STOCKTAKING REPORT

Prepared for National Environment and Planning Agency The National Capacity Self Assessment Project (NCSA) - Jamaica
5 Oxford Park Avenue
Kingston 5 Jamaica, W.I.

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NATIONAL ENVIRONMENT AND PLANNING AGENCY (NEPA)

THE NATIONAL CAPACITY SELF ASSESSMENT (NCSA) PROJECT- JAMAICA

5 Oxford Park Avenue
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LIST OF ACRONYMS

AAU	Assigned Amount Unit
ACCC	Adapting to Climate Change in the Caribbean
ACCC RPIU	Adapting to Climate Change in the Caribbean Regional Project Implementation Unit
AHWG	Ad Hoc Working Group
AIACC	Assessments of Impacts and Adaptations to Climate Change
AIJ	Activities Implemented Jointly
APR	Annual Programme/Project Report
BCE	Business Council for the Environment
BIP-MT	Basic Instruction Package for Meteorological Technicians
BPOA	Barbados Programme of Action
CARICOM	Caribbean Community
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
CEIS	Caribbean Energy Information System
CERs	Certified Emission Reductions
CHM	Clearing House Mechanism
CIDA	Canadian International Development Agency
CIMH	Caribbean Institute for Meteorology and Hydrology
CMO	Central Meteorological Observatory
COP	Conference of Parties
CPACC	Caribbean Planning for Adaptation to Climate Change
CREDP	Caribbean Renewable Energy Development Project
CRIS	Coastal Resources Information System
CSGM	Climate Studies Group, University of the West Indies, Mona
CWIP	Jamaica Coastal Water Quality Improvement Project
EESD	Environmental Education for Sustainable Development

EFJ	Environmental Foundation of Jamaica
EIT	Economies in Transition
EIA	Environmental Impact Assessment
ERUs	Emission Reduction Units
ENACT	Environmental Action Programme
EU	European Union
GTA	German Assistance Technical Agency
GCSI	Global Change Strategies International Inc.
GCM	General Circulation Models
GCOS	Global Climate Observing System
GEF	Global Environment Facility
GHG	Green House Gas
GOJ	Government of Jamaica
GRULAC	Group of Latin America and the Caribbean
GSLOSS	Global Sea Level Ocean Observing System
GSEII	Global Sustainable Energy Island Initiative
IABIN	Inter American Biodiversity Information Network
ICCD	Italian Committee to Combat Desertification
IPPC	Intergovernmental Panel on Climate Change
J-PAN	Jamaica Protected Areas Network
JPS	Jamaica Public Service Company
LMOs	Living Modified Organisms
LSDP	Local Sustainable Development Planning
MACC	Mainstreaming Adaptation to Climate Change
M LE	Ministry of Land and Environment
MOU	Memorandum of Understanding
NBC	National Biosafety Committee
NBSAPs	National Biodiversity Strategies and Action Plans

NCST	National Commission on Science and Technology
NEPA	National Environmental and Planning Agency
NEST	National Environmental Societies Trust
NICU	National Implementation Coordination Unit
NISP	National Implementation Support Partnership
NMS	National Meteorological Services
NRCA	Natural Resources Conservation Authority
OAS	Organization of American States
OECD	Organisation for Economic Co-operation and Development
OUR	Office of Utilities Regulation
PACD	Plan of Action to Combat Desertification
PCJ	Petroleum Corporation of Jamaica
PEO	Public Education and Outreach
PICCAP	Pacific Islands Climate Change Assistance Program
PIU	Project Implementation Unit
R2RW	Ridge to Reef Watershed Project
RMUs	Removal Units
RPIU	Regional Project Implementation Unit
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SIDS	Small Island Developing States
SPREP	South Pacific Regional Environmental Programme
SRC	Scientific Research Council
TPR	Tripartite Review
TWAS	Third World Academy of Sciences
QA/QC	Quality Assurance/Quality Control
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development

UNCOD	United Nations Conference on Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
UWICED	UWI Centre for Environment and Development
WCC	World Climate Conference
WWF	Wigton Wind Farm Limited
WMO	World Meteorological Organisation

BACKGROUND

In January 2000, the Global Environment Facility (GEF) and the United Nations Development Programme (UNDP) launched the Capacity Development Initiative, to identify priority issues and capacity development needs in a number of regions and countries. Some findings were:

- capacity development needs at the overall systems levels;
- the existence of synergies across Conventions in terms of capacity needs; and
- the need for programmatic approaches to capacity development that are nationally driven and reflect country priorities.

In May 2001, the GEF approved the provision of funding for countries to undertake self assessment capacity building needs, with emphasis on cross-convention synergies in capacity building activities.

Jamaica has not examined its capacity needs across the three "Rio" Conventions. The National Capacity Self Assessment Project is expected to address this gap. The project provides Jamaica the opportunity to "conduct a thorough self-assessment and analysis of national capacity needs, priorities and constraints with respect to meeting global environmental management objectives". The stocktaking exercise provides a baseline situation for each of the thematic areas of the three Conventions: biodiversity, climate change, desertification/land degradation; and will form the basis of the thematic assessments to follow.

PART 1: THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC) AND ITS KYOTO PROTOCOL

1. INTRODUCTION

At the first World Climate Conference (WCC) in 1979, scientific evidence was presented linking human interference with climate. In 1988, the United Nations General Assembly adopted a resolution urging the 'Protection of global climate for present and future generations of mankind.' Two years later, in 1990, the United Nations General Assembly passed a resolution, formally launching negotiations on a climate change convention. In May 1992, the United Nations Framework Convention on Climate Change (UNFCCC) text was adopted and the Convention opened for signature in June at the Earth Summit, held in Rio de Janeiro. The UNFCCC entered into force in March 1994. Jamaica ratified the Convention in January 1995.

1.1 Objective

The objective of the Convention is "the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The Convention covers all greenhouse gases not covered by the Montreal Protocol with the focus being on the following:

- Carbon dioxide
- Methane
- Nitrous Oxide
- Hydrofluorocarbons
- Perfluorocarbons
- Sulphur hexafluoride

1.2 Commitments under the Convention

The Convention divides countries into three main groups, with commitments varying according to their classification. Annex 1 Parties include the industrialized countries that were members of the Organisation for Economic Co-operation and Development (OECD) in 1992 along with countries with economies transition (EIT). Annex 11 Parties consist of OECD members of Annex 1 excluding the EIT Parties. These Parties are required to provide funding to developing country Parties to undertake emissions reduction activities and to help them to adapt to the adverse effects of climate change. The third group is the Non-Annex 1 Parties and includes the developing country Parties. The commitments for developing country Parties, including Small Island Developing States (SIDS) are set out in Box 1 and include:

- Develop, periodically update, publish and make available to the Conference of the Parties, in accordance with Article 12, national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties;

- Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change;

- Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions.

- Cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods.

Box 1. Commitments for Non-Annex 1 Parties as set out in Article 4

1. All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall:

(a) Develop, periodically update, publish and make available to the Conference of the Parties, in accordance with Article 12, national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties;

b) Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change;

(c) Promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors;

(d) Promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by

the Montreal Protocol, including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems;

(e) Cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods;

(f) Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change;

(g) Promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies;

(h) Promote and cooperate in the full, open and prompt exchange of relevant scientific, technological, technical, socio-

economic and legal information related to the climate system and climate change, and to the economic and social consequences of various response strategies;

(i) Promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organizations; and

(j) Communicate to the Conference of the Parties information related to implementation, in accordance with Article 12[1].

Box 2. Article 12. Communication of Information Related to Implementation

1. In accordance with Article 4, paragraph 1, each Party shall communicate to the Conference of the Parties, through the secretariat, the following elements of information:

(a) A national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, to the extent its capacities permit, using comparable methodologies to be promoted and agreed upon by the Conference of the Parties;

(b) A general description of steps taken or envisaged by the Party to implement the Convention; and

(c) Any other information that the Party considers relevant to the achievement of the objective of the Convention and suitable for inclusion in its communication, including, if feasible, material relevant for calculations of global emission trends.

[1] Article 12 defines the required elements of information.

2. COUNTRY ACTIVITIES UNDER THE CONVENTION

2.1 Initial National Communication

Jamaica's initial National Communication was completed in 2000 and submitted to the sixth Conference of Parties to the United Nations Framework Convention on Climate Change in November 2000. This enabling activity project (Phase I), was funded by the Global Environment Facility, implemented by UNDP and executed by the national focal point, the National Meteorological Services.

In accordance with Article 12 of the Convention, the initial National Communication contains *inter alia*:

- A national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using the Intergovernmental Panel on Climate Change (IPCC) 1996 Revised Guidelines for National Greenhouse Gas Inventories;
- Vulnerability and adaptation issues; and
- National policy and actions.

2.1.1 National Inventory of Anthropogenic Emissions by Sources and Removals by Sinks

Data utilized here is for the year 1994. It is anticipated that for the second national report, funding will be available to conduct a more up-to-date inventory. This section identifies data uncertainties and gaps in the following areas:

- Green house gas (GHG) emission factors
- Energy and industrial processes
- Land-use change and forests;
- Agriculture; and,
- Waste management

Information on progress in these areas was not readily available.

2.1.2 Vulnerability and Adaptation

Issues identified here include:

- Inadequacy of existing general circulation models (GCM) in forecasting possible climate change scenarios in the Caribbean due to the coarseness of the spatial resolution, small-scale weather systems being non-existent in the models,
- Need for additional funding to conduct in depth vulnerability analysis "in most areas, in particular coastal zones, water resources, agriculture and the health sector."
- The need for "further comprehensive integrated studies in the area of adaptation, which will examine the socio-economic issues... relevant for the implementation of suggested adaptation options;'' and
- The need for additional finance resources to implement the adaptation options identified in the communication.

2.1.3 National Policy and Actions

A number of capacity issues were identified in this chapter and include:

- Lack of expertise/knowledge in implementing test methodologies and establishing baseline conditions;
- Lack of country-specific data and inadequate/inappropriate statistics for simulation models;
- Difficulties in identifying experts for multi-disciplinary teams to undertake cross-sectoral assessments;
- Very low public awareness of climate change issues and inadequate sensitisation to anthropogenic factors that exacerbate vulnerability;
- Inadequate private sector support, demonstrated lack of commitment to climate change issues;
- The absence of strong academic, research or regional environmental institutions to provide substantive support in the process;
- Need to strengthen policy coordination and institutional support to satisfy regular reporting requirements implicit in the National Communication process.

There were a number of recommendations for action such as:

- Sensitization of Policy-makers
- Establishment of an Inter- disciplinary Committee which would include the national focal point for climate change, biodiversity and desertification, representatives of the energy sector, both public and private, the relevant government Ministries and agencies engaged in sustainable development policy planning, as well as institutions like the Scientific Research Council and University of the West Indies Centre for Environment and Development:
- Public Awareness to fully engage all stakeholders, including the private sector and community organizations: and
- Establishment of a consortium of Scientific and Research Institutions to consolidate and enhance the knowledge base in the related branches of science.

Some of the issues in this initial communication have been addressed in some regional projects and will be dealt with further on in this report.

2.2 Second National Communication

The preparation of the second National Communication has not yet begun although funds are available from the GEF for its preparation, (US$420,000). Before these funds can be accessed, Phase II of the enabling activity project must be completed. This is a capacity building project with emphasis on:

- Capacity building for participation in systematic observation systems, and
- An assessment of Jamaica's requirements for technologies in the use of alternate sources of energy.

Funding for its implementation was approved by the GEF in April 2003. Details of the project can be seen in **Appendix I**.

The National Meteorological Services is currently developing a work plan and finalising the budget. The delay in the project implementation has been due to a shortage of personnel in the Branch as several persons have been on study leave at the same time. On completion of the Phase II enabling activity project, additional funding will be available to Jamaica (US$15,000) to conduct a stakeholder assessment prior to preparation of the second national communication.

2.3 Meetings and Workshops

In 2000, the Ministry of Land and Environment (MLE), held some discussions with relevant institutions/agencies and a number of issues were identified. These include[2]:

- The need for a National Climate Change Committee, (letters seeking membership have already been sent out);
- A review of national laws with a focus on climate change in order to identify gaps, deficiencies and opportunities for improvement;
- The development of a Climate Change Adaptation Policy and Implementation Plan;
- Completion of the Issues Paper. (An Issues Paper was prepared by the National Focal Point in April 2001, but appears to be incomplete);

It was also noted that the National Focal Point had prepared a cabinet submission seeking the establishment of a Climate Change Secretariat.

[2] Personal Communication (Mrs A. Calnick, Director, Ministry of Land & Environment)

3. REGIONAL ACTIVITIES UNDER THE CONVENTION

In October-November 2001 the Conference of the Parties to the UNFCCC reached agreements on a number of issues (referred to as the ***Marrakesh Accords*)** including capacity building. Here parties agreed on two new frameworks for capacity building, one for developing countries and one for countries with economies in transition (EIT). Some elements of the framework for developing countries can be seen in Box 3.[3]

Box 3. Some Elements of the Framework for capacity-building in developing countries (from Marrakesh Accords)

Scope

(a) Institutional capacity-building, including the strengthening or establishment, as appropriate, of national climate change secretariats or national focal points;

(b) Enhancement and/or creation of an enabling environment;

(c) National communications;

(d) National climate change programmes;

(e) Greenhouse gas inventories, emission database management, and systems for collecting, managing and utilizing activity data and emission factors;

(f) Vulnerability and adaptation assessment;

(g) Capacity-building for implementation of adaptation measures;

(h) Assessment for implementation of mitigation options;

(i) Research and systematic observation, including meteorological, hydrological and climatological services;

(j) Development and transfer of technology;

(k) Improved decision-making, including assistance for participation in international negotiations;

(l) Clean development mechanism;

(m) Needs arising out of the implementation of Article 4, paragraphs 8 and 9, of the Convention;

(n) Education, training and public awareness;

(o) Information and networking, including the establishment of databases.

Implementation

Actions to enhance the implementation of this framework, taking into account the initial scope:

1. All Parties should improve the coordination and effectiveness of capacity-building efforts through dialogue between and among Annex II Parties, developing country Parties, and bilateral and multilateral institutions.
2. All Parties should support the operation of this framework and promote conditions conducive to the sustainability and effectiveness of capacity-building activities.
3. In implementing this framework, developing country Parties should:
   (a) Continue to identify their specific needs, options and priorities for capacity building on a country-driven basis, taking into account existing capacities and past and current activities;
   (b) Promote South-South cooperation by utilizing the services of institutions in developing countries that can support capacity-building activities at the national, sub-regional and regional levels, wherever possible and

[3] Taken in part from UNFCCC website

effective;

(c) Promote the participation of a wide range of stakeholders, including governments at all levels, national and international organizations, civil society and the private sector, as appropriate;

(d) Promote the coordination and sustainability of activities undertaken within this framework, including the efforts of national coordinating mechanisms, focal points, and national coordinating entities;

(e) Facilitate the dissemination and sharing of information on capacity-building activities conducted by developing countries for better coordination and South-South cooperation

Time-frame

This framework for capacity-building should be implemented promptly, taking into account the immediate, medium- and long-term priority needs identified by developing countries. Developing countries which have already identified their capacity-building priorities through ongoing work aimed at the implementation of the Convention should be able to promptly implement capacity-building activities under this framework.

