	the ability to cater to changing travellers needs; the possible development of work exchange programmes with other destinations; growing interest in heritage and ancestral linkages to Africa; the introduction of an enhanced legislative and regulatory framework; the possibility of the development of stronger inter-sectoral linkages with the productive and services sector; being part of the diversity offered by the Caribbean islands.	the emergence of competing places in Asia and the Pacific, the possibility of natural disasters dependence on foreign owned airlines; increased crime levels; globalisation of trade; negative attitudes and behaviour by some parts of the local populace; the development of tourism in many source markets.

The Green Paper also examines several of the linkages and services which make up the tourism industry and outlines strategies and guidelines to deal with each sector. The guiding policy directive is the Barbados National Tourism Policy which has as its aims "... *To pursue sustainable tourism development through improvement and optimal use of our land, human resources and services, and through the conservation and managed use of our cultural, built and natural heritage, in order to ensure a product of the highest quality, whilst improving the life and economic development of the people of Barbados.*"

CHAPTER 5

British Virgin Islands

5.0 Introduction

The British Virgin Islands (BVI) consists of 36 islands, the main ones being Tortola/Beef Island; Anegada; Virgin Gorda; and Jost Van Dyke. It has a total land area of 153 sq. km (59 sq. miles). The islands are characterised by several marine ecosystems and features, including mangroves, coral reefs, sea grass beds, salt ponds, wetlands, lagoons beaches and rocky shores. The terrestrial vegetative zones contain moist coastal woodland, dry coastal woodland and ghauts.

The economy of the BVI is one of the most stable and prosperous in the Caribbean. It is highly dependent on tourism which generates an estimated 45 per cent of the national income. In the mid-1980s, the Government began offering offshore registration to companies and incorporation fees now generate substantial revenues. By year-end 2000, roughly 400,000 companies were on the offshore registry.

Livestock is the most important agricultural activity. Poor soils limit the ability to meet domestic food requirements. Because of traditionally close links with the United States Virgin Islands, the British Virgin Islands has used the United States dollar as its currency since 1959.

5.1 Waste Management

The increase in the quality of life and in the importation of practically all the products used for the islands' sustenance leads to the generation of large volumes of waste. The problem is exacerbated by the lack of capacity to recycle waste and the scarcity of suitable areas for landfill operations.

Waste in the BVI is generated at the rate of over 1500 pounds (3/4 tons) per person per year. The number of derelict vehicles has also been increasing. In an effort to come to terms with this situation and recognising the inability to maintain waste disposal by means of the establishment of landfills, an incinerator was built in 1994-1995 with a capacity of 40 tons. In the event of a contingency or plant shutdown, the garbage is otherwise burned or dumped. At present, construction waste is still dumped. Ash from incinerated waste is transported to the dump site for disposal. Biological waste is handled by the hospital which has its own incineration facilities.

The proper disposal of waste oil continues to pose a serious problem. In 2001 the Solid Waste Department commissioned the waste oil equipment at the Pockwood Pond incineration facility. Prior to this development, the primary method of disposal was to mix the waste oil with the garbage before loading onto the plant. The current waste oil system can dispose of 1,500-2,000 gallons of waste oil in 3 to 4 days. The recycling of derelict vehicles and scrap metals is done at recycling facilities off-island.

The Solid Waste Department experienced a 5 per cent increase in waste receipts in 2001, reflecting a decline from the average of 10 per cent recorded over the preceding years. Since the plant cannot handle more than 40-45 tons a day, garbage has had to be stockpiled.

While several waste-recycling workshops and programmes have been organised, no concerted attempt has been made to set up a recycling plant. However, as much glass as possible is removed from the waste (as much as 95 per cent) and the material is fed through a glass crusher to reduce volume by 50 to 60 per cent. The glass is then taken to the dumpsite for disposal. All batteries removed from the waste stream are stored in a special area for retrieval by a private company. This is done to ensure that none of the lead materials in the batteries is mixed with the non-combustible waste and taken to the landfill, since this can lead to contamination of the water table.

Sewage disposal in the BVI is effected through individual septic tanks. Some hotels have installed small package plants that receive sewage and grey water. The waste water goes either sub-surface or is discharged into near-shore coastal waters, thus giving rise to concern with respect to near-shore ecological habitats. Some waste water is re-used in agricultural irrigation during the dry season but this is done mostly on an individual basis.

Legislation is being updated to deal with the disposal of liquid waste and there is also a Draft Strategy for liquid waste management. In the context of this Strategy, attempts will be made to standardise the design and construction of individual systems.

Despite the lack of a centralised sewage treatment system, contamination of the water system does not occur, since the soil tends to retain rather than percolate water and the wells and springs are 50 feet or greater in depth. Extraction rates are such that there is at present no salt water intrusion. Finally, the regular water supply is augmented by private desalination plants.

5.2 Tourism

Tourism in the BVI is geared mostly towards the middle to high end market. The mid-market is catered to by locals owning small guesthouses, villas and apartments. To encourage the supply of these dwellings Government offers a range of assistance programmes including the setting of standards; evaluation; planning; and training in business management. At present, more than 75 properties operate under this programme. Any structure with greater than 7-room capacity is eligible to receive assistance.

The yachting sector in the BVI has expanded significantly and is unrivalled in the Caribbean. Approximately 35 per cent of visitors arrive by yacht, while cruise and overnight visitors each account for about 28 per cent of arrivals. Efforts are being made to attract mega-yachts with a view to obtaining a higher economic yield while keeping the overall number of tourists down. Mass tourism is not encouraged in an effort to avoid overcrowding.

With the advent of cruise tourism, the tourism product of the BVI is becoming more mixed. The larger cruise ships call at Road Town, while the smaller ones tend to dock on the smaller islands. Cruise ships are encouraged in the expectation that the experience of the visitors

will persuade them to return for a longer stay. The majority of visitors are from the United States of America, followed by those from Europe.

The BVI advertises itself as a "*Hidden Secrets*" destination, with the promise of a more laid-back, relaxed experience. The product is based on world-class dive sites; sport fishing; events tourism; the exclusive character of the islands; the natural vistas; and high quality yachting facilities.

To deal with the high volume of waste generated by the tourism industry, a national sewerage system is being conceived, which will treat sewage from yachts. The enactment of appropriate legislation is also contemplated to prevent dumping in bays, near reefs, or in near-shore environments.

Tourism traffic in the BVI is becoming more short term and *deal driven*. In this context, reservations are increasingly being made on the Internet. Serious competition has also emerged from cheaper destinations such as Cuba, the Dominican Republic and Mexico.

The structure of the tourism industry of the BVI is geared towards "*Sustainable Tourism*". This is in keeping with the thrust of the Tourism Development Plan 1996-2001 and the Cruise Ship Study of 1991. The *sustainable* approach also takes into account the carrying capacities of areas; the load factors for various sites; and the need to identify alternative attractions such as hiking, historical sites and more beaches. Generally, the BVI has managed to maintain its market share despite the global fallout from the events of 11 September 2001 in the United States of America and, in particular, the general downturn in the United States economy over the last few years. This situation is assisted by, *inter alia*; the relative ease of air travel to the islands, coupled with the expansion of the airport.

5.3 Planning for Development

The Physical Development Plan (PDP/1996) and the National Integrated Development Strategy (NIDS) have greatly assisted in promoting collaboration among institutions and also in engendering a common vision for development in the BVI. The PDP is based on the results of a survey which identified the following among the major issues relevant to planning:

- the destruction of ecologically sensitive areas;
- the limited area of flat lands available for development on the two main islands;
- the rapid population growth (48.5 per cent between 1980 and 1991);
- the lack of infrastructure to support further tourism development;
- high building costs;
- limited access to affordable shelter;
- lack of adequate mechanisms for the management of settlements; and
- the limited role of the agricultural sector, among others.

On the basis of the foregoing, four main goals were agreed for the PDP, as follows:

- (a) securing an optimum population pattern without adversely affecting the

- environment;
- (b) promotion of integrated physical development to rationalise land use and minimise conflicts,
- (c) diversification of the economy;
- (d) promotion of the economic well-being of all the islands by fostering development based on their endowment and the provision of an adequate and economical network of transport, community facilities and utilities.

5.4 The Environment

5.4.1 Institutional Framework

The Conservation and Fisheries Department (CFD) is the lead agency with respect to environmental management in the BVI. The main functions and activities of the Department are directed to environmental planning and development monitoring; environmental and coastal resources monitoring; environmental education; fisheries management and development; and surveillance and enforcement.

The CFD participates directly in decision-making on development issues through the Technical Review Committee for Marine Applications. This Committee reviews all marine development applications and makes recommendations to the Ministry of Natural Resources and Labour; the Development Control Authority, which considers and grants permission for development applications; and the National Parks Board. This process helps to ensure consistency of activities of related agencies, including the Project Review and Advisory Committee which reviews all major development applications and makes recommendations to the Office of the Chief Minister.

More recently, the CFD has received much assistance in the form of, *inter alia*, an expanded budget; equipment; trained personnel; and the introduction of Fisheries Regulations. In its contribution to the National Integrated Development Strategy, the CFD outlined the following among the major issue-areas for co-operation among institutions:

- the identification and exploration of options for policy development in sectors that impact on the environment;
- legal reform;
- linking tourism with environmental awareness;
- capacity building;
- the conduct of baseline studies and on-going monitoring;
- the development of waste management strategies;
- information/data management;
- education and public awareness;
- general resource conservation, especially with respect to parks and protected Areas;
- water quality; and
- coastal habitats.

5.4.2 Environmental Challenges

The following have been identified among the major challenges to Environmental Management in the BVI:

- a fragmented approach to issues reflecting inadequate inter-sectoral co-ordination;
- the existence of conflicting policies with respect to resource use and agency jurisdiction;
- the need to effectively integrate environmental considerations into the national development process;
- the need for greater public participation in the natural resources management process;
- the inadequacy of legislative provisions with respect to fees and fines, coupled with the lack of control and/or enforcement mechanisms and also the lack of such mechanisms where they exist.

At the international level, the BVI is Party to at least 26 Multilateral Environmental Agreements (MEAs). In several cases, the required domestic enabling legislation is yet to be enacted.

Among the key issues to be addressed in the resource management field, are:

- Increased pressure on the use of the coastal areas for land development via reclamation;
- Uncontrolled land use practices;
- multiple use of coastal areas leading to user conflicts, waste generation and attendant habitat degradation;
- Defacement of the landscape and reduction in the aesthetic value by cutting and real estate development;
- Excessive siltation; pesticide, herbicide and fertilizer pollution, leading to eutrophication of near shore waters;
- Deforestation and other loss of vegetation, as a result of clearing for agriculture and development;
- the disturbance of near-shore marine habitats and continuing degradation of important watershed resources;
- Lack of appropriate facilities for sewage disposal.

The main near-shore habitats in the BVI consist of mangroves, sandy beaches, coral reefs and sea grass beds.

Mangroves are being impacted by reclamation, dredging, marina development, solid waste dumping and road construction which have led to the blockage of natural fresh water drainage. In 1990, 18 mangrove systems were listed for protection.

Sandy Beaches: These serve as major assets of the tourism sector; as recreational facilities for locals; as coastal protective structures; and, in some cases, as a source of aggregate

for the construction industry. According to studies done on 8 islands in 1984 and a decade later, in 1994, erosion of beaches was widespread.

Coral reefs: Monitoring of coral reefs was initiated around five islands by the CFD in 1991 but has not been sustained. Most of the impacts on these coral structures may be attributed to divers, pollution, and, in some instances, by over-exploitation of the resources by fisherfolk.

Seagrass Beds: The CFD commenced monitoring of these features in 1993. In the BVI, seagrass beds are most impacted by dredging, land reclamation and the overload of nutrients from land-based sources.

5.5 Disaster Management

5.5.1 Policy Framework

Over the last ten years, the BVI has sustained over \$70 million in property damage from hurricanes. Damage worth \$24 million has been attributed to a single hurricane, Lenny, which struck in 1999.

In light of the envisaged continued rapid growth of settlements, including coastal communities in the context of the limited land area that is available, it is recognized that there will be an ever increasing need to protect life and property. Such action would also serve to reduce the need for post-disaster assistance. To this end, the BVI has developed a Mitigation and Development Planning Framework which covers the ten-year period, 2002–2011. This Framework aims to provide a comprehensive mechanism that seeks to:

- establish a commitment to mitigation goals, objectives, strategies, policies and programmes;
- inform the public of the need for mitigation activities;
- provide the framework for the administration and implementation of mitigation activities.

The implementation of this framework is being pursued within the context of a number of Government policies, plans and initiatives including the National Integrated Development Strategy and the National Disaster Plan, with a view to ensuring its seamless integration into the development planning process.

5.5.2 Hazard Management and the Disaster Mitigation Strategy

For some time, hazard management in the B.V.I. has been based on the hazard and risk assessment and on the capability assessment studies which determined that the BVI was vulnerable to both natural and man-made hazards. Hurricanes and earthquakes were the two phenomena that posed the greatest threat. In addition, while the public sector had developed some capability in hazard management, a number of specific areas stood in need of substantial improvement. In this regard, the legal capability for administration and implementation of activities was found to be lacking. Further, since disaster management tended to focus on

preparedness activities and also since the BVI community had not been exposed to a fundamental *disaster crisis*, the potential for the entrenchment of complacency, with increased risk of damage, was recognized.

The Mitigation Strategy that has now been developed stresses that hazard mitigation is best achieved by incorporating hazard assessment and mitigation activities into the process of integrated development planning, investment, project formulation and implementation. The underlying principles which were derived from an assessment of past mitigation and disaster preparedness efforts are to guide the development of the Mitigation and Development Planning Framework (MDPF).

Two major goals, emphasising developmental and social needs, were identified for the MDPF, namely:

- (i) Reduction of the vulnerability of the B.V.I to hazards through capacity- building; protection of major economic sectors and supporting infrastructure; and reducing the risk of loss of life or property;
- (ii) Enhancement of the culture of disaster mitigation in the B.V.I. through the entrenchment of mitigation concepts into the community's value system and the provision of relevant information to the various communities to empower them to implement the necessary mitigation measures. Outreach programmes and education and training exemplify the approaches to be pursued in this regard.

Overall, for effective implementation, it is recommended, *inter alia*, that:

- The Mitigation and Development Planning Framework be incorporated into the National Integrated Development Strategy for the Territory;
- The Damage, Needs Assessment and Mitigation Subcommittee of the National Emergency Advisory Council (NEAC) be abolished and a new Mitigation Task Force be established; and
- Mitigation Working Groups be established with responsibility for specific subject areas such as infrastructure development; environmental protection; social and economic development; health and safety; and, damage assessment.

It is further recommended that the monitoring of specific activities be entrusted to the Mitigation Task Force, with the lead implementing agencies entrusted with responsibility for the day-to-day monitoring of plans and projects. Evaluation of the mitigation framework, it is also recommended, should be the responsibility of the National Emergency Executive Committee under the chairmanship of the Deputy Governor. In tandem with this, the Framework approves the setting up of a Disaster Fund, which the Government has already endorsed. Activities are to be implemented over a ten-year period. Each activity is to be budgeted and prioritised with a view to the optimal use of resources.

5.6 Trade and Globalisation

Incorporated into the National Integrated Development Strategy (NIDS) are a number of macro development policies that are intended to facilitate the integration of the BVI into the world economy. The Strategy which is seen as an umbrella framework includes a Medium Term Economic Framework; sectoral strategies in social, spatial and environmental areas; and strategies for telecommunications and electronic commerce. The Strategy also includes labour market policies aimed at ensuring mutually beneficial and stable relationships between labour and business. Immigration policies are also being refined, in an effort to inject a greater degree of certainty into labour market decisions. In this regard, it is to be noted that no situations of unemployment or underemployment are reported in the BVI. Further, redundancy of labour has not been an issue, except on a very small scale. Where such cases emerge, the workers are easily reabsorbed into the labour market

5.6.1 Developments in Trade Policy

In the area of trade policy, a customs reform programme is currently being implemented. In this regard, legislation to simplify customs administration has been enacted. In the context of modernisation of the economy, import duties on computers and related items have been reduced.

5.6.2 Developments in Investment Policy: Micro-Enterprises

Currently, the framework for the grant of investment incentives framework is being reviewed and a small and micro businesses programme has been initiated. In this regard, small business seminars are being conducted and Government has increased its support for the "*Buy BVI*" trade shows. Also with a view to stimulating the development of micro-enterprises, the Office of the Chief Minister, in collaboration with the private banking sector, has developed and implemented a micro-enterprise development financing scheme. In addition, through collaboration with the HLC Community College, the Department of Trade has developed a series of business management and development seminars aimed at micro-enterprises.

With a view to improving competitiveness, the BVI has taken concrete steps to liberalize its telecommunications markets and to provide a revamped framework for competitive tendering in the procurement of goods and services by the Public Sector. With respect to trade in services, including e-commerce, among the measures pursued by are:

- Enactment of broad e-commerce legislation;
- Promotion of e-commerce through national seminars and workshops jointly with the private sector;
- Support of delegations to participate in global e-commerce seminars overseas;
- Establishment of an independent Financial Services Commission (FSC); and
- Sponsorship of major programmes in human resources development for the financial services sector, in collaboration with the H.L. Stoutt Community College.

5.6.3 Capacity-Building for Trade Negotiations and Competitiveness

The BVI has promoted capacity- building towards ensuring effective participation in multilateral trade negotiations by training Financial Services personnel to address the OECD Harmful Tax and Anti-Money Laundering initiatives; sponsoring national workshops on "*Effective Negotiation*"; and sharing information on affected industries through widespread consultation with such industries. With respect to future trade negotiations, the BVI has initiated the formulation of a positive agenda, through discussions with UNCTAD and the EU. Training is also being organised for high level officials in trade policies and strategies and related areas.

To promote capacity- building in activities related to dispute settlement, including in the WTO, the BVI has been active in:

- Training in effective negotiation ;
- Reviewing the possibility of dispute resolution in financial services; and
- Designing a solvency issues resolution framework for consideration.

5.6.4 Economic Diversification

Recognising the volatility of the market place and the necessity of continued diversification of economic opportunities, the BVI is seeking to diversify its economy into agricultural products, a broader range of financial services, telecommunications and electronic commerce.

5.6.5 Selected Social Aspects

With a view to counteracting any negative fallout from market liberalisation and general globalisation processes, the BVI is currently developing a programme of *Poverty Analysis and Social Development Indicators* in collaboration with the Commonwealth Secretariat. In addition, a study has been completed on the status of Ageing and the Elderly in the BVI. This study recommends strategies for the achievement of social goals and objectives. The H.L Stoutt Community College and the *Sunflower Programme* have developed a number of educational activities for the elderly.

5.7 Use of Illicit Drugs, Drug Trafficking and Juvenile Crime

Based on the results of a survey undertaken by the Ministry of Education, Culture and Youth Affairs has completed surveys on *Youth* and on *Drug Use among the young*, the BVI has developed and implemented a wide range of strategies, including through counselling and other forms of treatment, to assist drug users, while providing special training programmes for targetted school dropouts. In addition, a programme of public education concerning the negative consequences associated with the misuse of drugs, has been in progress for the past few years. Further, the Government has provided educational opportunities nationally and overseas. Individual counselling services are provided through the Sandy Lane Counselling Centre, while special programmes are offered through the Social Development Department. Work release, as well as training programmes are provided for prisoners, especially young males serving

sentences for drug-related crimes. In addition, a recently completed review of the Juvenile Justice System proposes a policy framework embodying concrete proposals for improving the situation.

Further, the BVI has had a programme of co-operation with the United States of America and with neighbouring islands to stem the flow of illicit drugs in the subregion. To promote effectiveness throughout the entire justice system for counteracting drug trafficking and drug use, the BVI has modernised its legislation, which now includes the Drug Misuse Prevention Act; the Proceeds of Criminal Activities Act and other relevant financial services Acts to prevent the use of assets obtained from the sale and handling of illicit drugs.

5.8 HIV/AIDS

For more than a decade, the BVI has maintained a major education programme against the spread of HIV/AIDS within the society. Recently, with assistance from PAHO and other agencies, a co-ordinated effort across health, education and welfare agencies has begun to prevent the spread of HIV/AIDS infection. The Ministry of Health has commenced the purchase of expensive drug cocktails to fight HIV/AIDS.

CHAPTER 6

Cuba

Towards Sustainable Economic and Social Development

6.0 Introduction

The Republic of Cuba is a multi- island State comprising the island of Cuba, which is the largest island in the Caribbean, together with a number other islands and cays. The Republic has a total land area of 114, 525 square kilometres. In recent years, tourism has been aggressively promoted and developed and is now the major foreign exchange earner. Other exports include sugar, tobacco and nickel. Agriculture, forestry and fisheries together account for 7 per cent of GDP and employ some 7 per cent of the labour force.

6.1 The Environment

Cuba has been making great efforts to deepen its approach to environmental management in all respects but particularly in the context of the relationship between the economic, social and environment components. The results so far achieved have already surpassed those projected in the National Environmental Strategy (NES) which was adopted in 1997. The Strategy represents the results of efforts that were spearheaded by the Ministry of Science, Technology and the Environment (CITMA), which was created in 1974 as the lead agency for the activity, together with a number of other Cuban institutions and bodies that are involved in the economic and social development of the country.

The structure of this Strategy embodies:

- A statement of its rationale;
- The identification of its bases;
- Principles of environmental management;
- Guidelines for sustainable economic and social development;
- Identification of the main actors for its implementation;
- Prescription of modalities for the coordination of its implementation; the identification and characterization of the main environmental problems of the country; the strategy for their minimization; and the means and tools to be employed.

Among the main environmental problems identified in the National Environmental Strategy, which are closely linked to the economic and social development of the country, are: soil degradation, including erosion, poor drainage, salinity and compacted soils, among others; the deterioration of sanitation and of the environmental conditions in human settlements; the pollution of inland and coastal waters; deforestation; and the loss of biological diversity. All these constitute priority areas of work and are expected to maintain that status.

The constant concern of the Cuban State and Government with environmental problems reached its peak with the approval, immediately after the Earth Summit of 1992, of a modification of Article 27 of the Cuban Constitution which widens the concept and scope of *the environment* and its relationship to sustainable economic and social development:

“The State protects the environment and the natural resources of the country. It recognizes their close link with the sustainable economic and social development and their importance for a more rational human life and for assuring the survival, well being and security of present and future generations. It is within the competence of its institutions and bodies to enforce this policy. It is the duty of all citizens to contribute to the protection of the waters, the atmosphere, the conservation of soils, forests, animal life and of all the potential uses of nature”.

In the international context, the policy pursued in this regard is reflected in the Barbados Declaration and the SIDS POA. The Programme of Action depicts the main environmental problems faced by Cuba and which are being addressed in the context of the National Environmental Strategy. Indeed, the progress in the implementation of this Strategy is coincidental with that which has been achieved in the context of the national implementation of the SIDS POA. The respective chapters of the SIDS Programme of Action provided the bases for the activities that were executed between 1994 and 2002, the year of the convening of the WSSD.

6.2 Economic and Social Policy Issues

6.2.1 Economy in the Framework of Sustainable Development

During the period 1989 -1993, the Cuban economy began to overcome the most dramatic challenge of its history, characterized by the impact of the downfall of the Union of Soviet Socialist Republics (USSR) and the socialist countries of Europe. This situation was exacerbated by the tightening of the economic blockade and the implementation of the Helms-Burton Act by the United States Government.

During that period, the Cuban economy registered a decline of almost 35 per cent of its GDP. This impact is highly significant if account is taken of the fact that, during the period 1959-1989, an average annual growth of GDP of 3.1 per cent was recorded.

In 1994, this declining trend was arrested with a modest growth of 0.7 per cent. The following year, the corresponding figure rose to 2.5 per cent; in 1996, to 7.8 per cent; and, in 1997, the figure returned to 2.5 per cent. This last figure was deemed acceptable, taking into account the severe conditions prevailing at the time. In 2000, GDP grew by 5.6 per cent, with an unemployment rate of 5.4 per cent out of a labour force of 3,843,000.

In 2002, GDP increased by 1.1 per cent, compared with a rate of 0.5 per cent in the rest of Latin America. This comparison demonstrates the results of the efforts made by Cuba despite the adverse external conditions. The year 2002 may be regarded as one which produced minor growth, coupled with a high level of development. Minor growth can be illustrated by reference

to the GDP co-efficient indicated. As regards the high level of development, this observation can be sustained by reference to the establishment of the principal bases for integral human development that goes beyond the narrow boundaries of commercial transactions.

Within this same context, the Cuban Government, notwithstanding the number of adjustments that it was forced to make, implemented a combination of macro- economic and structural measures, against the recognition that one per cent of the population lacked the wherewithal to acquire the basic food basket. During the period, 1989-1996, that percentage was estimated at 15 per cent of the urban population. The measures adopted during the period 1989-1996 provided the basis for the improvement of the situation during 1997-2001. They also served to mitigate the impact of the critical international economic situation on the population.

6.2.2 Energy

With respect to the supply of energy, developments in 2002 were of great significance. A 26 per cent increase in the domestic production of petroleum, together with the production of natural gas, accounted for a total production of 4.1 million tons of oil equivalent which surpassed the 3.4 million tons produced during the preceding year. The process of adaptation and modernization of the thermal energy plants for the use of domestic crude oil called for huge levels of investment, which, despite the harsh economic situation, were undertaken since this was regarded as a strategic investment that would lead to improved operation of the power generation system in 2003.

Cuba possesses 4 oil-refining plants, 11 sea-terminals and one terminal for supertankers. In 1991, in promotion of foreign investment, the country allocated 45 blocks for exploration. Eleven of these have already been contracted.

6.2.3 Sugar

The process of restructuring the sugar production industry marked another complex and transcendental step in this process of social and economic transformation. The decreasing trend of sugar prices on the world market made it impossible to cover production costs, except in the most efficient factories. This restructuring of the industry led to the decommissioning of 70 sugar factories. The land thus released is to be devoted to other productive sectors such as food crops, livestock, forest development and organic and intensive farming. The remaining sugar factories will continue producing sugar and its by-products, including power generation from the sugar cane biomass.

6.2.4 Nickel

In 2002, nickel production maintained the level of 75, 600 tons that was produced during the preceding year.

6.2.5 Tourism

The tourism industry was affected by the combination of two elements, namely, the fear generated by the events of September 11 2001, in the United States of America; and the world economic recession. Nevertheless, by the end of 2002, signs of recovery were evident. At present, there are 40, 000 hotel rooms in the Cuban tourism plant.

6.2.6 Science and Technology

The Cuban scientific-technological sector has 500 patents registered in different countries. It also has 200 sanitary registers accepted in tens of countries and exports in this sector show a steady annual increase. Cuba is at present engaged in a process of enterprise improvement, characterized by the application of the stringent rules to which participating enterprises must conform. The benefits of this process are expected to accrue over the medium term.

6.2.7 Demographic Trends

At the end of 2001, the Cuban population stood at 11.2 million inhabitants. The urban population had increased to 8.4 million and its rural counterpart to 2.8 million. These demographic trends are closely linked to the process of transformation that is currently taking place in the fields of education, health care, employment policy and the participation of women in the economic and social life of the country, among others. The decrease in infant mortality and the increase in life expectancy at birth, also reflect the transformation.

Also of significance is the process of change in demographic growth which is characterized by a sharp reduction of births, associated with the relative ageing of the population. This ageing of the population arises from low levels of fertility, a phenomenon that became more evident after the decade of the 1970s during which the gross reproduction rate (GRR), showed values of under 1.00, a situation which persists up to the present time.

