

Stock-Taking and Thematic Assessment United Nations Framework Convention on Climate Change

National Capacity Self Assessment Project



Prepared for

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Revised Final Report

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ACRONYMS

ASEAN	Association of Southeast Asian Nations
CARICOM	Caribbean Community
CCAP	Climate Change Action Plan
CDC	Community Development Council
CDERA	Caribbean Disaster Emergency Response Agency
CDM	Clean Development Mechanism
CIDA	Canadian International Development Agency
CMACC	Caribbean: Mainstreaming Adaptation to Climate Change
CO ₂	Carbon Dioxide
COP	Conference of the Parties
CPACC	Caribbean Planning for Adaptation to Climate Change
E.S.T	Environmentally Sound Technologies
EPA	Environmental Protection Agency
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GNCB	Guyana National Cooperative Bank
GUYSUCO	Guyana Sugar Cooperation
IAST	Institute of Applied Science and Technology
IMF	International Monetary Fund
IPCC	International Panel for Climate Change
LAC	Latin America and Caribbean
MACC	Mainstreaming for Adaptation to Climate Change
MEA	Multilateral Environmental Agencies
NBIC	National Bank of Industry and Commerce
NCC	National Climate Committee
NCSAP	National Capacity Self Assessment Project
NDS	National Development Strategy
NEEPAS	National Environmental Education and Public Awareness Strategy
NGO	Non-Governmental Organization
NREAC	Natural Resource and Environment Advisory Committee
OAS	Organization of American States
ODA	Overseas Development Aid
REO	Regional Executive Officer
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SENES	Specialist in Nuclear, Energy, and Environmental Sciences
SIDS	Small Island Developing States
UG	University of Guyana
UN	United Nations

UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework on Climate Change Convention
WMO	World Meteorological Organization

GLOSSARY

Climate Change-The term climate change refers to the variation in the Earth's global climate or regional climates over time.

Global Warming- is an increase in the average temperature of the Earth's atmosphere and oceans.

The Greenhouse Effect: is the process by which an atmosphere warms a planet.

Greenhouse Gases (ghg): are gaseous components of the atmosphere that contribute to the greenhouse effect.

Kyoto Protocol- is an international treaty on climate change. Countries that ratify this protocol commit to reduce their emissions of carbon dioxide and five other greenhouse gases, or engage in emissions trading if they maintain or increase emissions of these gases.

The Intergovernmental Panel on Climate Change (IPCC): was established in 1988 by two United Nations organizations, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) to assess the "risk of human-induced climate change". The Panel is open to all members of the WMO and UNEP.

UNFCCC: is an international environmental treaty produced at the United Nations Conference on Environment and Development (UNCED), informally known as the Earth Summit, held in Rio de Janeiro in 1992. The treaty aimed at reducing emissions of greenhouse gas in order to combat global warming.

Annex 1 countries: rich countries and the biggest greenhouse gas producers, and also the countries most able to cut emissions. This also includes transition countries, like the Russian Federation, whose economies still need some development and are allowed 'a certain degree of flexibility'.

Annex II countries: developed countries which pay for costs of developing countries.

Developing countries: have no immediate restrictions under the UNFCCC. This serves three purposes:

- Avoids restrictions on growth because pollution is strongly linked to industrial growth, and developing economies can potentially grow very fast;
- It means that they cannot sell emissions credits to industrialized nations to permit those nations to over-pollute; and
- They get money and technologies from the developed countries in Annex II.

EXECUTIVE SUMMARY

Brief Background on Guyana

The country was formerly British Guiana, a colony of the British colonial empire until it became independent on May 26, 1966. On February 23, 1970 the country became the Cooperative Republic of Guyana. It is located on the North-eastern shoulder of South America, between 1 and 9 degrees north latitude and 56 and 61 ½ degrees west longitude with the Atlantic Ocean to the north. It is also bounded on the south by Brazil, on the west by Venezuela and on the east by Suriname. It is the only English-speaking country in the continent. Guyana's time is 4 hours behind Greenwich Mean Time and is in the same time zone as the Eastern states of the United States of America (U.S.A.). There is, however, a time difference of 1 hour when Daylight Saving Time is introduced in the U.S.A. in winter.

The Rio Conventions

The Rio Conventions are the UN Convention on Biodiversity, the UN Framework Convention on Climate Change and the UN Convention to Combat Desertification. They are known as the environmental Conventions and they seek to protect the environment, ensure food production is not threatened and practice sustainable development.

Guyana ratified the United Nations (UN) Convention on Biodiversity (UNCBD) and the Framework Convention on Climate Change (UNFCCC) on August 29, 1994; and the UN Convention to Combat Desertification (UNCCD) on June 26, 1997. These Conventions are important to the World and to Guyana, for Guyana is a developing nation which need to progress in such a way that it does not:

- destroy the environment;
- take its resources for granted; and
- show disregard for the signs of impending disasters.

These international environmental Conventions place additional burdens on an already-stressed governmental machinery. However, mindful of its responsibilities to the international community and on the need to take actions locally to respond to the international environmental agreements which Guyana has ratified, the Government of Guyana has been seeking to comply with the Conventions by:

- providing reports when called for;
- taking actions locally to put mechanisms in place to carry out the additional functions demanded by the Conventions;
- introducing Convention recommendations into national developmental programmes; and
- taking consideration of Convention recommendations when actions have to be taken in response to local disasters.

The United Nations Framework Convention on Climate Change (UNFCCC)

The UNFCCC has, as its ultimate objective:

“To achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.”

There are several articles which Parties must comply with in order to achieve the above objective. The articles of relevance to Guyana are Articles 4.1 (a) to (j), 4.6, 4.7, 4.8, 5, 6 and 12.

The Kyoto Protocol to the UNFCCC

The Protocol seeks to have Annex I (mostly developed country Parties) countries achieve quantified emission limitation and reduction commitments, as stipulated under its Article 3 and in response to their commitments under Article 4.2 of the UNFCCC, in order to promote sustainable development. Guyana, being a Party to this Protocol, must take actions under Articles 10 and 11 which do not introduce additional obligations to those called for under the Convention but seek to have the country improve emission factors and activity data which shall be used in preparation of inventory of ghg emissions and removals from the atmosphere.

There is an Article 12 which refers to the CLEAN DEVELOPMENT MECHANISM, (CDM). Participation by Guyana and private and national entities in the country in the CDM is voluntary (Article 12.5(a)) but can be beneficial in promoting sustainable development while assisting Annex I countries to achieve their reduction targets. The CDM can simply be described as a process which allows the Annex I country to:

- assist the non-Annex I country to improve its equipment operation, energy-generating systems, or other processes to allow the country to reduce its ghg emissions/increase removals from the atmosphere and increase the efficiency of the system operation, and
- claim the reduction in ghg emission or increase in the ghg removal as a credit to the Annex I country.

Guyana and the UNFCCC

In response to its obligations under the UNFCCC, Guyana submitted its Initial Communication, 1994, to the Convention Secretariat and started to implement measures to adapt to and to mitigate human-induced climate change as best as its resources can permit in the face of other pressing socio-economic activities. The Country has been primarily involved in adaptation work under the GEF's financial backing for the CPACC and the MACC projects which are Caricom projects and are geared to address the training aspects of the Convention and to promote public awareness of the tasks which have to be undertaken by Caricom countries. The Sea and River Defence Board has been involved in an Institutional Capacity Building Activities Programme which included relevant skills enhancement and training in Climate Change monitoring and evaluation, especially of sea-level rise and wave intensity on the coast.

The EPA undertook a mitigation exercise with the CIDA/SENES to monitor the rice and wood sectors which resulted in recommendations on technological changes which can assist to reduce the amounts of ghg emissions into the atmosphere. The Office of the Prime Minister has been working to demonstrate the benefits of renewable energy by introducing photovoltaic systems in the hinterland. The Institute of Applied Science and Technology has been working on alternative energy forms such as bio-fuels. The Guyana Energy Authority has been concentrating on renewable hydropower and wind energy systems. However, more substantive programmes are required to be done if Guyana is to play its part in addressing its role in the reduction of human-based carbon emissions into the atmosphere (mitigation), the increase in sinks of the green-house gas into the soils (sequestration) and to promote local measures to adapt to the effects of global warming and its accompanying climate change (adaptation).

Guyana and the Kyoto Protocol

By taking actions to implement its obligations under the Convention, Guyana has been honoring its obligations under Articles 10 and 11 of the protocol as best as it can, given the capacity issues which affect the country.

Guyana has also signaled its intention to make use of the CDM to promote sustainable development by appointing the Hydrometeorological Division of the Ministry of Agriculture as the Designated National Authority of Guyana and the Chief Hydrometeorological Officer, the Focal Point to the UNFCCC Secretariat, is the Focal Point of Guyana to the Executive Board of the CDM.

The CDM will be beneficial to Guyana in providing finance, skills, equipment and materials for mitigation projects. The GUYSUCO Cogeneration project for Skeldon Estate on the Corentyne coast can be a significant CDM project for the Country.

Capacity Problems in implementing the UNFCCC and its Kyoto Protocol

Guyana, like other developing countries, has been having difficulties in honoring the Commitments under the UNFCCC due to capacity constraints mostly resulting from limited national financial resources.

Some of the challenges faced by the country in meeting the obligations of the UNFCCC are:

- Limited statutory power to effectively carry out priority climate change mandates;
- Inadequate institutional capacity of the sector agencies to meet Guyana's obligations under the Convention;
- Limited human resources for climate change management; and
- Differing priorities of various agencies.

The National Capacity Self Assessment (NCSA) Project for Guyana

Guyana's development goals require that environment and natural resources management, and monitoring and protection be done in such a way that the human and financial resources are utilized efficiently. As a consequence, there are several Ministries, departments and agencies which play a role in the implementation of those parts of the above-mentioned Conventions that are relevant to their agencies' work.

The overall objective of the NCSAP is to identify and characterize critical capacity constraints relevant to effective environmental management in Guyana, and to develop a plan of action to address these constraints. This will be accomplished through several activities which will identify, confirm and review priority issues for action within the thematic areas of Biodiversity, Climate Change and Desertification and related international instruments, e.g. Biosafety Protocol and the Montreal Protocol on Ozone Depletion; explore capacity needs within and across the three thematic areas; elaborate a national strategy and action plan that outlines capacity building priorities and specific opportunities relevant to global environmental commitments.

The UNDP Capacity Development Initiative, 2001, defines Capacity building as “the ability of individuals, institutions and systems to make and implement decisions and perform functions in an effective, efficient and sustainable manner”.

Guyana held its first NCSA meeting with stakeholders on 19th September, 2005. At this meeting, the Project was discussed and the participants made valuable contributions towards the achievements of the goals of the Project. The Prime Minister, in his opening address, brought participants up-to-date with the status of Guyana’s compliance with the UNFCCC and the other Conventions. The Workshop report is given as Appendix A to this Report.

Objective of the Stock-taking and Thematic Assessment in relation to the UNFCCC

This report seeks to examine the implementation structure, the governing policy framework and the operations in Guyana for capacity weaknesses and to highlight the constraint factors which prevent the Country from taking actions to implement the UNFCCC Convention in a timely manner. The report also makes recommendations for constraint reduction or removal so that Guyana can efficiently implement the UNFCCC and the Kyoto Protocol.

Process and Methodology of the Stock-Taking and Thematic Assessment

The NCSA project has a standard methodology which was followed in doing the work of this consultancy. In relation to the objectives of the consultancy, the work was done in a phased process:

1. Stock-Taking to assess what has been done by Guyana.
2. Gap Analysis to identify Guyana’s position in relation to the Commitments.
3. Review the work done so far in relation to UNFCCC obligations.
4. Analysis of Capacity Constraints.
5. Regional Consultations to refine the work done so far.
6. Recommendations on opportunities for addressing the constraints’ removal.

Workshops on NCSAP and Climate Change were assessed to find out Guyana’s motivation and readiness to address the obligations under the Conventions. In particular, questionnaires filled and returned by the participants at the regional workshops were analyzed and used to identify the constraints and to make recommendations, in Chapter Six, on prioritizing the constraints and removal of them.

There were several workshops which targeted the regions with a focus to inform the communities’ representatives and the regional administration about:

- the reasons for Guyana being a Party to the UNFCCC and the other environmental Conventions;
- what are expected of Guyana, its regions and communities;
- what are the consequences for the regions and the communities; and
- the necessity for their involvement in Guyana’s responses to Climate Change.

Questionnaires distributed at the workshops helped to give an indication of the capacity needs of the regions and communities and shaped the capacity analysis for implementation of the UNFCCC in Guyana. The questionnaires are discussed in the report and a Fact sheet can be found in Appendix B. This Fact sheet provided information to the stakeholders on climate change basic knowledge and contained information on:

- The sectors which can be vulnerable to Climate Change;
- The sequence of Climate Change events which can be expected to occur in Guyana; and
- The benefits for Guyana through assistance which can be accessed from funding organizations.

Stock-Taking

The Stock-taking process was as follows:

The obligations and current actions were assessed in relation to:

- The Convention and its Kyoto Protocol;
- The Initial Communication and its Action Plan;
- CPACC and MACC;
- Linkages with UNCBD and UNCCD;
- Matters related to the Montreal Protocol;
- Policy Framework and the inter-agency coordination;
- Strategies, Plans and activities done in the past and currently being done; and
- Capacity building work in relation to Climate Change.