The immediate priority needs of developing countries, in particular the least developed countries and small island developing States among them, should be addressed urgently in the implementation of this framework.

Key themes and areas for meaningful and effective actions

1. Technology needs and needs assessments
2. Enabling environments for technology transfer.

A number of capacity building initiatives have been carried out at the regional level and include:

- Caribbean Planning for Adaptation to Climate Change (CPACC) (1997-2001);
- Adapting to Climate change in the Caribbean (ACCC), 2001-2004);
- Mainstreaming Adaptation to Climate Change (MACC);
- The Climate Studies Group, University of the West Indies, Mona (CSGM) AIACC SIS06 Project;
- Caribbean Renewable Energy Development Project (CREDP); and
- Preparedness to Climate Variability and Global Change in Small Island Developing States, Caribbean Region (SIDS-Caribbean Project).

3.1 Caribbean Planning For Adaptation to Climate Change (CPACC)

In I992, the IPPC Report recommended that Small Island Developing States (SIDS) urgently improve their coastal zone management and take other measures to reduce their vulnerability to global climate change. After the 1994 United Nations Global Programme of Action for Small Island Developing States, recognizing that SIDS are responsible for only 1% of GHG emissions, a number of CARICOM countries sought the assistance of the Organization of American States (OAS) General Secretariat in developing a project to assist developing countries in coping with the adverse effects of global climate change and which would focus on global adaptation to climate change. This initiative resulted in the CPACC project.

The CPACC project was a United Nations sponsored Global Environment Facility (GEF) funded activity, and funds were implemented through the World Bank. The project was executed by the OAS and was coordinated in the Caribbean through the Regional Project

Implementation Unit (RPIU), which was established by the UWI Centre for Environment and Development (UWICED).
CPACC consisted of nine components:

- Design and establishment of a sea level/meteorological monitoring network.
- Establishment of databases and information systems.
- Inventory of coastal resources and uses.
- Formulation of a policy framework for integrated coastal and marine management.
- Coral reef monitoring for climate change.
- Coastal vulnerability and risk assessment.
- Economic valuation of coastal and marine resources.
- Economic and regulatory proposals for adaptation to climate change.
- Greenhouse gas inventory and vulnerability assessment of the water and agricultural sectors of St. Vincent and the Grenadines.

Components 1–4 were regional and 5-9 national pilot action components. Countries were given an opportunity to select the national pilot components in which they wished to participate. Jamaica participated in the regional components and component 5.

3.1.1 Outputs of the Regional Components Include:

Component 1:

- 18 automated sea-level and climate monitoring stations installed in the 12 participating countries;

Component 2:

- A Coastal Resources Information System (CRIS), and the capacity to implement this system in each participating country
- Training in data collection and automation, database design and system maintenance and system use for decision making;

Component 3:

- Preparation of national Issues Papers to serve as a basis for the development of National Climate Change Adaptation Policies.

Jamaica has developed a national ***Issues Paper*** which outlines the key issues with respect to climate change, identification of priorities and institutional and legal arrangements for responding to issues. The document is however incomplete as the chapter titled "Towards an Adaptation Policy" has only headings**.**

3.1.2 Outputs of the National Pilot Component 5

Jamaica participated in this component. The outputs are:

- Strengthening of capacity to monitor coral reefs regularly for climate change impact;
- Capacity in data processing and management;
- Establishment of a regional node for carrying out the Quality Assurance/Quality Control (QA/QC) and data processing analysis at the Centre for Marine Sciences, UWI, Mona;

- A coral reef e-group for information sharing; and
- Draft manuals for QA/QC and Substrate Identification.

3.2 Adapting to Climate Change in the Caribbean

The issue of sustainability after CPACC was expressed by Caribbean governments as early as 1997 during the review of the BPOA. This has been partially addressed by a project funded by the Canadian Climate Change Development Fund (CCCDF) through the Canadian International Development Agency (CIDA). The project, "Adapting to Climate Change in the Caribbean" (ACCC) begun in 2001 and will end in September 2004. It is expected to build on capacity efforts initiated under CPACC. It has nine components:

- Detailed Project Design and Business Plan for a Regional Climate Change Centre
- Public Education and Outreach (PEO)
- Integrating Climate Change into a Physical Planning Process using a Risk Management Approach
- Strengthening Technical Capacity – through CIMH and National Institutes, supporting Masters Level course at UWI, development of region specific climate change scenarios and liaison with other SIDS
- Integrating Adaptation Planning in Environmental Assessments for National and Regional Development Projects
- Implementation Strategies for Adaptation in the Water Sector
- Formulation of Adaptation Strategies to Protect Human Health
- Adaptation Strategies for Agriculture and Food Security
- Fostering Collaboration and Cooperation with non-CARICOM Countries.

3.2.1 Outputs of ACCC

Outputs include:

- Development of "Caribbean Risk Management Guidelines for Climate Change Adaptation Decision Making";
- A draft regional Public Education and Outreach Strategy;
- Business Plan for the Caribbean Community Climate Change Centre;
- Development and application of climate scenarios for Caribbean SIDS (to be completed under MACC). Work is in progress at the Climate Studies Group in the Physics Department of the UWI, Mona;
- A Guide to assist CARICOM country environmental impact assessment (EIA) practitioners in the integration of climate change into the EIA process;
- Staff training and development at the Caribbean Institute for Meteorology and Hydrology (CIMH) to strengthen their climate change capacity;
- Eight Students, including a Jamaican, participated in the Master's Degree course in climate change at the University of West Indies; and
- Dialogue established with SPREP and the Pacific Islands Climate Change Assistance Program (PICCAP) for collaboration on issues related to climate change.

3.3 Mainstreaming Adaptation to Climate Change (MACC)

MACC is a US $10.9m Project financed by the Global Environment Facility, the participating Governments (in kind), the Government of Canada and the Government of the United States of America through the National Oceanic and Atmospheric Administration. The implementing agency is the World Bank and the executing agency the Caribbean Community (CARICOM) Secretariat through a Project Implementation Unit (PIU) located in Belize. Each participating state will have a National Implementation Coordination Unit (NICU) to work along with the regional PIU to ensure the effective implementation of the Project.[4]

This project is expected to build on CPACC's achievements. CPACC was a Stage 1 project as defined by the COP and the Subsidiary Bodies. That is, the primary focus of CPACC was on developing capacity to assess the potential impacts on climate change and also to identify policy options for adaptation. MACC is regarded as a Stage 11 project and includes further capacity building and specific steps which will lead to formulation of specific technical and institution adaptation measures. The project is also expected to facilitate regional integration of Second Communications and Adaptation Plans and pave the way for Stage 111 activities.[5]

The objective of the project is to mainstream climate change adaptation strategies into the sustainable development agendas of the small island and low-lying coastal developing states in CARICOM[6]. The main elements of the project are:

- Integration of climate change considerations into development planning and sector strategies;
- Promotion of appropriate technical and institutional response mechanisms for adaptation to global climate change; and
- Monitoring and modeling of regional climate change.

Details of the project can be seen in **Appendix II**. The first regional workshop was held in Trinidad in April 2004, the main purpose of the workshop being to develop an Action Plan for Public Education and Outreach at the national and regional levels.

3.4 The Climate Studies Group, University of the West Indies, Mona AIACC SIS06 Project

The Climate Studies Group, University of the West Indies, Mona *(*CSGM) and Caribbean Epidemiology Centre are carrying out a project funded by Assessments of Impacts and Adaptations to Climate Change (AIACC). The project, titled "The threat of dengue fever – assessment of human health & climate change in the Caribbean" has had support from the ACCC project. Additional information on this project can be seen in Box 4.

[4] Jamaica does not yet have a NICU

[5] Currently these cover implementation measures and further capacity building.

[6] The participating countries are Jamaica, Antigua& Barbuda, Bahamas, Barbados, Bahamas, Belize, Dominica, Grenada, Guyana, St. Kitts, St. Vincent & the Grenadines, Trinidad & Tobago.

Box 4.

The Threat of Dengue Fever - Assessment of Impacts and Adaptation to Climate Change in Human Health in the Caribbean (Anthony Chen, Department of Physics, University of the West Indies, Jamaica and Samuel Rawlins, Caribbean Epidemiology Centre)

Research has revealed that the occurrence of dengue fever is sensitive to temperature increase and rainfall; thus projections of future climate change and associated changes in the hydrological cycle are therefore cause for serious concern. The starting point of this project will be the construction of climate and epidemiological databases of past and present climate and dengue indicators for the Caribbean region. Based on these databases, retrospective and prospective studies will be undertaken to determine epidemiological patterns of dengue fever and its vectors in relation to climate. Future projections of climate for the Caribbean will be downscaled from model outputs using SRES emission scenarios. These projections together with (i) relevant socio-economic information and (ii) knowledge gathered from the database analyses will form the basis for an analysis of impacts and adaptation strategies for climate change induced dengue. A pilot project will be designed for Jamaica to implement an integrated system capable of monitoring vector and disease, of forecasting climate and dengue incidence, and of undertaking diagnostics and adaptation applications for the near term (next 10 years). Adaptation strategies for the longer term will be evaluated based on knowledge gained during the project and experience gained during the pilot project.

Countries and sectors: All 21 Caribbean Epidemiology Centre Member Countries will be included for general observations, but 4 countries – Jamaica, Barbados, Trinidad and Tobago and St. Kitts – will be targeted for specific study.

3.5 Caribbean Renewable Energy Development Project (CREDP)

The objective of the project is to assist Caribbean countries in removing barriers to the increased use of renewable energies and reduce implementation costs, thereby reducing the region's dependence on fossil fuels and contributing to the reduction of green house gas emissions.

The project is funded by a grant of US $3.726 million from the GEF, and is being implemented by UNDP and executed by the CARICOM Secretariat during the period 2004-2007. Additional funds in the sum of US $2.2 million have been provided by the German Assistance Technical Agency, GTA. These sums will be supplemented by in-kind contributions of US $5.631 million from participating countries, the CARICOM Secretariat, and the Global Sustainable Energy Island Initiative (GSEII) through the Organisation of American States (OAS).

CREDP is intended to meet four immediate objectives for the participating countries:

- Supporting the implementation of policies, legislation and regulations that create an enabling environment for renewable energy development;
- Demonstrating innovative financing mechanisms for renewable energy products and projects;

- Building the capacity of selected players in the renewable energy field; and,
- Putting in place an improved regional renewable energy information network.

The project is expected to lower annual emissions of carbon dioxide by an estimated 388,159 tonnes by the year 2007.

The project inception workshop took place in Guyana on 17-19 May 2004, with participation from the beneficiary countries, the funding agencies and the Caribbean Community (CARICOM) Secretariat. There are 17 participating countries including Jamaica.

3.6 Preparedness to Climate Variability and Global Change in Small Island Developing States, Caribbean Region (SIDS-Caribbean Project)

(**Taken from www.sids-caribbean-project.com web site**)

The overall objective of the program is to provide tools for better planning for sustainable development in the Caribbean region. This is done by strengthening the National Meteorological Services (NMSs) in the region so that they will be capable of providing the information needed for planning purposes at national and international levels, and the information and expertise needed in order to assist Caribbean SIDS in fulfilling their international commitments under treaties such as the UNFCCC, CCD and the CBD.

The purpose of the project is to develop better meteorological and climatological knowledge in the project countries. Improved capacities will benefit not only the project countries but also all the Caribbean region as a whole. This is to be achieved through implementation of the following components:

Component 1: Improvement of the telecommunication systems on national and regional levels.
Telecommunication is a major problem for the smallest SIDS that have no own forecast centre and whose operations depend on the regional centres. Improved telecommunication systems should provide necessary meteorological information reliably and in a cost-effective way.

Component 2: Rehabilitation and upgrading of the observation network.
Information from observations forms the basis for all meteorological and climatological activities, both nationally and internationally. Rehabilitated and upgraded observation network will provide real-time data for all applications. Automatic weather stations can to some extent provide information even in situations when traditional observations have to be discontinued due to adverse weather conditions. The observation network will be upgraded with special emphasis on the Global Climate Observing System (GCOS) observation stations. Some new measurements like UV and possibly ozone soundings could be implemented. The special needs of individual countries will require to be tailored separately according to the findings mentioned in the fact-finding mission reports.

Component 3: Renovation of the regional technical laboratory for the calibration and maintenance of instruments.

In order to guarantee the standard and quality of the meteorological observations the instruments require regular calibration and maintenance. That is one of the critical issues in the region in order to maintain the sustainability of the observation network. Establishment of a regional laboratory is the most efficient and cost-saving way to organise the work as some of the equipment are very expensive (i.e. calibration chambers) and they will be more effectively exploited in regional use.

Component 4: Upgrading of the database management systems.

Although countries may have their own solutions for the data base management according to the quantity of data and size of operation, the data collection and archiving systems should be standardised to such an extent that the data could be easily combined for regional analyses. It is envisaged that combining the data in regional archiving centres would bring synergistic advantages. CIMH already has a meteorological data archiving centre for the CMO community. The best solution for countries outside the CMO will be studied.

Component 5: Implementation of data rescue programs

In the Caribbean region there is a considerable amount of historical observation data stored using inadequate and vulnerable means. This data needs to be rescued and stored preserved and digitised so that it will be available for further analysis.

Component 6: Training and awareness building

To increase the number of professional men and women and upgrade the skills of the local staffs, education and training will be needed at all levels from specific training courses to graduate courses on meteorology and post-graduate fellowships.

Public awareness building is to ensure the future position of the NMSs by making their expertise visible to their societies.

Geographically the project covers following countries: Guyana, Trinidad and Tobago, Grenada, St. Vincent and the Grenadines, Barbados, Bahamas, Cuba, St. Lucia, Commonwealth of Dominica, Montserrat, Antigua and Barbuda, St. Christopher and Nevis, Anguilla, Dominican Republic, Haiti, Jamaica, Turks and Caicos Islands and Netherlands Antilles.

The financing period for the project implementation is three years and the project should be completed later this year.

Jamaica participated in 2 activities within the Training and Public Awareness component: the TV Presenters Course and the Regional seminar for Decision makers. Also, a Jamaican weather forecaster was one of the fourteen students, (of which three were women), from the English-speaking Caribbean who were trained at the CIMH for eighteen months from 15 May 2002 at the BIP-MT level. The course ended on 24th October 2003, with an additional 3 month period for on-the-job training at national centers. Additionally Jamaica received an Automatic Weather Station as a part of Component 2.

4. KYOTO PROTOCOL

At the first Conference of the Parties (COP) to the Convention, held in 1995, it was agreed by Parties that the Convention by itself was not sufficient to address the problems of climate change and a decision was taken to start negotiations for legally binding and more detailed commitments for industrialised countries. At the third COP held in 1997 in Kyoto, Japan, the Kyoto Protocol was adopted. The Protocol has legally binding emission targets for industrialised countries. The Protocol's rules were clarified in detail in the 2001 *Marrakesh Accords*. The Protocol has not yet entered into force as the requirements are not only that 55 Parties to the Convention are Parties to the Protocol but also that the 55 Parties must incorporate Parties included in Annex I which accounted in total for at least 55 per cent of the total carbon dioxide emissions for 1990. Presently there are 100 Parties to the Protocol, but the required emission percentage from Annex 1 Parties has not been met. Jamaica acceded to the Protocol in June 1999.