6.2.8 Social Development and its Impacts

The integration of Cuban society reflects a number of factors, among them, the existence of equal opportunities and access to employment, income and basic services, as well as the strictest respect for diversity, thus eliminating all kinds of discrimination, whether on the basis of gender, ethnicity, religion or social class; and preserving the right to life. Progress in the field of social developments is closely related to the spheres of Health Care, Education, Employment, and Social Integration, among others.

6.2.9 Health Care

The health care system in Cuba, is regarded as a permanent priority and as an area for continuous development. It is closely linked to the population and is available to all citizens without cost.

Among the more significant results recorded in this area are an increase in life expectancy at birth; the reduction of the child mortality rate; increased deliveries at hospitals; a positive decrease in the number of inhabitants per physician and dentist; the strengthening of primary health care, based on the fundamental pillar of the family doctor and nurse; the development of natural and traditional medicine; the use of state-of-the-art technology in the research institutions of the National Health System; and the main programmes of this system: mother-child, communicable and non-communicable diseases, and attention to the elderly.

Between 1959 and 1991, over 1,500 health care facilities were constructed. In Cuba, there are, at present, 280 hospitals; 442 polyclinics; 168 clinics for mouth disorders; 33 institutions and faculties for the medical sciences; 26 blood banks, where blood is tested and received without charge; 219 boarding houses for nursing mothers; and 196 homes for the elderly. With respect to the hospitals, 83 are general hospitals; 31 are clinical-surgical hospitals; 26 are paediatric hospitals; 18 are dedicated to obstetrics and gynaecology; 16 are maternity-paediatric; 64 are rural hospitals; and 42 are specialized hospitals. There are 89 Intensive Care Units in the country: 53 for adults and 36 paediatric institutions.

By 2002 Cuba had one physician for every 170 inhabitants; one dentist for every 1,129 inhabitants; and 74.3 nurses for every 10,000 inhabitants. Other outstanding data for that same year include a 55.7 mother mortality rate for every 100,000 live births; 98.5 per cent of children under two years of age totally immunized against TB, measles, tetanus, diphtheria, poliomyelitis and rubella; 6.1 per cent of nursing babies under weight at birth; 100 per cent of the population with access to health care services; 99.9 per cent of child deliveries in hospitals; and 6 per cent of GDP devoted to health care.

In addition, Cuba is the only country that has a complete state-sponsored programme, created in 1990, for the treatment of the victims of the Chernobyl disaster. Between 1990 - 2001, 19,754 patients were treated, of whom 85 per cent were children.

6.2.10 Education

Other significant achievements in the area of human development have been recorded in the area of education. Among the measures implemented in this regard are: the extension of education services to the entire country and to all social sectors; the creation of new classrooms; the literacy campaign; and the creation of the subsystem for adult education; the implementation of the Nationalization Act for Education, which includes the responsibility of the State and the right to all the services free of charge, without distinction or privilege; the creation of the National Plan for Boarding Schools; and University Reform.

The Cuban education system is constantly being improved, guided by the principles of equity, universality and free access to all levels. The system caters to pre-schoolers in day-care centers; to youths; and to adults in higher education. All girls and boys of school age reach the fifth grade, thus completing the first cycle of basic learning. The student-teacher ratio has been significantly reduced and currently stands at 20 students per teacher.

In addition, provision is made for orphans, with 21 centres currently operating in the country. Provision is also made for disabled children, through the establishment of over 429 special schools which serve 55, 000 students.

To achieve these objectives, the system has 14,400 staff members, including speech therapists and teaching assistants, which treat children with sensory, intellectual, and physical deficiencies as well as behavioural disorders. More than 17, 000 such children have been subsequently incorporated into working activities.

The provision of this range of educational services required a massive programme of construction of educational centres. Between 1960 and 1995, more than 7,000 educational construction projects were undertaken: an average of 200 per year. In 2002, a programme for the reconstruction of schools was carried out to make them more functional and to improve the educational services provided.

At present, 2.4 million students are enrolled in Cuba, accounting for over 21 per cent of the population. At the same time, and through different modalities, appropriate levels of qualification are achieved by the teaching staff, in accordance with new pedagogical and research techniques. This is regarded as an indispensable condition for the continuing educational development of the country.

In addition, there are 119,575 youths being prepared for social service and employment through Integral Upgrading Courses. This new initiative is directed to young people who are neither studying nor working. There is also the development of a network of Young Clubs for Computer Science; polytechnic schools for informatics with more than 20,000 students; the availability of informatics-related specialities in 11 universities and 14 Pedagogical Institutes; and the creation of a University Centre specialized in Computer Sciences with an initial enrolment of 2007 students.

An Educational Channel has been created on Cuban Television that covers the provinces of Havana City, Havana, Santiago de Cuba, Camaguey and Pinar del Río. Its programming provides for intellectual development up to University level, including different elements of universal culture; and materials covering almost all fields of human endeavour.

6.2.11 Employment

Cuba seeks to provide stable employment with adequate remuneration to all employees in accordance with the economic and social profile of the country. The guiding principles in this regard are equity and the inclusion of all social sectors including the working classes, the youth, single mothers and the disabled.

Although some advances have been made in this regard, a number of measures are currently being developed to promote the more efficient utilization of the labour force. Among these measures is the promotion of new sources of employment, as a contribution to the diversification of the economy and the upgrading of the labour force.

In Cuba, women play an outstanding role in national development and enjoy equal opportunities both with respect to employment and remuneration levels. The number of women with professional and technical responsibilities exceeds that of men in similar occupations. Some 30.3 per cent of Cuban women occupy executive and administrative positions, while 66.1 per cent are engaged in the professional and technical spheres. Women also dominate the services sector.

At present, 3,843,000 persons, male and female, are fully employed, equivalent to 58 per cent of population of working age. The unemployment rate currently stands at 3.3 per cent.

In the field of social security, social assistance and social security provide protection for more than one million persons. The programmes developed in this area cater to the needs of senior citizens, single mothers and social cases, among others. No one is left outside the social security system.

6.3 The Challenge of the Environment and Development

Protection of the environment and the rational use of natural resources, as the common heritage of Cuban society, have been national strategic objectives in Cuba since 1959. In this regard, the basic objectives are to remedy the environmental problems of the past; to address present problems; and to avoid, to the extent possible, any further degradation of the environment. These have been the basic elements in the process of integration of the economic, social and environmental dimensions of development.

These objectives have been complemented with, among others, actions aimed at increasing forest cover; the declaration of a number of protected areas as a first step in the development of a national system; the territorial planning and environmental evaluation of investment; the development of scientific and technological capacities with economic and environmental objectives; the gradual introduction of the environmental component, into the different levels of the national education system; and the strengthening of environmental activities throughout the country.

All these actions directed towards the protection of the environment and the rational use of natural resources continue to be based on criteria of equity, whether with regard to social participation in the decision-making process; the execution of the different socio-economic programmes; equal opportunity; and the efforts to ensure intra-generational as well as inter-generational equity.

The following sections are devoted to the identification of areas of action in the sphere of *the environment* and the exploration of their relevance to social and economic development.

6.3.1 State of the Climate and of the Atmosphere

The year 2001 was characterized by temperatures which were above average during most of the year, due mainly to the high values registered for minimum temperatures. On the other hand, the months of January and November were the coldest in two decades.

In addition, low levels of rainfall were recorded in the eastern and western regions giving rise to periods of severe drought. As is the case in other Caribbean SIDS, particular attention needs to be drawn to the risks and vulnerabilities in relation to natural disasters. Hurricane activity in 2001-2002 was severe, as evidenced by the damage wrought by Hurricanes Michelle, Lili and Isidore, the first of which was the most intense hurricane to have struck Cuba since 1952. It is also significant in this regard that, at the same time, in 2002, notwithstanding the very limited supply of construction materials, 28, 400 houses were built, eighty per cent of which were allocated to persons affected by these natural disasters.

Tropical cyclones have been identified as the most dangerous meteorological events that affect Cuba. During the twentieth century, the island was visited by 100 tropical cyclones, 10 of which were classified as major hurricanes. The period 1910-1952 showed very active decades and accounted for the most intense hurricanes of the century. The period 1952-1995 showed a decrease in this activity, followed by a renewed increase which peaked in 2001 and 2002. According to studies and forecasts, this trend could continue over the next 20-25 years.

In light of this situation, a high level of awareness and concern has been generated by the national and local authorities and also by other organizations and the population at large. Policies, strategies and measures for mitigation; preparedness and response; rehabilitation; and reconstruction have been developed to cope with these events and have contributed significantly to the reduction of the risks and their impact on the population and the economy.

With respect to the atmosphere, the average concentrations obtained for gas compounds over the period 1986 – 2001 show an increasing trend in the concentration of the oxidized compounds that are the main precursors to acid precipitation. For several years, there has been an increasing trend with respect to the frequency of acid precipitation. Moreover, between 1989 and 1995, this situation had become more pronounced to the extent that it became an important determinant of atmospheric quality at the regional level. However, from 1996 this trend has abated.

At the international level, Cuba has discharged a wide range of responsibilities as a Member of the Executive Committee of the Multilateral Fund of the Montreal Protocol (2000-2002), and as a Member of the Board of Working Groups II and III (2001-2006 and 1996-2006, respectively) of the International Panel on Climate Change (IPCC). These responsibilities, together with its national efforts towards the improvement of the atmosphere; combined with the capacity acquired in the study of climate change, have rendered the country eligible for national, as well as regional projects from institutions of the United Nations system. This development has enabled Cuba to widen its experience and knowledge in these areas and also to share these with other interested Caribbean countries. Cuba has presented its Initial National Report within the framework of United Nations Framework Convention on Climate Change (UNFCCC).

6.3.2 Water Resources

The *coverage* of water suitable for human consumption is represented by the number of persons who enjoy access to this service. In Cuba, there are three modes of access to safe water: family connections to pipelines; public service based on supply by water tankers on trucks, and

easy access i.e. carried from within 300 metres of dwelling places. Significant improvements have been recorded with respect to all these modes. In 2001, 128,400 inhabitants enjoyed access to safe water, an increase of 0.9 per cent over the previous year and leaving only 15.8 per cent of the total population under the *easy access* conditions.

On the other hand, the public service modality (water tankers on trucks), showed a reduction from 6.8 per cent, to 5.4 per cent, reflecting an improvement in the conditions of 153,300 people, who hitherto depended on vehicles for the transport of water. The hydrological potential of the country makes it possible for water resources to meet needs for residential, agricultural and industrial needs, by region. Seventy-two percent of the water supplied to the population comes from underground sources and the remainder from surface sources. The water supply is maintained for an average of 11.8 hours daily. There are 1,422 chlorination stations and 55 treatment plants for the provision of safe water. In 2001, 98.8 per cent of the water supplied was treated.

As a result of a large programme for the construction of dams, including micro dams, the water storage capacity of the country increased from 48 million cubic meters in 1958, to 9,600 million cubic meters at the beginning of the present decade. This has permitted a substantial increase in the safe water coverage for the population.

In 2000, five new full sized aqueducts were opened, including 592 aqueducts in rural communities. During the years 2000 and 2001, the widening and rehabilitation of aqueducts and water treatment plants were among the major activities undertaken in this sphere. According to official statistics, over the period 1997-2001, 2,048 new rural aqueducts were opened, to cater to the needs of 1,203,600 citizens.

The positive balance recorded in 2001 permitted the satisfaction of water demand for production and services during the year 2002. On the other hand, within recent years, there has been evidence of increased levels of pollution of marine as well as inland waters. This is related to the deficit in waste management in the country and to the deterioration of the services of monitoring and control of water quality, due to the lack of financial resources. The solution of these problems requires significant levels of investment in environmental sanitation in human settlements. A major requirement in this regard is the improvement of environmental organization and performance, with a view to ensuring optimal use of the limited resources available.

Water treatment in Cuba is carried out by means of the collection of some of the residual waters in the sewer system. The remainder of the residual waters is eliminated through septic holes or latrines. Nowadays, 38.9 per cent of the population is connected to the sewer system; 55 per cent use latrines; and 6.1 per cent have no services, these last in rural areas. Overall, 94 per cent of the total population are served by the different systems.

6.3.3 Urban Solid Waste

Although improvements have been recorded in this area within recent years, the environmental requirements, including sites for the storage, collection, transportation, handling and final disposal of solid wastes, remain to be fully satisfied. However, in 2002, there was a significant improvement in the collection of urban solid wastes resulting from the use of collection containers, in neighbourhoods, on each block; and from a National Campaign aimed at the elimination of all waste disposal areas that could become incubation sites for disease vectors, mainly in the City of Havana and the provincial capitals.

In 1996, the volume of solid waste collected was 17, 451,700 cubic meters. By 2001, this had increased to 22,439,900 cubic meters, of which 13,952,900 were sanitized. Also in 2001, more than 100 landfills were established, increasing the number of these facilities to 788. Of these 382 are equipped with sanitation facilities.

The recycling of waste, both from industry and from the population at large, is among the elements of the waste-management process that require additional organization and financial resources.

6.3.4 Forests and Soils

Prior to 1959, Cuba was in the throes of an accelerated deforestation process, particularly between the early nineteenth century and the 1950's. From the 95 per cent forest cover existing in 1492, this was reduced to 89 per cent in 1812; then to 54 per cent at the beginning of the twentieth century and then to 14 per cent in 1959. The reforestation effort carried out after 1959 received wide support from the population and led to an increase in the forest cover to 127,500 hectares during the period 1999-2001, at an approximate rate of 30,000 hectares per year. Total forest cover currently stands at 22.8 per cent, as against a potential level of 28 per cent.

During the early 1990s, a trend appeared towards the irrational use of forests for power generation, due to the lack of fuel for domestic consumption. At present, the National Environmental Strategy incorporates actions to address the problem of deforestation and to improve forest management; a combination of educational and legal tools for the infringement of the legislation in force; support for forest restoration in mountainous areas and fragile ecosystems; and provisions for an increase in the volume of forests for power generation.

As regards soil conservation and improvement, according to soil studies carried out in Cuba, related to the classification of soils according to their economic importance, 25.2 per cent of the area under study was classified as *productive-very productive*, indicating that these soils can produce a yield of over 50 per cent in a wide variety of crops. However, 74.8 per cent of the area is covered by soils of low-very low productivity, affected by limiting edaphic factors, which prevent them from producing their potential yields. This reflects the process of soil degradation

as a result of improper management and exploitation of soils, thus giving rise to erosion, salinity, compaction and acidity.

Soil degradation in Cuba is associated with such diverse phenomena as erosion (4 million hectares); poor drainage (2.7 million hectares); salinity (approximately 1 million hectares); acidity (1.7 million hectares); and compaction (approximately 2 million hectares), among others. This situation results in some 60 percent of the surface of the country being affected by these and other factors which accelerate the processes of desertification.

According to a study undertaken by the Institute of Soils, a total of 3.4 million hectares, representing 14 types of soils, are affected by acidity. In the Western Region of the country, acidity affects 25.48 per cent of the entire area. In the Central and Eastern Regions, the corresponding figures are 28.91 percent and 9.89 per cent, respectively. Over a million hectares, which represent approximately 14 per cent of the agricultural land of the country, manifest a high saline content, reflecting the impact, over several decades, of such factors as irrigation with water of poor quality; the elevation of the watershed level; problems arising from the construction of canals and dams; and damage to the drainage network.

Among the measures that have been adopted are those embodied in the National Programme for Reforestation; the National Programme to Combat Desertification and Drought; and the National Environmental Strategy. Given the gradual recovery of the forest cover, a deforestation process can no longer be said to be taking place in Cuba. While a number of deforested areas remain, these are receiving focussed attention.

6.3.5 Biological Diversity

Cuba has adopted a National Biodiversity Strategy and Action Plan that is among the most outstanding in the Caribbean Region by reference to the degree of national participation involved in its development and execution, as well as the territorial scope of its implementation. The main features of this Strategy are territorial adjustment; the actions embodied in the Action Plan, a substantial part of which are in the nature of sectoral and territorial strategies; and the development of research projects that respond to the main questions raised in the National Biodiversity Study.

The advances recorded in this area may be illustrated by, inter alia, the activities that are currently being implemented at the national level. Among these activities are the development of programmes for the management and restoration of Hydrographic Basins; the strengthening of the National System of Protected Areas; the rehabilitation of biodiversity in degraded areas; the strengthening of air, water (marine and coastal) and soil pollution controls; the execution of projects to manage biological diversity in hydrographic basins; integrated studies of coastal ecosystems; the conduct of enabling activities for the monitoring of biodiversity, including agro-diversity; and economic incentives for the conservation of biodiversity and related enabling mechanisms. These activities continue to enjoy the support of the Global Environmental Facility

(GEF), the United Nations Environmental Programme (UNEP) and the United Nations Development Programme (UNDP).

At present, particular attention is being paid to impact assessment and to the implementation of preventive and corrective measures. Areas identified for priority attention include the preservation of germoplasm banks; the regulation and control of risks from the use of genetically modified organisms; and special programmes for the conservation of species in danger of extinction.

6.3.6 Fisheries Resources

Trends in fisheries resources statistics indicate a historical loss of 20,000 tons, due, probably, to the combined action of over-fishing and changes in the marine ecosystem. While some of these losses may be recovered through the regulation of fishing activity, some changes, arising from impacts on the coastal zones and from unfavorable climatic changes, could be potentially irreversible.

Moreover, one of the reasons for the decrease in capture is, without a doubt, the indiscriminate capture of several species during their mating period. However, it would be incorrect to attribute the total decline to this factor. An analysis reflected in a 1995 study, showed that, of the 21 most important fish species or group of species of the Cuban continental shelf, 38.9 per cent were at the *senile* stage; 48.7 per cent were in the *developed* stage with a high level of exploitation; and only 12.4 per cent were in the *development* stage with the possibility of increasing catches. This corroborates the fact that 87.6 per cent of this resource was in a state of crisis and demanded urgent implementation of existing regulatory measures such as the prohibition of capture of certain species and the enforcement of regulations in respect of the size of catches; fishing techniques; the issue of fishing permits; and the demarcation of permitted fisheries zones.

6.3.7 Environmental Management and Control Mechanisms

These mechanisms are mainly in respect of:

The investment process for the Environment: Notwithstanding the prevailing economic difficulties, in 2001, 236.6 million pesos worth of investment was envisaged, an increase of 15.2 per cent over the previous year. This exemplifies the efforts that are still being made to protect the environment and to reverse the degradation of its main components, among them, water, soil, atmosphere, forestry resources and solid waste.

Some 88 per cent of the investment objectives were achieved in 2001. In 2002, the volume of investment increased by 6 per cent. This investment process represented 0.715 per cent of the GDP for the year 2001, a increase of 0.015 per cent over the previous year. The main areas targetted were water resources (52.5 per cent), followed by atmosphere (15.7 per cent). However, the greatest increases were in the areas of soil and forestry resources, which recorded increases of 148.3 per cent and 132.8 per cent, respectively, over the previous year.

The National Environmental Fund: The National Environmental Fund was created by Act No. 81 (of the Environment). In its Chapter X, Article 65, it is provided that the objective of this Fund is to promote the total or partial financing of projects or activities directed towards the protection of the Environment. The Fund, which already has its regulatory instruments, is in its developmental stage and is endeavouring to increase its financial resources through national taxes, among other sources. This Fund which falls under the Ministry of Science, Technology and Environment (CITMA), commenced a process of decentralization in 2001, by virtue of which functions related to contracting, payment and control of investment are being delegated.

- **Environmental Inspection and Control:** Over the period 1995-2001, public environmental inspections may be said to have been satisfactorily conducted, given the recognition of the need to develop this area of activity; to train staff, and to generate the required degrees of awareness of the need for this process. In 2001, 264 inspections were carried out, including the inspection of 60 municipalities, 3 hydrographic basins, and 2 bays of national interest. The number of sanctions imposed as a result of the inspections increased by 53 per cent, assisted to a significant extent, by the Decree-Law on Contravention, which was fully enforced, leading to the sentencing of 297 persons, 86 per cent of which were legal persons. In 1999 and 2000, the number of inspections carried out were 248 and 255, respectively.

As regards environmental impact assessment, in 2001, 772 applications for Environmental Licenses were received and of these, 561 were approved. In addition, 795 sites were inspected and this has served to consolidate the corresponding activities and to strengthen the importance attached to the fulfillment of the conditions for the granting of Environmental Licenses. This process has shown stability in recent years.

- **Scientific and Technical Programmes:** In the period 2000-2001, a number of scientific and technical results contributed to the strengthening of the National Environmental Strategy. These results were obtained by means of the implementation of new elements related to management, knowledge and sustainable use of the country's natural resources.

The most outstanding results in this area were in respect of, inter alia, the climatology of hurricanes, its variability and possible connection to global climatic changes. This topic is of great importance since hurricanes are among the meteorological phenomena that wreak the greatest destruction in Cuba. Evaluations were also undertaken of the hydrological, agricultural and forestry resources; coastal and marine resources; human settlements; biodiversity and wildlife; as well as human health. All these activities permitted an integrated analysis of the impacts of climate change and the development of corresponding action plans.

The programmes related to the Social Sciences also yielded important results on the human dimension as applied to environmental studies. Compared with similar initiatives in the other SIDS of the Caribbean, this particular element, among others, can be said to have advanced in qualitative terms,

- **Environmental Education:** The task of strengthening environmental education has been significant during the last five years and has been oriented towards sustainable development. A major feature of the process has been a gradual increase in the participation of state organizations and institutions, social organizations and the population in general. In addition, most projects executed with national and international financing, incorporate an environmental education component.

Schools and the communications media have also increased their activities in this field to provide what is now national coverage. Overall, there are over 400 projects in this area involving institutions, national NGO's and international organizations.

Another important element in the Environmental Education process is the "*University for All*" ("*Universidad para Todos*") project that is implemented by Cuban Television. The project, which commenced at the end of 2001, covers 29 subject areas relating to the environment thus promoting a higher degree of awareness of the relevant issues

In this regard, evidence of an extraordinary reserve of knowledge and sensitivity has been provided by the population at large, including local communities. However, it is still deemed necessary to continue efforts to inculcate the notion of *sustainability* in its fullest sense across the population.

It is also perhaps significant that, in 2001, Cuba was selected by UNEP as one of the world venues for the celebration of "World Environment Day", which is observed on 5th June each year. Cuba's selection was based on the results achieved by the country in environmental protection and conservation. The motto of that celebration was "*For a Globalization of Environmental Culture and Solidarity*".

- **Environmental Information and Dissemination and the National Environment Award:**

A number of significant developments have been recorded in this field, including the creation, in 2001, of the www.medioambiente.cu website; the participation of Cuban institutions and consultants in the Regional Consultation process for the Global Environmental Outlook (GEO): "Perspectives for the World Environment", which was sponsored by UNEP; and also in the development of the study on "*The sustainability of development in Latin America and the Caribbean: Challenges and Opportunities*" which was carried out by ECLAC, as a contribution to the regional preparatory process for the World Summit on Sustainable Development (WSSD).

Other related achievements include the development of Cuba's Environmental Scenario 2000, with the participation of Cuban institutions; the creation of the National Network for Cleaner Production and other modalities which enhance access to information on this topic; and the launching of the first electronic magazine "*Cuba: Environment and Development*", a publication oriented towards fostering a more responsible attitude towards environmental problems.

At the same time, the increasing trend towards the development of activities in communication and dissemination has been maintained, including the elaboration of different dissemination materials and products for the media.

Also worthy of mention is the institution, in 2001, of the National Environmental Award, as a means of recognizing the efforts of persons, groups, or other entities towards the solution or amelioration of environmental problems.

During the period 2002-2003, these mechanisms were further improved. Among the achievements in this regard, were the development of relevant legal instruments and the promotion of further institutional strengthening.

6.3.8 Other Instruments of Cuban Environmental and Sustainable Development Policy

Although environmental policy and management in Cuba are based on the National Environmental Strategy, this is supplemented by the National Biodiversity Strategy; the National Strategy for Environmental Education; the National Action Program against Desertification and Drought; the National Strategy for Nuclear Safety; and the National Strategy for Biological Safety. Other instruments include the 1997 Environment Act; the sectoral strategies of the Organizations of the State Central Administration (OACE) of the period 1997-98; and the Territorial Strategies of the same period.

Within the framework of the integrated management of natural resources there are: the Mountain Ecosystems which are special regions for sustainable development; the Hydrographic Basins; the National Council of Hydrographic Basins was constituted in 1997 and contains Provincial Councils;⁷⁵ the National and Provincial Groups for Bays and Harbours, directed towards integrated management; and the Beaches, Swamps and Protected Areas which falls within a National System, resulting from a GEF/UNDP project which has been continued under another project entitled: *Strengthening of the National System of Protected Areas*, which will preserve very representative associations of four eco-regions of the country that will enjoy world wide recognition.

In the area of *Urban Environmental Management*, the major elements include solid and liquid waste management; the safe water supply in quantity and quality for the population; environmental health and hygiene; and the management of green areas.

In the area of *Environmental and Enterprise Management*, the modalities include the System for Environmental Management; the National System for Environmental Recognition and ISO Certifications; investments in the environment within the Global Plan of the Economy; the maintenance and operation of waste disposal systems; the monitoring of discharges, emissions and pollution charges; and the creation of Committees for Environmental Management, among others.

⁷⁵ The National Council of Hydrographic Basins was constituted in 1997 and contains Provincial Councils

In addition, a number of key elements are being developed, among them, the promotion of integrated and systematic approaches, harmony and coherence; intra-institutional and inter-institutional coordination; decentralization; social participation; and environmental education.

6.3.9 National Preparations for the 2004 International Meeting

The National Group constituted for this purpose is coordinated by the Ministry of Foreign Affairs and comprises representatives of the Ministry of Science, Technology and Environment; the Ministry for Foreign Investment and Economic Cooperation; other relevant national sectoral institutions; and non-governmental organizations.

The preparatory process involves the convening of several meetings, including a national consultation and culminating with the participation of Cuba in the international meeting in 2004.

In conjunction with the aforementioned institutions, the Ministry of Science, Technology and Environment is spearheading, the national evaluation of the implementation of the SIDS POA, as well as the formulation of responses to the corresponding questionnaire administered by the Department of Economic and Social Affairs of the United Nations (UNDESA).

6.4 Summary

Cuba has made great efforts in the field of environmental protection and the rational use of natural resources. The basic strategic objectives, have been to remedy the environmental problems of the past, to address present problems; and to avoid, to the extent possible, any further degradation of the environment. These remain the basic elements in the process of integration of the economic, social and environmental dimensions of sustainable development.

The most important achievements in environmental matters since 1959 in Cuba are the eradication of critical poverty and the improvement of the quality of life of the population.

The National Environmental Strategy represents the inter-relationship between environment and development. The main environmental problems of the country are identified on the basis of a range of criteria, for example, the impact on the health and the quality of life of the population; the implications for priority economic activities; the territorial area affected; and their effects over highly fragile and economically important ecosystems. The analysis of the environmental situation of the country also includes the risks and vulnerabilities in relation to natural disasters.

These elements take into account the essence of the SIDS POA and the interrelation between the environment and economic and social development, as adumbrated at the twenty-second special session of the UN General Assembly. In the context of that approach, the activities aimed at addressing the full relevance and impact of the environmental dimension on the Cuban economy and society, in the period 1994-2002, are considered by the Cuban Authorities to have been satisfactorily executed.

Among the more significant indicators in this regard, are the following: a 0.9 percent increase in safe water supply for the population for a total coverage of 95.5 percent; a 0.6 percent increase in environmental sanitation for a 94.7 percent of coverage; and the sustained progress in water treatment with a 98.8 per cent coverage with chlorine. All these elements have had a very positive impact on the quality of life of the population. Other achievements include the increase in the forest cover which now represents 22.8 per cent of the total surface of the country; the reduction of the volume of pollution discharged into the environment by 10.95 percent at the national level, and by 8.36% in the hydrographic basins of national interest. Finally, attention might be drawn to the increase in cleaner production practices in industries and services.