Gap Identification and Issues

Gaps were those parts of the Convention and the Protocol which were not carried out and/or the programmes and actions which are needed to implement Guyana’s plans related to the UNFCCC. A summary of the Gaps can be found in the following tables:

Table 1: Summary of Gaps in relation to the UNFCCC

Convention Article	Gap(s)
Article 4.1(a)	Update of national inventory of ghgs needs to be prepared.
Article 4.1(b)	National mitigation programme needs to be prepared. National adaptation measures needs to be prepared.
Article 4.1(c)	Promotion of and cooperation in mitigation projects needs to be addressed in many sectors such as the industrial, mining and agricultural ones.
Article 4.1(d)	Projects are required to implement results of studies.

Table 1 Cont'd.

Convention Article	Gap(s)
Article 4.1(e)	Plans need to be implemented.
Article 4.1(f)	A programme for taking climate change considerations in socio-economic policies and actions needs to be developed.
Article 4.1(g)	No agency/institution has been tasked with the responsibility for research coordination. Meteorological Stations need to be expanded to monitor the Climate System. A Climate System Data Archive is required.
Article 4.1(h)	A Clearing-house Mechanism is not in place.
Article 4.1(i)	A plan to execute an education programme needs to be acted on. Training opportunities are not widely participated in. Public Awareness activities not widely participated in.
Article 4.1(j)	None
Article 4.5	A programme of activities is not prepared.
Article 4.8	Programme of actions related to funding, insurance and transfer of technology not available.
Article 5	A programme of data collection needs not available.
Article 6	A coordinated programme is not available.
Article 12	Projects for financing not submitted to the COP.

Table 2: Summary of Gaps in relation to the Kyoto Protocol

Protocol Article	Gaps
Article 10(a)	No studies done on local emission factors, activity data and socio-economic conditions for the preparation of national inventories.
Article 10(b)	Programmes not developed.
Article 10(c)	A phased programme has not been addressed.
Article 10(d)	Gap addressed under the Convention Article 4.1.
Article 10(e)	A coordinated programme is required.
Article 12	Guyanese expertise not available.

The issues which give rise to the gaps are also considered. They range from the need for a legislative policy framework to the need to act on the Action Plans in adaptation and Coastal Zone Management. Skills depletion and limited financial resources are also important issues. The issues were grouped into the following categories:

- Inventory of ghgs: preparation in an agreed format and update;
- Adaptation Sector Plans: Coastal Zone Strategies and Plans, and activities;
- National Communication: Initial communication and update, referred to as the second communication;
- Mitigation Sector Plans: Energy and other sectors' activities;
- Systematic monitoring and research;
- Response to impacts of Climate Change effects;
- Education, Training and Public Awareness;
- Access to information;
- Mitigation activities;
- Environmentally-sound Technologies;
- Activities to further the implementation of Article 4.1 of the Convention; and
- CDM Activities.

The last four bullets address the Kyoto Protocol.

Assessment and Prioritization of Issues

The analysis takes stock of where Guyana is presently and what the Convention requires of Guyana. The current situation is assessed for Guyana's commitments and the actions which were taken.

The issues are then subjected to a priority matrix as given below. This is taken from Tables 1 and 2 of the report. In these tables, the following notes apply:

The scale of the problem, in Guyana, can be local, regional, national or global.

The level of concern can be low, medium or high.

The ability to adequately address the issue can be low, medium or high.

Priority ranking is as follows:

- 1- most important/severe/critical;
- 2- important;
- 3- important but does not require urgent attention;

Table 3: Issues Prioritization Matrix for UNFCCC, adapted from the NCSA Guide

Issue Category	Scale of Problem	Level of Concern	Ability to Adequately Address Issue	Priority Ranking
Inventory of ghgs: preparation and update	Global/National	High	Low	2
Adaptation Sector Plans: Coastal Zone Strategies and Plans, and activities	National	High	Low	1
National Communication: Second Communication and updates	Global/National	High	Low	2
Mitigation Sector Plans: Energy and other sectors' activities	Global/National	High	Low	1
Systematic monitoring and research	Global/National	High	Low	3
Response to impacts of Climate Change effects	National	High	Medium	1
Education, Training and Public Awareness	National	Medium	Medium	3
Access to information	Regional/ Local	High	Medium	3

Table 4: Issues Prioritization Matrix for the Kyoto Protocol

Issue Category	Scale of Problem	Level of Concern	Ability to Adequately Address Issue	Priority Ranking
Mitigation activities	Global/National	Medium	Low	2
Environmentally-sound Technologies	Global/National	Medium	Low	2
Activities to further the implementation of Article 4.1 of the Convention	National	High	Low	1
CDM Activities	National	High	Low	1

Assessment of the Issues in the Prioritization Matrix

Tables 3 and 4 above show that all, but one of the UNFCCC issues, are of national scale. One is of local and regional scale. Many are also of Global scale since occurrences in Guyana can influence scientific findings for the world, and contribute to reduce/increase the global average emissions of ghgs. The one issue which is of regional/local scale is the one dealing with public awareness and information flow to the communities. This was a matter of concern to the stakeholders in the regions.

The level of concern ranges from medium to high. The flood impacts have raised the level of concern for most issues to High. Education, Training and Public Awareness is indicated as of Medium concern because it is seen as second in priority to those which can alleviate the current pressing problems of adaptation and mitigation.

The ability to address the issues is a capacity matter and ranges from low to medium but five Convention issues and all Protocol issues are ranked low in terms of capacity. The constraints affecting these issues are major and will need to be addressed in order for improvement to be realized.

Convention Issues: The priority ranking for the Climate Change issues ranges from 1 (most important) to 3 (important but does not require urgent attention). The floods and sea-level breaches make the adaptation issue one which has severe problems, that is 1. Mitigation is another issue which is very critical to Guyana at this time when very high costs of fuel imports will restrict/hamper development in the economic sectors. Hence it is of a number 1 rank. Another number 1 ranked issue is the response to the effects of Climate Change since the vulnerable communities are primarily poor and without the financial and human resources to respond meaningfully. For Guyana, inventory of emissions and sinks of ghgs and the updating of the National Communication must necessarily give way to the number 1 ranked issues given above but they are important for the implementation of the Convention and have been ranked 2 or important issues. Systematic monitoring and research; Education, Training and Public Awareness; and Access to information are also important but must give way to those issues which can significantly affect socio-economic development in the country and are ranked as number 3 issues or important but does not require urgent attention.

It must be recognized that the NCSA project arose as a result of the developing countries not being able to implement the Convention because of capacity problems. Guyana, and other countries, has an obligation to implement its commitments under the Convention. The capacity problems which hinder socio-economic development in Guyana must also be seen to hinder implementation of Convention commitments. Capacity development must therefore address all the issues identified above.

Protocol Issues: The issues are ranked as numbers 1 and 2 in terms of priority. CDM can bring tremendous economic benefits to the Country and so it must be a major Protocol issue to be addressed in terms of capacity building. Activities for the implementation of the Convention Article 4.1 require to be addressed if Guyana is to achieve the objective of the Convention. This issue is therefore to be assigned a priority level 1 rank. Mitigation activities and Environmentally-sound Technologies are issues which can be addressed in CDM projects and

in other mitigation projects but, without them, Guyana's implementation of the Convention and its Protocol will be inadequate. Hence they are ranked as number 2 issues.

Sustainable Development and the Convention

The National Development Strategy

This document examines development options in several industries--mining, agriculture, forestry, fishing, and other sectors. It establishes policies and sets priorities within a framework of environmental regulation and economic stability. It also addresses health care, education, gender equity, and other social issues. It has recently received the approval of Guyana's Parliament.

In its **National Environmental Action Plan (NEAP) 2001-2005**, the Government of Guyana unequivocally declared its commitment to sustainable development including sustainable human development as major pillars of our country's socio-economic programme. In this context, Guyana will seek to integrate economic, environmental and social values during planning and to distribute benefits equitably across socio-economic strata and gender upon implementation. It also seeks to ensure that opportunity for continued development remains undiminished for future generations. This approach also defines the need for environmental protection to be treated as a cross-sectoral matter applied to all aspects of the development process.

The **Guyana Sustainable Development and Environmental Health Project** identified sector area issues and make recommendations on ensuring that sanitation and environmental health issues are dealt with in a manner which promotes sustainable development.

The Convention's Objective calls for stabilization of ghg concentration in the atmosphere in ways which enable economic development to proceed in a sustainable manner. Principle 5 of Article 3 calls for cooperation to promote a supportive and open international economic system that would lead to sustainable economic growth and development.

It is therefore noted that the Government is committed to do its part in achieving the ultimate objective of the Convention but in a manner that will not cause harm to the environment within which Guyanese live. All projects for adaptation and abatement will be subjected to the laws of the Environmental Protection Act of 1996 which ensures sustainable development via Environmental Impact Assessments.

Capacity Constraints

A broad range of reasons were provided by the Capacity Building Initiative of the GEF-UNDP for the LAC and SIDS countries. Many were found to be relevant to Guyana. Constraint factors at the individual, institutional and systemic levels were discussed and the issues were assessed in terms of the constraints at these three levels. Lastly, the constraints were analyzed for opportunities to:

- Create new capacities;
- Mobilize/redevelop existing capacities; and
- Enhance existing capacities.

Constraint Factors

Individual Level Constraints

- **Job Requirements and Skills Levels:** There are many posts which require particular qualifications and skills but these are not available so inadequately qualified persons are often required to function in higher positions;
- **Training and retraining:** Academic training combined with work experience will allow for expertise to be acquired. Academically trained persons without particular skills training do not provide the best leadership to the team which has to do the work. Also, training can be forgotten when the job is done and is not repeated quickly enough.
The MACC programme has components which will address training and skills development for some sectors but these are not sustainable for the long-term. The UNFCCC allows for training at workshops arranged for the LAC and SIDS countries but these are few and Guyana's representatives are not many;
- **Access to information:** This is difficult in Guyana with regards the UNFCCC. It is not that information material is not available but a laborious search is required to obtain relevant information in Guyana about Guyana's implementation actions. A one-stop mechanism can solve this problem;
- **Personal/Professional networking:** Computerized networking and tele-conferencing is not available to the individuals in member agencies of the NCC and individuals are in touch with others via e-mails and telephones. Interaction among the members' representatives can be enhanced by these technologically improved media;
The individuals in the communities require to be brought into the communication network for they are not involved in the discussions especially since they are vulnerable to the impacts of climate change; and
- **Adequate remuneration:** This is a significant constraint to getting the motivation for doing the job properly and going the extra mile when called upon to do so.

Institutional Constraints

- **Mission/strategic management:** All the members of the NCC have clearly defined mission statements based on their legislated mandates or Cabinet Decisions. However, these do not include protection of Guyana from the effects of Climate Change;
- **Structure/ Competencies:** There are some agencies which need to be restructured to accommodate activities associated with Climate Change. The GEA, for example has a renewable energy department which addresses related climate change issues. Others absorb the climate change tasks in units which are available but not having the competence to address climate change matters. Training will provide managers and staff members who will achieve better management competence to address climate change within their areas of expertise;
- **Processes:** Planning, quality management, inclusive of implementation programmes, monitoring and evaluation of activities and projects need to be strengthened;
- **Human Resources:** The human resources need skills development;
- **Financial Resources:** The management of the finances is upright and effective. However, agencies rely mainly on external funding of projects to carry out Climate Change activities. There are no substantial national budgetary allocations for implementation of a Climate Change Programme;
- **Information Resources:** Relevant information on Climate Change issues are not always available to the Public and are not effectively managed and distributed; and

- **Infrastructure:** Material requirements such as offices, vehicles, computers and monitoring devices are managed in accordance with the regulations in the Public Service. The EPA and the Hydrometeorological Division require more office space and vehicles. The problems associated with regular maintenance cannot be overlooked for they present a major constraint to data collection and database development.

Systemic Constraints

- **Policy framework:** The policy as obtained currently does not directly address Climate Change as an issue in its own right. Climate Change is grouped under the protection of the atmosphere component of the EPA Act but it is bigger than just dealing with the atmosphere. The effects will be seen on land, coastal waters and the rivers, socio-economic sectors, and on the people. Several sectors of the country's socio-economic drive will be affected by global warming and the consequences of it and, non-sensitive sector operations can promote negative impacts in the climate of the regions and the country. Guyana's non-legislative policy, that is, the Cabinet Decisions on climate change, need to be transformed into legislative mandates for the member agencies in the NCC;
- **Legal and regulatory framework:** Laws are needed for the sectors to adhere to and to guide businesses to follow actions which are climate-friendly. At present, there is no law which directly addresses climate change impacts. Existing laws governing agencies in the NCC need to be modified to include climate change;
- **Management Accountability framework:** Institutional responsibilities are not clearly defined and the EPA and the Hydrometeorological Division work as best as they can to implement the Convention in Guyana. It was pointed out earlier that while the EPA has the mandate *via* the protection of the atmosphere component of the EPA Act, the Hydrometeorological Division is Guyana's Focal Point to the UNFCCC and is also the agency which coordinates the local components of the Caricom project, MACC. While these two agencies are held accountable for Climate Change, they are accountable for many other activities which relate directly to the agencies' work programmes financed by the National Treasury;
- **System Level resources:** The human, financial and information resources are not adequate to address the activities demanded by the Convention and its decisions; and
- **Processes and Relationships:** At the national level, institutions relate to each other well but they all have skills shortages and financial inadequacies.