4.1 Commitments

Of relevance to developing countries are articles 10 and 12.Developing countries commitments under Article 10 as stated in the Protocol are:

All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, without introducing any new commitments for Parties not included in Annex I, but reaffirming existing commitments under Article 4, paragraph 1, of the Convention, and continuing to advance the implementation of these commitments in order to achieve sustainable development, taking into account Article 4, paragraphs 3, 5 and 7, of the Convention, shall:

(a) Formulate, where relevant and to the extent possible, cost-effective national and, where appropriate, regional programmes to improve the quality of local emission factors, activity data and/or models which reflect the socio-economic conditions of each Party for the preparation and periodic updating of national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties, and consistent with the guidelines for the preparation of national communications adopted by the Conference of the Parties;

(b) Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change and measures to facilitate adequate adaptation to climate change:

- Such programmes would, *inter alia*, concern the energy, transport and industry sectors as well as agriculture, forestry and waste management. Furthermore, adaptation technologies and methods for improving spatial planning would improve adaptation to climate change.

(c) Cooperate in the promotion of effective modalities for the development, application and diffusion of, and take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies, know-how, practices and

processes pertinent to climate change, in particular to developing countries, including the formulation of policies and programmes for the effective transfer of environmentally sound technologies that are publicly owned or in the public domain and the creation of an enabling environment for the private sector, to promote and enhance the transfer of, and access to, environmentally sound technologies;

(d) Cooperate in scientific and technical research and promote the maintenance and the development of systematic observation systems and development of data archives to reduce uncertainties related to the climate system, the adverse impacts of climate change and the economic and social consequences of various response strategies, and promote the development and strengthening of endogenous capacities and capabilities to participate in international and intergovernmental efforts, programmes and networks on research and systematic observation, taking into account Article 5 of the Convention;

(e) Cooperate in and promote at the international level, and, where appropriate, using existing bodies, the development and implementation of education and training programmes, including the strengthening of national capacity building, in particular human and institutional capacities and the exchange or secondment of personnel to train experts in this field, in particular for developing countries, and facilitate at the national level public awareness of, and public access to information on, climate change. Suitable modalities should be developed to implement these activities through the relevant bodies of the Convention, taking into account Article 6 of the Convention;

(f) Include in their national communications information on programmes and activities undertaken pursuant to this Article in accordance with relevant decisions of the Conference of the Parties; and

(g) Give full consideration, in implementing the commitments under this Article, to Article 4, paragraph 8, of the Convention.
Some of these commitments are being addressed by the regional initiatives mentioned under the Convention.

4.2 The Clean Development Mechanism (CDM)

Under the Kyoto Protocol are provisions for three innovative mechanisms which allow developed countries to meet their commitments as cost-effectively as possible by "buying" or generating emission reduction credits in other countries. However Annex 1 Parties are still required to take domestic actions to reduce emissions. The three mechanisms are:

1. **Joint implementation** (under Article 6) provides for Annex I Parties to implement projects that reduce emissions, or remove carbon from the air, in other Annex I Parties, in return for emission reduction units (ERUs).

2. **The Clean Development Mechanism (CDM)** defined in Article 12 provides for Annex I Parties to implement projects that reduce emissions in non-Annex I Parties, in return for certified emission reductions (CERs), and assist the host Parties in achieving sustainable development and contributing to the ultimate objective of the Convention.

3. **Emissions trading**, as set out in Article 17, provides for Annex I Parties to acquire units from other Annex I Parties. These units may be in the form of assigned amount units (AAUs), removal units (RMUs), ERUs and CERs

The ERUs, CERs, AAUs and RMUs are the accounting equivalents of the "assigned amount" referred to in the provisions of Article 3"[7]

In October-November 2001 the Conference of the Parties to the UNFCCC reached agreement on implementation rules (part of the "*Marrakesh Accords*") for these mechanisms. The Protocol's provisions on the mechanisms were considerably expanded and includes decisions which set out the principles, nature, scope and operational rules for all three mechanisms; a system of registries; and provision for businesses, non-governmental organizations and other legal entities to participate in the three mechanisms, under the responsibility of their governments.

The CDM is the only mechanism which involves non Annex 1 Parties and takes place between an Annex 1 Party and a non Annex 1 Party. The CDM is expected to facilitate implementation of sustainable development projects in developing countries, and transfer of environmentally friendly technology from the developed countries to developing countries.

Obligations under the Protocol and as elaborated in the *Marrakesh Accords* include the designation of national authorities by Parties seeking to be involved in CDM projects. The Ministry of Land and Environment operates as Jamaica's interim national authority for the CDM.

4.2.1 National and Regional Activities Relevant to the CDM

4.2.1.1 Caribbean Regional Capacity Building and Regional Baselines Projects

A Regional Capacity Building project was launched in late 1999 to assist the Caribbean in developing capacity to participate in the CDM, and to assist in the development of a regional CDM strategy for the Caribbean, including the development of regional baselines or benchmarks and potential CDM projects. Preliminary objectives for the project included:

- Developing regional capacity to establish baselines (includes establishing a regional team, and conducting training workshops);
- Enhancing the competitiveness of CARICOM within the CDM market (by identifying barriers to investment and developing a regional CDM strategy); and
- Testing the benchmarking concept and bringing lessons learned forward into the international negotiating forum.

Partners were Caribbean Planning for Adaptation to Climate Change Project (CPACC), Barbados, CARICOM Secretariat, Guyana, The Caribbean Energy Information System/Scientific Research Council (CEIS/SRC), GCSI - Global Change Strategies

[7] Taken from UNFCCC website

International Inc., and Center for Clean Air Policy, Washington. Details of the project can be seen in **Appendix III**.

4.2.2.2 The Wigton Windfarm Project

The Wigton Windfarm in Manchester, a renewable energy project, was commissioned in July 2004 and comes out of a CDM arrangement between the Dutch government and the government of Jamaica. The 20MW Windfarm is expected to generate approximately 52,000 tons of CER units. The Petroleum Corporation of Jamaica (PCJ), through its wholly owned subsidiary Wigton Wind Farm Limited (WWF) is responsible for the project.

The wind farm's construction was overseen by a Project Management Team from Renewable Energy Systems, United Kingdom. NEG Micon of the Netherlands provided the turbines. The Wigton Project was one of 18 CDM Projects selected by the Dutch Government in 2003 to trade its Carbon Credits to SENTER. WWF Limited has entered into a power purchase agreement with the JPS to sell all the generated electricity to the power company.

A potential biodiversity concern from the use of wind turbines is the risk to birds. PCJ has utilized up to date technology increasing the size and visibility of the blades, slowing the speed of rotation and using tubular towers with internal ladders and underground wiring, "to eliminate roosting and nesting on the structure itself".

Concluding Remarks

In reviewing the various projects/programmes implemented under or associated with the Convention, it appears that while there has been limited progress at the national level, progress at the regional level (mainly with internationally funded assistance), has been significant.

PART 2: THE UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION (UNCCD)

1. INTRODUCTION

In 1977, the United Nations Conference on Desertification (UNCOD) adopted a Plan of Action to Combat Desertification (PACD). However, despite this and other efforts, the United Nations Environment Programme (UNEP) concluded in 1991 that the problem of land degradation in arid, semi-arid and dry sub-humid areas had intensified. At the United Nations Conference on Environment and Development (UNCED), (the "Earth Summit"), held in Rio de Janeiro in 1992, there was a call for a new, integrated approach to the problem, emphasizing the need for action to promote sustainable development at the community level. It called on the United Nations General Assembly to establish an Intergovernmental Negotiating Committee to prepare, by June 1994, a Convention to Combat Desertification, particularly in Africa. The Convention was adopted in Paris on June 17, 1994 and opened for signature on 14-15 October 1994. The Convention entered into force on December 26, 1996. Jamaica acceded to the Convention in November 1997.[8]

1.1 Objective

The objective of this Convention is "to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa, through effective action at all levels, supported by international cooperation and partnership arrangements, in the framework of an integrated approach which is consistent with Agenda 21, with a view to contributing to the achievement of sustainable development in affected areas."

An elaboration of desertification, as defined by Convention can be seen in Box 1.

Box 5. Desertification (*taken form UNCCD web site*)

Desertification is the degradation of land in arid, semi-arid, and dry sub-humid areas. It is caused primarily by human activities and climatic variations. Desertification does not refer to the expansion of existing deserts. It occurs because dryland ecosystems, which cover over one third of the world's land area, are extremely vulnerable to over-exploitation and inappropriate land use. Poverty, political instability, deforestation, overgrazing, and bad irrigation practices can all undermine the land's productivity. Over 250 million people are directly affected by desertification. In addition, some one billion people in over one hundred countries are at risk. These people include many of the world's poorest, most marginalized, and politically weak citizens.

1.2 Principles

Article 3 sets out the principles by which Parties should be guided, in order to achieve the objective of the Convention and to implement its provisions.

[8] Jamaica's focal point for the Convention is Mr. Philbert Brown of the Ministry of Land and Environment

These include:

- Community participation in decisions on the design and implementation of programmes to combat desertification and/or mitigate the effects of drought;
- Improve cooperation and coordination at sub regional, regional and international levels; and
- Develop, in a spirit of partnership, cooperation among all levels of government, communities, non-governmental organizations and landholders to establish a better understanding of the nature and value of land and scarce water resources in affected areas and to work towards their sustainable use.

1.3 General Obligations

These are set out in Article 4 and include:

- Adopt an integrated approach addressing the physical, biological and socio-economic aspects of the processes of desertification and drought;

- Give due attention, within the relevant international and regional bodies, to the situation of affected developing country Parties with regard to international trade, marketing arrangements and debt with a view to establishing an enabling international economic environment conducive to the promotion of sustainable development;

- Integrate strategies for poverty eradication into efforts to combat desertification and mitigate the effects of drought; and

- Strengthen sub regional, regional and international cooperation.

1.4 Obligations of Affected Country Parties

In addition to the obligations enunciated in Article 4, Article 5 contains obligations for affected country Parties. Here Parties undertake to:

- Give due priority to combating desertification and mitigating the effects of drought, and allocate adequate resources in accordance with their circumstances and capabilities;
- Establish strategies and priorities, within the framework of sustainable development plans and/or policies, to combat desertification and mitigate the effects of drought;
- Address the underlying causes of desertification and pay special attention to the socio- economic factors contributing to desertification processes;
- Promote awareness and facilitate the participation of local populations, particularly women and youth, with the support of non-governmental organizations, in efforts to combat desertification and mitigate the effects of drought; and
- Provide an enabling environment by strengthening, as appropriate, relevant existing legislation and, where they do not exist, enacting new laws and establishing long-term policies and action programmes.

1.5 National Action Programmes (Articles 9 & 10)

Parties are required to prepare, make public and implement National Action Programmes. These programmes should be updated "*through a continuing participatory process on the basis of lessons from field action, as well as the results of research. The preparation of national action programmes shall be closely interlinked with other efforts to formulate national policies for sustainable development.*" The purpose these programmes are "*to identify the factors contributing to desertification and practical measures necessary to combat desertification and mitigate the effects of drought.*"

Article 9 and 10 define the process for the development of the action programmes along with their contents. While there is specific reference to Africa in the objective of the Convention, there are five regional Annexes which contain specific guidelines for the preparation of action programmes for particular sub regions and regions (Article 15). Annex 111 contains, *inter alia*, the guidelines for Latin American and Caribbean region (**Appendix IV**).

1.6 Capacity Building, Education and Public Awareness

Article 16 of the Convention, contains various ways and means for promoting capacity building to implement the Convention. The full text can be found in **Appendix V**.

2. COUNTRY ACTIVITIES UNDER THE CONVENTION- REPORTS AND WORKSHOPS

Activities carried out under the Convention include:

- Public awareness workshop on the UNCCD;
- Draft First National Report to the UNCCD;
- Draft working document on the preparation of a national action Programme;
- Draft Second National Report which was sent to the UNCCD; and
- Identification of gaps in existing legislation with regards to effective implementation of the Convention.

2.1 Public Awareness Workshop on the UNCCD

A Public Awareness workshop on the UNCCD was held in March 2000, as a first step in preparing a National Report on the status of land degradation in Jamaica and a National Action Programme, as required under Articles 5 and 10 of the Convention. The workshop was held over a 2-day period, with a Students Forum being held on the final day.

Recommendations from the workshop focused primarily on building synergies with existing organizations (both government and non-government) and community initiatives in promoting and implementing the Convention. Other recommendations include:

- Reviewing all relevant policies and legislation in the context of the Convention; and
- Establishing a steering committee to "review diagnostics and develop strategies.

2.2 Draft First National Report to the UNCCD

This document was not available.

2.3 Draft Working Document on the Preparation of a National Action Programme (NAP)

This document was prepared in March 2002. Actions taken under the Convention are separated into 2 categories: those taken by "the government of Jamaica" and those taken by the "responsible body" (presumably the focal point Ministry). Actions taken by "the government of Jamaica" are listed in this stocktaking report under Country and regional activities, (where applicable), and those taken by the "responsible body" are listed below. They are as follows:

a) The establishment of a working committee on land degradation
Status: The committee has not met since September 2002.

b) Discussions with the Sustainable Development Council on ways and means to integrate the area of land degradation into the overall sustainable development strategy of country.

These discussions took place sometime between 1997 and 1998. There was no follow up on these discussions and the Council (an output of UNDP's Capacity 21 Programme), has not been functioning for some time, due to capacity constraints.

2.3.1 Preparation of the National Action Programme

The penultimate chapter of the working document identifies, *inter alia, the* required enabling environment to achieve the objectives of the National Action Programme. The elements required have been translated into capacity needs and are listed as such below:

- Increase in national awareness of the problems of land degradation;
- The need for benchmarks and indicators on land degradation and drought;
- Prioritising of lands in Jamaica to address land degradation and drought;
- Addressing soil loss;
- Need for a national coordinating body to implement the Convention;
- The development of an early warning system;
- Use of traditional knowledge in identifying practices that may be appropriate in preventing land degradation; and
- Additional financial resources.

2.3.2 Future Steps In the Preparation of the NAP

This section of the draft outlines the future steps required to prepare the NAP. However there has been only limited progress here. Funding is available to complete the NAP through the Secretariat of the Convention and the FAO, through a regional project, is expected to assist with additional financial and technical resources.

The focal point has recently started work to complete the NAP. An outline of the process for its completion has been drafted, however this has been derailed and the projected timelines have not, and cannot be met, due to the Haitian crisis. The Focal Point has had to assist in addressing the country's response to the recent influx of Haitian refugees that suggests the need for additional human resources in that unit. The focal point considers the unit understaffed and has expressed the need for a technical officer to assist in carrying out the duties of the unit.

2.4 Draft Second National Report (sent to the UNCCD)

The report provides a synthesis of the current state implementation of the Convention in Jamaica, notes the low level of knowledge and awareness of the Convention, and identifies areas to be addressed in the NAP.