All these actions have been combined with measures taken in the context of environmental education and extension, as well as other actions adopted to promote a wider and more effective access to environmental information.

Other elements which may be highlighted, include:

- the interrelation between environmental control and the enterprise system, in which the progress and deficiencies of enterprise environmental management are analyzed and evaluated and actions proposed for the solution of the environmental problems detected;
- the process to establish and develop the National System for Environmental Recognition, based on the interest showed by more than 100 productive and service enterprises in having their environmental impact assessed, with the objective of identifying their problems and implementing measures to improve their environmental performance.
- The experience that has accumulated, the mechanisms created, the projects executed, as well as their impact on the country, in addition to the transmission of all lessons learned, to other developing countries through international cooperation.

Notwithstanding the above-mentioned achievements, Cuba has established certain major lines of action, with a view to improving the impact on the environment of economic and social development in the short and medium term. These include:

- **Power generation: emphasis on the implementation of new up -to-date technologies for the use of fossil fuels and for the increase in renewable power sources;**
- **Chemical products:** to adopt a studied approach for the handling of these products during their life cycle, in keeping with the Stockholm and Rotterdam Conventions;
- **Water and sanitation:** this will be maintained as a priority in accordance with the National Environmental Strategy, with hydrographic basins as a starting point;
- **Fisheries:** the continued development of the National Programmes for aquaculture and mariculture, which should be integrally developed in order to guarantee the sustainable management of these resources;
- **Forestry:** to continue increasing the forest cover, based on the new approach in mountain areas and the restructuring of the sugar industry;

- Tourism: to maintain and expand the search for sustainable economic and environmental solutions;
- Sustainable agriculture: this concept should continue to guide the search for food security, promoting the results of scientific research, technological innovation and community participation;
- Soil improvement and conservation: the highest priority is to be assigned to the mitigation and solution of environmental problems; and
- Biodiversity: all actions for loss reduction will be maintained with special priority given to providing access to genetic resources and the development of tools related to the Convention on Biodiversity.

6.5 The Way Forward

Among the perspectives harboured by Cuba for the future, are:

- The implementation of actions towards increasing the link between environmental protection and general integrated culture, as well as with the economic and social development plans, national identity and sovereignty;
- To increase knowledge about natural Cuban ecosystems, with special emphasis on the relationship between coastal and inland areas;
- To continue improving the concept of hydrographic basins and of other ecosystems of interest, as the basic units for the evaluation of sustainable environmental management;
- To encourage participatory and community-based environmental management, linked to local cultural components; and to improve the environmental management systems towards enterprise perfection.

The experiences acquired by Cuban specialists and institutions could be of great utility to other small island developing States, particularly those in the Caribbean, taking into account the fact that the subregion constitutes an important geographic, economic, environmental and cultural unit.

CHAPTER 7

Curacao⁷⁶

7.0 Introduction

The Netherlands Antilles is a part of the Kingdom of the Netherlands and enjoys autonomy with respect to its domestic affairs. It comprises five geographically-dispersed islands: Bonaire and Curacao which lie just off the Venezuelan coast and Saba, St. Eustatius and St. Maarten are some 800 miles to the north-east. St Maarten is partitioned into French and Dutch sections, corresponding, respectively, to the north and south of the island. The Netherlands Antilles has a total land area of 783 square kilometres and a population of 217,000.

7.1 Tourism

The growth potential of tourism makes it the lead economic sector. The majority of visitors to Curacao come from the Netherlands and the United States of America (USA). In recent times there has been a decline in tourist visitors from Venezuela. Overall, however, Curacao has been receiving an increasing number of tourists over the years, due in part to an aggressive promotion and marketing campaign funded by the Dutch Government. Initially, Curacao's tourism was based on the conventional attractions such as beaches and related amenities. More recently, however, efforts are being made to develop heritage tourism, using the rich history of the island and diverse cultures of its people.

The tourism sector in Curacao may be subdivided into cruise and stay-over visitors. Stay-over tourism is aimed at promoting the sector and improving the quality of the tourism product. Cruise ship tourism which increased and stabilised in 2000 is expected to resume its growth pattern in 2004.

Currently, there are insufficient rooms to achieve and sustain significant growth in the sector. Further, complaints of poor service are frequent. Inefficient marketing and an insufficiently qualified labour force complete the suite of challenges facing tourism authorities.

The island is currently making a new marketing thrust aimed at increasing stay-over visitors by 31 percent and cruise ship visitors by 10 per cent over the period 2002-2006. The expectation is that such developments will boost employment and supply a ready source of foreign exchange. Following the example of a number of other Caribbean SIDS, Curacao is seeking to tap the "high end" market.

The Curacao Tourism Board is the main institution involved in this initiative. It envisages that, a revised of the tourism marketing plan, coupled with the acceleration of the upgraded skills of tourism service providers would create the ideal conditions for the expansion of the sector. It

⁷⁶ This report, whose limitations are recognised, will be used as the basis for the preparation of a more comprehensive document by the newly established Official Sustainable Development Coordinating Team in Curacao, pending the eventual issue of a National Sustainable Development Implementation Policy

is also envisaged that the Curacao Economic Participation Fund (CEPF) will stimulate an increase in the number of rooms, while at the same time improving the tourism product.

Among the many tourism-related projects that are being implemented are: the Contingency Marketing Plan; the Renovation of the Molemplein and Riffort; the Hotel Industry Crash Course; Phase 1 Renovation of Roads; Christoffel National Park; the landscaping of the Route Hato-Downtown; and the Curacao Economic Participation Fund.

The increase in the number of stay-over tourists by 7 percent and 6.5 percent 2001 and 2002, respectively, is attributed, mainly to the Contingency Marketing Fund. The supply of 138 trained professionals as a result of the implementation of the Hotel Industry Crash Course and the Renovation of the Molemplein, has cleared the way for the construction of the Howard Johnson Hotel and the renovation of the Martinus Building which will house a medical university.

The Government of Curacao plans to invest approximately 117 M Netherlands Antilles dollars in the tourism sector over the period 2003-2006. Of this quantum, 73 M will be spent on developing the tourism product; 25 M on marketing; 18 M on human resources development; and 0.5M on tourism studies.

7.2 Environment and Public Health

The Ministry of Public Health and Social Development is assigned responsibility for the portfolios related to Sustainable Development and Environment. In this regard, it is responsible, as directed by the Central Government, for the implementation of the Multilateral Environmental Agreements (MEAs) to which it is a party. The Netherlands Antilles are signatory to a number of MEAs, including the London Convention; MARPOL; CITES; the Inter-American Convention for the Protection and Conservation of Sea Turtles; and the Convention on Biological Diversity (CBD).

Due, mainly, to the scattered nature of the island territories and the different prioritisation of issues informed by local factors, there is a capacity problem in relation to environmental management. Further, while some MEAs can be implemented on a local scale, for example, the Convention on Biodiversity, others such as the Cartagena Convention, deal with relationships between countries. Generally, bilateral Agreements are more easily implemented. MEAs fall within the province of the Government of the Kingdom of the Netherlands to which the islands submit reports on compliance issues within their respective territories. Arising from the small populations and the lack of capacity, important roles are played by NGO's and other Community Based Organizations in the management of natural resources; public education; and implementation of commitments under the several MEAs. Thus NGOs regularly interact with Government and wide-ranging exchanges of information, both formal and informal, take place, especially through the National Nature Forum where the Government meets with NGOs at least once every two years to address themes related to Nature; to seek funding; and to advance co-operation.

General environmental education is provided by a Commissioner of Education. With significant assistance from NGOs. NGOs also conduct environmental awareness initiatives in respect of which the Government may assist with funding as well as with content. While the Department of Environment and Health is charged with the mandate for Sustainable Development, the level of inter agency co-operation falls short of what is required to carry the process forward effectively. For example, the policies of the Environment and Health Department are not informed by inputs from the other large multidisciplinary agency, namely, the Department of Economic Affairs.

Environmental management in the Netherlands Antilles is supported by the Nature Conservation and Environmental Policy, 1996-2001 and its successor, which covers the period, 2001-2006. Both instruments were formulated on the basis of a consultative process that involved all stakeholders in all the islands and were informed by the concept of intergenerational equity as defined in the Brundtland Report. They outline environmental issues of concern to all the islands identifying those which can be addressed at the local and central levels. The priority concerns identified are Waste and Wastewater; Oil and the Environment; Tourism; Environment and Nature; Nature Conservation; and Environmental Awareness:

Due to lack of separation and recycling of waste, garbage and packaging materials were being dumped in landfills whose life-spans were steadily decreasing with the increase in trade and improvements in the standard of living. In an effort to eliminate waste at its source, the use of certain packaging materials was prohibited. In addition, improvements have been made in the landfills in Curacao/Bonaire and St. Maarten. However, due to the location of the landfill in St. Maarten in a lagoon area in the middle of the capital, incineration is being considered. In Statia and Saba, where garbage is dumped into gullies, the need to develop alternative systems has been recognized.

In the context of Waste Management, three ordinances have been passed, the Waste Management Ordinance (Bonaire), the Waste Water Ordinance; and a General Environmental Ordinance which can be adapted to the various islands. However, there is a significant degree of inconsistency in the implementation of the ordinances among the territories. For example, while in Saba and St. Eustatius responsibility for garbage collection is assigned to the Department of Public Health, in Bonaire, this responsibility is entrusted to an independent, Government-owned company. Moreover, in St. Eustatius there is an ongoing problem, in relation to which, due to shortfalls in funding or capacity, the waste is not covered properly. To address this situation, a Waste Management/Action Plan has been developed and subsequently approved by the island Government.

A survey conducted throughout the islands revealed the existence of a number of initiatives in the fields of recycling and reuse which were contributing to a decrease in the volume of wastes. The survey also noted that focussed assistance from the Government in this area, would result in a much healthier environment.

With respect to sewerage and grey wastewater disposal, most islands use a cesspit or septic tank system: the exception being Curacao where treatment plants are available for coastal and inner-city sewage disposal. Some sewage contaminated water reaches the near-shore

marine environment. However, work is in progress to connect all areas to the treatment plants. In the capital of Curacao, the downtown grey water is subjected to secondary treatment while other grey water is directed to septic tanks. Contamination of the water table is not an issue in Curacao, since the water used for drinking is desalinated water. Saba and St. Eustatius use rain water which is collected in tanks.

7.2.1 Oil and the Environment

The Netherlands Antilles has three oil terminals and two refineries among its five islands which present a very high risk of oil pollution both at the island and regional levels. Not only is marine diversity threatened by the transportation of oil, but the diving industry which boasts some of the best dive sites in the Caribbean, would be severely affected by any oil spills. The production of oil and oil products taxes the absorptive capacity of the environment and some 15,000 persons living downwind of the refineries are periodically affected by air emissions. As signatories to a number of Multilateral Environmental Agreements related to biodiversity and marine pollution, the island administrations recognise a responsibility to prevent any deleterious effects arising from refining operations.

7.2.2 Tourism and Nature Conservation

Because of the inextricable dependence of tourism on the natural environment, the island Governments have determined that the tourism industry must be developed within a sustainable context. Thus, attention is being focused on such aspects as spatial planning for tourism development projects; environmentally-sound hotel management; waste management systems; and nature management in relation to tourism and transportation.

In an effort to preserve the flora and fauna of the islands, the respective Governments have embarked on the establishment of a network of terrestrial and marine national parks. It is envisaged that each island will have at least one major protected terrestrial park with an actual management apparatus in place. Financing for such initiatives will be sought through debt-for-nature swaps; the establishment of a trust fund for nature management; and user fees. In addition, the Government intends to foster biological research to identify any endemic species and those that might be under threat. The trade in such species will be controlled in accordance with regional and international instruments, for example the SPAW Protocol and CITES.

7.2.3 Environmental Awareness

A number of environmental awareness programmes are being conducted in primary schools to address issues such as waste and its prevention. In several secondary schools, the international programme "Globe" has been introduced and connects schoolchildren from the Netherlands Antilles to other children all over the world through the Internet, for the purpose of exchanging environmental information.

The islands are also making efforts in the area of coastal zone management. The coastal zone in St. Eustatius is being affected by uncontrolled sand mining on beaches and the destruction of the vegetative cover by animals. Both practices lead to erosion inland and also in

the near-shore marine environment. In Curacao, a Water Plan is being developed since the natural water flow is no longer as stringently controlled as in the past and temporary flooding is caused by runoff from paved areas. In Bonaire, temporary flooding is sometimes experienced due the location of the city on a coral dyke with a lagoon immediately behind. The expansion of the city has meant that drainage from the lagoon can exit only through the city itself.

7.3 Social Issues

The Social Directorate is confronted with a wide range of priority issues, among them, care for the elderly, the disabled and migrants; prevention of crime and violence; poverty eradication; and preventive measures to counteract drug addiction. Currently, the Directorate's focus is on human resource development at the national and local levels, as part of a people-centred policy.

In Curacao, there is a school-feeding programme at primary school level. Meals are also distributed to homes. In addition, a Social Security System pays \$300 US per family, mostly to female-headed households. Persons who are unable to acquire their basic needs, may receive special assistance. A Social Security card which is issued to all persons at the age of eighteen, as they seek employment, entitles them to the corresponding Government benefits. Further, public health care is available free of cost, subject only to the presentation of a health card.

At the central Government level, there are policies and programmes for social development. A Social Safety Net is administered within the Department of General Issues which falls under the Prime Minister's Office. Poverty Eradication and Youth Development Programmes are administered by the Department of Development Co-operation.

7.3.1 Crime and Juvenile Delinquency

Within the Justice System, the Directorate of Social Development operates a Restorative Justice Programme by means of which criminals and victims communicate with each other in an effort to resolve issues that have arisen as a result of criminal misconduct, subject to the agreement of the parties concerned. The families of juvenile offenders and the family of the victim may also meet, subject to the same consideration. There are institutions for juvenile offenders where education, treatment and family involvement are provided in a holistic manner and the removal of the stigmas that is attached to young offenders is a major objective. The need for programmes that focus on juvenile predisposed to crime has been recognised and a small-scale experimental programme has been set up by the Justice Ministry.

In addition to these measures, there are Re-integration Bureaux on different islands which assist the re-assimilation of ex-prisoners into society. The difficulty in securing housing and employment, linked to the relatively low social security payments lead many ex-prisoners to migrate.

Attempts are being made to access funds from the Ministry of Justice to finance drug prevention programmes, and, in different islands, there are a variety of treatment options for drug addiction and rehabilitation such as outpatient clinics, obligation clinics and "walk- in" centres.

To access the walk-in centres, one must first be diagnosed. Apart from the radio talk programmes and lectures at schools, there is no significant public education programme that targets drug use. Gambling addiction is an increasingly observed phenomenon and this has been attributed to the perceived lack of enforcement of the laws that prohibit gambling by locals.

The effects of the illicit drug trade are being reflected in the increase in gang warfare and violent crime. In this regard, the Netherlands Antilles used as a trans-shipment point for drugs, mostly to Europe. More recently, however, there have been joint efforts involving the Dutch Government, the Central Government and the Coast Guard to address this issue. A national radar system has also been installed. Further, the United States of America has contributed its expertise by virtue of the establishment of a base at the airport that provides aerial and maritime surveillance, focussing on drug shipments from Colombia.

The law allows for the confiscation of assets from convicted drug traffickers. The resulting sums are returned to the Justice System. For its part, the Social Directorate has suggested that a portion of the confiscated funds should be directed to its programmes.

7.3.2 Migration

Illegal immigration poses a problem to the economic and social fabric of the Netherlands Antilles, especially Curacao. There is much movement of persons from Colombia, the Dominican Republic, Jamaica and Venezuela into the Netherlands and, because of easy migration to Holland from Curacao, it is difficult to keep track of them. This situation is compounded by the lack of any de facto immigration policy, despite the efforts of the Social Directorate in that regard. Lack of capacity also presents a significant challenge. Migrants are unable to access social security benefits and are forced to take low paying jobs. They also tend to be rejected by the society at large and endure ill health or destitution due to their inability to access resources from the social system. Due to the desperate situation of some migrants and their dependents, a general pardon was granted to illegal migrants in Curacao, in 2002.

7.3.3 Unemployment

Despite the high levels of emigration to Holland over the last few years, the unemployment rate among the adult population in Curacao remains very high and is estimated at as much as 30 per cent. This is partly accounted for by the fact that locals reject certain categories of employment and also by the attraction of the drug culture which is a strong disincentive to some persons who might otherwise be seeking employment on the regular job market. Unemployed persons may receive social security benefits without ever having been employed. In an effort to remove this dependency, the Government may request that an applicant actively search for a job for 3-4 months before being able to access social security benefits.

In an effort to generate employment, Curacao has established a training school for prospective entrants into the tourist sector.

7.4 Globalisation and Trade

While there have been no far reaching reforms in macro-economic policy in Curacao, the exchange rate of the Antillean Guilder has been successfully pegged to the US dollar since the 1970's.⁶ This has provided a considerable degree of certainty to traders and investors about international relative prices and has made international trade less risky.

To take account of emerging trade issues, the outdated market protection regime is being phased out over a five –year period. To date, the levies on imports have been reduced by 45 per cent and further reductions are envisaged over the next three years. Measures to improve the formulation and implementation of trade policy are being introduced. Specifically, analyses of possible policy actions have been made by the Subregional Headquarters of ECLAC for the Caribbean and a request has been made to the World Bank for advice on trade policy. Measures have also been adopted to enhance of the capacity for trade. These include the introduction of special tax measures for companies providing services that are located in E-zones. A Training Grant Scheme will also be applied to accommodate e-commerce.

The Department of Economic Affairs, N.A., is responsible for trade negotiations on the 'island' level of Government, and is well equipped for the purpose. In addition, the Government of the Netherlands Antilles is seeking new ways to participate in trade blocs, for example, those of the Wider Caribbean, such as CARICOM and the CBTPA. The Netherlands Antilles is a member of the WTO as part of the Kingdom of the Netherlands. Independent membership of the WTO is among the short-term objectives of the Curacao Authorities.

To encourage foreign investment, an assessment is currently being made, in collaboration with the OECD, of those policies that inhibit foreign investors from establishing themselves on the island. While the removal of protectionist measures will expose the domestic industry to global competition, it is envisaged that local companies will be forced to become more efficient in their production and thus be able to identify export possibilities.

The need to promote the development of micro-enterprises has also been recognized as a means of combatting unemployment and of bringing new products to the market. In this regard, several initiatives have been introduced, as follows:

- Since 2001: Small Enterprises Stimulation Netherlands Antilles (SESNA). This is an EU fund for stimulating the development of micro-enterprises. It will be operational for 5 years and has a non-financial component courses and other training, as well as a financial component, incorporating, such elements as subsidies and loans. The total budget for these activities is approximately Naf 20 million.
- Since 2002: 'Startersregeling' DEZ: This arrangement provides support to new entrepreneurs and comprises grants and educational training. The budget is approximately Naf. 1.5 million.
- Training Grant Scheme DEZ. This is a new initiative to stimulate training efforts by local SME's to improve the quality of their products and services.

⁶ 1.79 guilders = US\$1

- The Programmema Uitzending Managers (PUM DEZ). Managers Posting Programme. Under this programme, retired Dutch managers support local entrepreneurs in exchange for the reimbursement of their expenses.
- The Ayudo den Administration (ADA DEZ). This is an incentive scheme that supports SME's with administration.

The need to diversify products for global trade has been recognized. Considering its small size, the economy of is already quite diversified. The island has 5 import sectors: tourism, logistics, E-commerce, international financial services and the oil-industry. The Multi-year Economic Programme sets out the objectives, policy actions and projects to strengthen these sectors. Within these sectors, efforts at further diversification have been made. For instance, within the sector of e-commerce, special attention has been paid to e-gaming and, within international financial services there is an initiative underway to attract capital to the island. The other 4 islands of the Netherlands Antilles are much smaller economies and are less diversified. For a large part, depending, for the most part, on tourism.

To facilitate sustainable economic growth in Curacao, a Multi-Year Economic Programme (2003-2006) has been developed. The objectives of this Programme are to ensure long-term macroeconomic stability; create a stimulating investment climate; stimulate a limited number of economic sectors through public investment, with a focus on those sectors that will generate economic growth, employment, generate foreign exchange or are pillars of the economy; and co-ordinate economic planning with environmental, educational and social programmes.

7.5 Disaster Management

The northerly islands in the Netherlands island chain are particularly prone to hurricanes and consequent flooding, so that disaster management is a critical activity. Saba and St. Eustatius are volcanic in origin thus presenting seismic disturbances as an additional hazard. The volcano, Kick 'em Jenny, which lies towards the southern Caribbean, is a potential cause of tsunamis and capacity for monitoring this volcano is being developed in collaboration with the University of the West Indies.

The Central Government has a model for administration of disaster preparedness in all islands. Each island has a Lieutenant-Governor, with the office of the Prime Minister having overall responsibility for these local units. There is an overall disaster co-ordinator for the entire Netherlands Antilles, as well as a Disaster Foundation, which is supported by the Government and which undertakes disaster mitigation. In the event of a disaster, the Foundation's personnel fall under the supervision of the overall Co-ordinator, and not the line Minister. However, in the day-to-day context, the Co-ordinator reports to the Minister of the Interior. The Lieutenant-Governors preside over the Executive Boards of the Island Councils. In the event of a disaster, the Fire Chief takes the operational lead. Although each island has an island co-ordinator; the overall disaster co-ordinator for the Netherlands Antilles intervenes only as requested. Even so, only in the event of evacuation or the transport of persons to other islands, is the disaster co-ordinator mandated to get involved.

Infrastructure, especially in the northerly islands has been made hurricane-ready, with electricity, water and cable lines installed underground. Building codes have long been established in the Netherlands Antilles and are still being strengthened. The Meteorological Office is necessarily tied in to the disaster office and generates warnings, even in the event of local sea surges, during periods of high wind activity.

Public participation is still weak and there is need for awareness building and perhaps a change in the manner in which information is disseminated. Nevertheless, there is active participation among some NGO groups. Assistance is also received from the International Maritime Organisation (IMO) also assists, but more in the area of contingency plans for oil spills, which as has been noted, are a very real possibility in Curacao, with its a large oil refinery.

Insurance premiums to protect against natural disasters are high and following the series of hurricanes during the 1990's, some companies have in fact left the Netherlands Antilles. There is a suggestion that, since the Caribbean is susceptible to disasters, materials that would be needed to cope with these phenomena should be stockpiled in various islands to facilitate for a more efficient and effective response.

CHAPTER 8

Jamaica

8.0 Introduction

With a total land area of 11, 424 square kilometres, Jamaica is the third largest island in the Caribbean Sea. At the end of 2002, its total population was estimated at 2.6 million. Just over one half of its export earnings is derived from bauxite and alumina which together with primary agricultural exports, such as sugar, bananas, constitute the major sectors of the economy. Agriculture, forestry and fishing together contribute 8 percent of GDP and employ a quarter of the work force. The tourism industry is also very important.

In general, the topography of Jamaica consists of coastal plains that encircle the island and provide the location for the major towns and cities. Some 32 per cent of the island's total area is covered with forests. Activities undertaken by Jamaica to implement the SIDS POA and related international decisions are set out in the following sections.

8.1 Poverty Eradication

Through its "Policy Towards Poverty Eradication" and its "National Poverty Eradication Programme (NPEP)", the Government of Jamaica is promoting social and economic development with a view to reducing poverty in targetted poor communities by 50 per cent over a period of three years. The Programme also aims at the eradication of absolute poverty. The implementation phase of the NPEP came to an end in 2001 and its results and principles are being used to inform future programmes.

The Policy establishes the following four areas as priorities:

- (a) Geographic Targetting and Integrated Community Development aspect, which targets the most deprived communities island-wide;
- (b) The provision of special social services support to Unemployed Youth and Families with Children within the deprived communities;
- (c) Safety Nets/ Income Transfers which promote independence and self-reliance. It is however recognized that the aged and destitute will continue to be in need of assistance.
- (d) Creation of an enabling environment in which members of communities are empowered to identify community needs and provided with the skills and resources to tackle the issues so identified. The rationalization of the public sector agencies that are involved will also be pursued.

The principles and strategies that inform the Policy are as follows:

Integration: The relevant objectives in this context include the establishment of a close relationship between agencies involved in poverty eradication to eliminate duplication, optimize

resource use, and amplify, by means of the combination of new projects and old ones, the impact of projects, nationally as well as locally.

Partnership: the inclusion of the private sector, NGOs, community residents and organizations, as well as donor/lender agencies.

Community-Based Participation: Within this element, communities are to take the lead in project identification and design; decision-making with respect to indicators to be used to measure success; accessing and generating finance; and providing skills for the project.

Sustainability: This informs issues related to the promotion of environmental protection and conservation of natural resources; a reinvestment model for accumulated capital; the social and cultural acceptability of strategies; and commitment to the Programme by the private sector and the donor/lender community.

At present, ten Ministries are engaged in the implementation of poverty eradication programmes. These programmes are led by Committees that coordinate with the Office of the Prime Minister, which, in turn, reviews their reports in order to determine the modalities for the strengthening of integration and the reduction of the duplication of effort.

Specific reference might also be made to the activities of a number of other entities whose activities relate to the Poverty Eradication Programme, as follows:

- The Planning Institute of Jamaica (PIOJ) and STATIN conduct an annual Survey of Living Conditions (LSC) which provides the basis for further intervention with respect to poverty eradication.
- The Jamaican Social Investment Fund provides funds for short-term projects, such as for roads, schools and agriculture and is supported by the Government and the Royal Bank. The focus of this Fund is on community empowerment and participation; and training. In addition, management expertise can be provided within the project to ensure its sustainability.
- The Social Safety Net Programme: Poor Relief Officers of the Ministry of Local Government, Community Development and Sport conduct regular surveys and advise communities on possible sources of assistance.
- A School Feeding Programme;
- A Youth Policy administered by the PIOJ which examines the concerns of youth and recommends strategies to address them.
- A number of NGOs and private sector institutions administer a number of poverty relief programmes.
- The Programme for Resettlement and Integrated Development Enterprises (PRIDE) works with community groups including squatters to plan settlements and provides various levels of infrastructure.

8.2 Tourism

Jamaica has developed a Master Plan for Sustainable Tourism Development. The Plan outlines the role of tourism in Jamaica; the structures on which it should be based; the challenges confronting the sector; and possible initiatives to take the industry forward. It is envisaged that tourism in Jamaica will offer a diversity of accommodation and visitor experiences, with the

focus being on the Jamaican people, their heritage and their uniqueness. A key concern is that Jamaicans should feel a sense of ownership and that tourism should expand to include a wider range of small businesses and communities. The Plan also proposes that the industry become an enabler of sustainable resource use while providing a basis for economic and social development.

A survey of the industry concluded that, in its present form, it is not sustainable, due to the following factors:

- The rate of increase in arrivals had declined from the levels recorded in the 80's and 90's when Jamaica was outperforming much of the Caribbean and the country was in a slow growth phase;
- Rapid erosion of the competitive advantage of the industry due to the adoption by the Spanish-speaking Caribbean countries and mainland Mexico, of the *all inclusive* concept, which was the engine of growth in the 1980's and 1990's;
- Inherent weaknesses in the product, including the absence of large hotels for meetings and conventions; the lack of competitiveness of the small hotel sector; and failure to capitalise on investment in villas and apartments;
- The difficulties presented with respect to the non-accommodation aspects of the product, given the relative decay of the resort centres and the increasing incidence of visitor harassment;
- The domination of the attractions sector by a single feature, namely Dunn's River, which, in any event, offers a generally unsatisfactory visitor experience.