Opportunities for removing Constraints

The analysis of the opportunities was done with the following notes being understood.

1. Funding by the Government will be very difficult to be realized. Funding by the Financial Mechanism to the UNFCCC, the G.E.F., can be realized but takes time and officials' efforts. It also needs project proposals to be prepared and submitted either directly or through the Conference of the Parties. A Funding Specialist to write project proposals and seek funding for priority activities can be beneficial to Guyana's Climate Change efforts.
2. An improved collaborative and cooperative system would overcome many of the constraints. This will be enhanced through an information base available to all relevant officials in the system.

3. A serious review of the vacancies in the agencies needs to be done with a view towards filling some of the non-critical ones with staff for the new units or for taking initiatives, within the agencies, for furthering the implementation of the Convention.

The opportunities fall into three categories: creating new capacities, mobilizing/ redeveloping existing capacities and enhancing existing capacities. They are:

- **Creating new capacities:**
 - a. Implement a Climate Change Centre for Guyana. This Centre will be the implementing agency for Climate Change in Guyana. Policies and strategies, project activities, cooperation with regional Centres and communication with the COPs and with the relevant Ministry for community-based activities will be executed by the Centre.
 - b. Appoint skilled and trained staff to man positions in the NCC agencies.
 - c. Seek funding for the capacity building needs which cannot be addressed by the Government of Guyana.
 - d. Develop programmes to address adaptation, mitigation and ghg emissions data collection, emission factors studies and inventory analysis.
 - e. Establish a Capacity Building Unit in the EPA for monitoring, evaluating and forward-planning of the capacities of the NCC members to address Climate Change responsibilities.
 - f. Create an Information and Clearinghouse Centre in the relevant Ministry.
 - g. Seek funding for climate system monitoring and data collection tasks of the Hydrometeorological Service.
 - h. Acquire database equipment for the Hydrometeorological Service and the EPA.
 - i. Set up computerized networking facilities in the NCC agencies for accessing information, data and documents. This can be extended to the Media, the NGOs and the regional offices.
- **Modifying/redeveloping existing capacities:**
 - a. Shift staff members to new units or to new tasks within the same department or Ministry.
 - b. Address shortage of staff by changing the job specification and description of some non-critical jobs which have been vacant for a long time to those of jobs required for Climate Change duties.
 - c. Mobilize staff to produce reports on local disasters and relation to Climate Change.
 - d. NCC to seek authority to send reports on local disasters to the COPs of the UNFCCC and to seek assistance for rehabilitation works.
 - e. Seek the intervention of the Ministry of Education and the EPA to have the NEEPAS school programme expanded to include Climate Change.
- **Enhancing Existing Capacities:**
 - a. Provide skills and training to existing staff members of the NCC agencies.
 - b. Obtain better salaries for the skilled staff.
 - c. Provide training for staff in information distribution, security of information and on networking activities.
 - d. Provide training for staff identified for data processing and analysis.

Capacity constraints cannot be removed in the short-term

The constraints are many and the tasks of the Government, in responding to the Climate Change Convention and its Protocol, require financial and other resources. It is recommended that the report be examined with the view of coming up with a prioritized programme of actions for fund seeking, resource mobilization/redeployment and/or skills enhancement. The agency which will lead the execution of the programme, once approval has been obtained, will then have to ensure that it has the resources to do its work. It is hoped that the GEF will assist once the programme meets with its approval.

Recommendations

Finally, a set of recommendations are provided as a methodology for actions to be pursued in striving to achieve the effective implementation of the Convention and its Kyoto Protocol. These are:

1. Place emphasis on short-term (within 3 years) activities to address all articles which require that Guyana communicate with the COP. Inventories (and accompanying studies, data collection and analyses), programmes for adaptation and mitigation and reporting on impacts should be of the first priority. The next priority should be to act on Education and Public Awareness, scientific monitoring and research (with emphasis on linking local disasters to climate change) and on disaster preparedness for the communities. A funding specialist should be recruited to fashion the programmes and activities into realistic project proposals and to solicit funding for them.
2. Examine the policy framework with a view towards detailing a legislative policy document which addresses climate change by focusing on the management structure, communication among institutions, education and public awareness, the role of the NGOs, the media and priorities for Guyana.
3. Train Guyanese in the CDM processes and identify projects for submission to the CDM Board when suitable external partners have been identified.
4. Utilize workshops with specialist trainers to improve skills of staff in the relevant institutions.
5. Encourage U.G. academic staff and other institutions to do work in the climate change areas of importance to Guyana.
6. Conduct pilot/demonstration projects in the hinterland communities.
7. Train a batch of Guyanese in climate change negotiations and put them to work in getting benefits for Guyana by influencing the climate change negotiations.
8. Take actions to improve the scientific monitoring, analysis and prediction of changes in the climate system, and,

9. Develop annual work programmes for climate change and review and assess achievements and deficiencies.

1.0 INTRODUCTION

1.1.BACKGROUND ON GUYANA

Guyana was formerly British Guiana, a colony of the British until it became independent on May 26, 1966. On February 23, 1970, the country became the Cooperative Republic of Guyana.

It is located on the North-eastern shoulder of South America, between 1 and 9 degrees north latitude and 56 and 61 ½ degrees west longitude with the Atlantic Ocean to the north. It is also bounded on the south by Brazil, on the west mostly by Venezuela and on the east by Suriname. It is the only English-speaking country in the continent. Guyana's time is 4 hours behind Greenwich Mean Time and is in the same time zone as the Eastern states of the United States of America (U.S.A.). There is, however, a time difference of 1 hour when Daylight Saving Time is introduced in the U.S.A. in winter.

Guyana has an area of 217,000 square kilometers and the coastal zone has a width of about 430km while the length from the coastal zone to the southern end is about 720km. The country was divided by the British into counties: Berbice in the east, Essequibo in the west and Demerara in the middle. The names are those of the three largest rivers in the country. After independence, the country has been divided into 10 administrative regions which allow for cohesive working of the Government at the central, regional and local levels and bring communities into easy access of the nation's public service. The capital city is Georgetown and is located in Demerara and in Region Four. There are several other towns scattered in the other regions. Related information can be found in the Robert Ramraj's publication **GUYANA Population, Environments, Economic Activities, published by Battleground Printing and Publishing, North Carolina, U.S.A., 2001.**

Guyana's coastal zone is home to about 90% of the population. It is where the seat of government can be found and the major businesses and agriculture- sugar and rice- are located. Savannah lands and gold, diamond and bauxite mining activities are found in the inland and interior districts. The indigenous peoples can also be found in these areas though many are moving into the coastal zone to find work and to improve their educational and socio-economic levels. Many eco-tourism centres are being set up in the inland and interior regions to cater for the tourism sector expansion. Mining and eco-tourism have an impact on moving a part of the population from the coastal zone into the interior districts.

The population has over the years stayed around the three-quarter million mark due to migration mostly to the U.S.A. and Canada. The poor socio-economic situation inherited by the current Government and the recent difficulties associated with floods, droughts, conservancy deterioration and surface sea-water intrusion into the coastal zone have been hampering the present Government's developmental progress and attention has been diverted to satisfying some communities' basic needs- temporary housing, water, electricity, roads, and food, in some cases (2). Migration has also taken its toll on the public service staffing and continuity in the delivery of services affecting the quality of those who remain to work in the public service and the quality of the service which is delivered.

1.2 THE RIO CONVENTIONS

The Rio Conventions are the United Nations Convention on Biodiversity (UNCBD), the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD). They are known as the environmental Conventions and they seek to protect the environment, ensure food production and sustainable development.

Guyana ratified the UNCBD and the UNFCCC on August 29, 1994, and the UNCCD on June 26, 1997. These Rio (so called because they were signed at the Earth Summit in Rio de Janeiro, Brazil) environmental Conventions are important to the World and to Guyana. Guyana is a developing nation which needs to progress in such a way that it does not:

- Destroy the environment;
- Take its resources for granted; and
- Show disregard for the signs of impending disasters.

See Table 5 below for dates of signing, ratifying and entering into force of these Conventions.

Table 5: Dates of importance for Guyana with regards the Rio Conventions

Convention	Signed	Ratified	Entered into Force
UNCBD	June 13,1992	August 29, 1994	December 29,1993
UNFCCC	June 13, 1992	August 29, 1994	November 27,1994
UNCCD	-	June 26,1997	September 24, 1997
KYOTO PROTOCOL TO THE UNFCCC	-	August 5, 2003	February 16, 2005

The UNCBD, the UNFCCC and the UNCCD have linkages in some issues and these have to be coordinated and common implementation measures will have to be exercised so that duplication and inadequate responses can be eliminated. This will allow for Guyana to make efficient use of the resources available and to promote the most effective responses to the Conventions. However, the UNFCCC has many activities which call for actions independent of the other Conventions. It is therefore necessary that the UNFCCC be independently implemented and not be seen as an appendage of the work of the other Conventions. This can happen when the case for addressing cross-cutting issues is being made out.

These international environmental Conventions place additional burdens on an already-stressed governmental machinery. However, mindful of its responsibilities for the protection of the environment in Guyana and to the international community and the need to take actions locally to respond to the international agreements which Guyana has ratified, the Government of Guyana has been moving forward as best as it can to comply with the Conventions by:

- Providing reports when called for;
- Taking actions locally to put mechanisms in place to carry out the additional functions demanded by the Conventions;
- Introducing Convention recommendations into national developmental programmes and socio-economic sectors; and
- Considering Convention recommendations when actions have to be taken in response to local disasters.

It must be recognized that only so much can be done with limited resources. Time stipulations may not be kept and there may not be answers to some queries due to insufficient data. Any programme on capacity building must recognize the reality on the ground and take cognizance of the in-country situation. It must also include short- and long-term assistance (funding, expertise, fellowships, etc.) for the country's programmes.

1.3 THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

The UNFCCC seeks to address climate change caused by human practices which result in acute increases in the concentration of greenhouse gases (ghgs) in the atmosphere. This is the reason for its ultimate objective, given in Article 2, and quoted here:

"To achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

The UNFCCC Articles of Importance to Guyana

The commitments of the Parties to the Convention seek to ensure that the Parties address the above objective and the relevant Articles for Guyana are:

4.1(a) Develop, periodically update, publish and make available to the Conference of the Parties, in accordance with Article 12, national inventories of anthropogenic emissions

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

4.1I 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;

4.1(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;

4.1(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.....;

4.1(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;

4.1(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.....;

4.1(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

4.1(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;

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

4.5 The developed country Parties and other developed Parties included in Annex II shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties.....;

4.7 The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial resources and transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.

4.8 In the implementation of the commitments in this Article, the Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of developing country Parties

5 RESEARCH AND SYSTEMATIC OBSERVATION:

In implementing Article 4.1(g), Parties must support international and intergovernmental programmes, networks, organizations and efforts to strengthen systematic observation and national scientific and technical research.

6 EDUCATION, TRAINING AND PUBLIC AWARENESS

In implementing Article 4.1 (i), Parties shall promote and facilitate:

- Development and implementation of educational and public awareness programmes,
- Public access to information,
- Public participation in addressing climate change, its effects and responses development, and
- Training of scientific, technical and managerial personnel.

12 COMMUNICATION OF INFORMATION RELATED TO IMPLEMENTATION

This Article details the information to be communicated to the Conference of Parties (COPs) related to a Party's implementation of the Articles. Guyana, on a voluntary basis, may propose

projects for financing, including specific technologies, materials, equipment, techniques or practices that would be needed for project activities. There are other parts of this Article which address developed country parties, security of information supplied to the COPs and making information available to the COPs.

1.4 THE KYOTO PROTOCOL TO THE UNFCCC

The Kyoto Protocol seeks to address the problem of the industrialized nations which are called upon to substantially reduce emissions of ghgs by achieving quantified emission limitation and reduction commitments within a specified time period, 2008 to 2012. Developing countries such as Guyana can benefit from this Protocol by assisting the developed nations in such a way that the developed nation pays for projects in the developing country to reduce emissions, or increase sinks, and to produce more environmentally-sound activities in the developing country. The benefit to the developed nation is that the achieved emissions reduction will be credited to the developed nation and not to the developing nation. This is the trade-off: the developing country gets funds, expertise and materials to reduce its emissions of ghgs but the country giving the assistance gets the benefit of the reduction as a credit to its reduction efforts.

The Protocol does not result in additional responsibilities for Guyana other than those already mentioned in the Convention and it permits Guyana to join with the Annex I Parties, on a voluntary basis, to benefit from opportunities under the Clean Development Mechanism (CDM).

The Protocol Articles of Importance to Guyana

Article 10

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
- (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:
 - (i)** 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; and
 - (ii)** Parties included in Annex I shall submit information on action under this Protocol;

I 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.....;

(d) Cooperate in scientific and technical research.....;

(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.....;

(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.