The draft second national report identifies, *inter alia*, potential synergies with existing agencies, country programmes and the other two "Rio" Conventions for effective implementation of the Convention. The programmes include:

- The National Poverty Eradication Programme;
- National Environmental Education Committee (ENACT project);
- The Jamaica Communities Database (Social Development Commission);
- Ridge to Reef Watershed Project (USAID Project);
- Land Administration and Management Programme; and
- Operation Pride.

Agencies/units identified are:

- National Meteorological Services;
- Rural Physical Planning Department;
- Office of Disaster Preparedness and Emergency Management; and
- Water Resources Authority.

The issue of resources is also addressed in the report. A summary of the report (taken from the UNCCD Web site) can be seen in **Appendix VI**.

2.5 Identification of Gaps in Existing Legislation with Regards to Effective Implementation of the Convention

A review of relevant existing legislation was conducted by the Attorney General's office. This was done taking into consideration Article 10 which covers action programmes for all Parties and Article 4 of Annex 111 which is specific to Latin America and the Caribbean. This review was completed in September 2002.

3. RELATED PROJECTS

3.1 Trees for Tomorrow

This is a five year GOJ/CIDA project executed out of the Forestry Department.
The project objectives are:

- To define, review, prepare relevant forest policy: the department's organization planning; collection of baseline data for the selected watershed and legislation;
- Provide for the institution strengthening of the Forestry Department by providing short and long-term training for technical, administration and professional staff;
- Provide bio-physical inventories maps, and plans as a basis for better sustainable forest management, planning and data base on national forest reserve; and
- Prepare and implement forest management and land use plans with corresponding extension public education programme.

The project goal is to improve the management and conservation of forests and tree crops for the sustainable benefit of the people of Jamaica. The desired long-term impact of the goal is the maintenance of soil, water resources, biological diversity and benefits to society, as measured reduced rates of deforestation and environmental degradation, and maintained or increased rural incomes.

3.2 Jamaica Ridge to Reef Watershed (R2RW) Project (2000-2005)

The Ridge to Reef Watershed Project is a five-year initiative between the Government of Jamaica's National Environment and Planning Agency (NEPA) and USAID to address the degradation of watersheds on the island. To accomplish this, the Project simultaneously addresses three interrelated areas. The Project:

- Works with local organizations to promote sustainable environmental management practices for resource users;
- Identifies and supports actions that encourage improved enforcement of existing environmental regulations and policies; and
- Enhances the capacity of watershed stakeholders to implement effective watershed management programs.

4. REGIONAL INITIATIVES

These include:

- UNCCD organized workshop on "The Integration of the Priority Areas of Land Degradation into the ACP/EU Cotonou Agreement"; and

- Project "Conserving Biodiversity and Preventing Land Degradation in Small Island Ecosystems in the Caribbean". UNCCD Organized Workshop on "The Integration of the Priority Areas of Land Degradation into the ACP/EU Cotonou Agreement[9]"

This workshop was held in 2002, and was attended by the Cariforum countries, Cuba, the ACP Secretariat and EU representatives. The objective of the workshop was to have land degradation considered in the Country Strategy Paper and National Indicative Programme for the period 2001 – 2007. However, the EU considered the process too advanced to take on board new issues. (Jamaica had already identified transport and support for the private sector as areas for EU assistance).

4.1 Project "Conserving Biodiversity and Preventing Land Degradation in Small Island Ecosystems in the Caribbean"

This a full size project to be implemented by UNEP, and executed by UNEP's regional office. Participating countries are Antigua and Barbuda, Barbados, Dominica, Grenada, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and Grenadines. The project entered the GEF pipeline on 03/17/04, (that is, it has been approved by the GEF Secretariat only). The overall objective of the project is to build local and regional capacity to support sustainable land management and develop pilot demonstration activities to address land degradation through sustainable land management at community level in the project sites identified by the Island States. The project will focus on two major themes, namely the establishment of integrated national and regional sustainable land management planning frameworks; and capacity building and implementation of "demonstration sustainable land management practices at the community level."

Concluding Remarks

There appears to be little progress in implementing this Convention. As stated in the "General comments/Recommendations" of the Second National Report: "***The name of the Convention and its focus issues are not a direct fit into Jamaica's environmental scene and hence one does not readily identify with it. The issues relevant to our local situation have to be brought across more clearly to engender real support from relevant authorities and agencies***."

[9] The new Cotonou Agreement came into being on June 23, 2000 and got its name from Cotonou, Benin where it was signed by the fifteen Member States of the European Union and 77 African, Caribbean and Pacific countries. The Cotonou Agreement builds on the achievements of the four Lomé Conventions, which for more than 25 years formed the basis of cooperation between the EU and ACP countries. Due to major upheavals on the international stage, socio-economic and political changes in the ACP countries, and the spreading of poverty, with instability and potential conflict as its consequences, a rethinking of cooperation had however become necessary. The Agreement was concluded for 20 years, with allowance for revision every five years and a financial protocol for each five-year period. It contains a completely reformed aid package to support development and poverty reduction policies, plans for new economic partnerships to harness regional growth and a political commitment to promote good governance and stability.

PART 3: THE CONVENTION ON BIOLOGICAL DIVERSITY & THE CARTAGENA PROTOCOL ON BIOSAFETY

"*Humanity has the ability to make development sustainable-to ensure that it meets needs of the present without compromising the ability of future generations to meet their own needs*".

(**World Commission on Environment and Development (the Brundtland Commission) (1987**.)

1. INTRODUCTION

The Convention on Biological Diversity (CBD) is one of the "Rio" Conventions which opened for signature at the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, in 1992. The Convention entered into force in December 1993. Jamaica ratified the Convention in January 1995.[10] It is the first global agreement on the conservation and sustainable use of biological diversity, and is considered an "umbrella treaty" as it touches on every aspect of the sustainable use of biological diversity. It covers all ecosystems, species, and genetic resources, and links traditional conservation efforts to the sustainable use of biological resources. It also covers the rapidly expanding field of biotechnology, addressing technology development and transfer, benefit-sharing and biosafety through its Biosafety Protocol. The World Summit on Sustainable Development, held in 2002, identified the Convention as "***the key instrument for the conservation and sustainable use of biodiversity and the fair and equitable sharing of benefits arising out of the utilization of genetic resourc***es." It recognizes that the conservation of biological diversity is "a common concern of humankind" and is an integral part of the development process.

1.1 Objectives (Article 1)

The objectives of the Convention are:

- The conservation of biological diversity;
- The sustainable use of its components; and
- The fair and equitable sharing of the benefits arising out of the utilization of genetic resources, (including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding).

1.2 Principle

The principle which guides the CBD is set out in Article 3 and states:

"States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction."

1.3 Obligations

There are a number of obligations for Parties under the CBD which are listed in Articles 5-19 and 26. Obligations under Articles 5-19 include *inter alia:*

[10] The National Focal point for the Convention is Mrs. Donna Blake of the Ministry of Land and Environment.

a. Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, *inter alia*, the measures set out in this Convention relevant to the Contracting Party concerned;
b. Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies;
c. Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;
d. Develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity;
e. Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use;
f. Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, *inter alia*, through the development and implementation of plans or other management strategies;
g. Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity, taking also into account the risks to human health;
h. Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species;
i. Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices;
j. Promote and encourage understanding of the importance of, and the measures required for, the conservation of biological diversity, as well as its propagation through media, and the inclusion of these topics in educational programmes;
k. Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures; and
l. Promote and facilitate technical and scientific cooperation through a Clearing House Mechanism.

Article 26 of the Convention states that: "*Each Contracting Party shall, at intervals to be determined by the Conference of the Parties, present to the Conference of the Parties, reports on measures which it has taken for the implementation of the provisions of this Convention and their effectiveness in meeting the objectives of this Convention.*" To date, Parties have been required to submit two reports to the Convention's Secretariat.

1.4 Implementation Mechanisms

In order to facilitate effective implementation of the Convention, the Conference of the Parties, (COP) has (through its Subsidiary Body on Scientific, Technical and Technological Advice, (SBSTTA)), developed a number of thematic work programmes and identified certain cross cutting issues to be taken into consideration when implementing these programmes. Additionally, there are a number of cross-cutting issues related to Articles 6-20, some of which directly support work under the thematic programmes. A listing of the thematic areas cross-cutting issues can be seen in Table 1.

Table 1.

Thematic areas and Cross-cutting issues under the Convention on Biological Diversity

Thematic Areas	Cross-cutting Issues
• Marine and coastal biodiversity • Agricultural biodiversity • Forest biodiversity • Island biodiversity • The biodiversity of inland waters • Dry and sub-humid lands • Mountain biodiversity	▪ Access to genetic resources ▪ Traditional knowledge innovations and practices (Article 8(j)) ▪ Indicators ▪ Goal Taxonomy Initiative ▪ Public education and awareness ▪ Incentives ▪ Alien species ▪ 2010 Biodiversity target ▪ Biodiversity & Tourism ▪ Climate Change and Biological Diversity ▪ Economics, trade & incentive measures ▪ Ecosystem Approach ▪ Global Strategy for Plant Conservation ▪ Impact Assessments ▪ Sustainable use of biodiversity ▪ Technology transfer & cooperation ▪ Protected areas ▪ Liability & redress

In recognition of the broad scope of the Convention, the need for adequate resources to implement the various programmes and address the cross- cutting issues, (particularly for developing countries), and the need for a focused approach for effective implementation, Parties adopted a Strategic Plan at the sixth meeting of the Conference of the Parties (COP 6) to bring about a "convergence of actions around agreed goals and collective objectives." The mission as defined in the strategic Plan is:

Parties commit themselves to a more effective and coherent implementation of the three objectives of the Convention, to achieve by 2010 a significant reduction of the current rate of

biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth.

Goal 3 of the Strategic Plan places emphasis on the development National biodiversity strategies and action plans, (NBSAPs), the integration of biodiversity concerns into relevant sectors, and active implementation of identified priorities in the NBSAPs as an effective framework for the implementation of the objectives of the Convention.

At its seventh meeting, (COP 7), the COP emphasized that national biodiversity strategies and action plans were the primary mechanisms for the implementation of the Convention and the Strategic Plan, and should be developed or reviewed with due regard to the relevant aspects of the four goals of the Strategic Plan, to enable greater contribution to the achievement of the 2010 target, consistent with national needs and priorities; and invites Parties to incorporate the goals, as appropriate, into the national biodiversity strategies and action plans when these are revised.

2. COUNTRY ACTIVITIES UNDER THE CONVENTION

Activities carried out as a result of becoming a Party to the Convention include:

- Submission of an interim first National Report to the CBD Secretariat;
- Preparation of a National Biodiversity Strategy and Action Plan;
- Establishment of a National Clearing House Mechanism website (www.jamaicachm.org.jm);
- Establishment of an Alien Invasive Species Working Group;
- Preparation of an Add-on Enabling Activities Project for consideration for funding by the Global Environment Facility;
- Establishment of a Biodiversity Secretariat responsible for implementing the Strategy and Action Plan;
- Establishment of a Biodiversity Committee to monitor the implementation of the Action Plan;
- Inclusion of alien species in draft amendments to the Wildlife Protection Act, 1945;
- Preparation of the Second National Report and its submission to the CBD Secretariat; and
- Establishment of a National Implementation Support Partnership, (NISP).

2.1 First National Report

Jamaica's first National Report was submitted in 1998 as an "Interim Report on Article 6[11] of the Convention on Biological Diversity. This report was submitted pending the development of the NBSAP which would then replace the interim report.

The report contains *inter alia*:

- An outline of the process for the development of the NBSAP;
- Information on relevant policies, legislation, projects and programmes; and
- Goals and objectives in the Jamaica National Environmental Action Plan of 1995-1997 relevant to the implementation of various articles of the Convention.

2.2 Development of a National Biodiversity Conservation Strategy & Action Plan and Report to the CBD

Implementation of this UNDP/GEF enabling Activity project begun in 1998, and was completed in 2004. The executing agency was National Environment and Planning Agency (NEPA).

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[11] Article 6 states that: Each Contracting Party shall, in accordance with its particular conditions and capabilities:

(a) Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Party concerned; and

(b) Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

Outputs of the project include:

- Development of the National Clearing House Mechanism (CHM) web site;
- A National Biodiversity Strategy and Action Plan (NBSAP);
- A cartoon/comic strip entitled "A Nature Walk" was prepared and launched in commemoration of Biodiversity Day 2003; and
- A CD which includes a video presentation on biodiversity conservation in Jamaica.

The NBSAP was prepared as a policy document, and presented as a Green Paper in 2001. However, the process in becoming a White Paper was rather lengthy, and it was not tabled in Parliament until 2003. Copies were distributed at COP 7, held in Kuala Lumpur, Malaysia, earlier this year.

Part 1 of the NBSAP contains an assessment of Jamaica's biodiversity and the legal and policy framework relevant to its sustainable use, also the major gaps and challenges affecting its conservation and sustainable use. In Part III of the Action Plan, 37 projects have been identified for the effective implementation of the Convention, 10 being rated as high priority and 8 as highest priority. The projects are listed in Table 2.

2.3 National Clearing House Mechanism

This was an output of the UNDP/GEF Enabling Activity Project as stated previously. The web-site is linked to that of the Secretariat and was formally launched in April 2000.[12]

2.4 Biodiversity Secretariat

A Biodiversity Secretariat was established at NEPA, approximately 15 months ago. The Secretariat is responsible for developing the projects proposed in the Action Plan and also to seek funding for their implementation. It is staffed by 2 persons; however, the Secretariat appears to be in jeopardy due to lack of sufficient funding for staff. A number of projects have been developed and funding is currently being sought for implementation. They are listed below.

1. Assessment of the effects of the White-tailed Deer (*Odocoileus virginianus*), on forest habitats in Jamaica. (The White-tailed deer was accidentally introduced into the wild in the Eastern section of the island sometime after hurricane Gilbert in 1988. Since then the population of the deer has increased and they have now become a nuisance to the communities that are in proximity of their habitat.)
2. Development of an Alien Invasive Species Management Strategy
3. Coral reef Rehabilitation Project, (two Marine Protected Areas have been selected for the project: the Negril Marine Park and the Montego Bay Marine Park; while Portland Marine Park has been selected as an unprotected site).
4. An Orchid project to determine population size and distribution of Jamaican Orchids.
5. A Dolphin Project to determine population size and distribution of dolphins in Jamaican waters.

[12] Ms. Suzanne Davis of the Natural History Division of the Institute of Jamaica is the National Focal Point.

Table 2.