Attention might also be drawn to a number of fundamental problems, including the negative perceptions harboured by Jamaicans with respect to the tourism industry. Only one third of residents perceive that they derive some benefit from tourism.

When compared with the World Tourism Organization's benchmarks for sustainable tourism, such as a fair distribution of benefits across sections of society; participation of all stakeholders in decision-making; environmental protection; harmony with the cultural identity and interests of local people and the appropriateness of the type of tourism relative to its host county; it is recognized in the Master Plan that the present tourism thrust in Jamaica was not sustainable.

During the 1990's Jamaica maintained its market share in the United States of America, but lost in Europe and, in the aggregate grouping, under-performed the rest of the Caribbean. The Master Plan is especially concerned with reversing this trend of under-performance. To this end, five objectives have been established to take the industry forward, namely:

- (i) Growth based on a sustainable market position. This is to involve a promotion of the unique Jamaican heritage features, including its natural surroundings; its culture; history, historic buildings and sites; and mechanisms that can anticipate and respond to market trends, particularly the growing fragmentation of the tourism market.
- (i) Enhancement of visitor experience. This will entail the preservation of heritage assets, as well as addressing the root causes and problems associated with visitor

harassment; the rehabilitation of run-down resorts; using tourism as a basis for urban renewal by developing attraction sites in selected areas; and having a wider range of recreational and entertainment opportunities.

- (ii) Community-based Development. This objective is being pursued through the involvement of communities in the design, development and management of the tourism product and a wider distribution of benefits so that host communities will take pride in the product and assume responsibility for visitor experience. This type of planning is being facilitated by the Social Development Commission, Parish Development Committees and other relevant local organizations and agencies.
- (iii) Building an all-inclusive industry. This approach is founded on the need to ensure that the benefits of tourism growth are spread over a greater portion of the society. Thus, the sector comprising small hotels, guest houses, villas and apartments and other under-performing sectors, are being encouraged and facilitated in increasing their earnings. Efforts are also being made to improve linkages with arts and crafts, agriculture and small- business sectors. What is envisaged, is that as tourism forges ahead as a lead economic sector, other sectors of the economy will be drawn with it, indicating in a more direct way to the populace, the influence of the industry on the general population.
- (iv) Environmental Sustainability: Notwithstanding the advances made by the industry in improving the environmental impact of some of its plants, there nevertheless remain concerns with respect to the decline in the quality of the environment around the major resort centres and major attractions such as Dunn's River Falls. The three major resort centres, namely, Montego Bay, Negril and Ocho Rios, are all recognised to have already exceeded their carrying capacities, though with recent investment, they now have basic infrastructure in place.

On the other hand, Jamaica has recorded some encouraging developments towards the new path of sustainable tourism. These include:

- Preparation of environmental manuals/tool kits by the private sector, which provide guidelines consonant with national and international environmental standards and legislation, while providing a framework for ethical environmental behaviour.
- The distinction achieved by Negril and Port Antonio of being the first destinations in the world to have been selected, audited and registered for the GREEN GLOBE certification programme. In addition, six hotels have become certified as being environmentally-sound.
- Carrying capacity assessments have been carried out at Negril, Ocho Rios and Montego Bay, as well as on the Black River and the Rio Grande.

8.3 Drug Trafficking

To combat the use and traffic of illicit drugs, Jamaica has taken a number of measures including the establishment of a National Council on Drug Abuse; the conclusion of a *Ship Rider Agreement* with the United States of America; and the updating of its legislation aimed at the confiscation of assets obtained from the illicit drug trade.

A number of initiatives are currently being pursued to engage those persons who are most predisposed to criminal activity, especially young males. These include the Kingston Redevelopment Programme; the Inner-city Renewal Programme; the Truancy Camp spearheaded by the National Youth Service; Police Youth Clubs and the LIFE Programme. In the absence of a comprehensive programme to address the issues associated with deported criminals, the presence of these persons in the society continues to be a source of major concern.

8.4 HIV/AIDS

Jamaica has been implementing a comprehensive HIV/AIDS control programme since the late 1980s. Among the achievements recorded in this regard, are a high degree of awareness of issues related to HIV/AIDS; the existence of a safe blood supply nation wide; an increase in the use of condoms; and a significant decline in infectious and congenital syphilis. However, while the spread of HIV/AIDS has slowed, much remains to be done if this pandemic is to be controlled.

Jamaica is currently implementing a National HIV/AIDS Strategic Plan, 2002-2006, which is an updated version of the 1997-2001 medium-term plan. The Strategic Plan strengthens the national HIV/AIDS effort and provides the national framework for the reduction of the spread of the disease. A number of policies and programmes have been proposed to address issues such as those relating to stigma and discrimination; protection of privacy and confidentiality; and access to care.

With respect to the provision of attention to persons living with HIV/AIDS, physicians and other health-care personnel in both the public and private sectors have been trained to provide support systems. Medication for the treatment of HIV/AIDS is available. However, anti-retroviral drugs must be purchased by the patient. Negotiations between the Government and the pharmaceutical industry have brought about a significant reduction in the price of these drugs. Nevertheless, these prices remain well beyond the reach of the average patient.

8.5 The Environment

8.5.1 General

The most recent version of the Jamaica National Environmental Action Plan (JaNEAP) covers the period, 1999-2002. The Plan is prepared on a triennial basis with annual reports on its implementation submitted to assist the process.

Within the Plan, the overall mandate for environmental management is entrusted to the Natural Resources Conservation Authority and the National Environment and Planning Agency. Some of the major environmental/sustainable development issues in Jamaica is outlined below. The areas covered are Forests; Waste Management; Water Resources; Land Resources; and Globalisation and Trade.

8.5.2 Forests

Forests cover approximately 30 per cent of the country and are prominent especially in rugged upland areas such as the Cockpit Country and the Blue Mountains. Forested areas also include the dry, hilly uplands in the north-western, southern and western parts of the country. There are few large areas of virgin forest and most of the other forest and woodland reflects secondary growth. About 35 per cent of the forested areas are protected, though 58 per cent is proposed for protection. The 1999 Classification and Prioritization of the Watershed Management Management Units showed that ten (10) of 26 watershed management units are very unstable in terms of physical condition and are therefore in need of urgent watershed management intervention. Since much of the forestland is rugged or inaccessible, only about 26 per cent of the natural forest is used for timber production. The continued use of several species for fuel wood, charcoal production and other uses, has resulted in extensive damage to watershed areas. A major concern arising from the deforestation process, is the accompanying phenomenon of squatting in the areas thus cleared. Alternatively, cleared land is sown with plants that are incompatible with the soil type leading to difficulties with soil and water conservation, particularly as a result of the loss of topsoil. Deforestation, combined with poor agricultural practices, could lead to the loss of over 80 million tons of topsoil each year.

The National Forest Management and Conservation Plan, March 2001, notes the annual rate of deforestation as 0.1 per cent. Less than 6 per cent of forest is undisturbed, and there is evidence of reduced flow of many rivers as well as increased flooding.

To address the issue of watershed management, several initiatives have been launched by the Government, among them:

- The Inter-American Development Bank (IDB) Integrated Watershed Management Project and the UNDP National Forestry Action Plan both of which commenced in 1998;
- The Morant/Yallahs Agricultural Development Project, which seeks to manage and protect the watersheds and also to facilitate sustainable agricultural production in these areas;
- Implementation of the CIDA-*Trees for Tomorrow* Project. This project is aimed at ensuring sustainable use of forest resources.
- The Petroleum Corporation of Jamaica's *Demonstration Fuel Wood Project* in Font Hill where 33,700 trees and 70,000 seedlings have been planted, with a survival rate of 90 per cent;
- The Northeast Jamaica Watershed/Agro-forestry Project that seeks to ensure proper land use; soil conservation practices; and the use of local forest products in the Rio Grande Valley;
- The development of a watershed management policy to guide the medium and long-term interventions of the continuous process that is watershed management. This is now being finalised and will be a Policy Document within 2003.
- The development of a National Integrated Watershed Management Programmatic Framework in 1999; the Forest Policy, 2001; and the National Forest Management and Conservation Plan, 2001;

- An integrated, comprehensive and coordinated approach to addressing watershed issues at the national level between the private and public sectors. This is being implemented through the National Integrated Watershed Management Council established in 2000, under the aegis of the Cabinet;
- Involvement of community and local level groups, such as NGOs, in the management process through participation in Local Watershed or Local Forest Management Committees;
- The creation of projects that integrate the social and environmental considerations to provide holistic solutions. The Government of Jamaica/USAID Ridge to Reef Watershed Project is a current project targetting the Great River and Rio Grande Watershed Management Units. The project aims to provide a model of improved watershed management and health, using a participatory approach with local communities and other strategic partners in key areas such as:
 - Governance and enforcement;
 - Public education;
 - Sanitation; and
 - Production and Marketing

8.6 Waste Management

8.6.1 General Policy

The Government of Jamaica has developed a National Solid Waste Management Policy which addresses the administration, operational issues, as well as the regulatory and institutional frameworks in respect of the management of the island's solid waste. This Policy speaks to, *inter alia*, the closure of several of the island's twenty-six (26) dump sites, due to environmental and sanitation problems and the upgrading of others to sanitary landfills; the introduction of regional transfer stations to improve the efficiency of collection and transportation, waste minimization and processing; recycling; cost-recovery mechanisms; and incentives for the private sector to participate in various aspects of the operation of the solid waste management system.

In 2001, the Government enacted the National Solid Waste Management Act in respect of which enabling regulations will be developed to govern such issues as the licensing of private contractors operating in the system; tipping fee structures and rates; illegal dumping and littering; standards for storage containers; collection vehicles; and the operation of disposal sites and transfer stations. This Act also provided for the establishment of the National Solid Waste Management Authority in 2002.

There are four (4) regional offices: one to serve each waste-shed: Riverton; Retirement; South-Western; and North-Eastern. These waste-sheds are defined on the basis of the most effective and feasible collection and disposal network. It is proposed that each waste-shed will ultimately be served by a regional landfill and a network of transfer stations to facilitate waste disposal.

The Government is also in the process of developing a hazardous waste management policy and is finalizing a medical waste management policy. These policies are being

spearheaded by the Ministry of Land and Environment and the Ministry of Local Government, Community Development and Sport, in collaboration with the Ministry of Health.

8.6.2 Waste Generation, Collection and Management

It is estimated that 2,500 tonnes of solid wastes per day is generated island-wide. Approximately seventy-five percent (75%) of the waste generated is collected primarily from urban centres. In the rural areas, which are not as well served, composting is encouraged.

Nevertheless, for the most part there are still high levels of indiscriminate dumping in gullies, some of which is associated with unplanned developments which do not get collection service. Some persons still engage in the practice of backyard burning of garbage which constitutes a public nuisance, as well as a hazard. Due to the absence of regular bulky waste collection service throughout the island large household appliances are left in open lots or are disposed of in gullies. Inadequate equipment such as crane trucks and crushing equipment at the disposal sites have also resulted in derelict vehicles being left abandoned in communities and open lots. The dumping of derelict vehicles and large appliances is also prevalent. Likewise, the dumping of tyres continues to present a problem, since they provide a breeding ground for mosquitoes. Equipment (a tyre baler) has been acquired for the shredding of tyres, but its impact has been minimal as a formal system for the recovery of tyres has not yet been established. Before this can be done, the backlog of tyres currently in storage at the Riverton Landfill is to be baled. There are few options available for the disposal of waste oil and this often results in large quantities being held in storage or disposal in gullies and drains. However, a decision has been taken by the major cement company, to reuse its waste oil as fuel. The Shell Company is attempting to collect used batteries, given their hazardous nature as well as their effect on the environment, if indiscriminately dumped.

At present, there are no sanitary landfills, hence there is improper leachate management and the risk of fires at disposal sites. Work is currently in progress to upgrade the island's landfill site, Riverton, which is located in Kingston, to a sanitary landfill. Improvement works are also scheduled for the Retirement disposal site located in Montego Bay in St James. The implementation of this initiative is being hampered by the problem of fleet management. At present, private companies are contracted to assist in waste collection and disposal. Consideration is, however, being given to the total privatisation of the waste collection system. The National Environment and Planning Agency is mandated to regulate landfills as it relates to environmental impact and public health.

There is a general lack of waste disposal facilities at ports which is itself an indicator of improper disposal of waste from cruise ships. On the other hand, since Jamaica is a party to MARPOL, which requires that home ports be provided with port reception facilities, it is envisaged that appropriate action will be taken in the near future. Regulations to control industrial effluent and sewage effluent are in an advanced stage of preparation, as are sludge standards.

Particular difficulties are presented by the disposal of plastics, which tend to end up in waterways and in the marine environment. In this regard, there is proposal to introduce a levy on

plastics, as well as on glass, and to apply some of the funds arising therefrom, to the financing of improvements in solid waste management.

Another problematic area is sewage treatment. Most of the treatment facilities are non-functional, with the result that much of the over 455 million litres of sewage that are generated daily of which 50 per cent is accounted for by the major urban centres, is discharged into near-shore coastal waters. The heavy pollution in Kingston Harbour reflects this practice.

Major tourist areas have upgraded plants while package plants are installed in new housing developments. In rural areas, however, sewage tends to be disposed via septic tank and absorption pits and sometimes it is released into the environment.

The disposal of medical and hazardous wastes is plagued by the existence of systems that are poorly designed, operated and maintained. The Ministry of Health has been entrusted with drafting regulations to govern the management of bio-medical wastes. The Ministry is also collaborating with the Parish Council (Local Boards of Health) and the Ministry of Local Government, Community Development and Sport in the preparation of a draft a Bio-medical Waste Policy.

There is, at present, no facility on the island for the treatment and safe disposal of hazardous waste. Household hazardous waste often finds its way to disposal sites, together with other solid wastes. For the most part, industrial hazardous wastes are stored at the site of generation. During the last decade, hazardous waste has been exported by private companies on many occasions, in keeping with the stipulations of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Consideration is being given to establishing a hazardous waste disposal cell at the Riverton landfill as an intermediate measure to properly dispose of hazardous waste in a secure area.

Regulations to govern emissions that affect air quality are soon to be introduced for electrical power plants and mineral processing plants, as well as for biomedical incinerators and petroleum refinery installations. While the emphasis will be on self-regulation, provisions will be made to allow for tests to be witnessed by relevant Government personnel and for the random inspection of plants. At present, the regulations governing mobile emissions simply require that the emissions should not be visible. Some work progress has been made towards the establishment of vehicle emission standards and this is currently being reviewed.

As far as the discharge of effluents via storm drains is concerned, these are largely covered by the Wildlife Protection Act and the Harbour Act. However more comprehensive regulations are being developed by the Maritime Organization of Jamaica to address this issue.

8.6.3 Public Education and Awareness

A National Education Campaign has been launched to sensitise the population with respect to the importance of the proper disposal of waste. However, due to human resources and financial constraints, the effectiveness of the effort has been compromised. Stakeholder

consultations for the disposal of e-waste, such as discarded computers, nickel cadmium batteries and agricultural wastes, are at their initial stages.

8.7 Water Resources

Primary responsibility for the management of water resources in Jamaica, is entrusted to the Water Resources Authority (WRA). Among the specific areas falling within the purview of the WRA, are the management and allocation of water resources; hydrology; maintenance of groundwater (over 300 wells); abstraction wells; and water quality. This agency also monitors well construction by communities whose activities may have implications for water resources. It also determines the yields of basins as a basis for the determination of applications for permits. As regards water distribution, however, this aspect is entrusted to the National Water Commission. Also relevant is the National Environment and Planning Agency (NEPA) whose responsibilities include the actual issue of permits and licenses for infrastructure; obtaining information on behalf of the WRA; monitoring of the utilization of land in the context of water conservation, for example, for agriculture and land clearance; and overseeing mining and quarrying. The NEPA is also responsible for settlement and sanitation issues.

Some 87 per cent of Jamaica's water supply is obtained from groundwater sources. Even so, only 25 percent of the available resources is actually in use. Despite the attention given to the abstraction wells, contamination of groundwater is evident. Associated with this phenomenon are saline contamination as a result of the withdrawal of groundwater in quantities in excess of the safe yield; poor well-head designs; caustic soda contamination from ponding of red mud wastes from the bauxite/alumina industry; nitrate contamination from soak-aways built for sewage disposal; and organic and bacteriological contamination from disposal of dunder and other effluent from the sugar/rum industry.

The prevention of contamination is pursued through the application of standards and the granting of licenses.

Among the instruments adopted in the context of Water Resources Management are a National Water Policy and a Watershed Management Policy. Both instruments focus on increasing efficiency in the use and distribution of water, especially in the tourism and agriculture sectors. Overall, leaks account for the loss of 30-40 per cent of the water supplied.

The location of the large industrial, agricultural and urban areas in the south of the country, has given rise to a situation in which there tends to be excess water resources in the north. In addition the south of the island lies in the rain- shadow area, so that its water resources tend to come under considerable pressure.

Threats to the water resources come in many forms, among them:

- Contamination arising from agricultural run-off from farms, large and small;
- Soil erosion arising from high energy rivers, combined with poor land use practices such as occurs in the eastern part of the country, which contains quantities of shale, or on high elevations;

- Socio-cultural aspects in the context, for example, of the lack of tenure by farmers which exacerbates the problems mentioned, since these farmers constitute an itinerant group which clears, plants, harvests and then move on, leaving the earth exposed to the elements;
- Deforestation for charcoal production;
- Migration of persons into the upper north coast regions in search of employment in the tourism sector. The receiving areas are composed primarily of limestone deposits which has resulted in the contamination of the ground water and rivers;
- The inability to monitor development activities and enforce development orders due, to *inter alia*, lack of personnel.

In an effort to ensure the purity of the water supply, the Pesticide Control Authority has added dangerous agricultural chemicals to the list of prohibited imports. In addition, draft ambient and recreational water quality standards have been developed by the Water Quality Standards Committee and are currently being reviewed. Mention might also be made of the NRCA's Permits and License System which covers effluents and discharges from agricultural production. This System was introduced in 1997.

Additional strategies envisaged by the Government to address threats to the water resources include the decentralisation of water management through the closer involvement of Local Government bodies in the general management of watersheds. In addition, a National Integrated Watershed Management Council has been established, consisting of all relevant stakeholders, to facilitate a more holistic approach to watershed management. Another avenue contemplated, refers to the increase of tariffs for water use in a situation in which water is highly subsidized, with a view to inducing greater economy into the use of water. Within the tourism sector, hotels are being encouraged to participate in the "Green Globe" programme, since this is the leading sector with respect to the consumption of water.

In a bid to promote land conservation, the Government, through the implementation of a Government of Jamaica/ IDB Land Administration and Management Project, is allocating parcels of land to individuals who satisfy certain eligibility criteria. Land policy in Jamaica is being revised within the context of a Sustainable Development Planning Framework. The National Environmental and Planning Policy and Strategy, under the auspices of NEPA, is attempting to commit all partners to rational water use.

8.8 Land Resources

The National Physical Plan which covers the period, 1978-1998, is being updated. In addition, there are local area plans as exemplified by the Sustainable Development Plan for Kingston/St. Andrews which is being prepared by Citizens Alliance, with funding from the World Bank.

The problems related to land use in Jamaica are not unlike those encountered in the other SIDS of the Caribbean subregion. Squatting takes place mostly in gullies and near river banks, thus contributing to the pollution of freshwater resources. While the coastal zone is intensively used, especially in the tourist centres on the North Coast, the problems encountered in these

areas are much less severe than might have been expected. This reflects the fact that development in these areas was carefully planned and executed. The phenomenon of rural-urban drift persists, leading to urban sprawl. In this regard, attempts are being made to encourage the relocation of persons to the areas of the town where there is lower density, in order to relieve the strain on the social services. Thus, areas like Portmore have become municipalities by virtue of the services and privileges offered to new settlers.

Population growth and industrial and commercial expansion have placed increasing pressure on land use. Moreover, it is estimated that, by 2020, the national population will reach 3 million, 60 percent of which are expected to reside in urban areas, thus imparting greater urgency to the rationalisation of land use. There remain, in addition, such issues as insufficient integration of urban and rural development; disparities in the provision of facilities and amenities; a housing shortage; scattered and linear development; and lack of employment opportunities.

The need is also recognised for the provision of technical training, especially at the local level, in the use of land management tools such as GIS and for better staffing of local councils. While enforcement may be executed at the preliminary stage of a development, personnel for continuous monitoring are not available in sufficient quantities. The proposed Planning Bill will address enforcement reform and delegate more power to local authorities to control development. For example, the Kingston Business District is being revamped, in light of the general retreat of tourists from the capital due to the high incidence of violent crime.

Other obstacles encountered in the planning system include an inadequate land information database; the duplication and inefficient use of resources, given the fragmentation of responsibility for land management among numerous agencies; the lack of coordination between economic and physical planning; and a low level of participation by local communities, the private sector and NGOs in the land-use planning and monitoring process, leading to a lack of commitment at the implementation stage. The 1996 National Land Policy recognised that between 50-75 percent of all development takes place outside the formal regulatory or economic sector.

Arrangements are now being made to allow local councils to produce their own Development Plans. At present, these councils may collect revenue from sources such as land taxes, market fees, and motor vehicle licenses. However, a portion of the proceeds is delivered to the Central Government which, in turn, provides the respective councils with subventions.

The need to streamline the planning process and to develop a tracking system for development applications and for coordination among the different agencies concerned with development, has been recognised. A type of fast tracking occurs at the local level, by virtue of which a developer can have consultations with the local authorities prior to the submission of development proposals. Notwithstanding the powers reposed in local planning agencies, NEPA still advises both Central and Local Planning Councils. Depending on their content, some applications have to be sent to the central Town and Country Planning Authority.

The Government has made strenuous efforts to ensure the optimal use of the available land. Among the initiatives taken in this regard are:

- The networking of the Survey Department, the Office of Titles and the Land Department;
- The Establishment of a National Shelter Committee;
- The development of a Draft Policy on Squatting;
- The development of a Draft National Physical Plan;
- The merging of several departments whose activities relate to land management with a view to enhancing efficiency;
- The revision of the Real Estate Dealers and Developers Act;
- The development of geo-chemical maps for Jamaica by the International Centre for Environmental and Nuclear Sciences (ICENS), in support of agriculture; hydrology; mining and industry; geological mapping; and physical planning;
- The preparation of the South Coast Sustainable Development Plan;
- Creation of a cadastral index;
- The establishment of a Land Divestment Committee and four regional Secretariats;
- Implementation of a pilot project-Land Administration and Management Programme (LAMP) in St Catherine to undertake regularisation and classification of tenure of 30,000 parcels of land; and
- Merger of the Land Valuation and the Lands Departments.

8.9 Globalisation and Trade

8.9.1 Economic Policy and Management

Fiscal and other economic reforms have been introduced in an effort to attract foreign direct investment. Emphasis has been placed on liberalisation of the foreign exchange market and the maintenance of measures to reduce domestic inflation. Jamaica continues to be an active participant in the WTO, as well as in the ongoing negotiations for the establishment of a Free Trade Area of the Americas (FTAA) by 2005.

Agencies such as JAMPRO, NIBJ, NDB, SRC, and ACB have been created to enhance investment generation; agro-industrial development; technological innovation; and expansion of the money market. Principal challenges faced include declining access to foreign markets; fluctuating commodity prices; lack of access to affordable credit; inability to attract foreign investment; and increasing local and external debt.

8.9.2 Competitiveness

In an attempt to build competitiveness, emphasis has been placed on human resource development through the HEART, NTA and other training institutions. Standards and certification have been receiving greater attention, as exemplified by participation in the *Green Globe* and *Blue Flag* programmes. Jamaica now has, in force, regulations and standards relating to ambient air and water quality; stack emissions; sewage and industrial effluent; transboundary movement of hazardous waste; and trade in endangered species. These regulations and standards

have been established within the guidelines of multilateral environmental agreements to which Jamaica is party.

To further enhance competitiveness, Jamaica has adopted economic reforms to streamline business operations and promote a climate that encourages entrepreneurship and investment. New and amended laws and administrative procedures have been introduced in a number of areas such as banking, insurance, taxation and customs, with a view to promoting increased access to credit and improvement of the distribution of goods and services. Through the Bureau of Standards, companies are encouraged and assisted to attain the highest international standards and certification, particularly in the manufacturing, services and export sectors.

8.9.3 Human Resource Development and Capacity- Building

Human resource development is also recognised as being integral to efforts at enhancing competitiveness. To this end, training institutions such as HEART, NTA, the UWI and UTECH, have redesigned their programmes to reflect the specialised needs within the global trade and economic environment.

With respect to trade issues including e-commerce, the Government has vigorously promoted measures to enhance the island's ability to respond to the challenges presented by the hemispheric and international trade agenda. In addition, international donor support has been sought to facilitate training of trade negotiators as well as the acquisition of the relevant resource material.

Through the establishment of the Caribbean Institute of Technology (CIT), Jamaica has been developing a highly skilled cadre of software developers and information technology specialists to support the expansion of the services sector and boost business innovation. In addition, JAMPRO, in collaboration with the private sector, has developed an e-business platform as a means of assisting businesses to promote their goods and services to a wider audience. These measures have also been complemented by the introduction of productivity incentive schemes at the multi-sectoral level.

Significant capacity-building support is required to enhance Jamaica's efforts to confront the demands of the global trade environment. Specific support is required with respect to trade impact assessment on various sectors; funding for participation in trade fairs and exhibitions; and sustained training programmes for trade negotiators and policy makers.

Effective participation in multilateral trade negotiations has been negatively impacted by budgetary constraints. This has compromised Jamaica's ability to ensure consistency and effectiveness in representation. The Jamaican Government has benefited from multilateral support from such entities as the World Trade Organisation (WTO) and the European Union (E.U) in relation to the funding of trade officers to participate in specific aspects of trade negotiations, as well as associated short and medium term internships and training courses. Inter-agency consultations, coupled with in-country visits by trade experts and consultants have resulted in some transfer of knowledge to individuals and institutions involved in trade negotiations.

8.9.4 Advancing the Small States Agenda

In recognition of the increased complexities and challenges arising from the international trade agenda, Jamaica embarked on a comprehensive review of its trade policy in 2000-2001. A significant outcome of this process was the creation of the Jamaica Trade and Adjustment Team (JTAT) to promote multi-stakeholder participation in all aspects of trade negotiations in which the country is involved. Moreover, through its active membership in the Caribbean Community (CARICOM), the Association of Small Island States (AOSIS) and the Africa, Caribbean and Pacific (ACP) group of countries, Jamaica contributes to efforts towards the adoption of common positions on trade and environmental issues of importance to developing countries and to Small Island Developing States (SIDS), in particular.

Capacity- building lies at the heart of efforts to develop a positive agenda for future trade negotiations. Jamaica has therefore sought to develop a greater understanding of the linkages between trade, environment and development and to design policy responses to these linkages in order to secure the crucial objective of sustainable development. Additional bilateral and multilateral support is required, however.

8.9.5 Activities within the World Trade Organisation (WTO)

Jamaica continues to lobby in support of measures that could guarantee the provision of special and differential treatment to SIDS in the WTO and other multilateral fora. Jamaica has also supported efforts to ensure recognition of the constraints faced by SIDS in fulfilling their obligations under the various multilateral agreements and has called on developed countries to engage in sustained capacity- building and technology transfer partnerships with SIDS. In addition, Jamaica contributes to the development of the work programme on special and differential treatment provisions within the WTO in order to make them more "*precise, effective and operational*" as endorsed by the Doha Ministerial Conference of November 2001.