Article 11

1. In the implementation of Article 10, Parties shall take into account the provisions of Article 4, paragraphs 4, 5, 7, 8 and 9, of the Convention.

2. In the context of the implementation of Article 4, paragraph 1, of the Convention, in accordance with the provisions of Article 4, paragraph 3, and Article 11 of the Convention, and through the entity or entities entrusted with the operation of the financial mechanism of the Convention, the developed country Parties and other developed Parties included in Annex II to the Convention shall:

(a) Provide new and additional financial resources to meet the agreed full costs incurred by developing country Parties

(b) Also provide such financial resources, including for the transfer of technology, needed by the developing country Parties ...

3. The developed country Parties and other developed Parties in Annex II to the Convention may also provide, and developing country Parties avail themselves of, financial resources for the implementation of Article 10, through bilateral, regional and other multilateral channels.

Article 12

1. A clean development mechanism is hereby defined.

The purpose of the clean development mechanism shall be to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3.

Participation by Guyana in the CDM is voluntary but can be beneficial in promoting sustainable development while assisting Annex I countries to achieve their reduction targets. The CDM can simply be described as a process which allows the Annex I country to:

- Assist the non-Annex I country to improve its equipment operation, energy-generating systems, or other processes to allow the country to reduce its ghg emissions/increase removals from the atmosphere and increase the efficiency of systems operation, and,
- Claim the reduction in ghg emission or increase in the ghg removal as a credit to the Annex I country.

1.5 THE HISTORICAL INTERNATIONAL BACKGROUND OF CAPACITY BUILDING ISSUES

The Convention and the Protocol recognize that there will be a need for Parties, especially the developing countries, to be assisted in order to achieve the objective of the Convention. The following Articles illustrate the concern for capacity building:

- UNFCCC Article 9: supporting endogenous capacity building in developing countries; and
- KP Article 10(e): cooperating in, and promoting, “the strengthening of national capacity building...”

Capacity-building cuts across many of the issues which result in gaps in the implementation of the Articles of the Convention and the Protocol. It has featured in several COP decisions up to COP 5 when it was first considered as a separate agenda item and resulted in decisions 10/CP.5 and 11/CP.5 launching a process to address capacity-building in an integrated manner. This resulted in frameworks for capacity-building being agreed at COP 7 for developing countries and countries with economies in transition. Decisions 2/CP.7 and 3/CP.7 were agreed by the Parties.

A first comprehensive review of these frameworks was conducted at COP 10 in 2004, which identified key factors that should be taken into account to increase effectiveness of these frameworks- Decisions 2/CP. 10 and 3/CP.10. A second comprehensive review is planned for 2008 for developing countries. Monitoring of the capacity-building frameworks, to facilitate the review, will be designed in close collaboration with the work done by the GEF and other agencies on performance indicators for the climate change focal area, and the GEF monitoring and evaluation work in general.

The Capacity Building Framework

At COP 7, Parties adopted decisions on which agreement were reached relating to capacity-building for developing countries and countries with economies in transition, and on additional guidance to the GEF, along with other decisions that included capacity-building components. *The frameworks for capacity-building in developing countries contained in the Marrakech Accords, annexed to decisions 2/CP.7 and 3/CP.7, were intended to serve as a guide for the climate change capacity-building activities of the GEF and other funding bodies.*

Capacity-building needs under the Kyoto Protocol were discussed at COP 11/MOP 1, and highlighted priorities for developing countries in decisions 29/CPM.1 and 30/CMP.1. The second comprehensive review is to be finalized during the 2007-2008 period and specific steps are to be taken to monitor the capacity-building frameworks based on inputs from parties, and will be discussed at SBI 24.

An Annex to decision 10/CP.5 identified an initial list of needs and areas for capacity building and it consists of the following:

- Institutional capacity building;
- National communications and national action plans;
- Greenhouse gas inventories including emission database management and systems for collecting, managing and utilizing activity data and emission factors;
- Vulnerability and adaptation assessment;
- Implementation of adaptation measures;
- Assessment and implementation of abatement options;
- Research and systematic observation;
- Development and transfer of technology;
- CDM;
- Capacity building arising out of the implementation of Articles 4.8 and 4.9 of the Convention and Article 3.14 of the Protocol; and
- Education, training and public awareness in the implementation of the Convention and the Protocol, including the implementation of Article 6 of the Convention.

Guyana's Responsibilities in implementing the elements of the Capacity Building Framework

All countries of the world cannot move forward with the same pace of implementation of the Convention. This is recognized in the Convention in Article 4.1 which starts with the statement “ *All parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall.....*”.

This important statement is also indicated in Article 10 of the Kyoto Protocol and was reaffirmed at the 2002 COP as the Delhi Declaration on Climate Change which was titled “*Delhi Declaration on Climate Change and Sustainable Development*”. This Declaration was adopted “*reaffirming that development and Poverty Eradication are overriding priorities in developing countries; and recognizing Parties' common but differentiated responsibilities and national development priorities and circumstances in the implementation of the UNFCCC commitments*”.

In the annex to Decision 10/CP.5, the developing countries have responsibilities in implementing the framework for capacity-building, subject to the availability of resources. Guyana has the following responsibilities:

- To identify the country's specific priorities, objectives, time-frames, and options to implement the Convention and its Protocol in accordance with its sustainable development priorities; also, to identify the specific needs for capacity-building, taking into account existing capacities and past and current capacity-building activities;

- To provide an enabling environment and the institutional leadership to promote the sustainability and effectiveness of capacity-building activities implemented within the framework;
- To improve the coordination and effectiveness of existing efforts and to promote the participation and access to capacity-building activities of all stakeholders, including the government agencies at all levels, civil society and the private sector, as appropriate;
- To identify and make use of the capacity-building services available in Guyana and in the Region; and
- To identify and report the country's own capacity-building activities and improve South-South cooperation.

1.6 GUYANA AND THE UNFCCC

In response to its obligations under the UNFCCC, Guyana submitted its Initial Communication, 1994 (3), to the Convention Secretariat and started to implement measures to adapt to and to mitigate human-induced climate change as best as its resources can permit in the face of other pressing socio-economic activities. The Country has been primarily involved in adaptation work under the CPACC (4) and the MACC (5) projects which are Caricom projects funded by the Global Environment Facility (GEF) and are geared to address the training aspects of the Convention and to promote public awareness of the tasks which have to be undertaken by Caricom countries. Coastal inventories, installation of monitoring gauges in coastal waters, adaptation studies and public awareness were done under the CPACC project and studies on impacts on fisheries, tourism and training are being addressed in MACC.

Guyana, through the EPA, has begun to tackle the mitigation problem of ghg emissions in the rice and wood industries in the country. A CIDA project (6), done by the Canadian group called SENES and Guyanese who are acquainted with these industries and the UNFCCC, provided Guyana with estimates of the amounts of ghgs which are put into the atmosphere by operators in these fields: 863.73 kt/yr CO₂ equivalent in the rice sector and 943.93kt/yr CO₂ equivalent in the wood sector, using the IPCC methodology (7). The project identified technologies applied especially in the ASEAN countries to reduce the emissions and improve the viability of the sectors and businesses in Guyana which can mitigate ghg emissions. The Report is available but it is now for the Guyanese to approach the donor agencies via the Conference of the Parties to the UNFCCC, or other agencies, countries and businesses for funding to assist the operators in the two sectors to utilize these technologies for the benefit of themselves, Guyana and the World. The project sought to examine several other relevant Articles of the UNFCCC and other programmes. These were:

- Information dissemination;
- Training;
- Creating project-related links among government agencies, the industries and the public;
- Capacity building through Technology Transfer and Training;
- Support for the Guyana Climate Change Action Plan;
- Gender Equity Considerations; and
- Contributing to Guyana's Poverty Reduction Strategy Programme.

The Office of the Prime Minister has been working to demonstrate the benefits of renewable energy by introducing photovoltaic systems in the hinterland and the use of energy-saving lamps in many areas. The Institute of Applied Science and Technology has been working on alternative energy forms such as bio-fuels. The Guyana Energy Authority has been concentrating on renewable hydropower and wind energy systems. The Forestry Commission has been working with IWOKRAMA and other agencies in carbon sequestration and reduced impact logging. However, more substantive and coordinated programmes are required to be done if Guyana is to play its part in addressing its role in the reduction of human-based carbon emissions into the atmosphere (mitigation), the increase in sinks of the green-house gas into the soils (sequestration) and to promote local measures to adapt to the effects of global warming and its accompanying climate change (adaptation). Financing for these programmes will require the developed country Parties and the funding mechanism to urgently provide the resources, financial and otherwise, for implementation of activities as demanded by Article 4.5 of the Convention.

1.7 GUYANA AND THE KYOTO PROTOCOL

By taking actions to implement its obligations under the Convention, Guyana has been honoring its obligations under Articles 10 and 11 of the Protocol as best as it can, given the capacity issues which affect the country.

Guyana has also signaled its intention to make use of the CDM to promote sustainable development by appointing the Hydrometeorological Division of the Ministry of Agriculture as the Designated National Authority of Guyana and the Chief Hydrometeorological Officer is the Focal Point of Guyana to the Executive Board of the CDM.

The CDM will be beneficial to Guyana in providing finance, skills, equipment and materials for mitigation projects. The GUYSUCO Cogeneration project for Skeldon Estate on the Corentyne coast will be a significant CDM project for the country.

Guyana's substantial forest reserve cannot be of benefit under the CDM as the Protocol only addresses afforestation and reforestation in this sector. However, Guyana should garner its negotiating team for negotiations on activities for the next Protocol Phase. GEA's energy farms, if done on a large scale and shown to be a mitigation exercise, can attract interests from the Annex I countries.

Capacity Problems in implementing the UNFCCC and its Protocol

Guyana, like other developing countries, has been having difficulties in honoring the commitments under the UNFCCC due to capacity constraints mostly resulting from limited national financial resources.

Some of the challenges faced by the country in meeting the obligations of the UNFCCC are:

- Limited statutory power to effectively carry out priority climate change mandates;
- Inadequate institutional capacity of the sector agencies to meet Guyana's obligations under the Convention;
- Limited human resources for climate change management; and,
- Differing priorities of various agencies.

The key areas which the Convention considered as important to be examined are:

- Strengthening of relevant institutions;
- Assessment, inventory and monitoring of resources;
- Development of information systems, and information management and exchange, linked with the clearing-house mechanism of the Convention;
- Development and strengthening capacities of indigenous and local communities for participation in decision-making and implementation;
- Public education and awareness focusing on relevant stakeholders; and
- Funding and resource management.

According to the Decision 2 of COP7 and affirmed at COP10 as Decision 2, the key factors to be considered are:

- Make institutional capacity building a priority for the creation and strengthening of basic institutional infrastructure;
- Raise awareness at various levels of climate change issues and increase the involvement of national government organizations in capacity building activities;
- Develop, and where appropriate, promote exchange of best practices, experiences and exchange of information on capacity building activities undertaken by various Parties, including financial resources, case studies and tools for capacity building; and
- Ensure effective capacity building activities.

There are other factors which were considered in the above decision but the fundamental relevant ones are listed above. The concern here is that the COPs are concerned that, due to a lack of resources, serious actions will not occur in non-Annex 1 States which have much to lose and more to gain from the activities arising out of the Convention. In order for the people of Guyana to be spared the disastrous effects of Climate Change and to undergo adaptive and adaptation measures which are relatively 'soft', actions will have to be taken in the present and near-future and, quickly too. It is crucial that Guyana sort out its capacity needs and work towards softening the effects of global warming on the population.

1.8 THE NATIONAL CAPACITY SELF ASSESSMENT (NCSA) PROJECT FOR GUYANA

Guyana's development goals require that environment and natural resources management, and monitoring and protection be done in such a way that the human and financial resources are utilized efficiently. As a consequence, there are several ministries, departments and agencies which play a role in the implementation of those parts of the above-mentioned Conventions that are relevant to their work.

The overall objective of the NCSAP is to identify and characterize critical capacity constraints relevant to effective environmental management in Guyana, and to develop a plan of action to address these constraints. This will be accomplished through several activities which will identify, confirm and review priority issues for action within the thematic areas of Biodiversity, Climate Change and Desertification and related international instruments, e.g. Bio-safety

Protocol and the Montreal Protocol on Ozone Depletion; explore capacity needs within and across the three thematic areas; elaborate a national strategy and action plan that outlines capacity building priorities and specific opportunities relevant to global environmental commitments.

The focus of this project is on capacity assessment of all the environment Conventions and Protocols. COP11 was expected to take a decision to support Decision 2/COP7 and to request the GEF to indicate, in its report to the COP11, information on how it is responding to the Decision. It is therefore a necessary project for the Convention and for Guyana which has an acute capacity problem. The Stakeholders' Meetings have served as a knowledge-sharing and public awareness mechanisms for Climate Change.

The UNDP Capacity Development Initiative, 2001, defines Capacity building as "the ability of individuals, institutions and systems to make and implement decisions and perform functions in an effective, efficient and sustainable manner".