List of Proposed Projects identified in the Action Plan

Highest Priority	High Priority	Others
• Establishment of the National Biodiversity Secretariat as a Supporting Mechanism to Implement and Monitor the National Biodiversity Strategy and Action Plan • Preparation for the Declaration of Protected areas: Black River, Mason River, Port Antonio, Dolphin Head, Cockpit Country and Rozelle/Rozelle Falls • Rehabilitation of Coral Reef Ecosystems • Reduction of Pollutants in Freshwater and Marine Environments • Preparation of an Alien Invasive Species Management Plan • Implementation/Preparation of Recovery Strategies for Critically Endangered Species • Preparation of Policies and Legislation to Facilitate Access to Biological Resources and Equitable Benefit Sharing • Sensitization of the Judiciary and Training for Customs and Immigration Officers and the Constabulary	• Financial Sustainability of Protected Areas • Rehabilitate Degraded Forests • Development of Sustainable Fisheries • Development of Sustainable Forestry • Preparation of Ecological Zonation Plan and Land Use Plans for Declared Protected Areas • Development of Natural Products Industry, Sustainable Use of Medicinal and Aromatic Plants and the Establishment of *In-situ* and *Ex-situ* Collections • Establishment of *In-situ* and *Ex-situ* Collection • Development of Regulatory and Administrative Measures to Control the Safe Handling and Transfer of Living Modified Organisms (LMOs) • Expansion of the National Clearing-House Mechanism • Development of Increased Resource Management Capacity	• Involvement of Private Landowners in Protected Area Management • Declaration of Forest Reserves • Regulation of Collection and Harvesting of Wild Fauna and Flora • Establishment of Three Plant Rescue Centres • Implementation of the Ocho Rios Marine Park Management Plan • Sustainable Management of Game Bird Populations • Sustainable Management of Bat and Dolphin Species • Promotion of Sustainable Tourism Practices • Development of a Sustainable, Community Based Management Plan for the Yallahs Lagoon Ecosystem • Protection of Traditional Knowledge and Creation of a Traditional Knowledge Register/Library • Public Education on the Safe Handling and Use of Living Modified Organisms (LMOs) • Institutional Capacity Building for Risk Assessment andManagement of Living Modified Organisms (LMOs) • Human Resources Development in Identification, Conservation and Sustainable Use of Genetic Resources • Establishment of the Jamaica Protected Areas Biological Database • Repatriation of Indigenous Biodiversity Information • Protected Areas Public Education/Information Programme • Develop and Expand Existing Environment Education Programmes and Exhibits in the Royal Botanical Gardens, including the Hope Zoo • Build on Existing Regional Data and Information Exchange Mechanism • Promotion of a Mechanism for Regional Technical and Scientific Co-operation

2.5 Second National Report

Jamaica's second National Report has been recently forwarded to the Secretariat. This report gives information on the implementation status of the various Articles of the Convention, thematic areas and cross-cutting issues. (It has not yet been posted on the Secretariat's website).

2.6 National Implementation Support Partnership

This is a collaborative Partnership agreement with the Government of Jamaica, (through the Ministry of Land and Environment, the National Environment and Planning Agency, Institute of Jamaica, Forestry Department), and the Nature Conservancy, the Jamaica Conservation Development Trust and Heritage Design, (an enterprise unit of the USDA), to support a number of protected-areas-related projects identified in the NBSAP. These projects are:

- Preparation of Ecological Zonation Plan;
- Establishment of Protected Areas Database;
- Preparation of an Alien Invasive Species Management Strategy;
- Preparation for the Declaration of Protected Areas;
- Declaration of Forest Reserves;
- Rehabilitation of Degraded Forests;
- Development of Sustainable Forestry;
- Rehabilitation of Coral Reef Ecosystems;
- Recovery Strategies for Critically Endangered Species;
- Protected Areas Public Education;
- Involvement of Private Land Owners in Protected Areas Management;
- Building Management Capacity of the Jamaica Protected Areas Network (J-PAN);
- Development of Increased Resource Management Capacity;
- Financial Sustainability of Protected Areas;
- Extension of the Biodiversity Secretariat; and
- Expansion of Clearing House Mechanism.

This is a very important step in the implementation of the Convention as it further prioritizes the projects conceptualized in the NBSAP. The Nature Conservancy has committed to provide a sum of US$200,000 per year for 5 years towards the NISP. These funds are considered leverage for other resources that are available locally and internationally, and therefore it is anticipated that the resources made available to implement the NISP will be much larger.

3. REGIONAL ACTIVITIES CARRIED OUT UNDER THE CONVENTION

3.1 The Inter American Biodiversity Information Network (IABIN)

IABIN is an internet based intergovernmental initiative intended to promote greater coordination among Western Hemisphere countries in collection, sharing, and use of environmental information. The proposal to develop IABIN was an element of the final "Hemispheric Plan of Action" adopted by the leaders of South, Central, and North American nations in Santa Cruz de la Sierra, Bolivia in December 1996 at the Summit of the Americas on Sustainable Development. IABIN is expected to provide the networking information infrastructure (such as standards and protocols) and biodiversity information content required by the countries of the Americas to improve decision-making, particularly for issues at the interface of human development and biodiversity conservation. It is developing an Internet-based platform to give access to scientifically credible biodiversity information currently scattered throughout the world in different institutions, such as government organizations, museums, botanical gardens, universities, and NGOs.

It is expected that IABIN will have a small staff dedicated to the implementation of IABIN which will support a technical standards development process, coordinate catalogues and directories (either centralized or distributed), manage communications including electronic mailing, lists and Web sites, coordinate efforts with other networks, support training for member countries and organizations, and support the efforts of IABIN nodes. Funding is being sought from the GEF to assist IABIN in carrying out its activities.

IABIN's development is complementary to and consistent with the CBD, and IABIN has forged a partnership with the Secretariat node of the CHM through a comprehensive Memorandum of Understanding (MOU). The activities proposed for the implementation of IABIN are expected to help fulfill, at the regional level, the CHM's goals of exchange of biodiversity information and exchange of scientific and technical expertise.

IABIN has received funding for its projects from the Global Environment Facility, the Organization of American States, the World Bank, the U.S. State Department, and the U.S. Agency for International Development (US AID), as well as from the governments of many of the participating countries. Activities include: a pilot project on invasive species in the Americas and a project on harmonizing metadata initiatives throughout IABIN. Jamaica participated in the IABIN Invasives Information Network (I3N) Project.

4. Related Activities - Projects/Programmes

There are a number of biodiversity related activities which are relevant to the implementation of the Convention. They are listed below:

1. **The ENACT programme** is jointly funded by GOJ and CIDA. It began in 1994 and is scheduled for completion in 2004. The ENACT programme's goal is "to promote sustainable development in Jamaica by supporting the capacity development of key institutions in the public sector, private sector, education sector and communities to manage and use natural resources and the environment in a sustainable way." Additional information on this project can be seen in Box 1.

2. **Jamaica Coastal Water Quality Improvement Project (CWIP):** this is a USAID-funded activity designed to protect and improve the environmental quality of the country's coastal resources, relying on a community-based programme for problem solving. The project started in 1998 and is expected to end later this year. Additional information can be found in Box 2.
3. **Ridge to Reef Watershed Project (R2RW):** this is a five-year initiative between the Government of Jamaica's National Environment and Planning Agency (NEPA) and USAID, addressing the degradation of watersheds on the island particularly using community-level initiatives and support. This project began in 2000.
4. **Protected Areas System Plan Project**: this project is funded by the Environmental Foundation of Jamaica (EFJ) and Jamaica/Canada Green Fund. It is being administered by the National Environmental Societies Trust (NEST). The lead government agency for the project is the National Environment & Protection Planning Agency (NEPA) through its Protected Areas Branch. The project will further the process started with the development of "**A Plan for a System of Protected Areas in Jamaica" (1992)** and the **"Policy for Jamaica's System of Protected Areas" (1997)**. The twelve-month (July 2003-June 2004) project will develop a plan for Jamaica's system of protected areas including those which are the responsibility of NEPA, Forestry Department, Fisheries Division and the Jamaica National Heritage Trust.

Box 6.

ENACT Programme (Taken form the ENACT Web site*)*

ENACT Purpose

Its purpose is to improve the capability of key strategic players at the government policy, private sector, community and general public levels to identify and solve their environmental problems, in a sustainable way; and to enhance these improvements by linking and coordinating the capacity development activities of the various levels and players involved.

ENACT Objectives

The ENACT programme seeks to build Jamaican institutional capacities so that they can better manage and preserve the environment within the overall context of sustainable development.

ENACT has focused its capacity development efforts around the following five main components:

2000 - Greening of Government.

3000 - Capacity Development for NEPA;

4000 - Local Sustainable Development Planning (LSDP);

Box 7 (Taken from NEPA web site)

Coastal Water Quality Improvement Project

Activities focus in five areas.

- Support community-based initiatives to address environmental concerns;
- Improve the operation and maintenance of municipal wastewater management systems;
- Improve environmental practices of industries and commercial establishments;
- Establish NGO-government partnerships to monitor coastal water quality; and
- Support improved coordination of coastal zone management activities.

CWIP has supported community-based environmental initiatives in Negril and Ocho Rios and disbursed $1.25 million in grants to NGOs and community groups. The project conceptualized and facilitated the formation of a public participation model for the management of municipal wastewater facilities. At the same time, coastal communities established solid waste recycling programs using an Environmental Management System (EMS) model. A sustainable community-based water quality-monitoring program has been created. CWIP has also helped develop coastal zone management policies to meet the requirements of international regulatory organizations and the government of Jamaica.

5. **Institutional Strengthening to Support Environmental Management of Kingston Harbour:** the Project has two objectives: (1) to create the institutional setting needed to coordinate the diverse stakeholders and activities that impact upon the current state of the Kingston Harbor, and (2) support pre-investment efforts to address major pollutant sources. The Project will have the following five components: (a) Institutional Strengthening; (b) Development of a Physical Plan for Kingston Harbor; (c) Improving Environmental Performance of Industries Discharging to Kingston Harbor; (d) Development of Documentation and Tender Documents for a Ship-Generated Waste Reception Facility; and (e) Public Outreach, Education, and Training.
6. **Integrating Watershed and Coastal Area Management in Small Island Developing States of the Caribbean:** this regional project has recently been approved by the GEF. The overall objective of the proposed project will be to assist participating countries in improving their watershed and coastal zone management practices in support of sustainable development. The project will include the following components addressing areas of priority concern: coastal area management and biodiversity; tourism development; protection of water supplies; land based sources of pollution; climate change. Activities undertaken during the full project will include, amongst others, demonstrations in the fields of marine pollution reduction and waste management, land use, soil degradation and watershed management. Addressing water resources management and conservation under conditions of stress may include pilot projects

demonstrating innovative approaches to: water storage, distribution, treatment and re-use, and to conservation of scarce resources in high demand sectors such as tourism. The project may also include pilot activities addressing information, management, policy and economic failures where these are identified as critical elements in the causal relationships between environmental issues and problems and the societal causes of such problems. The objective of the PDF-B work is to develop a fully costed project brief and to establish an agreed institutional framework for execution of the full project activities. March 2004 - Work Program Inclusion The full project is the result of a commitment by the 13 participatory SIDS of the Caribbean Region to resolve the concerns regarding the inadequate and inappropriate approaches to sustainable development and natural resource management. Specifically the countries would wish to seek support in the development of a more integrated approach to coastal and watershed issues, processes and policy development. The direct causal linkages between the threats to the coastal and watershed environment and socio-economic/political issues are recognised. The need to address these linkages and the root causes in a sustainable manner at the socio-economic and policy level is paramount. By implementing the project activities the country of the region will significantly contribute to the protection of globally-significant biodiversity within the Caribbean region through the long-term sustainable management of biological resources and ecosystems, while mitigating or eliminating regional transboundary threats to those resources and ecosystems.[13]

7. **Memorandum of Understanding between Ministry of Land and Environment (MLE) with The Nature Conservancy (TNC):** The MLE and TNC have signed a Memorandum of Understanding with 3 broad objectives. These are :

1. To conduct programmes which seek to enhance student learning by the use of GIS and its related technologies with the objective: to optimise individual and national sustainable planning and development;
2. The development of mechanisms which result in the conservation, protection and / or development of natural resources and specifically improved watershed management; and
3. The creation of a work plan for developing the National Spatial Data Infrastructure (NSDI).

Under these objectives a number of initiatives are ongoing, including:

- Developing private land conservation tools, specifically legislation;
- Supporting the institutional strengthening of the National Integrated Watershed Management Council (NIWMC);
- Providing the tools for schools to better teach geographic information systems etc.; and
- Creating the work plan for the national spatial data infrastructure.

The above mentioned initiatives are of primary importance for the conservation and sustainable use of biodiversity. Focusing on Private land conservation acknowledges that much of the forested land in Jamaica is privately owned and that the government lacks the resources to purchase or protect the lands by other means. The interest and stated cooperation of private land-owners in conservation is considered an important precedent.

[13] Taken from GEF website.

The NIWMC provides coordination and collaboration of all the stakeholders in watershed management and serves to encourage and foster the use of the ecosystem approach in watershed management.

The MLE is responsible for the national geodetic infrastructure. As such the creation of a NSDI is seen as the means to coordinate the many ministries and entities collecting and using data of various qualities form numerous sources, thereby providing data, including data on biodiversity, for sound decision-making.

5. RELATED LEGISLATIVE AND POLICY DEVELOPMENT

Relevant legislation developed since Jamaica became a Party to the Convention includes:

- National Solid Waste Management Act, 2001;
- Jamaica Intellectual Property Act, 2001;
- The Forest Act 1996; and
- The Endangered Species (Protection Conservation and Regulation of Trade) Act 2000.

Policies include:

- National Ocean and Coastal Zone Policy, 2002;
- Jamaica National Land Use Policy, 1996;
- Policy for Jamaica's System of Protected Areas, 1997; and
- Forest Policy, 2001.

Action Plans/Plans include:

- National Forest Management and Conservation Plan
- National Strategy and Action Plan on Biodiversity;
- Jamaica Coral Reef Action Plan; and
- Jamaica National Environment Action Plan.

There are several related draft policies and guidelines, also Management Plans for various species of flora and fauna. These can be found on the NEPA web site (www.nrca.org).

6. THE CARTAGENA PROTOCOL ON BIOSAFETY

Article 19 of the Convention states, *inter alia:*
"The Parties shall consider the need for and modalities of a protocol setting out appropriate procedures, including, in particular, advance informed agreement, in the field of the safe transfer, handling and use of any living modified organism resulting from biotechnology that may have adverse effect on the conservation and sustainable use of biological diversity".

In 2000, after several negotiating sessions, the Conference of the Parties to the Convention adopted a supplementary agreement to the Convention known as the Cartagena Protocol on Biosafety. The Protocol seeks to protect biological diversity from the potential risks posed by living modified organisms (LMOs) resulting from modern biotechnology. "It establishes a procedure for ensuring that countries are provided with the information necessary to make informed decisions before agreeing to the import of such organisms into their territory. It has been hailed as a breakthrough in that it enshrines the "precautionary approach" as a principle of international environmental law and puts environment on a par with trade-related issues in the international area. The Protocol also establishes a Biosafety Clearing-House[14] to facilitate the exchange of information on living modified organisms and to assist countries in the implementation of the Protocol"[15].

Jamaica participated fully in the negotiating and signed the Protocol in June 2001. The Protocol entered into force in September 2003. Jamaica is not a Party to the Protocol.

6.1 Country Activities

Jamaica has carried out a number of activities directly under the Protocol and related to the Protocol.

6.1.1 National Biosafety Committee

A Biosafety Committee was established in 1996 under the National Commission on Science and Technology, (NCST) which later, in 1997, became the National Biosafety Committee, (NBC). The NBC legislated by the Plants (Importation) Control Regulations 1997, under the Plants (Quarantine) Act. The Regulations deal with importation of plant LMOs for experimental use only. The role of the committee is: to make determinations and recommendations to the Plant Quarantine Division of the Ministry of Agriculture on the importation of GM plant material for research only.
The functions of the committee are inter alia:

- To maintain an overview of biosafety factors associated with innovative genetic manipulation techniques;
- Identify and monitor work which has undefined risk levels; and
- Prepare or assist as appropriate with the preparation of codes, standards or guidelines for the assessment and management of biosafety risk factors.