In order to promote capacity- building in activities related to dispute settlement, including in the WTO, various instrumentalities such as JTAT have been developed to encourage greater participation and collaboration between public and private sector entities as well as NGOs involved in analysing the dispute settlement mechanisms in international trade agreements. Emphasis has been placed on the acquisition of training opportunities in dispute settlement in the WTO, especially as negotiations are in progress to improve and clarify the Dispute Settlement arrangements within that body. Additional financial support would also be required to facilitate the participation of home-based policy makers in the ongoing negotiations.

8.9.6 The Access to Markets and Investment Interface

Jamaica is concerned that market access continues to be a major challenge at a time when most countries have expressed commitment to the removal of barriers to trade. In addition, the erosion of trade preferences is expected to have a major impact on employment, agro-industrial development and the generation of foreign exchange inflows.

Through the work of JAMPRO and other agencies, Jamaica has encouraged the formation of joint venture operations and other forms of foreign direct investment, to improve the scope of access to overseas markets. The thrust toward the adoption and application of international standards and certification represents a further attempt at confronting the challenges associated with market access. Likewise, Jamaica's long-standing policy of concluding Bilateral Investment Treaties (BITS) and Double Taxation Agreements with major trading partners, is also designed to improve conditions for market access. Moreover, as part of a CARICOM strategy, renewed emphasis is being placed on the conclusion of free trade agreements with other countries within the hemisphere, with a view to the generation of increased market opportunities.

8.9.7 Diversification of the Economy

Survival in the market place requires the formulation and implementation of a strategy for the diversification of the national economy, extending to the range of products and services that are traded. Economic and trade diversification has long been at the forefront of the sustainable development programme of the Government of Jamaica. In 1996 a National Industrial Policy was developed to underpin a process of economic diversification and to provide a framework for the transformation of productive capacity.

At the domestic level, various studies have been undertaken to identify viable product alternatives, as well as opportunities for the creation of niche markets. In this regard, non-traditional exports have been developed in a number of areas including agriculture and health. Product diversification has also been undertaken in some sectors, although more technical support is needed for research and development. Given its increased focus on the services sector, Jamaica has made a commitment to strengthen its capacity in this area, particularly in relation to tourism, as well as data- processing and information technology.

With a view to promoting the development of micro-enterprises in a range of sectors, various cooperative schemes such as PC banks and farmers' cooperatives have been developed to provide financial and technical support to small farmers in the agricultural sector. At the wider sectoral level, the Micro Investment Development Agency (MIDA) provides funding for small business projects, particularly those of a "self-help" nature. The Jamaica Business Development Centre (JBDC) was established in April 2001 to enhance micro and small enterprise development. Within the Private Sector, the Jamaica Manufacturers Association (JMA), the Jamaica Exporters Association (JEA), the Small Business Association of Jamaica (SBAJ) and the Jamaica Chamber of Commerce (JCC) also provide financial and technical assistance to micro and small enterprises.

8.9.8 Unemployment, Small Business Development, Poverty Eradication and Economic Development

In an attempt to cope with a changing global work force, the Government has implemented a variety of methods which include job rotation, multi-tasking and the redeployment of workers. Further, to increase funding opportunities for participation by the unemployed and underemployed in the society, the following are being pursued:

- Training and development through MIDA, which was established to promote the development of a viable small business sector that could contribute to the national economy. Through approved lending agencies, individuals and groups may access small loans, subject to the satisfaction of eligibility criteria, for the development of services, manufacturing and agricultural projects, or of any other viable activity.
- Business development is pursued through the National Development Foundation of Jamaica (NDFJ), a non-profit organization established to promote and develop entrepreneurship through credit, financing and training. The products of this institution include loans, equity financing and lease financing. Its services include business consultancy, business advice, pre-loan training, and computer training. It also offers seminars on business plan preparation; cash flow management; and general attitudes at the workplace.
- The Self-Start Fund which is a financial institution that provides loans for small and micro-enterprises. Its mandate is to promote entrepreneurship through the provision of assistance to the owners of business enterprises. The Fund displays considerable flexibility in its provision of support to the national economy.

CHAPTER 9

St. Kitts and Nevis

9.0 Introduction

The Federation of St. Kitts and Nevis has a total area of approximately 269 square kilometres: the respective islands having areas of 176 square kilometres and 93 square kilometres. The population of the Federation is approximately 46,000. There has been an upsurge in the urban growth in and around the capital city of Basseterre, due, in part, to a decline in the agricultural sector. There is some degree of migration, with workers from other Caribbean islands seeking employment either in the sugar industry, or within the services sector, which is dominated by tourism, the single largest contributor to GDP.

9.1 The Environment

In 1987, St. Kitts and Nevis adopted the National Conservation and Environmental Protection Act which links the management and protection of the natural resources to the broader development objective of the Federation. The Act provides for the establishment of a National Conservation Commission (NCC). An amendment to the Act provided for the establishment of the Department of the Environment which supports the NCC and which has assumed the major role in environmental management, through the design and implementation of environmental strategies, policies, plans, programmes and projects; the negotiation of environmental treaties; and the provision of data for documentation and reporting.

In 1994, the Government of St. Kitts and Nevis prepared a National Environmental Action Plan (NEAP) which addressed key environmental concerns and formulated policies and actions. The Plan provided for, among other things, a review of developmental policies and the upgrade of existing institutions to combat environmental degradation. The NEAP also prioritised national needs as well as their integration into subregional projects such as the OECS Solid and Ship-Generated Waste Management Project; Building Capacity for Sustainable OECS Fisheries; the Environmental Capacity Development Project; and Promoting Long Term Sustainable Use and Conservation of Marine Resources in the Eastern Caribbean.

A Biodiversity Plan has been drafted and is awaiting approval. It is also envisaged that, by December 2003, a National Management Strategy will be in place. Due to the nature of funding available, most projects are taking on a sustainable development/sustainable livelihood dimension. Some environmental projects are therefore linked to tourism and community-based management initiatives, such as the one at Bloody River/Stone Fort which seeks to develop amenities and a documentation centre. The project being managed by persons from the local community.

9.1.1 Watersheds, Agriculture and Forests

Recent concerns in the environmental context include the use of catchment areas for hiking and bathing. New trails are being created: a practice that has stretched the monitoring

capacity of the Forestry Division, which is responsible for watershed management. Guidelines for the conduct of eco-tours are being developed. Steps are also being taken towards the establishment of an entity to train and inform tour guides.

Another environmental hazard arises from the burning of trees and also from their destruction by other means in support of such activities as the making of fish pots and fishing rods.

Sugarcane is the main agricultural crop and is not normally planted above the 30-foot contour. Above this level, there has been some deforestation and planting of crops by farmers, though this has not as yet significantly impacted the forest regimes. This unregulated farming of, mostly, ground provisions and vegetables, helps to control erosion and is aided by citrus trees from old orchards. Erosion occurs as a natural phenomenon given the steepness of the gullies. This is aggravated by a number of factors, among them, inappropriate building practices on slopes; spontaneous combustion during the dry season; and the clearing of vegetation from the hillsides. The phasing out of sugar cane also presents a dilemma in this context, since the crop provides a measure of groundcover for the underlying soil.

9.1.2 The Coastal and Marine Environment

The Ministry of Health and the Environment is responsible for the removal of garbage from beaches. It is also the designated agency for the monitoring and control of sand mining. Sand mining is permitted given the lack of alternative aggregate and the prohibitive cost of importing the material. Thus, beach sand, mixed with sand from the ghauts of gullies, is used in construction. A site has been identified for mining and sand removal is permitted at the rate of 100 cubic yards per person, per week.

Beach erosion continues to be a serious problem on beaches that are nourished by the Caribbean Sea. However, there are signs of beach accretion on the Atlantic coasts. In addition, there are situations where permanent structures are located too close to the high water mark, frustrating the natural cycle with respect to sand accretion and depletion. Beach profile monitoring has been instituted to facilitate the determination of the actions necessary to correct the negative impacts.

The marine environment is also negatively impacted by a number of other sources, including storm drains that discharge grey water into the near-shore region; raw sewage from squatter settlements; and garbage which is dumped into the ghauts and discharged into the coastal waters. Consideration is being given to the installation of a sewerage system, principally to serve the Basseterre area. While there is no reef monitoring system in place, a number of studies suggest that the reefs are not being adversely affected by run-off. It is noteworthy that, at present, there are no marine parks in St. Kitts and Nevis. The designation of such parks would have facilitated the prevention of pollution of these areas.

With respect to wetlands, St Kitts also has a series of natural wetland ponds with associated mangroves. These ponds are all brackish and are located in areas where the water table is high. In many situations, the mangroves have been destroyed to make way for the

installation of tourism infrastructure. A few pristine areas remain. However, in some of these, run-offs from manufacturing plants have been quite destructive.

The Government of St. Kitts and Nevis is handicapped by a general lack of capacity, particularly in the areas of training; enforcement; and implementation of Multilateral Environmental Agreements.

9.2 Water Resources

The islands of St. Kitts and Nevis differ markedly in their water resources profile. In St. Kitts, most of the water consumed is extracted from, approximately, 20 wells: the remainder being taken from, approximately, 12 springs. Over 90 per cent of the water extracted is well-based. Given the relative abundance of water on St. Kitts, historically, a culture has developed whereby water conservation is not regarded as a priority. A system of water storage is however in place, with the Government having built a number of concrete storage tanks. In Nevis, there is a system of water storage in cisterns. The need for more storage in St. Kitts is now obvious from the fact that, during the 2003 dry season, water yield from wells declined by some 40 per cent.

Areas served by springs in St. Kitts experience shortages during the dry season. However, the water supply is maintained by utilising water from areas served by wells, through a system of pumps to provide greater supply at times of greatest demand. Springs were first used to supply the island, but surface springs reached their limit in the late 1970s. These springs were estimated to have the capacity to provide sufficient water until 2010. However, with the growth of the tourism sector and rising standards of living, that scenario has not materialised. More than 90 per cent of households in St. Kitts now have a pipe-borne water supply. All water is tested and the WHO standards are used as guidelines for water quality. Salt water intrusion into wells is prevented by appropriate well design. Aquifers have been mapped together and their capacity has been measured, to facilitate monitoring of consumption levels.

In St. Kitts and Nevis, there is no integrated water management plan. Nor is there a thoroughly scientific basis for determining water use and allocation. The percentage of unaccounted-for water is not known. Public awareness and education programmes are ongoing, aimed, mainly, at changing the public's perception of water as a free good.

As is the case in almost all other Caribbean SIDS, there is no centralised sewage system in St. Kitts and Nevis. The only treatment plant is located at Frigate Bay, in St. Kitts. Houses have septic tanks and soak-away systems that operate at depths of 15 feet, thus reducing the risk of contamination of the ground water supply. Grey waste water from homes, restaurants and other establishments drain into storm drains or ghauts and thence into the near-shore marine environment. In the Basseterre coastal area, high levels of coliform bacteria have been detected. This is partly accounted for by the release of sewage water into the storm drains as a result of the existence of squatter settlements in the urban area.

Thus far, the encroachment into watershed areas by locals and farmers, as well as by eco-tourists and hikers does not appear to be impacting the quality of water. Flooding is also not a hazard, given the effective natural drainage system of the islands.

9.2.1 Water Resources in Nevis

The major source of potable water in Nevis is groundwater, obtained from some 14 active wells around the island. The present number reflects a reduction of hitherto resources arising from the abandonment of some wells because of low yields.

Water is pumped from the wells, stored and allowed to flow by gravity to the various locations. Water treatment is effected by the introduction of powdered chemical tablets and the resultant water quality meets the WHO standards for potable water. Gas chlorination is being considered for the near future.

Nevis needs about 1 million gallons of water per day due to the high water requirements of the exclusive tourist resorts on the island. The development of a full size golf course and other smaller golfing areas also increase the demand on the water resources. Similarly, the transformation of agriculture from a seasonal, to a year-round activity, has placed increased pressure on the resource. Agricultural production focuses mostly on vegetables and livestock.

Water storage capacity currently stands at approximately 3 million gallons and this is expected to be increased in the near future. Notwithstanding the proximity of the marine environment, no salt water intrusion has been detected in the wells. However, in some wells, the water is naturally brackish and is used to facilitate irrigation for agriculture and landscaping. The high calcium content which produces "*hard water*" has led to scale formation on the cast iron distribution pipes and corrosion of the pipes is increasingly becoming a problem. Residents have also complained of scale formation and the consequent blocking of pipes. The introduction of PVC pipes into one of the main distribution pipe systems is reported to be very effective in this regard and may be extended island-wide over time.

At present, the water in the wells is being utilised in quantities that approximate the capacity of these sources. During the dry season of 2003, for example, recourse had to be had to the rationing of the water supply. This is a new phenomenon that has emerged only over the last two years. Nevis envisages the discovery of new water sources. However, should this not materialize, desalination of sea-water would present the obvious alternative recourse.

As regards the disposal of waste, the Four Seasons resort is the only institution that is equipped with a facility that permits the reuse of grey water or the treatment of sewage. In most buildings, either septic tanks or soak-aways are installed for sewage treatment. To date, this has not resulted in any contamination of the groundwater resources. In areas where the water table is high, closed septic tanks are used.

Training for water resources management is conducted on an ongoing basis under the auspices of the Caribbean Basin Water Management Programme, based in St. Lucia.

9.3 Poverty and Social Welfare

9.3.1 General Policy

The Government of St. Kitts and Nevis has embarked on a Poverty Reduction Strategy, within the context of macroeconomic growth policy; the redistribution of resources in a more equitable manner; the strengthening of public, private, and community based organizations to enhance human resource capacity; community empowerment with emphasis of vulnerable groups and improved social services; and social safety net programmes.

The eradication of poverty in St. Kitts and Nevis is based on three pillars of reform, namely capacity-building; the engendering of life skills; and the personal development of those affected by poverty. There is a safety net system which provides either financial assistance or food baskets to poor families; assistance for the acquisition of school uniforms by families earning less than \$250 per week; and a programme that offers corrective eye wear for persons of school age. In addition, a school-feeding programme provides a meal a day to all primary and secondary school students, on request. A free school bus service is provided for all primary and secondary school students, while books are provided free of charge to secondary school students.

9.3.2 Children and Youth

The Government has established a subsidized Day Care Centre to facilitate working parents. Health care is freely accessible at health clinics. Tertiary health care is also provided free of cost to persons of school age.

Victims of child abuse are accommodated in foster homes and the Social Department provides for foster care at a modest fee. A programme that emphasises the rehabilitation of juvenile offenders is being considered. In the case of certain classes of offenders, legal measures are being put in place so that they may be released on probation or assigned to undertake aspects of community service.

The Salvation Army has been involved in social work and collaborates with a few state agencies to provide probation services for juvenile offenders. This is especially relevant in cases in which parents have neither the time, nor the resources to provide the necessary protection and parenting.

9.3.3 Health Services

Medicines and medical tests, such as those for blood pressure irregularities and diabetes, are provided free of charge to persons over 60 years of age. Provision is also made for the disabled and otherwise housebound persons to receive medical treatment at home. While there is a specialized institution, the Cardin Home, which caters to the needs of senior citizens who are unable to care for themselves, the culture within the Federation does not favour the institutionalisation approach. Consequently, the majority of the elderly are cared for at home, with assistance from various Government agencies, as may be required. Provision is also made for the treatment of patients with mental disorders.

9.3.4 HIV/AIDS

The HIV/AIDS problem is being approached not only as a health threat but also as one that has its roots in social/gender issues and in the manner in which male-female relationships are structured. Thus, there is the proposal for the development of a project to analyse gender issues within the context of the spread of HIV/AIDS. The number of reported cases of HIV infection during the first quarter of 2003 surpassed the total recorded for 2002. It is not clear whether this was due to under-reporting during earlier periods, or to a real increase. Attention is also being focussed on mother- to- child transmission since there is at least one confirmed case of this in Nevis. Medication is available and a Health Promotion Unit assists in its procurement. However, efforts continue toward ensuring the availability of the required medicines at affordable prices.

On 21 July 2003, the HIV/AIDS Prevention and Control Project for St Kitts and Nevis was launched. The objectives of this Project, which is financed by the World Bank and Government counterpart funds, are, *inter alia*:

1. to establish prevention programmes targetting high-risk groups, as well as the general population;
2. To strengthen treatment, care and support of persons living with HIV/AIDS; and
3. To strengthen the multi-sectoral capacity to more effectively respond to the disease.

9.3.5 Migration

There has been an influx of migrants from the Dominican Republic and Guyana, most of whom are unskilled and semi-skilled labourers. More generally, the immigration issue is to be situated in the context of initiatives within the Caribbean Community, of which St Kitts and Nevis is a member, to facilitate the free movement of CARICOM nationals within the proposed CARICOM Single Market and Economy (CSME). The implementation of such an initiative has implications for the provision of social services, such as education and health care, among other important aspects. In addition, consideration is to be given to the economic impact of these persons on the local economy, to the extent that their presence was not factored into the economic planning process.

9.3.6 Youth and Unemployment

More recently, a phenomenon, referred to as the "*fragmentation of youth*" has emerged, arising from, *inter alia*, the adoption of the more consumer-oriented lifestyles prevalent in metropolitan countries, coupled with a lack of focus on such considerations as career-planning. Thus, in the context of the youth, unemployment issues present a more complex problematique, given, *inter alia*, their inability to secure jobs that can support their newly acquired lifestyle. Many, therefore, resort to illegal activities in order to obtain the necessary finance. There is also a lack of skills among youth, especially among the many young males who are opting out of the education system. This, phenomenon, coupled with the cultural norms associated with certain aspects of male socialisation and the formation of gangs, has increased the related phenomenon of *juvenile delinquency*. The implications of this development are reflected in, *inter alia*, the

increase in the crime rate; the cost of rehabilitation of offenders; and the negative impact on the tourism industry.

A number of skills-building programmes are being implemented such as the Life Skills Programme for unemployed persons, including those whose former jobs have been declared redundant; a Youth Skills Programme; and a collaborative effort between the Government and the exporters who operate within the Export Processing Zone. This last focuses on the employment of women, especially single mothers. An Information Technology Training Institute has also been established to build skills among the less privileged in the use of technologies.

9.4 Globalisation and Trade

9.4.1 Structure of the Economy and Trade Patterns

The economy of St. Kitts and Nevis is essentially based on the services sector. The provision of Offshore Financial Services is the main contributor to GDP in Nevis while tourism is the main economic sector in St. Kitts. The export sector is dominated by sugar, which is sold on the European market. The area of land under sugarcane cultivation is gradually being reduced, with other crops being planted in rotation. However, the period of rotation back to sugar is being extended. The other crops being grown during rotation are consumed locally. However, export markets are being explored. Over 70 per cent of the Federation's imports are sourced from the United States of America (USA), with processed foods, clothing and machinery and appliances being the most prominent items. The importation of motor vehicles leads to significant trade deficits. Energy requirements are met through the importation of oil from Trinidad and Tobago.

9.4.2 Sectoral Developments

The downturn in the economy of the United States of America, especially after the events of 11 September 2001, in that country has had a significant impact on the tourism sector. As is the case in most other SIDS, business enterprises in St. Kitts and Nevis recognise the need to become internationally competitive. In a related context, attention is to be drawn to the shift in flows of ODA to the least developed countries, under the European Union's *"anything but arms"* trade and aid pact with the African, Pacific and Caribbean (ACP) States under the Cotonou agreement. On the other hand, more direct market access has been afforded.

Average economic growth over the last 4 years has slowed considerably due, in particular, to the negative impact of Hurricanes Georges and Lenny, in 1998 and 1999, respectively and the subsequent rehabilitation efforts. The construction industry has thus emerged as the dominant sector, buoyed also by significant private sector investments in tourism.

Agriculture contributes less than 5 per cent of GDP, with sugar cane as the major crop. The Federation imports most of its food products and any agricultural exports, with the exception of sugarcane products, are directed to neighbouring islands. Irrigation schemes to address the problems that arise during the drought period are being devised in collaboration with the FAO. Livestock production is being revived following the Caribbean *Amblyoma Tick* which seriously affected the productivity of this sector.

Fishing is also a small sector in the islands. At present there is a fishing complex which buys fish from the fishermen for sale to the public. There is intensive exploitation of the near-shore fisheries, using mostly pots and seine. Incentives are being offered to nationals to engage in small long-line fishing operations. However, given the tradition of near-shore fishing, the response has been tentative. Some training has also been provided in pelagic fishing with assistance from the FAO and the Trinidad and Tobago Government. The Fisheries Legislation developed and adopted by the Organisation of Eastern Caribbean States (OECS) is now being updated in St Kitts and Nevis, to incorporate actual, as well as proposed changes in the fisheries sector. The ecosystems management approach to fish exploitation, as developed by the Food and Agriculture Organisation (FAO), has been adopted.

Internationally, the terms of trade of primary agricultural commodities such as sugar, cotton and coconuts continue to decline annually. Technical barriers to trade, coupled with the generous subsidies provided by the industrialised countries to their agricultural sector, continue to exacerbate this decline. The imposition of the tariffs on steel imports and the passage of the Farm Bill in the United States of America further exemplify the measures that have had severe negative repercussions across the Caribbean.

9.4.3 Economic Prospects

Continued growth of the economy will be based mainly on such sectors as tourism; construction; banking; and insurance, supported by fiscal and monetary reform. A major thrust is towards a lower level of primary agricultural production. However such production will need to have firm linkages to the tourism sector. In St. Kitts, this entails moving away from sugar and, to this end, the Government commissioned a study from the Subregional Office of ECLAC for the Caribbean, in the form of a social audit of the sugar industry incorporating recommendations and scenarios in the context of the scaling down of the sugar industry. In Nevis, the thrust of diversification is to generate movement from cotton and coconuts, to services.

9.4.4 Challenges

The major challenges in the area of trade policy revolve around:

- (i) the emergence of a liberalised and increasingly competitive regional, hemispheric and global trading regime;
- (ii) the gradual withdrawal of the protected market access to the EU market;
- (iii) the lack of capacity to cope with the rules of the WTO, given the lack of trained personnel;
- (iv) the need to keep abreast of and simultaneously participate in a number several negotiating for a, for example, the ACP-EU; the CSME; FTAA; and the WTO;
- (v) the unpreparedness of micro-producers to meet the standards and technical regulations dictated by the international market. In addition, in the last 60-plus years, there has been but a single application for a patent in St Kitts and Nevis;
- (vi) the continued heavy reliance of the small economies of the OECS countries on tariffs for national revenue, which retards the trade liberalisation process.

Under the WTO, a number of agreements have been signed but implementation remains problematic given the lack of skilled and trained personnel. The effective implementation of an agreement such as TRIPS requires its own secretariat, including lawyers. Yet, in the public sector there is an acute shortage of such professionals.

In addition to the implications of the central role of tariffs in the determination of the quantum of national revenue, reference must also be made to the impact of the imposition of consumption taxes which has resulted in imported products such as beer, aerated beverages and pasta being sold on the local market at prices lower than those of similar, locally-manufactured products. The situation is aggravated by the absence of economies of scale since, even if inputs are now cheaper, the domestic value-added is very low compared with that of the larger economies, with significant implications for competitiveness. Moreover, international companies tend to trade in bulk quantities thus giving rise to a situation in which the relevant quantities may not be achievable by St. Kitts and Nevis. In this situation, any initiative on the part of a number of enterprises to jointly import bulk quantities, would result in the need for greater storage facilities and consequently, increased cost to consumers. Added to this, is the very high cost of energy; insurance premiums; raw materials; transportation; marketing; and research and development.

9.4.5 Facing the Future

In an effort to come to terms with the several trade-related issues mentioned, the Government of St. Kitts and Nevis has:

- (i) engaged in national consultations with the public and private sector on the establishment of the CSME initiative;
- (ii) facilitated a trade policy review by the WTO to assess the transparency of its trade policy and to highlight conflicts between WTO agreements and national economic policies; and
- (iii) liberalised the telecommunications sector in an effort to boost competitiveness.

Further, an Investment and Export Production Unit has been established to, *inter alia*:

- (i) facilitate the international marketing of locally-produced products and investment opportunities in St. Kitts and Nevis;
- (ii) aggressively promote activities to encourage domestic and foreign investment in all productive sectors, especially services, which offer greater scope for competitiveness;
- (iii) provide greater concessionary loans and technical assistance to producers seriously affected by trade liberalisation; and
- (iv) promote continued diversification of the economy into services, focussing on information and communications technologies, call centres; and international business services.

The Small Business Development Unit also provides free advice to businesses in addition to the provision of assistance in the establishment of budgeting and accounting systems. The

Foundation for National Development and the St Kitts and Nevis Development Bank offer loans to small businesses and deliver outreach programmes. The majority of the persons who access these loans become involved in tourism-related activities.

The tourism sector also receives special assistance through, *inter alia*, the modality of tax incentives, whereby tax holidays of 5-15 years are granted to hotels in respect of profits, in addition to a waiver of taxes and duties on some imports. Similar concessions are granted to nationals establishing small hotels or guesthouses.

9.5 Planning for Development

The more salient challenges confronting the planning process in the Federation, but more especially in St. Kitts, include:

- institutional weaknesses and the need for institutional rationalisation;
- a deficit in institutional co-operation and collaboration;
- the need for Public Sector Reform to make planning more efficient;
- the absence of uniform planning standards across the country;
- unsustainable patterns of land use;
- the need for appropriate technologies to address the problems caused by sewage and grey water run off; slope stabilisation; and
- issues related to the provision of social services.

Aided by the Organisation of Eastern Caribbean States/Environment and Sustainable Development Unit (OECS/ESDU), St. Kitts and Nevis enacted new Planning Legislation in 2000, which, for the first time, addressed the issue of standards. Coastal Zone Management (CZM) is also an area of particular concern and a Coastal Zone Management Plan is being developed which will also address the lack of standards in relation to artificial beach structures and related engineering works.

In an effort to comprehensively address these diverse challenges, the Government is in the process of preparing a *Physical Development Plan for the island of St. Kitts*. The Plan was prepared by the Development Control and Planning Board with technical assistance from the Physical Planning Division of the Planning Unit and is approached as a blueprint for land use over the next 15 years. It is also envisaged to be used to inform the provision of public infrastructure and facilitate private sector investment. The Plan was developed on the basis of wide public consultation.

A land- use strategy is articulated, based on the principle of the creation of "growth poles" or "planned concentration." These growth poles have land resources that are free of developmental constraints, offer a good level of service and significant potential for agriculture and agro-industrial development. It is envisaged that this "growth pole" concept will encourage tourism development and lead to the formation of linkages with other sectors of the economy such as agriculture and manufacturing. Within this context, it is hoped that balanced development of land resources will take place.

At the operational level, the Plan also identifies and analyses the institutional, including the administrative and financial frameworks, within which it is to be implemented. Thus, it recommends the strengthening of the Physical Planning Division to carry out the functions of land-use planning; the clarification of the roles responsibilities and relationships between the PPD and the department of Lands and Housing; the adoption of an inter-sectoral approach to plan preparation, implementation and development; and the integration of land-use and economic planning. It also suggests that the detailed policies and proposals be implemented in tandem with the 5-year cycle of economic planning and the incorporation of the policies and proposals into the Public Sector investment Programme to facilitate the selection and phasing of development projects.

Planning in Nevis: The Planning Division of the Ministry of Natural Resources, Physical Planning and Environment is responsible for physical planning in Nevis. Nevis is in the process of formulating a Physical Development Plan, with funding assistance from the CDB. This responds to the need to update the currently used Zoning Ordinance of 1991 to take into account the present social, economic and environmental situation on the island.

Development proposals tend to be basically of two types: hotels or other tourism- related facilities; and family dwelling units. There are areas of property referred to as "family land" on Nevis which is owned by particular families but are not legally sub-divided for development. However, informal mechanisms of sub-division and construction have allowed dwelling units to be placed on these land, in many cases, without the necessary infrastructure or permission. Even in upmarket areas, the infrastructure that is present on the sub-division tends to be inadequate and not compliant with the development control guidelines. In this context, it is to be noted that the existing Planning Law deals only with subdivisions of land within 1 mile of the main town, Charlestown.