Guyana held its first NCSA meeting with the stakeholders on 19th September, 2005. At this meeting, the Project was discussed and the participants made valuable contributions towards the achievements of the goals of the Project. The Prime Minister, in his opening address, brought participants up-to-date with the status of Guyana's compliance with the UNFCCC and the other Conventions.

There were several workshops which targeted all the regions with a focus to inform the communities' representatives and the regional administration about the reasons for the country being a Party to the UNFCCC and the other environmental Conventions, what are expected of Guyana and its regions and communities, what are the consequences for the regions and the communities and the necessity for their involvement in Guyana's responses to Climate Change. Questionnaires distributed at the workshops helped to focus on the capacity needs of the regions and communities and assisted to shape the capacity analysis for implementation of the UNFCCC in Guyana. A sample of the regional questionnaire is provided in Appendix B. There was a final national consultation in Georgetown where the draft report was considered and recommendations were provided. The questionnaire for this consultation focused more on capacity needs of institutions which are engaged in climate change activities. A sample can also be found in Appendix B.

1.9 OBJECTIVES OF THE CONSULTANCY

Objectives Profile

The objective of the consultancy is to conduct a capacity self-assessment with respect to the UNFCCC producing a full profile on the thematic area, including:

1. Stock-Taking of previous capacity assessment studies, reports, and existing capacity building programmes.
2. Gap analysis to determine the status of Guyana's current programmes under the UNFCCC.
3. Thematic Assessment on Climate Change:
 - Identifying and reviewing priority issues in implementing the UNFCCC;

- Identify capacity constraints for implementing the priority issues;
- Assess the constraints at the individual, institutional and systemic levels;
- Categorize opportunities in terms of creating new capacities, mobilizing/redeveloping existing capacity and enhancing existing capacities; and
- Identify necessary corrective actions.

Methodology

The consultant was required to work as a part of a team including consultants for the other two Rio Conventions in all the consultation processes, including the planning and facilitation of workshops at which the findings of the consultancy were presented.

Activities of the Consultancy

The Consultant provided technical services within the climate change thematic area as follows:

1. Designed process of review.
2. Reviewed and evaluated the requirements of the UNFCCC.
3. Surveyed all capacity assessment studies, reports, and communications with respect to the UNFCCC and produced a bibliography.
4. Conducted a gap analysis and a Gap Analysis report.
5. Prepared a comprehensive thematic assessment report.
6. Advised and assisted the Project Coordinator in workshop planning.
7. Presented findings at all workshops.
8. Finalized the report based on stakeholders' feedback.

This report seeks to examine the implementation structure, the governing policy framework and the operations in Guyana for capacity weaknesses and to highlight the constraint factors which prevent the Country from taking actions to implement the Convention in a timely manner. The report also makes recommendations for constraint reduction or removal so that Guyana can efficiently implement the UNFCCC and the Kyoto Protocol.

2.0 PROCESS AND METHODOLOGY OF THE STOCK-TAKING AND THEMATIC ASSESSMENT

The Consultant examined the issues for Guyana under the UNFCCC and its Kyoto Protocol by reviewing the Convention and Protocol Articles, the decisions of the Conferences of the Parties to the Convention, the decisions of its subsidiary bodies and regional activities which Guyana participated in. Workshops on NCSAP and Climate Change were assessed to find out Guyana's motivation and readiness to address the obligations under the Convention. In particular, questionnaires filled and returned by the participants at the regional workshops were analyzed and used to identify the constraints and to make recommendations on prioritizing the constraints and removal/reduction of them.

2.1 COMPILATION OF RELEVANT DOCUMENTS

- CPACC Documentation related to the adaptation projects in the coastal zone in Guyana were supplied by the Hydrometeorological Service and from web-sites;
- The EPA's Integrated Coastal Zone Management Plan;
- Several documents on climate change, the UNFCCC and its Decisions were downloaded from the Internet;
- Documentation on MACC were provided by the Hydrometeorological Service and from the web sites;
- The Initial Communication and the Climate Change Action Plan were available from the UNFCCC Secretariat;
- The document on greenhouse gases emission reduction related to the rice and wood industries in Guyana was provided by the SENES group of Canada; and
- The project guidance resource package which guided the shaping of this work was provided by the Project Coordinator.

2.2 CONSULTATIONS

Meetings with some political, administrative and operational personnel and committees served to gauge the level of interest, mobilization, adequacy of personnel, financial commitment, and complexities in coordination and priorities. As such, the following consultations allowed for a full comprehension of the problem. Appendix C provides the results of the discussions.

- *Political*
Hon. Minister for Tourism, Industry and Consumer Affairs, Mr. Manzoor Nadir,
and,
Advisor to the President on Sustainable Development, Mr. Navin Chandarpal.
- *Administrative/Operational/Technical*
Director of the EPA, Mr. Doorga Persaud and his team,
Chief Hydrometeorological Officer, Mr. Dilip Jaigopaul and his team,
National Climate Committee chaired by the Chief Hydrometeorological Officer,
National Drainage and Irrigation Board engineers,
Chief Fisheries Officer, acting, and
Head of the Animal Services Division.

- ***Regional Administrative and Community Leaders***
Workshops in all the ten administrative regions were held and questionnaires were filled by the participants.
- ***National Consultation***
The final workshop was held for stakeholders in Region Four and for government and other institutions.
- ***Other***
Farmers affected by flood rains in Region 5.

2.3 STOCK-TAKING

Guyana's obligations under the UNFCCC were reviewed and the responses, deemed to be current actions, of Guyana to these obligations were assessed.

The Articles of the Convention were examined with a view towards identifying what were required to make Guyana compliant with the Articles. Actions taken in the past and in the present are then indicated. The Kyoto Protocol was then similarly examined.

The decisions of the COPs were next examined for those which specially addressed capacity building issues in the non-Annex I countries. The recommendations of the subsidiary bodies were also examined for responses by Guyana.

Activities done in Guyana in the implementation of the Convention, such as the Initial Communication to the COPs and the Caricom projects were discussed and linkages with the UNCBD, the UNCCD and the Montreal Protocol were addressed.

2.4 GAP IDENTIFICATION AND ISSUES

Utilizing the obligations provided in the Convention and Protocol Articles, the gaps in the implementation, by Guyana, of each Article were elaborated and the issues relating to the gaps are indicated.

2.5 ASSESSMENT AND PRIORITIZATION OF ISSUES

The issues were then categorized as follows:

- Inventory of ghgs: preparation in an agreed format and update;
- Sector Adaptation Plans: Coastal Zone Strategies and Plans, and activities;
- National Communication: Initial communication and update, referred to as the second communication;
- Sector Mitigation Plans: Energy and other sectors' activities;
- Systematic monitoring and research;
- Response to impacts of Climate Change effects;
- Education, Training and Public Awareness Programmes; and
- Access to information.

The next stage of the analysis was to use a Prioritization Matrix (6) to indicate the priority levels to be assigned to the categories of issues. The criteria used in this exercise are as follows:

- The scale of the problem can be local, regional, national or global;
- The level of concern can be low, medium or high;
- The ability to adequately address the issue can be low, medium or high;
- Priority ranking is as follows:
 - 1- No capacity exists;
 - 2- Low level of capacity exists;
 - 3- Some capacity exists;
 - 4- High capacity exists; and,
 - 5- Full and sustained capacity exists.

2.6 CAPACITY ASSESSMENT AND DEVELOPMENT

UNDP's Programme Management Life Cycle was used as a guide to assess the present situation and where the Country needs to be with regards to the implementation of the Convention and the Kyoto Protocol. Each Article and sub-Article(s) is examined for what Guyana is called upon to do and what has been done. The following items were assessed:

- Current National Provisions for the Implementation of the UNFCCC and its Protocol;
- National Convention Reports and Action Plans;
- Assessment of Climate Change Information Resources and Databases;
- Analysis of on-going projects and measures currently being undertaken by Government; and
- Analysis of Previous Projects and, their results and experience gained in the sphere of the UNFCCC.

The constraints which do not allow for full implementation of the Convention and its Protocol were next addressed. Constraint Factors were examined under the Individual, Institutional and Systematic levels and then opportunities were indicated under the following opportunity categories:

- Creating new capacities;
- Mobilizing or redeploying existing capacities; and
- Enhancing existing capacities.

3.0 STOCK-TAKING OF GUYANA'S IMPLEMENTATION OF THE UNFCCC

An overview of the relevant Convention Articles for Guyana, as a Party to the UNFCCC is provided in Chapter 1- Introduction. Using these Articles, the obligations of Guyana are identified and the past and present actions are presented. The same method is used to treat the Kyoto Protocol.

Article 2 of the Convention states the ultimate objective of the Convention. This objective Article seeks to have member States do the following:

- Take actions to reduce mankind's interference with the climate system;
- Do so in a time frame which will allow biodiversity adaptation to occur;
- Take timely actions to ensure that food production is not threatened; and,
- Take timely actions to enable sustainable development in the economic sectors.

Guyana's obligations therefore are basically to address the ultimate objective and to report to the COP on actions taken and on the needs which require support and assistance.

3.1 GUYANA'S OBLIGATIONS UNDER THE UNFCCC AND CURRENT ACTIONS

Article 4.1 (a): National Inventories

Obligation: Prepare, update and publish national inventories of anthropogenic ghg emissions and removals using methodologies agreed upon by the COPs.

Current Actions:

- An inventory was prepared for the base year, 1994 using the IPCC Methodology;
- Funding sought and approved for an updated inventory;
- The initial inventory was made available to the COP in 2002 *via* the Secretariat; and
- One hundred copies of the initial inventory, included in the initial communication to the COP, were made and distributed.

Article 4.1(b): National and Regional Mitigation Programmes and Adaptation Measures

Obligation:

- Prepare, update, implement and publish national and regional mitigation programmes; and
- Prepare, update, implement and publish national and regional measures to facilitate adaptation to climate change.

Current Actions:

- The Climate Change Action Plan addressed some mitigation issues;
- A coastal zone management plan has been formulated;
- There are two regionally-funded adaptation strategy documents for the coastal zone;

- The EPA conducted a study into the rice and wood industries mitigation; and
- The Sea and River Defence Board is presently involved in an Institutional Capacity Building Activities Programme which caters for skills training in adapting to climate change impacts such as sea-level rise and intense wave action on the coast.

Article 4.1(c): Mitigation Projects

Obligation: Promote, and cooperate in mitigation projects which include application and transfer of technologies, processes and practices in relevant sectors.

Current Actions:

- The EPA has, in cooperation with CIDA/SENES, done an assessment of the reduction of ghg-emissions in the rice and wood industries. A report was published by SENES. This can be seen as a mitigation activity in the agriculture and forestry sectors;
- The Office of the Prime Minister reported on its “Electricity and Energy Sectors” website that photovoltaic systems were installed in two hinterland communities by the government with UNDP grant financing. This was a demonstration project on the utilization of renewable energy sources and can be seen as a mitigation activity in the energy sector;
- The current GUYSUCO cogeneration development activity at Skeldon can become a significant energy and agriculture mitigation exercise for Guyana;
- There is a wind power project being pursued by Delta Caribbean which, if funding is realized, can become an energy sector mitigation exercise of the GEA;
- The GEA is also working on hydropower (including Tumatumari, Eclipse Falls, Paruima, Upper Mazaruni and Turtuba) and fast growing tree species for energy farms; and
- The IAST is currently working on alternative bio-fuels for vehicles and for energy generation. These are demonstration projects which target the energy and agriculture sectors.

Article 4.1(d): Promotion of Sustainable Management

Obligation: Promote sustainable management and cooperate in the conservation and enhancement of sinks and reservoirs of ghgs.

Current Actions:

- Iwokrama has cooperated with the GFC and other local and external bodies to address several studies in carbon sequestration including biomass and forest types;
- Iwokrama and the GFC have cooperated in studies and practice of reduced-impact logging;
- Iwokrama has implemented assessments for sustainable management of the Forests; and
- The Forestry Act and the EPA Act have all included sustainable management as underlying objectives in the utilization of natural resources. The establishment of the Forest Training Institute is assisting in promoting sustainable forestry.

Article 4.1(e): Preparing for Adaptation

Obligation: Cooperate in preparing for adaptation to the impacts of Climate change.

Current Actions:

- An integrated coastal zone management plan has been prepared in which projects have been highlighted;
- Several studies have been done on adaptation in the coastal zone under the CPACC and MACC projects;
- The GFC has been working to improve mangrove forestry in selected coastal areas;
- The Sea and River Defence Board has been strengthening its organization to take adaptation to the impacts of sea level rise and other climate change phenomena in work programmes; and
- Several agencies, including the National Drainage and Irrigation Authority and the Civil Defence Commission, are involved in the planning and execution of local response projects to impacts of climate change in Guyana.

Article 4.1(f): Climate Change Considerations in National Planning

Obligations: Take climate change considerations in relevant social, economic and environmental policies and actions.

Current Actions:

- Health, Agriculture and Human Services officials have responded to flood disasters promptly according to Television and newspaper articles;
- Projects on sea and river defences are taking consideration of climate change, to the extent feasible and subject to data availability; and
- The Central Housing and Planning Authority has been acting on policy changes which affect human settlements in the low-lying areas by not promoting house building from ground zero and taking drainage into consideration in the housing schemes.