[14] Jamaica's national focal point is the Natural History Division of the Institute of Jamaica.
[15] Taken from CBD Secretariat web site.

The Committee is multidisciplinary and is drawn from a number of Ministries, institutions and organisations, including the private sector. The committee has been involved in the monitoring of the JADF papaya project.

6.1.2 Public Education

The NCST in collaboration with the Jamaica Society of Agricultural Scientists and the NBC implemented a public education programme which ended early 2003. The project was funded by the EFJ and the GOJ.

6.1.3 UNEP-GEF Project on Development of National Biosafety Frameworks

This project is designed to assist up to 100 countries to develop their National Biosafety Frameworks so that they can comply with the Cartagena Protocol on Biosafety. Jamaica is one of the several countries which have received funding to implement this project. The project is being executed out of NEPA and is expected to end in August this year.

Expected outputs of the project are:

- Draft legal instruments;
- Administrative systems;
- Risk assessment procedures; and
- Systems for public participation and information.

Concluding Remarks

While there has been some progress in implementing this Convention, there is need for a concerted action to move from policy and legislation and Action Plan development to actual implementation. An area which will need to be addressed is that of access to information. It is clear from the stocktaking exercise that much needs to be done to facilitate information sharing. Consideration should be given to a single CHM, that is, for the 3 Conventions, which would act as a gateway to information on the activities carried out under the 3 'Rio' Conventions.

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APPENDICES

APPENDIX I. CARIBBEAN REGIONAL CAPACITY BUILDING AND REGIONAL BASELINES PROJECT

A meeting of member states of the Caribbean Commonwealth (CARICOM), held on the margins of Fifth Conference of the Parties (COP5) in Bonn, Germany in October 1999 highlighted the need to build upon the network of people and institutions established by CPACC and to address capacity building needs beyond CPACC's scope of activities-in particular, those associated with participation in the CDM.

As a result, a Regional Capacity Building project was launched in late 1999 to assist the Caribbean in developing capacity to participate in the CDM, and to assist in the development of a regional CDM strategy for the Caribbean, including the development of regional baselines or benchmarks and potential CDM projects. Preliminary objectives for the project included:

1. Developing regional capacity to establish baselines (includes establishing a regional team, and conducting training workshops);
2. Enhancing the competitiveness of CARICOM within the CDM market (by identifying barriers to investment and developing a regional CDM strategy); and
3. Testing the benchmarking concept, and bringing lessons learned forward into the international negotiating forum

The project is designed to be implemented in three phases, and to build on the network of people and institutions established by CPACC. There are six partners in the overall project:

Caribbean Planning for Adaptation to Climate Change Project (CPACC), Barbados, CARICOM Secretariat, Guyana, The Caribbean Energy Information System/Scientific Research Council (CEIS/SRC), GCSI - Global Change Strategies International Inc., and Center for Clean Air Policy, Washington.

Phase I has been completed successfully, with a full network of over 40 Caribbean contacts and experts identified and brought up to speed on the CDM. The project received support for Phase I from the U.S. and Canadian governments. As a result, a Phase I regional workshop was held in Barbados in March 2000.

Workshop participants identified key CDM capacity and technical training needs for the project, including:

- Technical capacity, in terms of information collection, data analysis, and information technology;
- Capacity to identify and remove policy barriers;
- Development of a regional team of experts;
- Capacity to review and develop project proposals;
- Capacity to identify and enhance CDM project opportunities;
- Capacity to develop a regional CDM strategy;

- Capacity to develop benchmarks;
- Development of several benchmarks; and
- Identification of several potential CDM projects.

Work is underway on Phase II - the analysis of the data needed to establish a regional baseline. It is intended that a progress report, focused largely on the technical and institutional capacity needs of the region to participate in the CDM, will be presented at the 6th Conference of the Parties in November 2000. Phase III is scheduled to begin in late 2000 and end in mid 2001.

Approach

The project emphasizes capacity building and training to increase investments in new technologies in the Caribbean and to increase the possibility for meaningful Caribbean participation in the Clean Development Mechanism. Through three regional workshops and collaboration with local governments, academics, and private sector interests, the project will build long-term institutional and technical capacity to reduce transaction costs associated with project development under the AIJ pilot phase and the CDM. The project will include the following activities:

- Identification of key sectors and potential project opportunities, focusing on the power generation, tourism, industrial and transportation sectors;
- Assistance in designing a regional strategy for participating in project-based GHG emissions trades that will enhance energy efficiency and renewable energy investments in the region, and thus will increase technology transfer, local environmental benefits, and funds available for climate change adaptation.
- Development of regional baselines to evaluate the additionality of projects within key sectors in the Caribbean.
- Technical training in calculating regional baselines and evaluating project additionality and project greenhouse gas benefits.

    - Integration of the development of national inventories and national communications with development of projects and baselines;
    - Synthesis of data needed to develop regional baselines, and the identification of potential information gaps;

- Development of a portfolio of potential projects across the region that could be developed under the CDM.

As noted above, the Caribbean Baselines and CDM Capacity Building project is to be implemented in three phases.

Phase I:

Establishing a Regional Team and Conducting Initial Training Workshop (December 1999 - March 2000)

In Phase I, the key sectors for project opportunities in the Caribbean were identified. Several country-specific baselines for evaluating projects, using different data and assumptions for a selected Caribbean nation were developed. These baselines, key issues associated with their

development, and an overview of project opportunities in the Caribbean were summarized in a report and presented at a regional workshop to lay the analytical groundwork for developing baselines at the regional level.

Activities completed under Phase I to date include:

1. Establishment of a project advisory group with CARICOM, Commonwealth Science Council (CSC), The Caribbean Energy Information System/Scientific Research Council (CEIS/SRC), and CPACC;
2. Preliminary identification of energy efficiency and renewable energy project opportunities in the region;
3. Development of preliminary regional benchmarks for the power generation sector in the Caribbean using different data types (e.g., historic, forward-looking). This analysis is based on available power sector data for the region provided by CEIS/SRC. Addition power sector data will be collected during Phase II to refine this analysis.
4. Preparation of a paper examining the feasibility of developing regional benchmarks in the Caribbean. The paper provides a description of the benchmarking concept, discusses data needs and key methodological issues associated with benchmark development in the power sector, presents several preliminary regional power sector benchmarks, and raises key issues and questions associated with developing regional benchmarks in other sectors.
5. A regional workshop to provide an overview of project activities and to discuss CDM capacity needs in the Caribbean, project opportunities in key sectors in the Caribbean, and potential barriers to project development. In addition, the workshop served as a training seminar on regional baseline development. To highlight key policy questions, methodological issues, and data needs associate with regional baseline development; the results of the preliminary benchmarking analysis for the Caribbean power sector were presented.
6. Preparation of a report summarizing the workshop outcomes.
7. Confirmation of regional expert's team, who will work in conjunction with the international experts throughout the project.
8. Confirmation of priority sectors for the project. Based on feedback from participants in the March 2000 workshop, it is proposed that these sectors include power generation, tourism (focusing on lighting, air conditioning, and water heating), and potential measures to be determined in the transportation and waste sectors.

Phase II:
Regional Baseline Analysis, Training and Regional CDM Program Development (April 2000- November 2000)

In Phase II, the analysis will shift from country-specific baselines to regional baselines. Working with local partners and others the project team will gather necessary data, develop the regional baselines and then evaluate potential projects against the baselines. The most viable projects identified will be developed into a portfolio of projects with potential for development under the CDM.

1. Continue project identification in priority sectors identified above.
2. Select the most viable projects identified in Phase I for:

    - Use in the regional baseline analysis;
    - Inclusion in a portfolio of projects that have potential for development under the CDM.

3. Brief project descriptions for each project included in this portfolio will be developed. Depending on available project opportunities, the portfolio will consist of approximately three to four projects. Potential demonstration projects could include transmission systems, landfill gas capture or other waste management activities, combined mitigation/adaptation projects, distillery waste, or government policies.
4. Collaborate with local partners to collect additional regional power sector data and to refine the sample regional benchmarks and preliminary analysis prepared for the Phase I workshop in Barbados in March. The results of this refined analysis will be presented at the 6th Conference of the Parties to the UNFCCC (COP 6) in November 2000 to assist negotiators in establishing the rules for CDM baselines.
5. Collaborate with local partners to evaluate data availability and collect necessary data to develop regional baselines for other key sectors in the Caribbean (e.g., tourism, transportation and waste) selected by Caribbean project participants during Phase I. Based on data availability, the project team will examine the potential for using regional baselines to evaluate CDM projects in these sectors.
6. Develop regional baselines using the different baseline simplifying methods. Regional baselines will be developed for those sectors for which the necessary data is available.
7. Evaluate projects against the relevant regional baselines to determine their credibility in assessing project additionality and GHG emission reductions. The analysis will focus on the trade-offs between environmental credibility and costs associated with each of the different baseline setting approaches. In particular, the validity of sector-wide regional baselines, and whether sub-sector baselines would be necessary to ensure environmental integrity will be evaluated. In addition, the project will evaluate the validity of regional baselines for project additionality and GHG reductions developed in different countries within CARICOM.
8. Draft a report detailing the results from testing projects against each of the regional baselines developed under Tasks 3 and 4 and obtains feedback from local collaborators and CPACC. This report will also provide an overview of project opportunities in priority sectors in the Caribbean region.
9. Based on feedback, revise the draft report summarizing the analysis and findings for presentation at a second regional workshop (tentatively scheduled for early November 2000).
10. Undertake outreach to key industry and government representatives involved in the international climate policy debate through presentation of project opportunities and available regional baseline study results in appropriate fora (e.g. UNFCCC technical meetings).
11. In a workshop setting, provide assistance to government officials within the Caribbean with designing a regional strategy for participating in the CDM. This strategy will include both promotion of a portfolio approach to project development

to support projects that can be easily replication across the region, and guidance to international negotiators on how best to ensure the policy framework for the CDM reflects the needs of the region.

12. The project team will assist Caribbean countries in building the necessary technical and institutional capacity to participate in the CDM. In particular, assistance will be provided to establish consistent national CDM policies and priorities across the region, and to establish appropriate regional approval procedures and project criteria. Regional project criteria will be developed to promote projects that, complement the regional development goals and objectives; can be easily replicated across the region to maximize CER availability and provide a foundation for future project development; provide greenhouse gas emissions that can be easily verified and monitored; foster the introduction and use of new climate friendly technologies and practices; and promote the sustainable use of energy, forest, and agricultural resources.
13. In many cases, Caribbean nations could facilitate the implementation of CDM projects by reviewing and amending their own policies that hamper project implementation. For example, in some Caribbean countries, private companies are only permitted to generate electricity for self-supply, and are not permitted to sell power to the grid. Under this task, assistance will be provided to identify such policy barriers.
14. The project team will prepare a progress report, focused largely on the region's technical and institutional capacity needs and lessons learned from implementing a regional capacity building initiative, for presentation at the 6th Conference of the Parties in November 2000.

Phase III:
Continued Regional CDM Capacity Building and Presentation of Regional Baseline Analysis Results (November 2000 - June 2001)

In Phase III, a final report will be prepared which will make recommendations on how regional baselines for the Caribbean can be implemented and used to assess project additionality under the CDM. This report and the portfolio of potential projects with potential for development under the CDM will be presented to key representatives from government and industry at a regional workshop.

1. Continue activities 10, 11 and 12 discussed in Phase II.
2. Convene a third regional workshop to present and discuss the portfolio of projects in the Caribbean that have potential for development under the CDM, and the results from the regional baseline analysis and strategies for participation in project-based GHG emission trades that will enhance investments in the region. Participants will include those representing a range of perspectives including business, government, and non-governmental organizations.
3. Based on input from participants at the Phase III workshop, refine regional baselines and prepare final report, which will make recommendations regarding the implementation of regional baselines in the Caribbean and in other regions such as Central America and the Pacific Islands.

4. Assist in the finalization of a regional strategy for the CDM, including ongoing input to the international negotiations, as well as potential CDM projects.
5. Develop a final report taking into account decisions at COP6. The report will include a full transition plan along with budget requirements for implementation of the overall CDM Strategy.

Project Overview

Mr. Russell provided an overview of the overall project from its inception in January 2000 through to June 2001. He reminded the participants of its dual objectives, namely to develop capacity for regional baselines and evaluation of project additionality, and to enhance Caribbean competitiveness in the CDM market. In so doing, he noted that although the political situation remains unclear for the CDM, there are a number of the sub-objectives that have been met that will assist the region in the future. Included are the establishment of a regional team and network of experts, testing of the regional benchmarking concept, the building of institutional capacity, and the identification of priority project areas for sustainable development investment.

He identified the Phase I donors of the project as being the Canadian Department of Foreign Affairs and International Trade and the US Department of Energy. For the subsequent two phases, the sponsors were the Canadian International Development Agency, USAID, and the US Department of Energy.

He highlighted the successes of each of the three phases as follows:

PHASE I (JAN-MAR 2000)

- Establishment of a project advisory group;
- Identification of broad areas of opportunity in the power generation, industrial, tourism, and agriculture/forestry sectors;
- Development of a preliminary regional baseline analysis for power sector;
- Development of a detailed background paper on the Clean Development; Mechanism as applied to the Caribbean and the potential for application of regional baselines; and,
- Project initiation and training workshop - March 8, 2000, Barbados
- Presentation of project concept to Caribbean negotiators at COP5, in Bonn, to receive their input.

PHASE II (APR-NOV 2000)

- Establishment of a regional team to provide data and liaison with the project advisory team. The regional experts, along with the CEIS, helped collect the data required for the power sector;
- Collection of data, on last 3 capacity additions within each country, by CEIS and Regional Experts.
- Development of the regional power sector baseline development and paper presenting the baseline analysis;

- Development of a regional strategy (to the extent that the limited clarity of the international negotiations allowed);

- Explore baseline issues in other sectors, e.g., tourism, transport, waste management and identify national policy barriers to project development; and,
- Second Workshop - November 2-3, 2001, St. Lucia

PHASE III (NOV 2000 - SEPT 2001)

- Presentation to the international community on the results of the project on the margins of the sixth meeting of the Conference of the Parties in The Hague;
- Baseline analysis and strategy development, taking into account the state of international negotiations;
- Establishment of an on-line dialogue to facilitate discussion among participants and provide an opportunity to share ideas on project opportunities in the region;
- Development of an instructional handbook and spreadsheet model on regional baseline development for the power sector.
- Third and final workshop with a focus on "hand's on" training based on case studies- June 14-15, 2001 Grenada; and,
- Preparation of the final report including strategy, baselines, project opportunities and a compilation of the products produced during the course of the project (by September 2001)

Mr. Russell concluded by highlighting the tangible products from the project. Those that have been completed and are widely available include the summary report on the CDM and the Caribbean, a regional baseline for the power sector and a paper presenting the analysis, detailed case studies for power, waste management, and tourism sectors, a CDM project cycle manual, an on line dialogue platform, and a handbook and spreadsheet model for developing regional baselines. Items remaining for completion by September 1, 2001 include the regional strategy, the refinement of the portfolio of potential project ideas and the write-up of the final report.