With respect to the larger commercial developments, there is lack of clarity as to which agency is responsible for supervising the required EIAs. The National Conservation and Protection Act predates UNCED and therefore does not incorporate either the core environmental issues or the concept of *sustainable development*. Further, the authority of the Act is vested in the Federal Government, which, reportedly, has not clearly identified an agency for the supervision of EIAs.

The Land Registration and Titling systems dates from the nineteenth century and is not cadastral or map-based. It therefore needs to be modernised. The deed system for land ownership purposes also needs upgrading, if the issue of unplanned development on family lands is to be comprehensively addressed.

Steps are being made to modernise the planning legislation and a consultant provided by the Subregional Headquarters of ECLAC for the Caribbean, in 2002, has carried out a review of the planning legislation and provided draft revised legislative texts. The major aims of the proposed new legislation are to entrench planning as a mandatory tool in development and to provide for a more community or participatory approach to planing issues.

9.6 Tourism

The greatest contribution to the GDP of St. Kitts and Nevis is generated by the tourism sector. The islands offer a mixed package, catering to both cruise ship visitors and overnight tourists. Currently, there remains a lack of land-based activities, with the beaches constituting the main attraction. This prompts the need to guard against overcrowding of the corresponding locations.

There are natural sites and places of historical interest. Marketing presents another challenge to the tourism sector. Since St. Kitts is not popularly regarded as an eco-tourism centre, some "re-imaging" is required for this thrust to be successful. In an effort to increase tourist arrivals, Government is currently guaranteeing flights into St. Kitts to boost tourist arrivals. However, the cost involved is likely to render the initiative unsustainable. In order to boost the entire service aspect of the tourist industry, a programme has been introduced with assistance from the European Union, to expand hospitality training. A series of programmes on tourism awareness is also being developed.

A programme is in place to revive the aesthetics of the islands. This involves collaboration between the private sector and the public sectors in dealing with health, environment and solid waste aspects. In this context, through the "*adoption of spaces*" programme, communities and business enterprises now contribute to landscaping activities

Overall, there remains inadequate collaboration and coordination among the departments entrusted with the management of the tourism sector. There is a need for more flexibility in tourism planning. The capacity of the public and private sector level to promote and market the tourism product is also critical.

9.6.1 Tourism in Nevis

Nevis has been quite successful in positioning itself as an upscale tourism destination. Here, the tourism sector is based on low volume but high economic yield, the *Four Seasons* establishment being the driving force behind the tourism activity. A number of independent boutiques have managed to maintain patronage from the tourists and feed into the ambience of exclusivity. There are also a number of plantation style villas which offer an intimate type of reception and these are being promoted. In fact, the current policy trend is away from the construction of new hotels, in favour of villa and cottage-style accommodation in an effort to maintain the low volume-high yield pattern of tourism. The yield from the tourism sector is further enhanced by the length of stay of visitors which averages seven days or more.

The presence of the Four Seasons resort has also contributed to the development of the island's human resources development. In this regard, this resort continues to invest in the training of locals, as well as migrant workers from other Caribbean islands, in highly specialised areas, with a view to ensuring the maintenance of its premier league status.

On the other hand, airlift into Nevis can present certain difficulties due to the small size of the airport's runway. Nevertheless, more recently, there has been an increase in air service to

the island by airlines such as American Eagle, Caribbean Star and LIAT. Since the largest hotel establishment on the island does not command more than 120 rooms, the need for frequent flights with large volume of tourist is not a necessity. Moreover, creative solutions have been developed to circumvent any problem that might arise from the unavailability of direct flights. In such instances, visitors to the island are received in St. Kitts, given a short reception and transported by ferry to Nevis. The docking and pier facilities at Nevis are well developed to facilitate the smooth and efficient transfer of visitors.

Infrastructure such as roads is recognised to be in view of upgrading and improvement of these access ways has already commenced. The water supply, while adequate at present, has to be carefully monitored since Nevis does not have either the rainfall pattern or the subterranean availability of water as obtains in St. Kitts.

9.7 Waste Management in Nevis

The Nevis Solid Waste Management Authority is the agency responsible for collection of domestic waste in Nevis. The island is subdivided into five districts for this purpose. Four districts are served directly by government and the fifth, by a private contractor, hired by the government. Solid waste is collected from households at least twice a week. Companies and private institutions hire private contractors to remove their solid wastes. However, small inns and villas tend to be serviced by the Government free of charge. .

Nevis has a sanitary landfill which is expected to be operational by the end of September 2003. At present waste is taken to the site of the landfill but is burnt. The landfill was constructed and equipped with funding from the World Bank on the basis of an OECS waste initiative at a cost of just over \$ US 2 million.

The estimated life-span of the landfill is about a decade, but it is envisaged that by resorting to separation of garbage in individual cells that receive paper, plastics, metal and glass, respectively, the life-span would be extended. There is also a used oil facility with a capacity of some 120,000 gallons. An incinerator has also been installed for burning oil and should be commissioned shortly.

A concrete cell in the landfill is reserved for used batteries. It is intended that these batteries will be drained, crushed and deposited in this cell for eventual export when a sufficient quantity will have accumulated.

Semi-solid waste from the pumping of sewer systems is also brought to a special section of the landfill. This sludge is neutralized by lime and retained in cells. This process avoids the percolation of the liquid contents into the soil.

Hazardous waste is stored separately and arrangements are being made for its trans-shipment for decontamination abroad in cases where the facility is unable to provide the necessary treatment for the particular substance.

Notwithstanding the landfill's expected life-span of a decade or so, the Government has already been advised to set aside land for future waste disposal sites.

CHAPTER 10

St. Lucia

10.0 Introduction

St Lucia has a land area of 616 square kilometres and is of volcanic origin. It has a rugged and mountainous topography, especially at its centre. There are flat areas near the northern and southern tips of the island and broad flat valleys run between offshoots of the main central valleys to the sea. The island contains fertile valleys which have been a stronghold of the banana industry. The country is prone to natural disasters, in particular, hurricanes, with important implications for its GDP. Indeed, it is regarded as being among the “most vulnerable” countries.

The economy is very open with the value of trade as a percentage of GDP calculated at 113.3 per cent. The economy is becoming increasingly diversified, due to the expansion of the tourism sector, which has also transformed the country from being, primarily an exporter of agricultural commodities, to a more service-based economy. The island’s population is just over 150,000, with a growth rate that has been decreasing since 1996.

10.1 Social Policy Issues

10.1.1 Institutional Issues

A Draft Social Policy has been recently developed. Local Government reform is being debated with the emphasis on increased popular participation. In this context, a *Green Paper* on *Local Government Reform* has been approved by Cabinet as the basis for national consultations.

10.1.2 Poverty Issues

Poverty continues to be an intractable problem and has worsened due to the continuing decline in banana production over the past eight years. Social assistance programmes include the Poverty Reduction Fund, which was established in 1998 and receives contributions from, *inter alia*, the World Bank, the European Union; the Government of St Lucia; the James Belgrave Fund; and the Basic Needs Trust Fund. The Poverty Reduction Fund continues to focus on the consolidation of an efficient and effective operational structure towards facilitating continuous community participation in the implementation of sub-projects.

Since 1998, the Fund has implemented over 100 sub-projects in poor communities, with expenditure in excess of EC\$6.3 million. Due to the emphasis on local participation, there has been a large increase in the number of projects that have been approved and implemented: from 18, in 1998/1999, to 62, in 2001-2002 and a subsequent increase in expenditure and financial commitments. In addition, there has been a greater diversity of sub-projects, spanning economic infrastructure; social infrastructure; income generation; and capacity-building. Under the Poverty Reduction Fund, NGOs and communities may submit proposals for the improvement of

community facilities and services. While the focus has tended to be on infrastructural projects, this is now shifting to skills-training for the unemployed.

The James Belgrave Fund (JBEF) is an offshoot of the Poverty Reduction Fund and, under its terms, seed money is made available for micro- enterprise development to individuals in deprived communities. To date, loans totalling just over EC\$ 1 million have been disbursed to 60 females and 56 males within the areas of Manufacturing and Industry; Retail and Distribution; Fishing and Farming/Animal Husbandry and Agriculture. The Small Enterprise Development Unit assists small entrepreneurs to develop business plans and financing strategies.

The Basic Needs Trust Fund (BNTF) has tended to handle the larger social infrastructural projects such as road-construction and water production and distribution. Its Fourth Programme has been completed with the implementation of some 58 sub-projects between 1996-2000, with funding, mainly from the CDB. Under the new funding arrangements, BNTF sub-projects will require an EIA and gender analysis. Also scrutinised, is the extent to which sub-projects take into consideration the plight of persons living with HIV/AIDS while promoting education and prevention in relation to the disease.

The National Skills Development Centre has been mandated to assist with "social transformation" and has launched courses in life skills to help persons, especially those in rural communities, to develop a skill that is capable of generating income. The Centre became operational in February 2001 and provides services related to skills assessment and development; employment; work experience and apprenticeship; as well as labour market information. During the first year of its operation, 213 young persons received training in such areas as bartending, cake-decorating, catering, dress-making and fashion design, electrical installation, secretarial skills and paper making.

Activities in the sphere of poverty- reduction have also resulted in the consolidation of rural development programmes such as the St Lucia Rural Enterprise Project (SLREP), which seeks to offer opportunities for alternative sources of employment through the provision of technical assistance and micro-finance to individuals and groups of producers of non-traditional commodities.

Further poverty-reduction initiatives include the establishment of three Human Resource Development Centres in Belair, Entrepot and Vieux Fort. In addition, a Government-sponsored welfare programme provides for the payment of a stipend of \$40-\$80, subject to the satisfaction of eligibility criteria, in cases where two or more persons share the same dwelling. Free health care is available at clinics and hospitals. While the elderly may not necessarily qualify for financial assistance, health care is available free of cost. It is recognised that greater effort is needed to provide appropriate care for the elderly, since many of the institutions offering such care are under-resourced.

In an attempt to address issues relating to squatters who fall within the low income groups, a Programme for the Rationalisation of Unplanned Development (PROUD) has been introduced whereby Government-owned lands are transferred to long-term squatters after rationalisation and improvements of these lands by the PROUD Unit. The squatters are then

presented with deeds of title to the property after agreement is reached on the selling price and repayment terms, both of which are set at concessionary levels.

Over the medium term, the focus on poverty reduction will be driven by, *inter alia*, the following: the finalization of a comprehensive poverty-eradication strategy; the consolidation of community-driven development initiatives; the social transformation of communities through the placing of greater emphasis on the implementation of capacity-building initiatives at the community and national levels to complement physical interventions; the formulation and implementation of a comprehensive social safety-net programme for vulnerable/marginal groups; the conduct of relevant research to inform policy-formulation, with a focus on the development of indicators; and the strengthening of such existing institutions as the PRF and other relevant governmental and non-governmental agencies, through the provision of the required resources.

10.1.3 Crime and Youth

A National Youth Policy prepared in 2000 addresses the major concerns and issues that are critical to the wholesome development of youth and constitutes the official policy document for youth development.

Programmes targetting young male offenders are offered at the Massade Boys Training Centre, while the Upton Gardens Centre caters for girls. Within these centres, the focus is on training, skills provision and rehabilitation. The Bordelais Correctional Facility was recently commissioned with an emphasis on rehabilitation. There remains the need to provide counselling services to the families of offenders, with a view to facilitating their re-assimilation into society.

Among the major impediments to more effective action, in this regard are the lack of follow-up and also inadequate inter-agency co-ordination in dealing with family life situations and other causes of crime. The deportation of criminals from the United States of America, among other countries, has presented a new dimension to criminal activity, since such persons tend to be more proficient in crime. The emphasis on youth behaviour is justified since persons aged 10-35 years account for 54 per cent of the population. Moreover, some 60 per cent of individuals in prison are under 25 years of age.

10.1.4 Drug Interdiction

St. Lucia has concluded a Ship-Rider Agreement with the United States of America and, in that context, has received patrol vessels and other forms of crime management support. St. Lucia is also a member of the Regional Security System (RSS), which is based in Barbados. Senior officers are assigned to the RSS on a rotation basis and a training school in Antigua has been established in Antigua and Barbuda.

A Proceeds of Crime Act has been promulgated and provides for the confiscation of assets acquired as a result of criminal activity. Enforcement, however, presents a problem, due to the resource deficit.

10.1.5 HIV/AIDS

At the end of 2000, there were 265 reported HIV/AIDS-positive cases in St. Lucia. Very little HIV/AIDS testing is done nationally, so that only 2 per cent of the population have been tested. As a consequence, the spread of HIV/AIDS cannot be accurately determined and monitored. Heterosexual transmission is now reported to be the main source of infection. Also, reportedly, some 10 per cent of children of parents living with HIV/AIDS are infected through peri-natal transmission. The need is recognised for comprehensive and timely reporting and follow-up; identification of high risk groups; and behavioural surveillance; an increased reporting of cases from the private sector; and improved reporting with respect to clinical status and deaths. Indeed, a Government-sponsored report published in 2000, recommended, *inter alia*, that:

- systems be put in place for early detection and diagnosis;
- Health education programmes be expanded, especially among young women;
- Information and training programmes be developed for health professionals;
- Contact tracing be improved to identify high risk populations or those involved in risky behaviour;
- Enhanced efforts be made to make known and increasingly accessible, the facilities that are available for the psychological and medical counselling of persons living with HIV/AIDS.

The Clinton Foundation which is working to contain the spread of the HIV virus in Africa and the Caribbean, renders assistance to the OECS. While the actual content of in-country work may vary, the Foundation pursues (a) upgraded facilities including district hospitals, health centres and laboratories; (b) increased numbers of HIV/AIDS medical personnel; (c) expanded and coordinate training of health providers in HIV/AIDS care and treatment; (d) modified distribution systems for drugs and consumables; (e) provision of targetted Information, Communications and Technology (ICT) development, including a patient information system; and (f) provision of enhanced management systems at the local and national levels.

10.2 The Environment

10.2.1 Institutional Aspects

The lead agency responsible for environmental management in St. Lucia is the Sustainable Development and Environment Unit (SD&EU) of the Ministry of Planning, Development, Environment and Housing. The Unit was created in April 2000 and covers four broad areas: Environment; Energy; Sustainable Development; including Land Policy and the SIDS Programme of Action; and Science and Technology, including Public Awareness. Together with other members of the OECS, St. Lucia participates in the development and implementation of the OECS Environmental Strategy which, as mentioned in an earlier section of this Report, is informed by "The St. George's Declaration of Principles for Environmental Sustainability in the OECS" which was adopted in 2001.

10.2.2 Priorities, Challenges and Achievements

In St. Lucia's National Report to the World Summit on Sustainable Development (July 2001), three categories of issues were identified for priority attention, namely Climate Change and Sea Level Rise; the Use of Natural Resources; and Natural and Environmental Disasters. The SD&EU in 2001 was also instrumental in securing a project to undertake a legal and institutional review of Environmental Management in St. Lucia. The main findings of the review, to a large extent, mirror the situation that exists in other Caribbean SIDS. Among the findings were:

- Lack of legislation that specifically addresses environmental management or sustainable development;
- A need for inter-agency collaboration in the administration of environmental management functions and responsibilities to avoid duplication of effort;
- The absence of shared perspectives with respect to the precise manner in which environmental initiatives should be incorporated into the integrated development planning process;
- The need for greater public access to environmental information;
- Problems of implementation arising from the vast number of Multilateral Environmental Agreements and the shortage of human, technical and financial resources.

Notwithstanding these constraints, many significant achievements have been recorded. For example, St Lucia's First National Communications Report under the United Nations Framework Convention on Climate Change (UNFCCC), was successfully completed. Further, St. Lucia was used as a pilot study under component 7 (Economic Valuation of Coastal and Marine Resources) of the Caribbean Project for Adaptation to Climate Change (CPACC). In addition, a National Climate Change Policy has been completed and approved.

In the sphere of *Coastal and Marine Resources*, a New Fisheries Management Plan has been designed, and marine reserves are being designated. These reserves are to function under local co-operation and community-based management schemes. A project for the Integration of Watershed Management and Coastal Area Management is currently being prepared. This project is based at the Water Resources Management Unit of the Ministry of Agriculture.

Among the major issues to be addressed are:

- The promulgation and updating, as necessary, of legislation (e.g. Beach Protection Act and the Oil in Navigable Waters Act);
- The compilation of a comprehensive inventory of coastal and marine resources;
- The need for co-ordination in approval process in respect of coastal developmental activities;
- Determination of the carrying capacities of various coastal resources.

Currently, the Government is engaged in the upgrading of fish landing-facilities. In this context, the waterfront of the rural southern village of Choiseul has been transformed by virtue

of the reclamation of some 40,000 square feet of land. The new facility boasts, *inter alia*, a new administrative building, an ice-making plant with storage capacity of 2.2 tons; an engine repair room; washrooms; and locker rooms. It also includes a fuel station, postal facilities and a fish market. In addition, the Government has secured some 20 fibre-glass pirogues which marks a major step in the transition from the traditionally canoes.

In addition, the Government of St. Lucia has embarked upon an initiative, the Coastal Zone Management Project, through the Ministry of Agriculture, Forestry and Fisheries, "... aimed at establishing institutional arrangements to facilitate the sustainable development and management of the island's coastal zone." A comprehensive document "Coastal Zone Management in St. Lucia: Policy, Guidelines and Selected Projects" (September 2002) details the approach to be pursued towards the sustainable management and use of the island's coastal zone and its resources. The resulting policy is guided by the principles of equity, stewardship. Collaboration and participation, multiple use, enforcement, capacity-building, co-ordination and integration and public awareness.

To ensure a co-ordinated approach to Coastal Zone Management (CZM), it was suggested that the CZM framework comprise both a Coastal Zone Management Committee (CZMC) which would be an inter-agency co-ordinating both and a Coastal Zone Management Program (CZMP). It is envisioned that this approach would serve as a mechanism for:

- Co-ordination among agencies involved in CZM;
- Integration of coastal issues into the national planning and development framework;
- Assist in the prevention of duplication of functions among agencies; and
- Provide a forum for conflict resolution, and conduct specific programmes and activities that do not currently fall within the mandate of existing organisations.

Specifically the CZMC would have among its functions, the identification of coastal zone management and development issues; proposal and formulation of policies; facilitation of communication and co-ordination among bodies or agencies; and guiding and supervising various Programme outputs. The CZMC would comprise representatives from the public/private sectors, local government agencies and CBOs. It would be assigned the task of developing a medium-to-long-term strategy and action plan geared towards full implementation of the CZM policy

The CZM Programme is to serve as the Secretariat of the Committee, provide relevant technical and planning input on matters related to coastal development and management; collect, manage and disseminate data and information; create and enhance public awareness; and conduct selected programmes and activities directly related to coastal zone management and development.

The corresponding Policy objectives are to:

- Maintain the integrity and productivity of the coastal zone and resources therein;

- Optimise the contribution of the coastal zone to social and economic developing through the sustainable use of resources and the equitable sharing of benefits; and
- Harmonise uses of the coastal zone and provide a framework for the management and resolution of these resource conflicts.

The Policy recognised as fundamental issues, the responsibility of the State to establish and manage a policy framework for CZM; the need for fairness, transparency and accountability in policy implementation; the rights associated with public property; the need to adopt the Precautionary Principle; and respect for regional and international obligations.

The Island Systems Management (ISM) approach was the preferred option for the planning of strategies and in this context the island was divided into four regions, namely the Northwest Coastal region; the Central West Coastal Region; the Northeast Coastal Region; and the South to Southeast Coastal region. The regions were determined on the basis of a combination of watershed boundaries, resources issues and development and management trends.

Strategies and actions for each region were placed into the following categories: (i) Restoration/rehabilitation (ii) Conservation/protection (iii) Enhancement (iv) Physical and Spatial Planning (v) Empowerment and Capacity-Building (vi) Socio-Economic benefits and (vii) Policy and/or Legislation.

Programme areas were then selected and related projects were devised for each. The programme areas include (a) education, awareness and sensitisation (b) coastal ecosystem management and (c) waste management.

The major obstacles to effective coastal zone management to be addressed include the lack of comprehensive environmental guidelines and standards for the coastal and marine environment; the proper management of marine protected areas; the lack of programmes that allow for restoration and or rehabilitation of coastal/marine ecosystems; the confusion of roles and responsibilities among the agencies involved in coastal and marine activities; lack of research and scientific information on local coastal ecosystems; and the paucity of sufficient contingency measures to mitigate the effects of natural disasters that affect coastlines.

10.2.3 Freshwater Resources

The Government of St. Lucia, with support from the European Union, has embarked on the formulation of a National Water Policy. The need for such a Policy is justified by the findings of a Situational Analysis of the Water Sector according to which the country is facing a situation of *water stress* that will worsen if present trends continue. The Analysis also reveals the following:

- the average annual per capita availability of renewable water resources is expected to decline ;
- given the already unequal distribution of these resources, marginal groups especially in the rural areas, will experience *water stress*;

- the supply of water for health and sanitation, especially in the rural areas, is inadequate and demands priority attention;
- indiscriminate use of forest resources and encroachment upon protected areas are severely threatening the sustainability of water resources;
- notwithstanding recent increases in the price of water services, current prices continue to be heavily subsidised by Government, with unintended negative consequences;
- users still do not value water;
- water-conservation technologies are still rudimentary and incentives for innovation are weak;
- poor land- use planning and soil management, especially in and around watersheds, are severely reducing freshwater capturing-capacity, while also affecting coastal water quality and aquatic biodiversity;
- sedimentation and over-utilisation of chemicals for agricultural and industrial use, are leading to the deterioration of water quality, thus posing significant risks to public health;
- decision-support arrangements for water resources management, especially in areas such as monitoring, collection, research and evaluation of water- related data and associated environmental conditions, are poor and threaten the emergence of a sound and effective Integrated Water Resources Management (IWRM) programme;
- human resource capacity in the water sector is weak, especially in critical areas such as water and wastewater management; pollution control; finance; integrated water resource planning; and the operation and maintenance of water-related infrastructure and services;
- the absence of environmentally-sound and cost-effective sewerage collection and treatment facilities is threatening the integrity of the water supply and the sustainability of water resources and supporting ecosystems;
- increasing the productivity of agriculture through expanded irrigation could exacerbate *water stress*, unless buttressed by effective and timely measures to improve the productivity of irrigated water;
- considerable fragmentation exists among the several institutions whose mandates and activities relate to the water resource;
- by itself, a system of licenses is insufficient to permit the National Water and Sewerage Commission (NWSC) to effectively allocate available water resources among competing uses;
- in the interest of transparency and objectivity, the responsibility for allocation of water resources should be divorced from the responsibility for monitoring, enforcement and compliance in water-related issues.

The policy development process was driven by Government's philosophy according to which there must be joint ownership of the process of change. Consequently, the process was underpinned by dialogue and consultation among the social partners, to:

- (a) generate awareness of the major issues and challenges facing the water sector;
- (b) develop a consensus on key cost-effective and efficient approaches to overcoming these challenges; and
- (c) establish the basis for sustainable water resource use and development.

The need for a comprehensive management strategy to support the policy has also been recognised. Accordingly, the Water and Sewerage Company (WASCO) is participating in a technical assistance programme with the World Bank and the Caribbean Development Bank, for the reorganisation of the water sector. The Ministry of Agriculture, Forestry and Fisheries (MAFF) has established a 3-year Water Resource Management Project that is jointly funded by the European Union and the Government of the St. Lucia. The objective of this project is to *"...assure the viability of all forms of agricultural production on Saint Lucia through the sustainable management of its water resources"*.

10.2.4 Energy

In order to promote improved energy efficiency and conservation and the use of newable energy resources and also to reduce the reliance on expensive, imported fossil fuels, St. Lucia has developed and implemented a range of measures. Two of the more significant of these have been the formulation of a Sustainable Energy Plan and the development of a Green Paper on Energy, which will form the basis for developing a sustainable energy policy. The effective implementation of a policy on sustainable energy will require changes in the regulatory framework, since it calls for a deregulation of the Energy Sector. Energy costs are usually the second highest operational cost. Even so, they seem likely to increase.

10.3 Integrated Development Planning

Notwithstanding the structures that have been established for Physical Planning, planning as a holistic process involving the integration of social, cultural, environmental, economic and other dimensions, is a relatively new phenomena within the planning process in St. Lucia. Traditionally, National Development Planning has focused mainly on economic planning in a situation in which several sectoral development planning functions are undertaken in satellite planning units in separate agencies acting in isolation. Within this context 24 September 1998, the government introduced the concept of Integrated Development Planning (IDP). The IDP approach involves the following:

- Involvement of the widest possible cross-section of the society in the definition of the long-term development goals;
- Use of short-term goals and policies direction as the basis for developing short-to-medium-term plans;
- An integrated approach to programme budgeting under the Programme and Performance Budgeting system;
- A formal system for priority setting at the programme, policy and project development levels;
- The development and use of performance/development indicators;
- An institutional framework for ISP; and
- The Integration of population demographic issues into the planning process.

Institutionally, the Ministry of Planning is the agency charged with the development and implementation of the Integrated Development Planning Process. In 1998, the Development Cooperation and Programme Planning Division (DCPP) was established within the Ministry of

Planning, Development, Environment and Housing, with a mission “to foster sustainable improvement in the quality of life of all St. Lucians, through effective integrated planning co-ordination, implementation and monitoring of physical/spatial, technological, economic, environmental and social development activities.” The Division was also entrusted with the preparation of the Medium-Term Development Strategy Paper in collaboration with the SD&EU and the Research Development and Policy Division of the Ministry of Finance and Economic Affairs. The strategy is broad and covers areas as diverse as poverty; tax structures; human resource development; infrastructural development; social services; and amenities, among others.

While there is a commitment to the IDP process as evidenced by the commitment of approximately EC\$1 M to carry the IDP programme until the end of 2003, there remains the inadequacy of the required manpower resources. In addition, the mandates of certain agencies, overlap, resulting in conflicts in implementation. Moreover, there remains the inertia that has been retained from planning within a project context, as distinct from a programme milieu.

To improve the planning process and to facilitate the effective implementation of the IDP process, the following have been recommended:

- (a) Establishment of an institutional and legal framework for IDP and Sustainable Development; inclusive of a national co-ordinating mechanism and linked to local Government;
- (b) Strengthening of the environmental management institutional, policy and legislative frameworks, especially towards the harmonisation of the institutional, policy, management and legislative frameworks concerned with environmental management;
- (c) Establishment of a Sustainable Development Management and auditing System for Public and Private Operations, towards the implementation of Environmental Management Systems (EMS) and international standards such as ISO 14000;
- (d) Establishment of a legal requirement for the promulgation of a National Sustainable Development Education Policy and Implementation Plan, through broad based consultation. A Social, Economic and Environmental database for public access and information should also be part of the entire strategy.

10.4 Waste Disposal

The St. Lucia Solid Waste Management Authority (SSWMA) was established in 1996, following the passage of the Solid Waste Management Authority Act. The Mission Statement developed for the Authority charges it with the responsibility “to enhance St. Lucia’s environmental integrity and the health of her people through the provision and management of an integrated system for public education and awareness and for the collection, treatment, recycling and disposal of solid and hazardous waste.”

Under the 1996 Act, the Authority operates under the direction of a Board, which has, as its Chairperson, the Permanent Secretary of the Ministry of Planning.

The SSWMA has established a Hazardous Waste Sub-committee to address issues related to the handling, treatment and disposal of hazardous materials. To date, the Committee has established procedures and guidelines for its operations and has formulated its Work Programme.