Article 4.1(g): Promotion and Cooperation in Research

Obligations:

- Scientific, technological, technical, socio-economic and other research; and
- Systematic observation and development of data archives related to the climate system

Current Actions:

- Equipment acquired through the CPACC programme to monitor sea level rise and coastal variables;
- Equipment acquired through the CPACC programme to monitor rainfall and other meteorological variables; and
- A climate database has been established and is being updated with assistance from the World Meteorological Organization.

Article 4.1(h): Exchange of Information

Obligations: Full, open and prompt exchange of relevant scientific, technological, technical, socio-economic and legal information related to the climate system and climate change.

Current Actions:

- Exchange of climate data done in accordance with World Meteorological Organization standards;
- Socio-economic data are provided by the Bureau of Statistics of the Ministry of Finance; and
- Legal information is provided by the Ministry of Legal Affairs.

Article 4.1(i): Education, Training and Public Awareness

Obligations: Education, Training and Public Awareness with widest participation in the process and including the NGOs.

Current Actions:

- Training of NCC members done under the CPACC and MACC projects;
- Public Awareness done under the CPACC, MACC and UNFCCC programmes;
- Few NGOs are participating in the process since they are members of the NCC; and
- Public Awareness done under the NCSA Consultation process.

Article 4.1(j): Communication with the Conference of Parties

Obligations: Communicate to the COP information related to implementation.

Current Action: An Initial Communication was done on the base year, 1994.

Article 4.5: Development and Enhancement of Endogenous Capacities

Obligation: Development and enhancement of endogenous capacities and technologies; support and develop international and intergovernmental programmes on research and data collection.

Current Actions:

- Several Amerindian communities have been developing eco-tourism and small agricultural businesses with training from Iwokrama, Conservation International, CIDA's Building Community Capacity Project and the Government. This was indicated at the Region 9 Consultation and in the other Regions.
- Skills development in climate modeling has been pursued by the Public Service Ministry.
- Guyana has supported the data collection and research activities of the World Meteorological Organization and the IPCC.

Article 4.7: Taking into Consideration Other Over-riding Priorities of Developing Countries

Obligations: Poverty eradication in the face of adverse effects of Climate Change will have opposing consequences. Measures to ensure that gains from poverty reduction assistance are not eroded must be taken by Guyana. The Poverty Alleviation Programme needs to be developed with inputs from the Climate Change Programmes particularly those which address the impacts on the rural communities.

Financial and technological resources will not be addressed by the developed country Parties unless Guyana presents a programme of project activities to them and to the Financial Mechanism for funding. Hence, the developed country Parties will not move on this Article unless Guyana does its work first.

Current Actions: The Country has been benefiting from programmes such as the CIDA's Building Community Capacity Project which aims at partnering with Guyana to reduce poverty in the hinterland and other rural communities.

Article 4.8: Consideration to Necessary Actions

Obligations: Give full consideration to necessary actions, including actions related to funding, insurance and transfer of technology to meet Guyana's needs arising from adverse effects of climate change and/or the impacts of taking response measures in the low-lying coastal state.

Current Action: An Integrated Coastal Zone Management Action Plan (14) has been done and is being used to solicit funding for its component projects.

Article 5: Research and Systematic Observation

Obligations: Develop data collection and systematic observation programme; exchange of data and analyses, and support for international efforts to strengthen the country's research capacities and capabilities.

Current Actions:

- Climate and coastal waters data are being collected routinely and are being exchanged according to international standards; and
- Support is given by the Government to the programmes of the WMO, IOC, UNEP and the IPCC.

Article 6: Education, Training and Public Awareness.

Obligations:

- Develop and implement educational and public awareness programmes;
- Permit public access to information;
- Permit public participation in addressing climate change, its effects and responses; and,
- Train scientific, technical and managerial personnel.

Current Actions:

- The EPA has prepared booklets and other documents for public awareness;
- Some information are available for public access but more can be made available;
- There is no restriction on public participation; and
- Training has been done under the CPACC and the MACC programmes.

Article 12: Communication to the COP

Obligations:

- A national inventory of emissions by sources and removals by sinks of all ghgs, general description of steps taken to implement the Convention and any other relevant information on the achievement of the objective of the Convention; and
- Propose to the COPs, on a voluntary basis, projects for financing including specific technologies, materials, equipment, techniques or practices which shall be needed to implement the Convention.

Current Actions

- An Initial Communication was made to the COPs containing information on national circumstances, inventory of ghgs, adaptation and mitigation needs, and analysis of climate using global climate models and identifying vulnerable areas. The assessment was done on the base year, 1994; and
- A Climate Change Action Plan was submitted to the COP proposing several projects for financing. They range from capacity building to adaptation to mitigation activities.

3.2 GUYANA'S OBLIGATIONS UNDER THE KYOTO PROTOCOL AND CURRENT ACTIONS

Article 10(a): Formulation of National Programmes to improve the Quality of Local Emission Factors

Obligation: Formulate cost-effective national programmes to improve the quality of local emission factors, activity data and socio-economic conditions for the preparation of national inventories.

Current Action:

- A study was conducted and a report was produced by Dr. Hans ter Steege on **Biomass Estimates for Forest in Guyana and their use in Carbon Offsets**.

Article 10(b): Mitigation and Adaptation Programmes

Obligation:

- Develop programmes to mitigate climate change in all sectors including energy, transport, industry, agriculture, forestry and waste management; and
- Develop programmes to facilitate adequate adaptation including adaptation technologies and methods for spatial planning.

Current Actions:

- There is a programme of activities listed in the Climate Change Action Plan; and
- The Office of the Prime Minister, the EPA, the GEA, the IAST and IWOKRAMA have active projects which are addressing studies and demonstration projects in climate change mitigation. GUYSUCO is working on a cogeneration project which can be deemed to be a major mitigation project when it is implemented.

Article 10(c): Environmentally Sound Technologies (ESTs)

Obligation: Take all practical steps to promote, facilitate and finance the transfer of, or access to, environmentally sound technologies (ESTs), know-how, practices and processes of relevance to climate change mitigation.

Current Action:

- The EPA has moved to identify ESTs for the rice milling and sawmilling industries;
- Micro-hydropower has been tested at Moco Moco Falls in the Rupununi; and
- Wind power generation is being studied.

Article 10(d): Systematic Observation Systems and Data Archives

Obligation: Promote the maintenance of systematic observation systems and data archives to reduce uncertainties related to the climate system, adverse impacts and socio-economic consequences.

Current Actions:

- Equipment have been acquired and deployed for monitoring of the climate system; and
- A data archive has been established in the Hydrometeorological Division.

Article 10(e): Strengthening of National Capacity

Obligation: Strengthening of national capacity building (human and institutional as well as secondment of personnel for training experts) for facilitating public awareness of, and public access to, information on climate change.

Current Actions: While some agencies have been pursuing institutional strengthening, the facilitation of public awareness and public access to information on climate change has not been addressed except in the NCSA Project.

Article 10(f): National Communications

Obligation: Include in the Country's national communications information on programmes and activities undertaken pursuant to this Article.

Current Action: No National Communication was prepared since Guyana became a Party to the Kyoto Protocol.

Article 12: Clean Development Mechanism

Obligation: There is no obligation since this Article seeks to assist Guyana to promote sustainable development by getting assistance from the developed country parties only if Guyana wishes to do so.

Current Actions:

- Guyana's Focal Point to the CDM Executive Board is the Chief Hydrometeorological Officer; and
- The GUYSUCO cogeneration project is expected to be an initiative for which the Government of Guyana will apply to the CDM Executive Board for consideration of certified emissions reduction.

3.3 ANALYSIS OF NATIONAL PROVISIONS FOR THE IMPLEMENTATION OF THE UNFCCC AND ITS PROTOCOL

3.3.1 Evaluation of the Legal instruments, Policies and Strategies

The UNFCCC and the KYOTO Protocol have been ratified by Guyana's Parliament and are therefore legal documents for the Government of Guyana to pursue and to honour with the execution of the tasks to the best of its ability and within the scope of the realities in the country. There is no law specifically on Climate Change but sector agencies are governed by several laws on enforcement, procedures, etc. A component of the Action Plan for Integrated Coastal Zone Management in Guyana will be quoted here since it reflects the situation for Climate Change:

"The Legislative regime surrounding coastal zone management in Guyana represents a fragmented regulated framework in that the coastal zone is managed in a fragmentary fashion in response to specific issues".

The sector agencies have tasks mandated by legislated documents. Some of these are:

- Sea Defence Act;
- Forests Act;
- Guyana Forestry Commission Act;
- Town and Country Planning Act;
- Municipal and District Councils Act;
- Public Health Ordinance;
- State Lands Housing Acts;
- Drainage and Irrigation Acts;
- Guyana Sewerage and Water Acts; and
- Lands and Surveys Commission Act.

All of these legal documents refer to particular sectors of the Government's responsibilities. None of them has a component on Climate Change and actions supportive of the Convention

and its Protocol. Policies and strategies for addressing the Climate Change issues arising from the international treaties are therefore not derived from legislative directions but from Cabinet Decisions.

All of these legal documents require revision to reflect Climate Change actions as a function of the agencies under the guidance of a Climate Change Legislative document which will provide the agencies with the necessary backing for involvement in climate change activities.

3.3.2 National Climate Change Adaptation Policy and Implementation Plan for Guyana

This document was prepared for the CPACC Caricom Project known as Component 4 and dealt with under the CPACC theme: Climate Change Issues, Adaptation Planning and Management Mechanisms. This report was Guyana's response to the "Formulation of a Policy Framework for Integrated Coastal and Marine Management," Component 4 of CPACC's programme. It addressed the planning issues which must be considered in adapting to Climate Change in Guyana's coastal zone. It was done in 2001 and was undertaken by the Hydrometeorological Service's National Ozone Action Unit. Some of the issues considered were:

- Impacts of Sea level rise on sea defences;
- Effects on impact zones;
- Sea water intrusion;
- Submergence of coastal wetlands;
- Coastal Erosion and accretion;
- Flooding and storm damage;
- Effects on forestry, fisheries, manufacturing and services sectors;
- Effects on water resources, agriculture and human settlements; and
- Tourism and health effects.

This document was a first look at coastal zone management in the face of Climate Change. It needs to be up-dated in the face of new data with regards sea level measurements and coastal waters climate information. It is important that this document be seen as useful to those who are involved in responses to local disasters which are occurring mostly in Guyana's Coastal Zone. It ought to influence policy with regards the current problems associated with drainage resulting in flood conditions in the coastal zone

3.3.3 The Environmental Protection Agency

In consideration of this Convention and other Conventions, the government created the Environmental Protection Agency (EPA) *via* the Environmental Protection Act which was passed by Parliament in 1996. It has a mandate to promote, facilitate and coordinate effective environmental management and protection; and the sustainable use of Guyana's natural resources. Protection of the atmosphere is included in its mandate. The EPA reports to the President who is the Minister responsible for matters related to the Environment. The Environmental Management Division of the EPA is responsible for Climate Change and Coastal Zone activities and projects within the Agency.

3.3.4 The Hydrometeorological Division of the Ministry of Agriculture

This organization became “effective following a Council of Ministers Directive 25/1/1 of 5th October, 1965, following consideration of memorandum CP (65) 50th Meeting that a central Hydrometeorological Service should immediately be established within the Government structure as a Division of the then Ministry of Works and Hydraulics.”- quoted from K.E.D. Potter’s ‘The Functions and Organizational Structure of the Hydrometeorological Service’, HyM-GAP.1, May, 1978. The functions at the time were to collect hydrometeorological data and analyze them in relation to agriculture, aviation and water resource development and management.

Today, the reality is much different. The division is tasked with executing the following additional tasks:

- Various programmes related to the Water Policy which was approved by Parliament;
- Various programmes set by the World Meteorological Organization;
- Administering the Montreal Protocol in Guyana;
- Executing Climate Change Programmes in Guyana; and
- Making short- and long-range forecasts for users in and out of Guyana.

3.3.5 Policies and Strategies

There is a National Climate Committee (NCC) which is chaired by Guyana’s Focal Point to the UNFCCC, the Chief Hydrometeorological Officer. The NCC consists of the following agencies:

- Environmental Protection Agency;
- Hydrometeorological Service;
- Institute of Applied Science and Technology;
- Guyana Forestry Commission;
- Guyana Manufacturers Association;
- Private Sector Commission;
- Guyana Energy Agency;
- Ministry of Trade, Tourism and Industry;
- Ministry of Finance;
- Ministry of Housing & Water;
- Ministry of Health & Labour;
- Ministry of Agriculture;
- Ministry of Foreign Affairs;
- University of Guyana;
- Office of the President; and
- Guyana National Bureau of Standards.

The Terms of Reference of the NCC are:

- Advise the relevant Ministers on developments and the need for policies and regulations in areas of climate change activities;
- Make recommendations to the Prime Minister on Science, Technology, Energy and Environment on national measures to address issues related to several climate-

- related conventions and associated protocols;
- Promote technical, scientific, technological and financial co-operation among Institutions/ Organizations with responsibility for climate change activities;
- Monitor and evaluate the implementation of action programmes related to the national obligations under the climate-related conventions and associated protocols; and
- Oversee the country's activities for the Inter-governmental Panel on Climate Change (WMO-UNEP).