APPENDIX II. BACKGROUND INFORMATION ON WIGTON WIND FARM

(taken from the Petroleum Corporation of Jamaica Website).

The Petroleum Corporation of Jamaica (PCJ) is to build a 20-megawatt wind farm near Newport, Manchester, under partnership with a British company, Renewable Energy Systems Limited, as the agency deepens its search for alternative energy sources.

Wind energy is already a proven success in many countries and wind farms are increasing considerably worldwide. In keeping with the mandate of the Jamaica Energy Sector Policy, the PCJ is pursuing the development of wind energy to provide clean electricity using renewable, indigenous resources with minimal or no impact on the environment.

Since 1995, the Petroleum Corporation of Jamaica has been studying the feasibility of a wind farm project. Wind speed assessments have been conducted at various sites. In collaboration with Renewable Energy Systems of the UK, the PCJ is now in the process of developing a 20MW wind farm at Wigton Manchester, central Jamaica. The Project will comprise twenty-three (23) wind turbines of 900kW capacity each, provided by NEG-Micon. The Project is expected to cost approximately US$ 24M, and construction could begin the fourth quarter of 2002. Commissioning could take place 10-12 months later.

Electricity generated from the site, will be sold to the JPSCo. grid through a power purchase agreement which has been negotiated and signed. A third partner is being sought to participate in the Project Company; Wigton Wind Farm Limited.

Net emissions reduction from the wind farm will be approximately 50,000 tonnes of carbon dioxide per annum. This would be relatively constant over the minimum project life of 20 years. The reductions are those compared to generation by the utility company, which is presently mainly oil fired.

There is potential for wind energy to provide up to 60 megawatts of electricity in Jamaica. The Wigton Windfarm will be constructed at Wigton in the parish of Manchester. The Petroleum Corporation of Jamaica, through its wholly owned subsidiary Wigton Windfarm Limited, will operate the Windfarm.
The capacity output of the Windfarm is 20.7MW and we expect to provide an average of 7MW, given the variability of the wind regime.

Primary Objectives

- Implementation of provisions of the Jamaica Energy Sector Policy regarding renewable energy resources.
- Diversification of Jamaica's energy mix.
- Utilization of indigenous (sustainable) energy resources, especially the abundance of wind on the island.

Secondary Objectives

- Import reductions (petroleum based) in view of the Balance of Trade.
- Technology transfer to Jamaica which will eventually result in local expertise and experience with a large-scale wind energy project.
- Emission reductions.

Tertiary Objectives

- Environmentally friendly use of future mining land.
- Tangible and affirmative action from Jamaica as a signatory of the United Nations Framework Convention on Climate Change (UNFCC), regarding the reduction of greenhouse gasses.
- Educational and research spin-off for the University of the West Indies (UWI), UTech and the SRC.
- "Champion" project for the region in renewables.

The project is estimated to cost US$ 25M and is funded by a Grant from the Government of the Netherlands, PCJ's equity and a bank loan from the National Commercial Bank of Jamaica. The grant from the Netherlands Government will be used in the acquisition of wind turbines from NEG-Micon's subsidiary company in Holland.

Executed agreements are in place for:

The sale of electricity generated by an average of 7MW, given the variability of the wind regime the wind farm to JPSCo.

The use of land on which the wind farm will be constructed

Project management services during construction of the wind farm.

WWF has sought and obtained the necessary environmental and building approval permits required prior to construction of the wind farm. PCJ will acquire a power-generating licence from the Office of Utilities Regulation (OUR) on or about February 28, 2003. The suppliers of the wind turbines will be NEG Micon (Netherlands) and they will provide a five-year warranty on the equipment after installation.

It is expected that through the supply of wind power to the JPSCo. the nation will in effect continue to diversify its energy mix; realize savings in its annual oil bill; while providing an environmentally friendly source of energy.

The project should be functioning and fully commissioned in the second quarter of 2004.

APPENDIX III. UNITED NATIONS DEVELOPMENT PROGRAMME GLOBAL ENVIRONMENT FACILITY

Financing for (Interim) Measures for Capacity Building in Priority Areas Part II

Country:	Jamaica
Project Title:	**JAMAICA: CLIMATE CHANGE ENABLING ACTIVITY (ADDITIONAL FINANCING FOR CAPACITY BUILDING IN PRIORITY AREAS)**
GEF Focal Area:	**Climate Change**
Country Eligibility:	**[x] Eligible under a financial mechanism of the UNFCCC** **[x] Eligible under paragraph nine (b) of the Instrument**
Date of Ratification:	**Accession: 6 January 1995**
GEF Financing (Phase I):	**US$ 232,780**
GEF Additional Financing (Phase II):	**US$ 100,000**
Total Costs:	**US$ 332,780**
GEF Implementing Agency:	**UNDP**
Executing Agency:	**Government of Jamaica**
Local Counterpart Agency:	**Meteorological Services,** **Ministry of Transport & Works**
Date of Initial National Communication Submission:	**21 November 2000**
Estimated Starting Date:	**October 2002**
Project Duration:	**12 months**

1. CURRENT PROJECT STATUS

Jamaica has completed the preparation of its initial national communication in response to its commitments to the United Nations Framework Convention on Climate Change. The enabling activities to produce the communication commenced in October 1998 utilizing GEF Phase I financing. An Initiation Workshop was held the following month to introduce the enabling activities and to inform the Jamaican public in particular the relevant stakeholders including the media on the topic of climate change and its implications for the island. Included in the communication are an inventory of greenhouse gas emissions for 1994, national statements on Jamaica's vulnerability to climate change and potential adaptation measures to mitigate these impacts an identification of future project activities. Public awareness activities were a key component of phase I activities but were not implemented across the island due to non inclusion as a budget item. The assessments were peer reviewed by national and international experts including consultants provided by the National Communication Support Programme of the UNDP.

A national climate change committee was established and a national website for climate change will be launched shortly. Training was provided for the relevant stakeholders in several areas such as methodologies for preparation of greenhouse gas inventories and conducting vulnerability assessments in the sectors of water resources, agriculture and coastal zone. The national communication was submitted to the sixth Conference of Parties to the United Nations Framework Convention on Climate Change in The Hague, the Netherlands on 21 November 2000.

With the completion of Phase I activities support is now required for the following enabling activities: (i) capacity building for participation in systematic observation systems, and (ii) an assessment of Jamaica's requirements for technologies in the use of alternate sources of energy.

The Implementing Agency (UNDP) and the GEF focal point of Jamaica (Ministry of Lands and Environment) have satisfied themselves that the proposal for additional funding complies with the Operational Criteria for the expedited financing of climate change enabling activities.

By undertaking the Phase II enabling activity, Jamaica is aware that they must await both the future decisions of the Conference of the Parties regarding the preparation of second national communications and GEF guidelines to operationalize those decisions.

2. ACTIVITIES TO BE INVOLVED IN PHASE II PROJECT

The United Nations Development Programme National Communication Support Unit (NCSU) is currently developing regional/global proposals in several areas of work that might have implications for the national activities described in this project. Implementation of the project will be carried out in close co-ordination with the NCSU to ensure that areas of synergy will be identified where possible, and to avoid duplication for cost effectiveness. The country will be informed of the proposed NCSU activities as soon as they are underway**.**

In accordance with the Operational Guidelines for Expedited Financing of Climate Change Enabling Activities, the Government of Jamaica hereby requests additional interim funds in the amount of US$100,000 to conduct new enabling activities in follow-up to those activities conducted under the UNDP/GEF Enabling Activity Project.

These funds are requested to undertake additional activities to fulfill Jamaica's obligations under the UNFCCC. These interim funds are essential to maintaining and enhancing the capacity of the GOJ to prepare future National Communications, while helping to ensure continuity with ongoing enabling activities.

The justification for Phase II is based on the following factors:

- The Phase II will build upon activities completed in the context of Jamaica's First National Communications, and as such follow established guidelines and norms for country projects;
- The overall goals of Phase II will allow Jamaica to extend current knowledge, facilitate the emergence of national networks, and promote the integration of climate change concerns into development planning dialogue.

The proposed Phase II capacity building activities is provided in the paragraphs below.

A. Identification of Technology Needs, Capacity Building to Assess Technology Needs, Modalities to Acquire and Absorb them, Design, Evaluate and Host Projects

Jamaica energy production is dependant on imported oil. Several attempts have been made to explore the possibilities of using alternate sources of energy. There have been several projects that have been successfully implemented; however, the scope for more similar projects is great. An identification of the island's technological needs is required, both for adaptation and mitigation. This assessment should cover *inter alia* energy conservation, energy efficiency, transportation sector, renewable energy options. Adaptation technology needs and requirements will be assessed based on the priorities and needs identified in the national communication.

To aid in the assessments and identification of appropriate technologies for Jamaica, the following activities will be carried out:

(i) Identification of available technology in the country in the context of adaptation and mitigation, including the establishment of a data base
(ii) Assessment of appropriate technologies which are suitable for the Jamaican situation, taking into account national priorities and sustainable development initiatives
(iii) Development of technical and institutional capacity in co-operation with relevant national research center
(iv) Examining and improving local capacities in designing, evaluating and hosting projects related to adaptation and mitigation.

There will be the associated public awareness activities with this component to ensure that the private sector, policy makers (Parliamentarians), tourist associations, trade unions and non governmental organizations understand the benefits of renewable energy. In addition there will be sectoral workshops to raise awareness with regards to adaptation and the identification of suitable adaptation technologies. There will be capacity building and training for those institutions that potentially be involved in technology transfer. Barriers with regards to technology transfer will be identified, and ways will be identified for the removal of these barriers.

B. Capacity Building for Participation in Systematic Observations

Adequate identification of the need for updating climate monitoring equipment and their use is a key step to ensure that Jamaica can effectively contribute to the global climate observing system (GCOS). Several improvements to the equipment could be made to that equipment, for example the addition of voice transponders, salinity indicators and sea surface temperature thermometers. This includes strengthening the institutional capacity in the country to participate in the Global Sea Level Ocean Observing System (GLOSS).

Activities to be carried out under this component include:

(i) An analysis of the status of current systematic observation systems in the country and of the need to upgrade the technology and monitoring procedures
(ii) Identification of gaps and inconsistencies of climate data in the country
(iii) Strategy to improve data collection on the basis of national priorities

Attendance and participation at various training seminars and workshops are planned. This will be implemented with the Adapting to Climate Change in the Caribbean Regional Project Implementation Unit (ACCC RPIU)/ Caribbean Climate Change Centre and the Caribbean Institute for Meteorology and Hydrology. These organizations will be used as resources for training and capacity building, as currently through the ACCC/RPIU work is underway with regards to downscaling global models. All activities will take into account the priorities identified in the GCOS Regional Action Plan that is currently under development

The activity matrix for Phase II enabling activities is presented in Table C2. A breakdown in the budget for the proposed activities is summarized in Table D2.

3. PROJECT MANAGEMENT/INSTITUTIONAL ARRANGEMENTS:

The Phase II enabling activities would be executed the by the Meteorology Unit in the Ministry Transport and Works. Existing linkages established under phase one would be maintained with the Adapting to Climate Change in the Caribbean /Caribbean Regional Climate Change Centre, and the Energy Conservation Unit of the Ministry of Mining and Energy and the National Environmental Planning Agency of the Ministry of Lands and the Environment. When required local, regional and international consultant would be contracted based on agreed standards. With respect to international collaboration, links established with relevant international institutions such as UNFCCC, UNDP and IPCC, with regards to use of methodologies will be ensured as appropriate so as to avoid duplication and repetition.

4. MONITORING AND EVALUATION:

The project will rely on common UNDP monitoring and evaluation practices including a midterm evaluation and a tri-partite review to be held within the first nine months of the start of the full implementation of the project.

At the end of the project, an external review will be undertaken by an expert with experience in these types of projects. The purpose of the review will be to evaluate the outputs achieved in each of the activity areas listed above, including the reports generated on the activities contained in this proposal.

Prior to the release of GEF additional financing by the UNDP for Phase II activities, standard UNDP monitoring and evaluation practices will be followed for Phase I. In particular, the UNDP will receive a copy of the latest (i.e., within the past six months) Annual Programme/Project Report (APR) and the Tripartite Review (TPR) Report. At the end of Phase II, a Terminal Report on Phase II will be submitted to the UNDP Headquarters. A final project report, summarizing the Phase II project's results and findings, will be submitted to the UNDP and UNDP-GEF Headquarters by the end of the project.

TABLE C 2
ACTIVITY MATRIX FOR PHASE II OF CLIMATE CHANGE ENABLING ACTIVITIES IN
Priority activities for additional (interim) funding

Activity	Planning and Execution	Capacity Maintenance/ Enhancement		
		Data Gathering and Research	Institutional Strengthening	Training, Education and Public Awareness
Identification and submission of technology needs Capacity building to assess technology needs, modalities to acquire and absorb them, design, evaluate and host projects	X	X	X	X
Capacity building for participation in systematic observation networks	X	X	X	X
Preparation of programs to address climate change				

Table D 1
PROJECT BUDGET ACCORDING TO GEF ACTIVITY NORMS IN US DOLLARS
Cost estimates for (interim) priority activities

Activity	Planning And Execution	Capacity Maintenance/Enhancement			Technical & administrative support	Cost estimates
		Data gathering and research	Institutional strengthening	Training and education and public awareness		
Identification and submission of technology needs	20,000		10,000	10,000	10,000	50,000
Capacity building to assess technology needs, modalities to acquire and absorb them, design, evaluate and host projects	15,000					25,000
Capacity building for participation in systematic observation networks			5,000	3,000	2,000	16,000
Preparation of national programs to address climate change.	10,000		4,000		2,000	6,000
Project Management					6,000	
4. Monitoring & Evaluation					3,000	3,000
Total	**45,000**		**19,000**	**13,000**	**23,000**	**100,000**

∗ = Please refer to the previous page for a description of the activities proposed.