The St. Lucia Air and Seaports Authority (SLASPA) has identified the need to specifically address issues related to the handling of dangerous goods at the country's ports and a decision has been taken to establish a committee to develop policies and procedures for the handling of dangerous goods at the ports, as well as to recommend and deliver training in this area.

Under the OECS Solid and Ship-Generated Waste Management Project, a number of "model" policies, laws and regulations were developed for the OECS countries to separately address issues related to the management of shore-generated waste and ship-generated waste. In St. Lucia, these "model" policies, laws and regulations have been revised after extensive consultations undertaken by the SSWMA. The Cabinet of Ministers has approved both policy documents and the laws and regulations arising from these documents are currently being prepared for submission to Parliament.

As part of its programme of developing appropriate systems for the collection, treatment and disposal of ship-generated waste, in fulfilment of the obligations under the International Convention on the Prevention of Pollution from Ships, as amended (MARPOL 73/78 Convention), the SSWMA has entered into a Memorandum of Understanding (MOU) with SLASPA. This MOU defines the relationship between the two parties in handling of waste from ships entering the ports and outlines their respective roles and responsibilities.

Under the provisions of the Public Health Act and the Litter Act, the Environmental Health Department (EHD) of the Ministry of Health has the responsibility of exercising regulatory oversight for the solid waste and sewerage sector. Over the past years, however, the EHD has been unable to adequately fulfill its responsibilities as a regulatory agency, largely because of manpower and financial constraints. In the particular case of the solid waste sector, the EHD has not been able to adequately respond to the changes brought about by the establishment of the SSWMA; the privatisation of collection services; and upgrading of waste disposal facilities. The SSWMA has, therefore, to a certain extent, been engaged in self-regulation, in order to maintain certain minimum standards in its operations. In a similar manner, the EHD has exercised minimal oversight over the sewerage sector and WASCO has, in turn, found it necessary to undertake a certain amount of self-regulation in respect of its sewerage operations.

Wastewater management has to date received much less attention than solid waste management. As a result, several rivers and streams, as well as coastal waters in certain areas have become polluted because of the inadequate handling and treatment of sanitary sewage or industrial effluents. Studies conducted by the Caribbean Environmental Health Institute (CEHI) in the mid- to- late 1980s identified areas of pollution of coastal waters, and more recent studies undertaken under the North-west Coastal Conservation Project, indicate that pollution problems continue along certain parts of the north-west coast. It has also been determined that several

privately owned package sewage treatment plants, most of which serve hotels, have not met specified standards.

Faced by severe manpower, jurisdictional and financial constraints, the EHD has been unable to fulfil its responsibility of monitoring water quality and pollution of rivers, streams and coastal areas. Further, no significant efforts are being undertaken to address the known problems of water pollution or to introduce municipal sanitary sewerage systems wherever these have been deemed necessary.

The Water and Sewerage Company (WASCO) is responsible for the operations of the Castries Sewerage System and the Rodney Bay Sewerage System. WASCO, like its predecessor (WASA), has, to a large extent, focussed on supplying potable water. The Sewerage Unit of the Company is relatively small and is concerned mainly with the operations of the systems owned by the company.

Since the commissioning of the Rodney Bay Sewerage System in the early 1990s, there have been no significant developments in the sewerage sector. A number of studies have been conducted on that sector, with the expansion of the Castries Sewerage System being among the more significant studies undertaken thus far.

The Pesticides Control Board, is chaired by the Director of Agricultural Services, and includes representatives of the Ministry of Agriculture; The Ministry of Health; the Chamber of Commerce, Industry and Agriculture; the Occupational Health and Safety Unit of the Department of Labour; and, the Inter-American Institute on Agriculture (IICA). The Board has prepared a list of prohibited agro-chemicals and regulations and procedures have been developed for the licensing for the importation of pesticides and of premises to be used for storing, handling and distributing pesticides; and for controlling the labelling of these substances. A close working relationship exists between the Ministries of Agriculture and Health and this has been particularly effective in the development of promotional material on pesticide use. The Inter-American Institute for Cooperation on Agriculture (IICA) also works closely with the Board and has provided funding for several of its initiatives.

Solid waste collection and disposal in St. Lucia are carried out primarily by contracted private companies. There are two landfill sites which engage in the covering and compaction of waste. The practice of depositing waste materials into gullies and other waterways, a tradition from the era where waste collection was rare, has decreased dramatically in recent years. There are areas which continue to be inaccessible to the waste collection vehicles and the practice of indiscriminate dumping continues, especially in low income communities.

There is a facility where tyres are shredded and used to make bund walls. Crushed glass is mixed with other substances and used in the construction of secondary or tertiary roads in the Vieux Fort area. There is proper management of asbestos at both landfills and waste oil is put into storage containers and used as a secondary fuel source.

St. Lucia is currently developing a Waste Management Strategy and legislation for the enforcement of The United Nations Convention on the Law of the Sea; the Protocol on Land-

Based Sources of Pollution to the Cartagena Convention (the LBS Protocol); the BASEL Convention; and MARPOL is also included under this comprehensive plan. A Waste Management Bill is shortly to be considered by the Cabinet. Consideration is also being given to the enactment of a Returnable Containers Act, wherein a fee would be charged to the producers of aluminium, plastic and glass items and a refund paid to those who collect them for recycling. Attempts are also being made to recycle and reprocess plastic and lead batteries on the basis of a private sector initiative.

Under the Environmental Levy Act of 1999, all goods, except food products and pharmaceuticals, are subject to an environmental levy. However, should the materials be recycled and sent out of the country, the tax is rebated. There is also a Public Education Project which reaches schools, the private sector and the community at large. This project receives significant support from the private sector. A Hazardous Waste Advisory Committee guides the waste authorities in the management of hazardous materials. Currently, agro-industrial chemical residues are stored pending the development of an appropriate methodology for their disposal. The last dump site has been decommissioned and ways are being explored to utilise the gas from former dump sites.

10.5 Disaster Management

The National Emergency Management Organisation (NEMO) is charged with the responsibility for developing, testing and implementing measures to ensure efficient preparedness, mitigation and response actions in respect of both natural and manmade disasters. The NEMO falls under the purview of the Office of the Prime Minister. However, in the event of a disaster, it is able to draw on an extensive network of individuals and agencies at the national and community levels. It is worth noting that only one sub-committee of the National Committee has been specifically mandated to address issues associated with a particular type of environmental disaster, namely the Oil Spills Committee. This Committee is headed by the St. Lucia Air and Sea Ports Authority (SLASPA), which is represented by its Director Designate-Marine Affairs.

The NEMO has responsibility for hazard management. It is also responsible for soliciting donations; providing shelter during a natural event; and policy formulation and direction. The National Emergency Management Advisory Council (NEMAC) is empowered by law to create sub-committees whose membership normally includes private sector individuals and persons from key sectors in the Government ministries. There are capacity for 18 District Committees, though 16 are currently functioning. These Committees provide outreach support throughout the island and are operated mainly by volunteers.

The implementation of the NEMO work programme is being assisted by the World Bank-funded OECS Emergency Recovery and Disaster Management Project, the local component of which is coordinated by the Ministry of Planning. Under that project, the NEMO is to receive technical assistance in the areas of disaster planning and mitigation, including specialist assistance in planning responses to natural and environmental disasters in the business and industrial sectors. The OECS project is also expected to provide community-based disaster

preparedness training, as well as a quantity of telecommunications equipment and training in the use and maintenance of such equipment.

The Caribbean Disaster Emergency Response Agency (CDERA) together with Canadian International Development Agency (CIDA) and Organisation of American States/Unit of Sustainable Development and Environment are conducting the Caribbean Hazard Mitigation Capacity-Building Programme (CHAMP) in St. Lucia and three other CDERA States. The objective is to develop comprehensive natural hazard vulnerability reduction initiatives through the development of national hazard mitigation policies, creation of appropriate policy implementation programmes through comprehensive hazard mitigation frameworks and the development and implementation of safer building training and certification programmes.

St. Lucia has a National Emergency Response Plan which deals with specific hazards, such as hurricanes, earthquakes, volcanic eruptions and other phenomena such as landslides and Oil Spills. An Oil Spill Contingency Plan is due to be completed and approved by the end of 2003.

The Meteorological Office provides an early warning system on developments pertaining to severe weather systems. However, the transmission of information to communities with respect to preparations and readiness for disasters is addressed at a community level.

10.6 Tourism

The Ministry of Tourism in St. Lucia has formulated a Medium Term Development Strategy Paper 2002-2006 which outlines the promise, problems and challenges in the industry, as well as the initiatives that will be taken to ensure that tourism makes a major contribution to the foreign exchange earnings of the country.

The Strategy Paper indicates that 2001 was a difficult year for the industry, with occupancy rates dropping from 63.6 per cent in 2000 to 57 per cent; small properties averaged 43.1 per cent, down from 63.1 per cent in 2000. Closure of hotels *"....resulted in the loss of hundreds of jobs and significant decreases in revenue recorded by surrounding restaurants and support service providers"*.

The slowdown was attributed to the weakening of the economies of some of the world's major tourist generating countries and the terrorist attacks in the United States of America in September 2001. Some worrying trends were, however, apparent before the onset of the present decade. For example since the 1990s, while tourist arrivals were on the increase, average expenditure per tourist has been declining.

Nevertheless, tourism, is still regarded as one of the most viable segments of the St. Lucian economy and, remains one of the most important. At the end of 2001, 60 per cent of foreign exchange earned was derived from tourism and service charges and taxes applied directly to tourism accounted for 10 per cent of government revenue. In addition, some 21 per cent of the work force was employed directly in tourism or in a related service sector.

In spite of the downturn investor confidence in St. Lucia as a tourist destination has remained, with no fewer than 6 hotel/condominium developments in progress. As regards stay over visitors, St. Lucia needs to continue to differentiate itself from other competing tourism destinations. There is also an urgent need for increased airlift into the country.

While overstay visitor arrivals decreased in 2001, the cruise sector remains buoyant. This is due mainly the cutting of prices by cruise lines to extend their target markets to include lower income travellers. This, however, is likely to result in a lower level of expenditure per passenger. Yet, prospects for the cruise ship sector remain positive, with some 50 new ships being put into service by 2005, according to the Cruise Lines International Association. It is noteworthy that the Caribbean subregion accounted for over 44 per cent of total cruise capacity in 2001. There remains however, keen competition among ports of call and St. Lucia needs to position itself appropriately to obtain its desired market share, as well as investigate other options.

In the last two-year Medium Term Strategic Plan for the Tourism Sector (2000-2002), focus was directed to three areas, namely public awareness; human resource development; and the repositioning of the island's marketing image.

In the marketing area, the St. Lucia Tourist Board Office/Headquarters in New York was closed and Sales/marketing Officers were assigned to specific regions, including New York, to build strong links with the travel trade in the assigned area. This directed more financial resources to direct marketing. The introduction of a website provided detailed information on the destination and is designed to compete aggressively with other cyber-sites in destination marketing, allowing for the booking of hotel rooms or purchase of tickets to events.

A *Res-Res system* has also been launched through an initiative of the St. Lucia Hotel and Tourism Association to provide information about various properties, and to facilitate direct bookings with the hotel concerned. The system is all Internet-based and emphasises the eco-tourism aspect of the destination. Other programmes undertaken include the promotion of conference tourism and increased visibility of the yachting sector. With regard to the latter, the Cabinet of Ministers approved recommendations from the Ministry of Tourism to make St. Lucia more "yachting friendly." Such recommendation related to, *inter alia*, extension of the permitted stay of yacht persons; amendment of the Tourism Incentives Act (1996) to include yachting as an approved tourism product; amendment of the Merchant Shipping Legislation to allow vessels to be registered in St. Lucia; and reduction of consumption taxes for the importation of yachts.

Tourism awareness has been targeted especially at young persons through initiatives in schools which foster sensitivity and appreciation for the tourism industry by means of lectures, competitions and media campaigns in addition to the inclusion of tourism in the school curriculum. Tourism awareness in the wider community was placed on those persons who came into direct contact with visitors such as vendors and taxi drivers.

The St. Lucia Nature Heritage Tourism Programme (SLHTP) has been focusing on enhancing revenue-generating capacity of small community based businesses catering to the nature heritage seeking visitors. The programme provides technical assistance to site operators

to "...strengthen their ability to manage the natural and cultural resources, with environment and product sustainability as key aspects in the process." The OECS/NRMU has been providing assistance in the development of Environmental Management Systems for tourism sites and attractions to meet global environmental standards with a view to obtaining as many "Green Globe" certifications as possible.

The Ministry of Agriculture also has a programme whereby seminars and workshops are conducted to make farmers aware of the effects of indiscriminate farming practices on the environment and consequently on tourism.

A number of shortfalls in the implementation of strategies from the Medium Term Development Strategy Paper 2000-2002 have been identified, among them:

- The need to reach still untapped niche markets such as Health Tourism;
- The creation of an entertainment activity schedule at the cruise ship berth at Pt. Seraphine for those passengers who remain on board. The idea is to foster a greater link between culture and tourism;
- The fragmentation of the various information channels for potential investors and the need to make them more user friendly;
- The need for the early establishment of a Hospitality Training Institute;
- The non payment of the hotel accommodation tax by the small businesses, resulting in the inability of small properties to undertake joint initiatives, especially in marketing;
- The need for an amendment to the Hotel Incentives Act (1996) to allow more support to small properties and non-traditional accommodation venues.

In light of the above, the 2002-2006 Plan has identified the following areas of focus:

- (a) Investment facilitation;
- (b) Standardization of tourism sub-sectors;
- (c) Education and Training;
- (d) Niche marketing; and
- (e) Decentralization of tourism investments

The contemplated activities and programmes under the various headings are the follows:

Investment Facilitation

- (a) The upgrade and updating of the Tourism Incentives Act 1996;
- (b) The creation of a hospitality Investment Fund to mobilise capital from venture capitalists, government and international donors;
- (c) Encouragement of plant retrofitting and the use of appropriate technologies through the provision of fiscal incentives;
- (d) Creation of an equity funding facility to provide assistance to the small locally owned hotel sector;

- (e) Establishment of a Product Development agency for the purpose of securing finance to invest, develop and manage new tourism products.

Standardization of the Tourism Sub-Sectors

- (a) The introduction of standards and codes of practice in all aspects of the tourism industry;
- (b) A review and restructuring of the tourism taxi certification programme;
- (c) The adoption of internationally recognised environmental standards such as ISO 14000.

Education and Training

- (a) The completion of the Hospitality Training Institute; and
- (b) A Tourism Public Education Unit to produce and disseminate information on all aspects of the tourism industry.

Niche marketing

- (a) Development of niche markets such as weddings and honeymoons; yachting tourism; and sports tourism;
- (b) Expanding yachting marinas to rural communities that have the potential for year round yacht traffic;
- (c) Enhancement of offerings in shopping, entertainment and dining to cruise passengers, in order to maximise returns.

Decentralization of Tourism Investments (a) the provision of special incentives on new hotel investments in Vieux Fort, the South West, the East and North-east regions of St. Lucia.

10.7 Trade, Finance and Globalisation

In an effort to widen its income base and diversify its economic activities, St. Lucia has entered the International Financial Services sector. A Finances Services Supervision Unit has been created and is headed by a Director who is responsible for regulating and supervising the sector. The Government of St. Lucia has brought the private sector into the promotion and marketing of the sector by means of the establishment of a statutory corporation, the International Financial and World Investment Centre (IFWIC), headed by a Registrar for International Business Companies. In addition, St. Lucia has developed the world's only public on-line International Business Companies' registry (Pinnacle St. Lucia).

St. Lucia has been delisted from the OECD's "black list" of countries and its continued commitment to the OECD's Harmful Tax Competition Initiative ensures its continued viability in the area of Internal Financial Services. St. Lucia has never been included on the FATF list of un-cooperative jurisdictions with respect to money-laundering.

Since its entry into financial services St. Lucia has passed no fewer than seven significant pieces of legislation related to the sector. The medium-term outlook towards developing the sector includes:

- The establishment of strong prudential regulations;
- The establishment of a strong supervision and regulation environment; and
- The development of a cadre of specialists within the various offshore areas.

To attract direct foreign investment with a view towards stimulating economic growth, a strategic plan has been developed for the National Development Corporation, to be targetted in the agency charged with overseeing foreign investment. Areas include agro-processing; information technology; furniture manufacturing; and handicrafts. To further assist in this effort, Government proposes to:

- Repeal the “Exchange Control Ordinance and Exchange Control (Securities) Order of 1994”, allowing any foreign investor to purchase shares in any local company without prior permission of the government;
- Establish an Office of Investment Co-ordination to facilitate all the technical and other information services to accelerate the investment process;
- Reform the Work Permit Legislation to facilitate the hiring of the required skill level of labour by the foreign investor;
- Review the Alien Landholding Legislation to facilitate investors, especially those from the CARICOM region, in line with the requirements of the CSME.

The Government of St. Lucia has committed to the OECS decision to participate in the FTAA as well as in the Caricom Single Market and Economy (CSME). Further, in a wider international context, St. Lucia will collaborate even more closely with CARICOM to ensure that the goals of DOHA 2001 Ministerial Meeting of the WTO materialise especially those pertaining to the grant of Special and Differential Treatment to the Small Economies. In working towards the full implementation of the Caricom Single Market and Economy, St. Lucia also seeks to optimise existing and potential opportunities to develop extraregional markets through the OECS Single Market; through the CSME itself; through membership in the FTAA; and also through bilateral agreements.

To ensure that appropriate legislation is in place to facilitate these proposed initiatives, the government has passed the Protection Against Unfair Trade Act in 2001. There are also moves to establish the National Competition Authority to deal with domestic competition issues.

CHAPTER 11

St. Vincent and the Grenadines

11.0 Introduction

St. Vincent and the Grenadines is an archipelago comprising over 30 islands and cays situated at the southern end of the Caribbean island chain. It is located between St. Lucia to the north and Grenada to the south. The main island, St. Vincent, has an area of approximately 133 square miles (332.5 square kilometres) while the Grenadines have an area of 17 square miles (56.5 square kilometres). The total population is estimated at 120, 000.

11.1 Disaster Preparedness

The Office for Disaster Preparedness/Management (ODPM) was established in January 2002. The office has been placed directly under the Prime Minister's Office with respect to budgeting and reporting of its activities. The ODPM focuses on hazards such as hurricanes, floods, volcanic eruptions, droughts, oil spills and technological hazards. District Offices, mandated by law, are managed by volunteers, for the most part. These District Offices provide community outreach and are supported by public broadcasts.

Currently, the country is engaged in the updating of the 1986 National Disaster Plan with assistance from the World Bank. The revised Plan is expected to outline *Management* and *Response* elements, including sectoral plans to deal with specific incidents. This review

The ODPM has launched a programme to inform the construction industry on the appropriate type of materials to be used and on the relevant procedures to be followed. The Government is also about to adopt the Caribbean Uniform Building Code (CUBIC), whose implementation is aimed at the regularisation of construction methods and the minimisation of infrastructural damage during extreme events. Insurance companies are being urged to offer more favourable rates to property owners whose buildings conform to the Code. However, this initiative is yet to bear fruit. Among the duties of the ODPM is the inspection of buildings that are used as Emergency Shelters after extreme events. Such buildings are inspected regularly and the building codes strictly enforced. Claims for damages are assessed mainly by the Ministry of Transportation and Works, with assistance from certified engineers from the private and public sectors.

The proneness to natural disasters has important implications for the tourism industry. For example, in the context of the vital aspect of *image*, a decision to seek external assistance can never be lightly taken, since external aid agencies act only after a national disaster has been declared. On the other hand, such a declaration can also have the effect of discouraging tourists until well after recovery has been accomplished.

Continuous training is provided to enhance the technical competence of personnel involved in disaster management and response, incorporating such areas as Mobilisation of

Services; Emergency Operations Training; Hazard Mapping; and Community and Shelter Management.

The lack of capacity to manage chemical hazards such as fires and spills has been recognised and particular attention is being given to Risk Reduction and Mitigation. In these contexts, a Hazard Mitigation Council has been established, comprising several public agencies, such as those dealing with planning, works and health; as well as with private sector companies; the Chamber of Commerce; and skilled individuals such as engineers. The National Emergency Management Organisation (NEMO) functions as the Secretariat for this Council.

11.2 Waste Management

11.2.1 Institutional Aspects

The collection and disposal of waste are the responsibility of the Ministry of Health. While a domestic waste collection system is provided by the Government at no cost, commercial establishments are required to pay a fee. In an attempt at partial cost-recovery, the Government has imposed a levy of EC\$5 on the water bill of households. Also, of the EC\$35 airport departure tax, EC\$5 are applied towards the cost of waste management. Of the cruise ship tax, which varies from US\$2.50 to US\$6.50, EC\$4 are applied to waste management costs. (EC\$2.677 = US\$1)

On the island of St. Vincent, there are two landfills in operation. The operation at Arnos Vale has been upgraded from a crude dumpsite, to a semi-sanitary landfill. Construction of a new sanitary landfill commenced, with funding from the CDB, in June 2003 and is expected to be completed by February 2004. The intention is to close the present facility once the new, state-of-the art sanitary landfill will have been completed. Construction of the landfills and the attendant maintenance systems is being financed through an OECS Waste Management Project. The new sanitary landfill is expected to have a life-span of about 20 years.

Collection of domestic waste is effected once weekly and twice weekly, in the case of specialised institutions such as schools and hospitals. In areas not easily accessible, or in squatting settlements, collection is effected once per week. Communal bins are also provided and these are also cleared once weekly.

11.2.2 Special Waste Disposal Problems

Illegal dumping of solid waste into rivers, gullies and coastal areas continues areas, remains a problem. On St. Vincent, waste oil, mainly from wayside garages, continues to be dumped into drains. However, in the Grenadines, waste oil is used as a component of road-paving aggregate. The SHELL Oil Company operates a storage tank for waste oil and is pursuing an arrangement with its counterpart in Trinidad and Tobago to recycle this item. There is some recycling of construction waste and large appliances are disposed of in the landfill. For the most part, medical wastes are incinerated on the hospital compound. Hazardous wastes are stored at a specially designed facility at the Diamond Landfill. In general, such wastes are disposed of in accordance with the stipulated guidelines. In cases where there are no specific guidelines, waste

is buried in a specially designated isolated cell in the landfill. A local entrepreneur now collects and exports spent lead batteries and this has assisted with the disposal problem. Composting is encouraged and there is, in fact, a compost pile at the Diamond Landfill. In the absence of a market for the metallic chassis of used vehicles, these are usually dumped. Most used tyres are burnt and there is a particularly disturbing trend whereby containers of used tyres, the majority which may be unusable, are imported.

Storm water is channelled into storm drains and flows untreated into near shore areas, with significant implications for the health of coastal ecosystems. The country lacks a centralised sewage treatment and sewage disposal is, basically, by means of soak-aways or pits. The Kingstown Sewage Treatment Plant serves only a small part of the capital city.

11.3 Water Resources

11.3.1 Institutional Aspects

Most of the island's water supply is extracted from rivers and streams near their source and is treated by means of sedimentation, filtration and chlorination. In some areas, depending on the quality of water, only sedimentation and chlorination are done. A number of water management problems arise from the existence of some 17 sources of water supply. It is expected that the US\$9 million Windward Water Supply Project which is currently being implemented, will lead to a reduction of the number of sources, thus facilitating the operation of Central Treatment Facilities. The need for additional storage and treatment facilities on the island has been recognised. At present, some 90 percent of households have a pipe borne water supply. Rural areas can be impacted during the dry season. In some areas, encroachment of farmers into watershed areas continues to be a serious problem.

St. Vincent and the Grenadines is not regarded as a water-stressed country. Cruise ships, which are heavy users of water, have their needs met without affecting the water supply to the population.

There is no Water resources Policy/Management plan in the country. Moreover, the data on such hydrological aspects as the extent of aquifers and their yields that could inform effective management, are insufficient. While there is legislation in place aimed at the facilitation of proper water resources management, the required enabling regulations are yet to be effected. The Central Water and Sewerage Authority is the agency responsible for the management of water resources.

The establishment of hydroelectric plants on the Leeward side of the island is envisaged but such a project has not yet been launched due, mainly, to the great fluctuation in water supply, especially during the dry season.

Despite the lack of central sewage treatment facilities there is at present little contamination of the ground water. There is a community outreach programme involving the communications media, public address systems and a programme for schools aimed at the development of a greater level of awareness of the importance of water resources management.

11.4 Land Use Planning

Less than one third of the area of St. Vincent is flat land. Much of the remainder is characterised by slopes with gradients in excess of 30 degrees. This situation poses severe restrictions on construction and other infrastructure development, including communications. The flat land is used for a wide range of activities and has prompted efforts towards the optimal utilisation of land.

Over 75 per cent of the land area of St. Vincent is state owned. Related to this fact is, the widespread phenomenon of squatting arising from, *inter alia*, the lack of capacity to monitor State lands. Earlier land reform policies led to a shift of ownership of private estates to the State, thereby contributing to the present scarcity of affordable land. The need to optimise the use of State lands has been recognised. In response to the squatting phenomenon, a land regularisation and titling programme has been introduced with the assistance of the European Union.

Also in train, is a coastal zone management project aimed, *inter alia*, at creating an inventory of the island's coastal resources and at building a knowledge base to facilitate the resolution of user conflicts. The proliferation of construction activities within the active beach area is also generating concern. However, lack of enforcement and technical capacity has hindered the solution of this problem. Government has recognised the need to strengthen the institutions responsible for Development Controls and has undertaken a revision of planning legislation to remove some of the ambiguities that constrain the work of planning agencies. The most recent review of the legislation was undertaken in 1992.

In order to create a more holistic and ordered planning system, a Draft Physical Development Plan is being prepared. That Plan is expected to address, *inter alia*:

- The need for carrying-capacity studies on ecosystems and other natural resources towards the optimisation of their utilisation;
- Urbanisation trends and the attendant demands on the social systems and the environment;
- the expansion of the yachting industry; and
- the incorporation of small hotels into the tourism thrust.

Planning activity is regulated by a Planning Board, which also functions as a Building Board, although it is not legally responsible for enforcement of Building Codes. The Planning Guidelines issued by the Board do however provide for such aspects as zoning, set backs and standards in other areas of construction.

Due to the collapse of the banana regime and the low prices of agricultural products, there has been a population shift to the capital. This has prompted the need to create alternative "growth poles" to provide opportunities for employment and human development for those living outside of the capital. The Draft Physical Development Plan addresses the need for these "growth poles," as well as their design.

11.5 Globalisation and Trade

The principal export of St. Vincent and the Grenadines is bananas, with the EU and CARICOM as the principal markets. Vegetables and some agro-processed products such as condiments such as pepper sauce, are also exported to other Caribbean islands. The revival of the production of arrowroot is being encouraged by the Government as a viable alternative commodity to those whose livelihoods have been affected by the contraction of the European market for bananas.

Arrowroot is an excellent source of starch and is mostly exported either in a "biscuit" form, or as processed starch. Arrowroot production is concentrated in the north-eastern area of the country and the production and processing of the arrowroot are being promoted. Imports comprise mostly processed food from the USA; wheat from Canada; motor cars from Japan; and machinery also from the USA.

Since the events of 11 September 2001 in the United States of America and the passage of laws such as the Bio-terrorism Act and the application by the FDA of stricter rules for the import of food products into that country, the St. Vincent and the Grenadines is now encountering increased difficulty in accessing the US market. Nor does the country have the facilities to undertake the types of tests that are demanded by the USA. In addition, there is a growing number of regional phytosanitary standards - especially for fresh produce - that must be observed. There is thus a need for the continuous education of farmers in the production of market-compliant food products.