The NCC activities are brought to the attention of the Prime Minister *via* the Natural Resources and Environment Advisory Committee (NREAC) which includes all environment, energy and mining agencies. The NREAC has 3 sub-committees which addresses energy, land use and climate change. The Cabinet of Ministers is brought up-to-date on matters related to Climate Change *via* the Prime Minister. The President is advised on Climate Change by the Presidential Advisor on Sustainable Development. There is also a Cabinet Sub-Committee on Natural Resources and the Environment which deliberates on Climate Change issues, among other matters.

A national legislative policy on Climate Change needs to be addressed in Guyana to allow for clear mandates to all who are working in the NCC and for a separation of tasks for the Ministerial and Departmental institutions involved in Climate Change activities.

3.4 ASSESSMENT OF CLIMATE CHANGE INFORMATION RESOURCES AND DATABASES

3.4.1 The Environmental Protection Agency

Matters on Climate Change come to the EPA on an irregular basis. There is no repository in this Agency which has to manage Guyana's response to several Conventions inclusive of the UNFCCC. Documents may come from the Office of the President, the Ministry of Foreign Affairs, Regional Climate Change Offices, and the Focal Point. There is no database for the Climate Change documents related specifically to Climate Change and so it will be difficult for a member of the Public to access information. There is a Documents Unit in the EPA.

3.4.2 The Hydrometeorological Service

This Division of the Ministry of Agriculture is in a better position with regards the receipt of technical documents on Climate Change since it is the Focal Point to the UNFCCC, has direct contact with the World Meteorological Organization which is a co-sponsor of the IPCC and is the contact agency for the Caricom projects. However, matters from the UNFCCC Secretariat follow the same pattern as with the EPA. There is a good database on meteorological and hydrological information and a climate change database is now starting. No stakeholders in the regional meetings knew where to go to access information on Climate Change. Also, the Division is not a clearing house mechanism for information.

3.4.3 The Ministry of Foreign Affairs

This Ministry receives all documents which come in from the Embassies all over the world. It is

the repository for all official documents related to the Conventions. Documents requiring action by the NCC are sent in a timely manner to the Hydrometeorological Service *via* the Ministry of Agriculture for further action.

There is a need to clarify the responsibilities of the Ministry of Foreign Affairs, the EPA and the Focal Point with regards the execution/implementation of the UNFCCC and it recommended that a Memorandum of Understanding to be established among the three institutions so that the responsibilities of each one are clarified and understood. Matters to be considered in the MOU should include:

- Principal delegates to COPs, SBSTA and SBI Meetings and the need for diplomatic as well as technical delegates;
- The differing roles of the 3 institutions in the execution/implementation of the Convention obligations in Guyana;
- The institution which liaises with the Convention Secretariat on matters related to COP, SBSTA and SBI deliberations and on technical issues;
- Information flow among the institutions; and
- Documentation distribution and public access to information.

The role of the National Library in public access to information needs to be examined. This institution has obligations to the Guyanese Public and responsibilities for providing information to those who require it. Climate Change is becoming relevant to Guyanese and the National Library will have to be a part of the mechanism which makes Climate Change information accessible to those who require it.

Noting that there are other institutions which have established libraries, for example, the University of Guyana, it will perhaps be wise to have these institutions meet and decide on information to be shared, types of information to be available at each institution and security of information.

3.5 REPORTS, ACTION PLANS, ON-GOING PROJECTS AND MEASURES

3.5.1. Initial Communication to the Conference of the Parties of the UNFCCC

This document was prepared by a National Task Force established by the NCC and was completed in 2001. Funding was provided by the GEF resulting in the completion of Guyana's Initial Communication to the COP. The work dealt with several sector analyses under the following headings:

- National Inventory of ghgs;
- Impacts and vulnerabilities;
- Adaptation measures;
- Mitigation Measures;
- Technology Transfer; and
- Monitoring and Understanding Climate Change and its Impacts.

This project provided valuable training for the staff of member agencies in the NCC. It is of high standard and dealt with all the major sectors which are seriously threatened by the impacts of

Climate Change. It is quite relevant today but needs revising in the following areas:

- National Circumstances: since this communication, the economy took direct hits from flooding on the East Coast of Demerara due to excessive rainfall and damage to the seawall and sluices on the West and East Coasts of Demerara due to high tides and high winds. As this capacity document is being written, several parts of Guyana have been subjected to excessive rainfall and accompanying flood conditions. These events result in finance being diverted from development works to ease the pain of the effects of these events and to repair the Lama Conservancy, the sea defence and other critical drainage systems;
- The inventory was done on data which were not prepared specially for the computation of ghg emissions amount. The IPCC guidelines were used to provide estimates for energy, industrial processes, agriculture, land use change and forestry, and waste. Unsatisfactory data and approximations were used (due to the short time available) and it was seen as necessary that the data collection methods in the agencies represented in the NCC be improved and studies be done to provide more reliable estimates of local parameters and sector-specific emission factors;
- Impacts studies on the Coastal Zone were done but studies were not done on the fragile hinterland where villages are exposed to the dangerous effects of mining and rainfall excesses on the topography, the surface waters and the health of the people. The impacts are expected to be felt on sectors such as agriculture, energy, the coastal zone, human settlements and other fragile locations in the inland and interior communities. The most crucial impact zones were identified to be on the coast. The Regional Consultations in the coastal regions revealed that a new problem has arisen: salt water intrusion into the surface water systems. This will have to be examined in the second communication;
- It was suggested that climate change adaptation implementation measures be linked to the National Development Strategy (NDS) (16) which was recently approved by Parliament. Since development will be hampered by the effects of Global Warming, it becomes necessary that developmental and other projects be tied to Climate Change adaptation measures. It makes sense to tie adaptation projects to development projects since it will result in financial savings and more efficient use of the human resources. The response measures for the coastal zone will require major decisions to be made with respect to plans to retreat from the Coast, to accommodate advances of the sea in some areas and/or to protect the coastal resources. The Global Models indicated that the signs of sea-level rise and climate change will be expected by the year 2025. However, some troubling climate signals are becoming apparent since the last decade of the 20th century. These signs are disturbing enough to place an added strain on the economy and human resources of the country;
- Adaptation has to be reassessed in the light of the local floods on the East Coast of Demerara, the overtopping of the sea defences, the overtopping of the Lama Conservancy Dam, the destruction of the sea defence on the West Coast of Demerara in this year, 2005; and
- Mitigation has to be re-examined in the light of the acute rise in the price of fuel imported from abroad to satisfy energy and industry demands.

The document does provide the basis for sector reviews of their activities in the face of rising temperatures, intense wave action on the sea defences and the impacts of global warming and

anthropogenic climate change. In the regional consultations, it was found that no regional administration had a copy of the National Communication or the Action Plan. Wider distribution may be considered in order for public awareness purposes.

3.5.2 Climate Change Action Plan (CCAP)

This document is a supplement to the Initial National Communication. It was prepared in 2001 by the National Task Force established by the NCC. The activities identified in the document were seen as capacity actions relevant to adapt to and mitigate Climate Change and to respond to the adverse impacts associated with the effects of global warming. The activities were grouped under the following programme areas:

- Mobilization of financial and technical resources;
- Human Resources and Institutional Capacity Building;
- Consolidation of the Policy, Legal and Administrative Framework;
- Response Measures for Adaptation to Climate Change;
- Education, Training and Public Awareness;
- Research and Systematic Monitoring of Climate and Climate Change;
- Measures for Furthering the aims of the Kyoto Protocol;
- Measures for Mitigation of Climate Change; and
- Development and Transfer of Technology.

The Action Plan was prepared to address the inadequacies which the National Communication showed up. It addressed many of the capacity weaknesses in the government and other sectors for which climate change is and will be of importance. It needs to be put in a prioritized format and requires to be brought to the notification of the UNFCCC and the GEF organizations by the Government for funding consideration of emergency projects.

The document is very relevant today since it did identify capacity building as a serious stumbling block for the implementation of the national Climate Change Programme. It should be up-dated to take cognizance of current atmospheric and water-related local disasters and to include activities to recognize the vulnerabilities of interior communities. Since it is a supplement to the Initial Communication, it ought to be revisited with a view towards it being a supplement to the Second Communication to the COP of the UNFCCC.

3.5.3 Guyana's Climate Change Adaptation Policy and Implementation Strategy for Coastal and Low-Lying Areas - Some Issues of Capacity needs

This document addressed the capacity needs to implement the adaptation policy. It was done in 2002 but is still relevant today. It was prepared by the NCC in response to the CPACC Component 4 Project. It identified several sectors and the human, financial, training and equipment needs of Guyana for the implementation of the adaptation policy. Some of the sectors were:

- Coastal management;
- Coastal and Marine Resources;

- Sea and River Defences;
- Agriculture;
- Human Settlement;
- Fisheries;
- Forestry;
- Water Resources;
- Energy;
- Transportation;
- Industry;
- Tourism;
- Human Health;
- Mining; and
- Finance.

3.5.4 The CPACC and the MACC Projects

The OAS and Caricom are the regional institutions which are executing these Coastal Zone projects. CPACC has now ended and MACC is on-going. The projects are geared towards adaptation measures, acquisition of equipment, training and Public Awareness. Sea level measurements were restarted in Guyana since it stopped in the 1970s and for the first time, Guyana collected climate data for the coastal waters in 2001. Monitoring of some of the elements of Climate Change began in the same year because of these projects. Benefits are still being received from the MACC project. MACC will build on CPACC's achievements and aims to integrate climate change and variability into the agendas of the tourism, agriculture, fisheries and infrastructure sectors. Guyana will be involved in the many activities of this Project.

Member agencies are attending workshops to improve skills in matters such as tourism, agriculture, fisheries and infrastructure. The project has concentrated on computer modeling of climate scenarios and the setting up of a Caricom Community Climate Change Centre to serve the region. A Public Awareness programme is being developed, fisheries are being assessed, tourism is examined and other adaptation activities are being pursued to alleviate the adverse impacts of Climate Change.

Although Guyana had participated fully in these projects, the loss of staff (who participated and were trained) and inadequate funding have prevented the country from moving forward with its programme to implement an adaptation policy and to implement a strategy for the low-lying coastal zone. The Integrated Coastal Zone Management Action Plan provides matrices of activities and necessities for the implementation of them. Capacity needs are addressed, especially in the training of personnel of the NCC member agencies.

When the CPACC project was being designed, the main problem to be addressed was sea-level rise (SLR). The Caricom Island States saw this as the major obstacle to socio-economic development. Guyana also was concerned that SLR will severely impact on its Coastal Zone. MACC was designed to continue to address SLR but sought to widen the activities to cover important sectors not addressed in CPACC. Guyana will have to address problems in the inland and interior areas where Climate Change impact signals are being observed.

The Caricom Community Climate Change Centre has been created to, among other functions, attract human and financial resources for adaptation projects in Caricom countries. Public Awareness is also an important activity of this Centre. Guyana must ensure that the Guyanese needs are addressed by the Centre.

3.5.5 Greenhouse Gas Emission Reduction Related to the Rice and Wood Industries in Guyana

This project was done for the EPA by the SENES group of Canada in 2004. It was funded by CIDA and worked on by SENES staff and Guyanese in an effort to monitor the emissions from a selection of rice mills and sawmills operating in Guyana, identify the technologies used to provide energy for operations, and to identify technologies which can reduce emissions of ghgs, improve milling operations and introduce cleaner environments for workers and villagers in the vicinity of the mills. It was the first project in Guyana to seek to obtain a reliable estimate of the emission of carbon products into the atmosphere. The considerations of the project were:

- Inventory of Sawmill and Rice Milling Industries;
- Review of Technologies;
- Measuring and Estimating ghg emissions;
- A review of ghg emissions reduction technologies in use in the rice and wood industries in other countries;
- Assessment of the economic and social attributes of the Wood and Rice Milling Industries in Guyana and likely effect of instituting technology improvements;
- Recommendations for Technology upgrade and Pilot Implementation of potentially viable technologies to reduce ghg emissions;
- Information dissemination, training and Public Awareness; and
- Capacity Building through Technology Transfer and training.

This project is still very relevant to Guyana's attempt to explore the possibility of the Transfer of Technology in two sectors which contribute to the emission of ghgs into the atmosphere. It awaits actions at the local level for implementation of the transfer of technology. The project is to be seen as one of the significant moves towards implementing Guyana's mitigation obligations under the Convention.

3.5.6 Linkages with UNCBD and UNCCD

Cooperation among the local agencies is *via* the NREAC and the NCC, and through bilateral meetings. At the political level, Cabinet's Sub-Committee on Natural Resources and Environment ensures that the Cabinet is fully briefed before decisions are made. Cooperation internationally is done *via* the Conventions' Joint Liaison Group. Noting the importance of sustainable development for Guyana, it is necessary for the activities of the NREAC and the NCC to include cross-cutting matters which affect the implementation of all the Rio Conventions. There is the need for enhanced cooperation and to promote visibility of this cooperation among stakeholders and the general public so as to address synergies under the common objective of sustainable development in the various sectors: industry, commerce, forestry, agriculture and human settlement.