Annex I
Phase II Budget Breakdown (Draft)

	Description	Year 1	Year 2	Net Amount
10.	**PERSONNEL**			
11	International Consultants	10000		
11.01	Short-Term Consultants	10000		
11.99	**Component Total**	**20000**		
13	**Administrative Support**			
13.01	Administrative Assistant			
13.99	**Component Total**	**3000**		
15.	(Project Management) Monitoring and Evaluation	15000		
15.99	**Component Total**	**15000**		
17.	**National Consultants**			
17.01	National Project Manager	8000		
17.02	National Experts	4000		
19.99	**Component Total**	**12000**		
20	**Project Contracts**			
21.01	Technology Needs	13000		
21.02	Capacity Building	13000		
21.03	Systematic Observation	10000		
21.04	Climate Change Programmes			
29.99	**Component Total**	**36000**		
30.	**Project Workshops**			
31.01	Technology Needs Workshop	3000		
31.02	Systematic Observation Workshop	3000		
31.03	National Climate Change Workshop	3000		
39.99	**Component Total**	**9000**		
40	**Equipment**			
45.01	Expendable Equipment			
45.02	Non-Expendable Equipment			
45.03	Communications	1000		
49	**Component Total**	**1000**		
50.	**Miscellaneous**			
52.01	Reporting Costs – Final Report	2000		
52.02	Publication Costs	2000		
59	**Component Total**	4000		
99	**Grand Total**	**100000**		

Annex II Work plan

Outputs/Activities	Schedule months											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Output A. Technology Transfer												
(i) Identification/submission of technology needs and ii) Capacity building to assess technology needs, modalities to acquire and absorb them, design, evaluate and host projects												
Activities												
1. Technical Studies												
2. Training Workshops												
3. Public awareness												
4.												
Output B. Capacity building for participation in systematic observation networks												
Activities												
1. Training Workshops												
2.Public Awareness												
3.												
4.												
Output C. Studies leading to the preparation of national programs to address climate change improvement of emission factors.												
Activities												
1.												
2.												
3.												
4.												
Output D. Final Report Preparation												
Output E. Monitoring and evaluation												
Output F. Submission of Terminal Report												

APPENDIX IV. REGIONAL IMPLEMENTATION ANNEX FOR LATIN AMERICA AND THE CARIBBEAN

Article 1
Purpose

The purpose of this Annex is to provide general guidelines for the implementation of the Convention in the Latin American and Caribbean region, in light of its particular conditions.

Article 2

Particular conditions of the Latin American and Caribbean region

The Parties shall, in accordance with the provisions of the Convention, take into consideration the following particular conditions of the region:

(a) the existence of broad expanses which are vulnerable and have been severely affected by desertification and/or drought and in which diverse characteristics may be observed, depending on the area in which they occur; this cumulative and intensifying process has negative social, cultural, economic and environmental effects which are all the more serious in that the region contains one of the largest resources of biological diversity in the world;

(b) the frequent use of unsustainable development practices in affected areas as a result of complex interactions among physical, biological, political, social, cultural and economic factors, including international economic factors such as external indebtedness, deteriorating terms of trade and trade practices which affect markets for agricultural, fishery and forestry products; and

(c) a sharp drop in the productivity of ecosystems being the main consequence of desertification and drought, taking the form of a decline in agricultural, livestock and forestry yields and a loss of biological diversity; from the social point of view, the results are impoverishment, migration, internal population movements, and the deterioration of the quality of life; the region will therefore have to adopt an integrated approach to problems of desertification and drought by promoting sustainable development models that are in keeping with the environmental, economic and social situation in each country.

Article 3
Action programmes

1. In conformity with the Convention, in particular its articles 9 to 11, and in accordance with their national development policies, affected country Parties of the region shall, as appropriate, prepare and implement national action programmes to combat desertification and mitigate the effects of drought as an integral part of their national policies for sustainable development. Sub regional and regional programmes may be prepared and implemented in accordance with the requirements of the region.
2. In the preparation of their national action programmes, affected country Parties of the region shall pay particular attention to article 10, paragraph 2 (f) of the Convention.

Article 4

Content of national action programmes

In the light of their respective situations, the affected country Parties of the region may take account, inter alia, of the following thematic issues in developing their national strategies for action to combat desertification and/or mitigate the effects of drought, pursuant to article 5 of the Convention:

(a) Increasing capacities, education and public awareness, technical, scientific and technological cooperation and financial resources and mechanisms;

(b) Eradicating poverty and improving the quality of human life;

(c) Achieving food security and sustainable development and management of agricultural, livestock-rearing, forestry and multipurpose activities;

(d) Sustainable management of natural resources, especially the rational management of drainage basins;

(e) Sustainable management of natural resources in high-altitude areas;

(f) Rational management and conservation of soil resources and exploitation and efficient use of water resources;

(g) Formulation and application of emergency plans to mitigate the effects of drought;

(h) Strengthening and/or establishing information, evaluation and follow-up and early warning systems in areas prone to desertification and drought, taking account of climatological, meteorological, hydrological, biological, soil, economic and social factors;

(i) Developing, managing and efficiently using diverse sources of energy, including the promotion of alternative sources;

(j) Conservation and sustainable use of biodiversity in accordance with the provisions of the Convention on Biological Diversity;

(k) Consideration of demographic aspects related to desertification and drought; and

(l) Establishing or strengthening institutional and legal frameworks permitting application of the Convention and aimed, *inter alia*, at decentralizing administrative structures and functions relating to desertification and drought, with the participation of affected communities and society in general.

Article 5

Technical, scientific and technological cooperation

In conformity with the Convention, in particular its articles 16 to 18, and on the basis of the coordinating mechanism provided for in article 7, affected country Parties of the region shall, individually or jointly:

(a) Promote the strengthening of technical cooperation networks and national, sub regional and regional information systems, as well as their integration, as appropriate, in worldwide sources of information;

(b) Prepare an inventory of available technologies and know-how and promote their dissemination and use;

(c) Promote the use of traditional technology, knowledge, know-how and practices pursuant to article 18, paragraph 2 (b), of the Convention;

(d) Identify transfer of technology requirements; and

(e) Promote the development, adaptation, adoption and transfer of relevant existing and new environmentally sound technologies.

Article 6

Financial resources and mechanisms

In conformity with the Convention, in particular its articles 20 and 21, on the basis of the coordinating mechanism provided for in article 7 and in accordance with their national development policies, affected country Parties of the region shall, individually or jointly:

(a) Adopt measures to rationalize and strengthen mechanisms to supply funds through public and private investment with a view to achieving specific results in action to combat desertification and mitigate the effects of drought;

(b) Identify international cooperation requirements in support of national efforts; and

(c) Promote the participation of bilateral and/or multilateral financial cooperation institutions with a view to ensuring implementation of the Convention.

Article 7

Institutional framework

1. In order to give effect to this Annex, affected country Parties of the region shall:

(a) Establish and/or strengthen national focal points to coordinate action to combat desertification and/or mitigate the effects of drought; and

(b) Set up a mechanism to coordinate the national focal points for the following purposes:

(i) Exchanges of information and experience;

(ii) Coordination of activities at the sub regional and regional levels;

*(*iii) Promotion of technical, scientific, technological and financial cooperation;

(iv) Identification of external cooperation requirements; and

(v) Follow-up and evaluation of the implementation of action programmes.

2. Affected country Parties of the region shall hold periodic coordination meetings and the Permanent Secretariat may, at their request, pursuant to article 23 of the Convention, facilitate the convocation of such coordination meetings, by:

(a) Providing advice on the organization of effective coordination arrangements, drawing on experience from other such arrangements;

(b) Providing information to relevant bilateral and multilateral agencies concerning coordination meetings, and encouraging their active involvement; and

(c) Providing other information that may be relevant in establishing or improving coordination processes.

APPENDIX V. Article 19- Capacity Building, Education and Public Awareness

1. The Parties recognize the significance of capacity building -- that is to say, institution building, training and development of relevant local and national capacities - in efforts to combat desertification and mitigate the effects of drought. They shall promote, as appropriate, capacity- building:

(a) Through the full participation at all levels of local people, particularly at the local level, especially women and youth, with the cooperation of non-governmental and local organizations;

(b) By strengthening training and research capacity at the national level in the field of desertification and drought;

(c) By establishing and/or strengthening support and extension services to disseminate relevant technology methods and techniques more effectively, and by training field agents and members of rural organizations in participatory approaches for the conservation and sustainable use of natural resources;

(d) By fostering the use and dissemination of the knowledge, know-how and practices of local people in technical cooperation programmes, wherever possible;

(e) By adapting, where necessary, relevant environmentally sound technology and traditional methods of agriculture and pastoralism to modern socio-economic conditions;

(f) By providing appropriate training and technology in the use of alternative energy sources, particularly renewable energy resources, aimed particularly at reducing dependence on wood for fuel;

(g) Through cooperation, as mutually agreed, to strengthen the capacity of affected developing country Parties to develop and implement programmes in the field of collection, analysis and exchange of information pursuant to article 16;

(h) Through innovative ways of promoting alternative livelihoods, including training in new skills;

(i) By training of decision makers, managers, and personnel who are responsible for the collection and analysis of data for the dissemination and use of early warning information on drought conditions and for food production;

(j) Through more effective operation of existing national institutions and legal frameworks and, where necessary, creation of new ones, along with strengthening of strategic planning and management; and

(k) By means of exchange visitor programmes to enhance capacity building in affected country Parties through a long-term, interactive process of learning and study.

2. Affected developing country Parties shall conduct, in cooperation with other Parties and competent intergovernmental and non-governmental organizations, as appropriate, an interdisciplinary review of available capacity and facilities at the local and national levels, and the potential for strengthening them.

3. The Parties shall cooperate with each other and through competent intergovernmental organizations, as well as with non-governmental organizations, in undertaking and supporting public awareness and educational programmes in both affected and, where relevant, unaffected country Parties to promote understanding of the causes and effects of desertification and drought and of the importance of meeting the objective of this Convention. To that end, they shall:

(a) Organize awareness campaigns for the general public;

(b) Promote, on a permanent basis, access by the public to relevant information, and wide public participation in education and awareness activities;

(c) Encourage the establishment of associations that contribute to public awareness;

(d) Develop and exchange educational and public awareness material, where possible in local languages, exchange and second experts to train personnel of affected developing country Parties in carrying out relevant education and awareness programmes, and fully utilize relevant educational material available in competent international bodies;

(e) Assess educational needs in affected areas, elaborate appropriate school curricula and expand, as needed, educational and adult literacy programmes and opportunities for all, in particular for girls and women, on the identification, conservation and sustainable use and management of the natural resources of affected areas; and

(f) Develop interdisciplinary participatory programmes integrating desertification and drought awareness into educational systems and in non-formal, adult, distance and practical educational programmes.

4. The Conference of the Parties shall establish and/or strengthen networks of regional education and training centres to combat desertification and mitigate the effects of drought. These networks shall be coordinated by an institution created or designated for that purpose, in order to train scientific, technical and management personnel and to strengthen existing institutions responsible for education and training in affected country Parties, where appropriate, with a view to harmonizing programmes and to organizing exchanges of experience among them. These networks shall cooperate closely with relevant intergovernmental and non-governmental organizations to avoid duplication of effort.

APPENDIX VI. ICCD/COP (4)/AHWG/3/Add.2 (Jamaica).

JAMAICA

1. Overview

Jamaica's National Report to the United Nations Convention to Combat Desertification is concerned with activities done before and after Jamaica acceded to the Convention on 22 November 1997. It forms part of the activities to fulfill Jamaica's commitment under the Convention and specifically to fulfill obligations as set out in Decision 11/COP.1, Decision 5/COP.2 as well as Decision 14 of the 5th Regional Meeting of GRULAC on the UNCCD held in Lima Peru in August 1999.

The Report provides a synthesis of the current state implementation of the Convention in Jamaica gives an indication of the level of knowledge and awareness and points to a path towards the preparation of a National Action Plan for Jamaica.

The report outlines the mechanisms and systems that have been established, the strengths and weaknesses of those systems, and points out some of the actions to be taken in order to improve the functioning and thereby making for effective and efficient implementation of the UNCCD in Jamaica.

The issue of resources is also covered in the report. Jamaica, being a small Island State and being vulnerable to the social, economic and environmental changes now taking place in a globalized economy, must find ways to address the challenges and difficulties associated with land degradation with very limited available internal resources. Jamaica therefore must necessarily use the framework provided by the UNCCD, and through cooperation with partner agencies, to develop effective and efficient measures to address the issue of land degradation and drought, to include the development of a pertinent National Action Plan in accordance with its obligations under the Convention.

The scientific base to guide the National Action Plan process should first be addressed and incorporated, and projects identified in the report such as the determination of sediment loads in rivers, the determination of erosion rates along slopes and the study and characterization of drought must be implemented along with technology to modernize the irrigation section, if progress will be made. Not to be overlooked is the overwhelming need for public education and awareness on issues relating to land degradation.

2. Historical Perspective of Land Use in Jamaica

Jamaica has always depended on the land for economic development. Historically, this is seen in the use of land for agricultural purposes, where large tracts of land were used for monocultural crops such as sugar cane, and in the more recent past in the bauxite sector, as well as for tourism. The land has not always been used within a proper management framework as it relates to environmental considerations. This has led to serious environmental degradation. While land degradation in Jamaica might not be considered as serious as in many other countries around the world, the fact remains that the growing population and the preference of the population for consumer goods, and development using land, will only exacerbate the issue.

Due to the extensive use of land without proper management, and without due regard for environmental protection, there has been a resulting reduction in the productive capacity, and the loss of essential nutrients from soils in Jamaica. This is evidenced by the ever-decreasing yields of large-scale crops such as sugar, banana and coffee. In many cases, this has led to the abandonment of large areas previously under cultivation and consequently re-enforcing the problem of land degradation.

As the evidence in the report shows, land degradation is an existing and real problem in Jamaica. With an Island of approximately 11,000 square kilometres in area, and a population of nearly 2.5 million and growing, the demands on land as a resource is expected to increase. With this in mind, and considering the historical facts of the rate of degradation in Jamaica, the issue must be addressed immediately. Failure could only mean drastic intensification of the problem, leading unquestionably to more serious future problems.

Jamaica, being a small island state, with serious limitation in natural resources, needs to survive in a new globalization process. With a population that is constantly demanding more and more consumer products, Jamaica must address the question of land use, protection and sustainability. Addressing the last of these three issues, automatically addresses the first two, by extension therefore, it could be said that sustainable development could only be achieved through addressing the problems of land degradation in a scientific, systematic and planned way.

This report therefore highlights in details these issues and points to probable solutions in dealing with those issues.

Chapter 2, subsection 5, of the National Report deals with the issue of drought. It should be borne in mind that the water resources agency of Jamaica is of the opinion that there are adequate water resources in Jamaica. Such a fact however does not negate the reality that prolonged dry spells and recurring drought are a regular pattern of the country's climate. The occurrence of these prolonged dry spell influence social behaviour, the political process and economic development. Although the Government has taken a series of measures designed to address this issue, as the report highlights, Jamaica still faces significant and recurring instances of the non-availability of water in many areas of the country for domestic, agricultural and commercial use. It is clear therefore, that drought significantly impacts on the life of the country. As is the case of land degradation, a systematic and scientific approach must be taken to deal with the question of drought. It should also be mentioned that as indicated in the report, the establishment of early warning systems, strengthening of the meteorological services and disaster preparedness agencies are actions that must be taken, and which would help water managers, make more strategic water storage and distribution decisions.

3. Conclusion

The issue of drought and the development of a proper systems and mechanisms to deal with it are fundamental to the country as a whole. This is due to the fact that it affects the

everyday lives of every individual in the affected areas. As a matter of fact, the situation is of such critical importance that, as seen from the report, the Government found it necessary to establish a Ministry of Water, which must address the issue of drought as one of its key responsibilities.

It is not difficult to see the relationship between the drought and land degradation. As the report indicates, some of the most degraded areas are those which suffer from prolonged drought. The approach must therefore be a comprehensive one which address both the question of drought and land degradation, while taking into consideration the relevant sectors and stakeholders. Drought in Jamaica starves the land of water, brings about instability, economic losses, increases the level of poverty and creates social and economic alienation. These are tremendous challenges for a small island country with limited resources and Jamaica must therefore look towards the framework provided by the UNCCD and through cooperation with partners to address these issues.