In order to facilitate access to external markets as well as to develop the capacity to deal with international trade rules, the development of a trade information system is contemplated. Steps are also being taken to strengthen the capacity of the Ministry of Trade. To this end, the complement of Trade Officers has been increased; a Director of Trade has been appointed; and a Trade Lawyer is shortly to be recruited.

Efforts are also being made to encourage the development of micro-enterprises with a view to enhancing employment opportunities. To this end, a Small Enterprise Development Unit, (SEDU) has been established to provide technical assistance to ventures. A market adviser is also available to assist in the identification of the most viable market options. A micro-loan scheme is operated by the National Commercial Bank.

The Government of St. Vincent and the Grenadines has embraced the CARICOM Single Market and Economy (CSME) as an initiative that will help the country to achieve its twin goals of integration with the regional and international economy. The uncertainty surrounding the continuation of preferential treatment for bananas on the European market beyond 2006 has prompted action towards restructuring the Banana Industry and towards diversifying the economy away from bananas and into services. Also, in an effort to enhance its competitiveness, the Government is currently reviewing its Competition Policy and in 1999 enacted a Fair Trade Act to ensure a certain level of fair trade in the market. The Government has also established a Standards Bureau and a National Telecommunication Regulatory Commission. The former aims to develop a suite of national and international standards, as appropriate, for producers and

consumers, while the latter will oversee the liberalisation of the telecommunications sector towards the promotion of international standards. The enhancement of capability in such areas as trade policy, including trade in services and in electronic commerce is hampered by lack of technical and financial resources.

To facilitate more effective participation in multilateral trade negotiations, the Government has established an inter-ministerial committee to facilitate consensus-building on emerging trade issues. A Trade Negotiating Group (TNG) has also been established to help formulate a national negotiating position on international trade issues. These measures are seen as being complementary to the work of the CARICOM Regional Negotiating Machinery (CRNM). Further, public and private sector individuals are being exposed to training programmes.

11.5.1 Globalisation and Poverty Issues

Recognising the domestic impact of the globalisation process, the Government of St Vincent and the Grenadines is shortly to create a Social Fund to cater to the needs of disadvantaged groups in society. This is a particularly significant demarche given the absence of arrangements for the retooling of industry and retraining of the workforce. In addition, a programme for *Breaking the Cycle of Poverty among Marginal Youth* has also been established. This programme affords training and access to credit, in addition to the provision of support for projects through the Inter-American Institute for Cooperation in Agriculture (IICA).

11.6 Drugs and Crime

In an effort to contain the use of illicit drugs and related crime, a number of outreach ventures have been launched for the dissemination of information on the implications of illicit drug use. Such ventures include radio programmes such as “On de Beat”; a television programme called “Crime Stop”; and a Drugs Awareness Resistance Education Programme (DARE) which is in the nature of an interactive school programme.

In the context of outreach to young males who may be predisposed to criminal activity, a counselling service is available at *The Marion House*. There is also a Crime Prevention Unit supported by programmes developed at the national correctional facilities. The Juvenile Justice System incorporates “Liberty Lodge”, a home for delinquent children and a Family Court has been established to deal with juveniles and also with domestic violence cases. The repatriation of criminals from a number of developed countries also presents a number of problems.

St Vincent and the Grenadines is also a member of the Regional Security System (RSS) and participates in the regional meetings of Commissioners of Police. Existing legislation is being strengthened in the context of the review of Proceeds of Crime Act. The Financial Intelligence Unit is also involved in initiatives aimed at the prevention of drug trafficking and related offences.

11.7 Tourism

Most of the tourism activity in Saint Vincent and the Grenadines is centred on the Grenadines islands. Most tourists are drawn to the islands by their favourable year-round temperatures and by the excellent yachting, sailing, scuba diving, water sports and hiking facilities. Although mainland St Vincent is recognised to have eco-tourism potential, there are fewer tourist attractions so that it does not attract as many tourists.

While the country has the basic infrastructure to meet local demands, international air access is hampered by the absence of an international airport. The present airport at Arnos Vale cannot be easily expanded, given the limited area of flat land that is available. While relocation of the airport has been considered, this is likely to be a costly undertaking, given the mountainous nature of the island.

Over the past decade, there has been a steady average annual increase in tourist arrivals to the Caribbean. However, the increase in St Vincent and the Grenadines has fallen behind regional trends. The country accounts for less than 3 per cent of the regional tourism market, and notwithstanding the overall increase in tourism activity in the country over the past ten years, a number of major factors have been recognised to be impinging on the prospects of intensified growth of the sector, among them:

- Limited availability of and access to capital;
- Uncertainty with respect to of Government's commitment to capital expenditures for promotion and investment in the required infrastructure;
- Increased competition from other destinations;
- Increased awareness of the need for environmental protection;
- The lack of a well-defined tourism product;
- A limited number of developed places of interest;
- Weak industry associations;
- Limited range of tours;
- High taxi fares;
- Lack of white sandy beaches, especially on the island of St Vincent.

Notwithstanding these observations, the Government is recognised to be taking a lead role in the development of the tourism sector. The various development plans that have been formulated emphasise the strategic importance of tourism for economic development. The Tourism Education Unit, in collaboration with the Ministry of Education, also organises training sessions on *tourism* in schools and meets regularly with the media to transmit information on the essentials of the industry, its importance to the country and the manner in which individuals can contribute to the overall tourism thrust. To facilitate the needs of tourists, including the security aspect, training is provided to certain categories of persons such as Customs and Immigration officers; members of the police service and tour guides.

As a *multi-island destination*, St Vincent and the Grenadines has the strategic advantage of being able to cater to many tourism markets, from the sand/surf/sun allure of the Grenadines, to the diving and nature draws of *the mainland*. St Vincent and the Grenadines cannot be

regarded as being over-exposed and still has potential for expansion. However, further product development is needed in order to satisfy the needs of the more discriminating visitor. The Government's Tourism Master Plan attempts to define the tourism product that is envisaged for the future and sets out, in addition, a number of well-defined plans for the further development and expansion of the industry. It also recognises that the local private sector needs to enhance its tourism offering through, *inter alia*, the adoption and maintenance of the standards that are now advocated globally.

In addition to the development of the tourism product, the tourism sector recognises the urgent need to address the lack of quality data required to analyse tourism trends and to generally facilitate planning for further development of the industry.

SECTION III

SIDS POA - The Future

Chapter 12 New Areas of Emphasis

Chapter 13 Recommendations for the Future

CHAPTER 12

Outstanding and Unresolved Issues

This Chapter attempts to identify some of the unresolved or otherwise outstanding issues subregional and wider that Caribbean SIDS would need to address, both internally, as well as in the context of international efforts, towards the further implementation of the SIDS POA and related international decisions.

12.0 Definitional Issues

Almost ten years after the UNGCSIDS, a universally accepted, robust definition of *small island developing States* which captures the overwhelming majority of island countries in the global economy, whose development prospects are significantly constrained by factors related to small size, is yet to emerge, either from the international debates on the matter or in the academic literature. Ideally, such a definition would need to incorporate more than one of the criteria that have been traditionally employed, such as population size, land area and GDP. It would also need to include the critical structural factors and behavioural characteristics that have been demonstrated to constrain "normal" growth and sustainable development in small island developing States.

Looking beyond the confines of the customary UN-sponsored fora in which sustainable development issues are pursued, the opportunity of the on-going negotiations towards the establishment of a Free Trade Area of the Americas (FTAA), in the context of which a Smaller Economies Working Group has been established, might be exploited towards the resolution of this matter. However, those SIDS that are involved within the FTAA negotiating process would need to ensure that any working definition thus derived, captures the *vulnerability* issues that are peculiar to all small island developing States. In any event the recognition sight should not be lost by the international community of the peculiar circumstances of SIDS which were recognised as a special category of state at UNCED and the UNGCSIDS.

12.1 Structural Issues

A logical *point of entry* for Caribbean SIDS would be to revisit the outstanding issues from the World Commonwealth/Bank Secretariat Report on Small States.⁷⁶ A CARICOM Task Force led by Prime Minister Owen Arthur of Barbados, has noted that the Report failed to explicitly acknowledge the existence and relevance of such structural issues as:

- small population size which imposes limitations on the range of activities, skills, institutional capacities (especially the extent and depth of markets) that may be found or developed in small States, and forces extreme economic openness and production specialisation as the only means of achieving sustained GDP growth;

⁷⁶ A logical point of entry for Caribbean SIDS would be to revisit the outstanding issues from the World Commonwealth/Bank Secretariat Report on Small States.

- a limited natural resource base (e.g. arable land and minerals) which implies limited production possibilities (except where technological capacity permits large-scale importation for processing and re-export);
- the tendency of efforts to obtain economies of scale in small States to further restrict the product range, thus further increasing vulnerability to fluctuations in earnings arising from adverse price movements or from adverse impact on supply caused by, among other things, natural disasters;
- the increased importance of environmental concerns arising from small size, with the consequence that certain types of economic activity cannot be pursued;
- the limited range of industrial, agricultural and commercial activities;
- low aggregate GDP;
- the difficulty imposed by low domestic savings and investment capacity in the accumulation of domestic funding for large domestic projects arising specifically from their small size, whereas large countries with much smaller per capita incomes experience no such difficulty.

12.2 Susceptibility to Natural and Man-made Disasters

As has been shown in earlier sections, while most States are exposed to some form of natural disasters, the impact on small island developing States is likely to be more pervasive, given the lower levels of resilience in addition to the basic size of the territorial unit. Inevitably, proportionately larger areas of the country are affected. Further, the damage to the productive sectors is invariably more extensive and the social repercussions more severe. Recovery is likely to be slower, thus exerting increased pressure on the external account. Small island developing States and small, low-lying, coastal states are at greater risk from sea-level rise resulting from global warming;

12.3 Underdeveloped, domestic, real and financial markets

The small size of the domestic market of SIDS limits the possibilities of exploiting economies of scale in most areas of production, resulting in adverse consequences for costs and efficiency, rent-creation and associated issues of economic management. It also reduces competition and attracts greater State regulation which is likely to be biased towards direct, rather than market-based, intervention. In the absence of efficient markets, market-based policies are likely to fail and could even produce perverse results.

In addition, small un-competitive markets limit the capacity to absorb or compensate for risk. Such markets are characterised by higher transactions costs and participation risks, which render them of interest only to external portfolio investors in search of guaranteed rents.

12.4 Absence of economies of scale

The need to seek economies of scale in a context of limitations in the volume and range of production factors, combined with the nature of the private sector and private sector operations in small island developing States, limit the capacity of the production system to switch products and product lines in response to changing demand, competition and an

increasingly time-compressed product cycle. In large economies, product innovation, product development and product switching take place both between firms and within firms and is facilitated by such factors as the size of the operating environment; the availability of venture capital; and the ability to sustain research and development activities.

Further, the provision of physical, institutional and administrative infrastructure in small island developing States results in higher per capita costs than in larger developed States, because of the absence of economies of scale and the need to meet minimum supply and technological requirements. This phenomenon is exacerbated by the need to replace infrastructure damaged by natural disasters, particularly where disasters recur frequently. This situation is compounded in multi-island small island developing States.

12.5 High Income Volatility

High income volatility arises from, *inter alia*,

- (i) commodity price fluctuations caused by external demand and supply developments and by supply variations caused by adverse domestic events such as natural disasters; and
- (ii) the inability to significantly ameliorate production-related factors in SIDS by "*hedging*" in the international financial markets.

Small island developing States are continuously seeking to transform their economic and social systems and to utilise earned, borrowed and grant resources to finance that transformation. During more favourable periods, efforts may be directed towards an acceleration of the pace of transformation. During unfavourable periods, on the other hand, the potentially borrowing small island developing State is perceived merely as a poor credit risk. Thus, the process of economic transformation is never smooth, especially in the context of a small island developing State.

12.6 Limited institutional capacity arising from a limited human resource base

Small island developing States tend to be characterised by both weak public sectors and inadequately developed private sectors. While public sector activity tends to cover a broad range of operations, related to the minimum required set of State administrative functions, there is generally little depth of capacity in any particular area. In addition, senior public sector officials tend to have much broader spheres of responsibility than their counterparts in larger countries. This causes representational and negotiating difficulties for SIDS in international interchanges and in the interactions of these entities with international institutions.

It is inevitable that Governments in small island developing States will be more activist than in their larger developed counterparts since they must frequently act as a catalyst, providing the basic conditions for stimulating private investment. In this sense, Governments can hardly avoid the approach of "picking winners". This is exemplified by, *inter alia*, the size and structure of the public sector investment programme and the involvement of Governments in the specification of education and training curricula.

As regards the private sector, in SIDS, this is a very different entity vis a vis its counterpart in large, developed countries. For example, in SIDS, this sector typically has a significantly lower level of capacity and, in addition, an entirely different view of the world and also of itself. Private sector firms are themselves small, with the range of capacity limitations associated with that reality. This places them at a significant disadvantage in relation to private firms in large developed countries. Fundamentally, it is firms that trade: not States.

Further, in SIDS, the range and depth of human resource skills are likely to be narrower and shallower than in their larger developed counterparts, other things being equal. In this context, issues of "*brain-drain*" are of significant importance, particularly in those situations where developed countries readily accept skilled migrants from SIDS, while imposing significant barriers to the migration of low-skilled persons. A corresponding suite of arguments can be adduced in relation to institutional capacity in SIDS.

12.7 Social Dislocations

The process of adjustment to global changes is recognised to produce certain significant negative social impacts in SIDS. Such impacts are already being experienced in the short term, as evidenced by the situation that continues to affect the banana-exporting Caribbean SIDS, in which production and earnings have dropped by some 50 per cent. This phenomenon is also evidenced in certain countries which have accelerated the liberalisation of their capital markets. In contradistinction to such developments, the positive economic benefits are likely to be incremental and, moreover, to be concentrated in the longer term. The response of the populace to such social dislocation could significantly undermine the environment for investment and lead to an exacerbation of the problem and, as a consequence, failure to realise the long-term benefits.

In Caribbean SIDS, higher adjustment costs may reasonably be anticipated as a result of the following:

- the existence of fewer and smaller firms and the need to establish new firms, rather than expand through the expansion of existing firms;
- the relative dearth of investment opportunities;
- the significant dislocation of the factors of production that will result from labour shifts from the import-competing to the export sector, given the absence of a flexible, well trained labour force.

12.8 The Impacts of Accelerated Globalisation

Recent international developments are tending to further increase the vulnerability of SIDS. In this regard, it must be recognised, for example, that the WTO as well as the developed countries, have taken positive and concrete steps towards meeting the concerns of LDCs. However, they are yet to fully recognise the precarious existence and vulnerability of SIDS as a group. The main criterion for classifying countries as LDCs, namely, GNP per capita, is grossly inadequate for effectively assessing the developmental levels as well as the vulnerability of SIDS. Given their high dependence on trade and their weak capability to adjust to abrupt changes in market conditions, SIDS also deserve the special consideration of the international

community.

In the area of *trade and environment*, a spirited debate as to whether the trade rules of the WTO should allow greater scope for environmental or resource conservation initiatives, continues to engage the international community. Ironically, it is the developing countries and NGOs that have been articulating a negative response to this proposition. This response is rooted in the fear that, should such a prospect ever materialize, only the developed countries will be in a position to take advantage of them, since poorer countries would find themselves without the necessary bargaining power to impose sanctions against their more powerful trading partners.

The preliminary assessment in this regard, is to the effect that, in their present form, the WTO rules will significantly constrain the use of environmental or resource conservation initiatives. In this context, there is a growing fear that many existing Multilateral Environmental Agreements (MEAs) that address such global issues as global warming, biodiversity protection, species loss and hazardous waste and which authorise the use of trade sanctions, will not stand up to a challenge, to the extent that nothing in the WTO agreements insulates these MEAs from trade challenges.

Another major preoccupation arising from the new and still evolving global economic system, arises from the fact that it has shown little deference to the special circumstances of small island developing States. The evidence, thus far, is that globalisation is impacting, *inter alia*, the organisation of production and arrangements for factor movements, such as trade, investment and financial flows, in ways that require major changes in SIDS. A CARICOM Technical Team on Small States argues that the liberalisation processes that facilitate globalisation, have so far resulted in:

- the reduction of preferential and secure market access on which many small states depend to maintain incomes and employment;
- increasing competition for investment capital: both domestic and foreign;
- reduced scope for the management of scarce national resources, such as foreign exchange; and
- increasing competition for skilled human resources.

Globalisation has also led to the exertion of pressure by developed countries on the incentives regimes by virtue of which many SIDS have been able to attract foreign investment towards the diversification of their economic base.

In this regard, small States, including SIDS, are being encouraged to embrace globalisation and trade liberalisation with the promise that their trade relations with large countries would deliver disproportionate benefits arising as a result of the economies of scale that would be induced by increased levels of international trade. Yet, the evidence, to date, in the particular context of SIDS, suggests that the liberalisation processes facilitating globalisation have in fact resulted in:

- the reduction of preferential and secure market access on which many small states depended to maintain incomes and employment;

- increasing competition for investment capital: both domestic and foreign;
- reduced scope for the management of scarce national resources, such as foreign exchange;
- increasing competition for skilled human resources; and
- the creation of asymmetric conditions affecting factor movements.

The lowering of trade and tariff barriers, together with and the increased mobility of capital investment, have increased the level of competition faced by domestic producers in SIDS, without providing for the absorption and utilisation of production factors displaced by such competition.

The historical economic performance of many SIDS has been, in significant measure, positively influenced by:

- preferential market access;
- concessionary resources, including grants from multilateral institutions and bilateral agencies;
- incentives regimes which attracted investments in areas such as offshore services and tourism; and
- opportunities for emigration of semi and unskilled labour.

In order to demonstrate their need for continued support in the aforementioned areas, SIDS of all geographical regions might wish to consider undertaking a study of their growth performance over the past decade, on the assumption that these support measures did not exist.

Further, Member States of AOSIS need to carefully examine the aforementioned structural and behavioural factors and their implications for sustained development assessed in the context of globalisation and the requirements of the long-term sustainable development of SIDS. The extent to which these factors can be addressed through national or international action, also needs to be assessed by the international community.

CHAPTER 13

Recommendations for the Future

Strategic Inputs for presentation to the Inter-Regional Meeting in January 2004 and the International Meeting in Mauritius, in August 2004

The thrust of the arguments in the preceding chapter is to the effect that the main challenge for Caribbean SIDS will always be that of reducing their economic, social and environmental vulnerability. This multidimensional challenge can most effectively be approached through the development and implementation of policies and strategies that build resilience of the economies, societies and natural environment to stressors at the national, regional and international levels.

13.0 Characteristics of Vulnerability

The term “*vulnerability*” essentially refers to proneness to damage from external forces. Vulnerability has become associated with Caribbean SIDS because these States tend to be very exposed to factors outside their control. *Economic vulnerability* addresses the risks faced by these economies from exogenous shocks to the systems of production, distribution, including and, especially, markets; and consumption. *Environmental vulnerability* is concerned with the risk of damage to the country’s natural ecosystems such as coral reefs; wetlands; freshwater; coastal areas and marine resources; forests; and soils. *Social Vulnerability* reflects the degree to which societies or socio-economic groups are negatively affected by stresses and hazards, whether brought about by external forces or intrinsic factors - internal and external - that negatively impact the social cohesion of a country. Key features of the economic, social and environmental vulnerability of Caribbean SIDS are shown in Table 9.

In a Study entitled: *Managing and Measuring the Economic Vulnerability of SIDS* prepared for the UNDP, Witter, Briguglio and Bhuglah, confirm that economic vulnerability is multifaceted and is particularly relevant to SIDS⁷. All the economic vulnerability indices so far produced indicate that, as a group, SIDS tend to have high vulnerability scores. The study also reveals that, in some instances, SIDS do not register a relatively low GDP per capita, conveying the impression of a strong economy, even when, in reality, their economies are extremely delicate, being exposed to foreign economic conditions and confronted with additional problems associated with insularity and remoteness. Moreover a number of SIDS are, in fact, low-income countries and very vulnerable at the same time: a state of affairs which deserves an immediate response from the international community.

The study just quoted, cautions that the high vulnerability scores of SIDS produced by the vulnerability indices should not be misconstrued. Nor should they be allowed to induce complacency. Indeed, the study proposes the adoption of a number of specific measures in this regard. These measures can be summarised under four headings, namely (a) improved flexibility to enhance the countries' ability to withstand external shocks; (b) improved ability to compete,

⁷ Paper prepared by Michael Witter, Lino Briguglio and Assad Bhuglah for UNDP and presented to the Global Roundtable on Vulnerability and SIDS, 9-10 May 2002, at the Ritz Carlton Hotel, Montego Bay, Jamaica.

(c) institutional changes for capacity- building and (d) SIDS-SIDS cooperation, in particular for the purpose of developing a strategy for international trade negotiations. The study concludes that, although SIDS should make every effort to help themselves, they tend to have limited options to cope effectively with their intrinsic economic vulnerabilities. The support of the international community is therefore critical.

It is also clear that some of the environmental vulnerabilities of SIDS are intrinsic and cannot be influenced by human actions, while others could be managed, at least, in part, by the governments and people of SIDS. The burden of environmental vulnerability is, however, relatively greater in SIDS than in other countries, developing or developed, because of the intrinsic characteristics of SIDS. Thus, there is an urgent need to identify and measure all aspects of the special vulnerability of SIDS to ensure that: (i) development priorities and approaches are appropriate to their special circumstances; and (ii) their special vulnerabilities are taken into account in international processes. It is therefore recommended that:

- Streamlined and permanent data collection mechanisms be established to collect data on environmental vulnerability in all SIDS to inform vulnerability- management and resilience- building processes. Such data may be collected on a periodic basis;
- The Environmental Vulnerability Index (EVI) be compiled as a mechanism for identifying and measuring environmental vulnerabilities in SIDS and for monitoring changes in response to actions and through time;
- Mechanisms be established, for example, through AOSIS, for taking elements related to the special vulnerability of SIDS into account in regional and international processes, including adjustments and assistance, as necessary;
- The implications of the special vulnerability SIDS be re-examined in the context of *sustainable development*; and
- Public awareness and capacity be increased in SIDS in relation to the unique conditions of environmental vulnerability. Options for management and resilience- building should be discussed and popularised.

Among the Strategies that may be implemented by Caribbean SIDS towards building their resilience are those set out in Table 10.

Table 9: Economic, Social and Environmental Features of Caribbean SIDS

Economic Features	Social Features	Environmental Features
<ul style="list-style-type: none"> • small population size • extreme economic openness • narrow resource base • low mineral endowment • low domestic savings and investment capacity • limitations in the volume and range of production factors • inability to benefit from economies of scale • low per capita incomes • small size of domestic markets • lack of an indigenous technological base • tendency in the export sector towards product and market concentration • high per capita cost of installing and maintaining infrastructure • high dependence on external trade • excessive transit, transport and trans-shipment cost especially for landlocked small states • lack of ready access to international capital markets • low aggregate GDP • high income volatility • low capacity for risk absorption 	<ul style="list-style-type: none"> • underdeveloped public and private sectors; • high population densities • limited human resource capacity • limited institutional capacity due to limited HR base • susceptibility to brain drain • susceptibility to HIV/AIDS and other communicable diseases • increased consumption rates due to growing populations • high rates of unemployment and under-employment • vulnerability to energy shocks • high dependency ratios • high rates of poverty • geographically dispersed rural settlements 	<ul style="list-style-type: none"> • increased vulnerability to extreme natural and man-made disasters such as Climate Change, and extreme weather events • thin freshwater lenses that are easily contaminated • susceptibility to water stress • susceptibility to land degradation • small variability in climate and soil • fragility of ecosystems to pests, disease and human activities • limited financial, technical and administrative capacity to cope with the consequences of Climate Change • extensive interface between land and sea

Table 10: Strategies to Build Resilience and Overcome Vulnerability**Economic Strategies**

- Forge strategic alliances to overcome size constraints;
- Build the capacity of public and private sector institutions;
- Develop competitive strategies;
- Promote stability in the macroeconomic environment;
- Rapidly diversify export commodities away from traditional products in declining demand and toward more high value-added commodities and services in increasing demand;
- Reduce dependence on imported energy, through, inter alia, the development of renewable energy sources;
- Develop capacity in the management of marine resources;
- Develop the requisite infrastructure and human resources to effectively exploit opportunities in IT;
- Develop an educated and well-trained work force that can readily adapt to the changing technological demands;
- Tap expertise and financial resources from overseas communities;
- Develop SIDS-SIDS cooperation;
- Introduce Integrated Development Planning;
- Strengthen development policy analysis; and
- Develop public and private sector capacity ;

Social Strategies

- Provide social safety nets, especially for more vulnerable and challenged groups;
- Monitor and manage population dynamics;
- Build Human Resource capacity as a special area of focus;
- Remove impediments to business development
- Develop strategies to combat HIV/AIDS;
- Develop HR policies and strategies;
- Open/strengthen channels for continuous public participation in policy analysis and formulation;
- Increase supply and retention of trained human resources;
- Generate sustained and comprehensive labour market information system to guide intervention in the labour market;
- Reform education systems to ensure better fit between HRD and national/regional development goals;
- Formulate/implement poverty reduction strategies that sustain livelihoods;
- Empower marginalised groups; and
- Build leadership at the community level.

Environmental Strategies

- Continually identify and assess areas of environmental vulnerability;
- Strengthen natural environment by removing stressors;
- Provide protected areas for critical ecosystems;
- Allow recovery in damaged natural eco-systems;
- Establish reserve areas for attenuating/diffusing pollution;
- Introduce IRWM policies principles and management techniques;
- Develop capability to adapt to impacts of climate change; and
- Strengthen the capacity of environmental management institutions.

13.1 Towards a negotiating position

The negotiating strategy that might be adopted by Caribbean SIDS in the preparatory meetings for the International Meeting 2004, might incorporate, inter alia, the following:

- (a) agitating for concessions to enable them to meet the relatively higher adjustment costs associated with:
 - the negative short-run outcomes that attend trade liberalisation, such as a reduction in employment and output; and macro-economic instability linked to balance of payment difficulties or reduction in government revenue;
 - the supply of the vocational, technical and management training and educational opportunities needed to adapt to a knowledge-based global economy and having to do so without the advantages of clustering, domestic competition, technological innovation and knowledge accumulation that are available to large developed States;
 - the relatively longer transition time required for moving from labour-contracting to labour-expanding areas, caused by knowledge, institutional and financial limitations;
 - the lack of capacity of small firms to meet the challenges of increased liberalisation and openness;
- (b) agitating for adequate time to adjust to the loss of trade preferences. At the multilateral level, this might include the following special and differential (S&D) measures :
 - permitting SIDS to undertake only those commitments and concessions that are consistent with their adjustment capacity; development, financial and trade needs; and their administrative and institutional capabilities for implementation;
 - building the capacity of SIDS to permit effective access to and utilisation of the Dispute Settlement arrangements within the WTO;
 - asymmetrically phased implementation of rules and disciplines to facilitate a longer adjustment period, thus helping to attenuate structural constraints, such as the small size of firms and the small scale of production in SIDS;
 - exemptions from commitments in certain areas.
- (c) ensuring that:
 - the vulnerability of SIDS be taken into account in the development and execution of programmes of assistance provided by the multilateral development, finance and trade institutions;
 - increased levels of Official Development Assistance be provided to those SIDS having the requisite policies in place to guarantee the effectiveness of such assistance;

- support be provided with the establishment of regional risk-pooling arrangements, to complement improved disaster mitigation and prevention measures that can reduce the cost of disasters;
- the International Task Force on Commodity Price Risk Management pay attention to issues and commodities of relevance to small island developing States in its future work;
- continued financial support be provided to help SIDS to adapt to the environmental, economic and social impact of global climate change. The vulnerability of some SIDS is compounded by the likely impact of climate change.