There are many cross-cutting issues which must be tackled locally and the Convention's COPs have seen the necessity for this by taking the matter to regional workshops for actions at the

local levels. One of the earlier workshops was the Sri Lanka South Asia meeting on Regional Partnership for Integrated Capacity Building for Multilateral Environmental Agreements (MEAs) in South Asia. There was a similar meeting in the Latin America and Caribbean region. Guyana should hold one such workshop for the members of the NREAC, the NCC, the Ministers and the other stakeholders in order to arrive at common positions on how to deal with cross-cutting issues, identify the issues, and define the actions to be taken and the lead organizations and the task forces which will deal with the issues.

The Caricom Community Climate Change Centre (CCCCC) has addressed a project to the GEF to operationalize and demonstrate the linkages between the Multilateral Environmental Agreements (MEAs) at the regional, national and community levels within Caricom countries. Should this project become a reality, then Guyana should seek to obtain maximum benefit from it since the communities in Guyana need to have common approaches to deal with those common issues which arise from the Rio Conventions. Climate Change can result in biodiversity changes and in land use changes. It is therefore necessary for Guyana to develop a programme for addressing these cross-cutting issues. Also, education, training and Public Awareness programmes can be economically and efficiently developed for all the Rio Conventions rather than be separately done.

3.5.6 Matters related to the Montreal Protocol

The Ozone Action Unit of the Hydrometeorological Service of the Ministry of Agriculture functions also as the Climate Change Unit of the Division. The Institute of Applied Science and Technology (IAST) executes programmes for the introduction of technologies in Guyana to reduce use and emission of ozone-depleting substances. Training and supply of equipment are the main activities carried out by the IAST.

In the phasing out of ozone-depleting substances, global-warming substances were recommended as substitutes. This is therefore a matter of local as well as international concern. There is a decision of the COP8 which requires the SBSTA and the Montreal Protocol's Technology and Economic Assessment Panel to submit a report by early 2005 on all areas which require action by Parties. The Decision can be obtained from the web-site 'http://www.unfccc.int/cop8/latest/15_sbsta19add1.pdf'. The UNFCCC addresses the gases which are not being addressed by the Montreal Protocol. Hence there is a clear distinction between ozone-depleting substances and global warming substances. But, some of the gases recommended by the Montreal Protocol as replacement gases are also ghgs and so this is a cross-cutting issue which must be addressed by both the Convention and the Montreal Protocol. The NCC should deliberate on this issue, come to agreement on Guyana's position on the matter and make the Country's position known to the regional and international decision-making bodies.

3.5.7 Sustainable Development and the UNFCCC

The Convention's Objective calls for stabilization of ghg concentration in the atmosphere in ways which will enable economic development to proceed in a sustainable manner. Principle 5 of Article 3 calls for cooperation to promote a supportive and open international economic system that would lead to sustainable economic growth and development.

The Government of Guyana has addressed strategies for sustainable development in the following documents:

- **The National Development Strategy:** This document examines development options in several industries--mining, agriculture, forestry, fishing, and other sectors. It recommends policies and sets priorities within a framework of environmental regulation and economic stability. It also addresses health care, education, gender equity, and other social issues. It has recently received the approval of Guyana's Parliament.
- **National Environmental Action Plan (NEAP) 2001-2005:** The Government of Guyana unequivocally declared its commitment to sustainable development including sustainable human development as one of the major pillars of our country's socio-economic programme. In this context, Guyana will seek to integrate economic, environmental and social values during planning and to distribute benefits equitably across socio-economic strata and gender upon implementation. It also seeks to ensure that opportunity for continued development remains undiminished for future generations. This approach also defines the need for environmental protection to be treated as a cross-sectoral matter applied to all aspects of the development process.
- **Guyana Sustainable Development and Environmental Health Project:** This document identified sector area issues and make recommendations on ensuring that sanitation and environmental health issues are dealt with in a manner which promotes sustainable development.
- **The Poverty Reduction Strategy:** This document identifies several activities which are expected to provide assistance to vulnerable communities and groups in order to build capacity to promote self-reliance and knowledge- improvement. Sustainable development is a basic underlying principle for the Strategy.

It is therefore noted that the Government is committed to do its part in achieving the ultimate objective of the Convention but in a manner that will not cause harm to the environment within which Guyanese live. All projects for adaptation and abatement will be subjected to the laws of the Environmental Protection Act of 1996 and will be monitored through the mechanism of Environmental Impact Assessments.

4.0 GAP IDENTIFICATION AND ISSUES

In Chapter 3, the obligations and the current actions have been detailed. In this chapter, the gaps in Guyana's implementation of the Convention will be explored and the issues will be provided. The first Stakeholders Meeting will be considered for issues which were thought to be hindrances to the process of implementation of the UNFCCC in Guyana. The Regional Meetings have been considered in order to bring the issues facing the communities into the discussion on the issues.

4.1 THE STAKEHOLDERS' FIRST MEETING

Appendix A provides an extract from the report on this Meeting. It has a list of stakeholders who attended the Meeting.

The main objectives of the National Launch & Workshop were:

- To introduce the project stakeholders to the aims, outputs and work-plan of the NCSA process;
- To outline the Rio Conventions: United Nations Conventions on Biological Diversity (UNCBD), the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD);
- To outline the roles of the key stakeholders in the project implementation; and
- To orient each participant regarding the opportunities for personal contribution to the NCSA.

Questions addressed by Workgroups were:

- Who are the key stakeholders in addressing the obligations under Rio Conventions? (Who should we consult?);
- How are they affected and how do they stand to benefit from the NCSA project? ;
- At what stage of the project should they be consulted and what form should the consultation take? (i.e. workshops, small focus group meetings, etc)? ;
- Define the linkages/synergies among the Conventions; and
- Any other issues relevant to the NCSA.

Stakeholders are affected by:

- Loss of resources- financial and otherwise;
- Threat to security;
- Health impacts;
- Environmental impacts;
- Loss of culture/traditional knowledge;
- Restriction of activities;
- Migration; and
- Stress on other areas to eke out a living.

They saw NCSA as offering benefits such as:

- Provision of information;
- Public awareness;

- Funding for capacity building project; and
- Alternative livelihood (resourceful).

4.2 THE REGIONAL STAKEHOLDERS' MEETINGS

Meetings were held in all the regions of Guyana in order to assess the capability of the regions to undertake programmes and projects under the UNFCCC and to understand the knowledge base of the people of the regions with regards the UNFCCC and the seriousness of Climate Change for the people of Guyana. A Questionnaire was prepared for the regional stakeholders and is given in Appendix B to this document. There is a fact-sheet which seeks to briefly indicate to the readers:

- The sectors which can be vulnerable to Climate Change;
- The sequence of Climate Change events which can be expected to occur in Guyana; and
- The benefits for Guyana from funding organizations.

It is hoped that this fact-sheet will stimulate the interest of the stakeholders long after the meeting and have them pursue actions to deliberately inform, educate and motivate the people not to do things which can intensify an already vulnerable situation in many communities.

The questionnaire has been designed for simple yes or no answers with comments, if necessary. However, it was expected that stakeholders can discuss, with the consultant, any matter which needed clarification. Longer comments and advice were welcomed from the stakeholders. The questions asked of the stakeholders sought to have them examine the capacity of the region/community to deal with the vulnerabilities which may face them in the reality of the present- day socio-economic situation. The responses to the questionnaire were then analyzed to get the sense of the issues which the regions and the communities see as presenting capacity constraints, and to evaluate the responses so as to prepare recommendations to address their concerns.

Details on the number of questionnaires from each region and other statistics can be found in Appendix B.

97% of responses indicated that changes in climate have been observed in all the regions in Guyana. The comments ranged from:

- excessive rainfall leading to floods;
- significantly higher winds;
- hail;
- high intensity rainfall;
- Changes in heat during the day and during the night;
- Changes in the start/end of the seasons; and
- Very hot conditions during the dry spells.

4.2.1 The Regional Capacity Picture

All the regions were sampled on the capacity needs for addressing the Convention in Guyana. The primary constraints were finance and human resources but the responses addressed these other capacity issues:

- Timely disaster response;
- Sectors which can be impacted;
- Programmes to deal with disasters;
- Public Awareness;
- Education Programmes; and
- Guyanese Capability to address impacts of Climate Change.

The preparedness for disaster occurrences is just not there according to the high number of negative responses. The introduction of Climate Change education in schools received a high number of positive responses. Training and Public Awareness were of high concern to the stakeholders. Many agencies of Government are involved in Climate Change coordination or in activities relating to Climate Change. However, skills training and requirement for more relevant research are needed. There was support for the existing policy on Climate change with half of the responses finding no need to make it stronger.

4.3 GAPS AND ISSUES

Gaps are to be seen as resulting from barriers to the implementation of Guyana's plans related to the UNFCCC. The guiding theme of interviews and consultations is that there are barriers which result in the delayed response actions to the Convention commitments and Guyana's national Action Plans (see references under the bibliography for Chapter 3). It must not be thought that barriers occur throughout the spectrum of systematic, organizational and individual linkages. One very good action was to create an agency, the EPA, by an Act of Parliament with the mandate for climate change and to appoint a division of the Ministry of Agriculture to be the 'action' unit for activities which have to be carried out to implement the Convention in Guyana.

Other very good actions were the creation of the Cabinet Sub-Committee on Natural Resources and the Environment, the Natural Resources and Environment Advisory Committee (NREAC) chaired by the Prime Minister, and the National Climate Committee (NCC) chaired by the Chief Hydrometeorological Officer. These bodies ought to ensure that:

- The Convention matters reach the highest level of Government- the Cabinet; and
- Convention matters reach the relevant Ministers of Government through the representatives of the NCC.

4.3.1 Convention Articles

The Convention Articles of interest to Guyana and the actions taken so far, in Chapter 3, are used to indicate the gaps which exist and to determine the issues which result in the gaps.

Article 4.1(a): National Inventories

Gap:

- National inventory not updated.

Issues:

- Funding required to employ adequately-skilled persons and to acquire material for the task of data collection, data processing and development of the inventory; and
- The removal, by sinks of ghgs in the Forestry sector, requires a study to improve the values used in the initial inventory.

Article 4.1(b): National and Regional Mitigation Programmes and Adaptation Measures**Gaps:**

- There is not a policy document which represents Guyana's national programme to mitigate climate change;
- There is not a policy document which represents Guyana's national programme of measures to facilitate adequate adaptation to climate change; and
- Measures to facilitate adaptation in the inland and interior communities not fully addressed.

Issues:

- Policy development needs a concerted attempt by the NCC to consult with the Ministers and higher officials, industry and other sectors, the scientific bodies and the communities; and
- Scientific studies into particular sectors and vulnerabilities, needed to guide the NCC, are not fully addressed.

Article 4.1(c): Mitigation Projects**Gaps:**

- A programme of studies to seek out and assess the available technologies, practices and processes that control, reduce or prevent anthropogenic emissions of ghgs is needed to be addressed for the sectors.

Issues:

- A policy has to be decided on the sectors to be targeted, the roles of government, private sector and others, approaches to promote cooperation and types of technologies, practices and processes;
- The IAST's role has to be widened in order to remove the gaps with regards the relevant sectors, including energy, transport, industry, agriculture, forestry and waste management; and
- Prioritization of activities to be targeted within the sectors.

Article 4.1(d): Promotion of Sustainable Management**Gaps:**

- Effective promotion of sustainable management and cooperation in the conservation and enhancement of sinks and reservoirs of all ghgs require a programme of activities to identify and measure the sinks and reservoirs in the biomass, forests, ocean areas of relevance, and other terrestrial, coastal and marine ecosystems; and

- Close cooperation with the local institution(s) related to the Biodiversity Convention is required.

Issues:

- Local climate change and biodiversity personnel need to be linked in addressing the gaps; and
- Priority activities need to be identified.

Article 4.1(e): Preparing for Adaptation

Gaps:

- Impacts of Climate Change on inland and interior communities need to be studied;
- Plans for coastal zone management, water resources and agriculture need re-assessment;
- Policies and Plans for the protection and rehabilitation of impacted areas have to be developed;
- Guyana's hinterland problems will not be addressed in the current MACC project; and
- The Guyana Government will have to ensure that projects are formulated to address Guyana's unique problems as well as those which are common to the Caricom region.

Issues:

- Studies of impacts of Climate Change on inland and interior communities need to be addressed;
- Updated integrated plans for coastal zone management, water resources and agriculture and adaptation are needed in the light of recent widespread flooding and new scientific data; and
- Protection and rehabilitation of impacted areas and vulnerable people done on a reaction rather than a response to the impact event.

Article 4.1(f): Climate Change Considerations in National Planning

Gaps:

- Climate Change impact assessment policies, actions and methods have to be formulated and determined at the national level and then implemented; and
- Projects or measures undertaken by the Country to mitigate Climate Change should be assessed for adverse impacts on the economy, public health and on the quality of the environment.

Issues:

- A Plan for Climate Change Impact Assessment studies and implementation need to be addressed; and
- Climate Change mitigation projects need to be assessed for socio-economic and environmental impacts.

Article 4.1(g): Promotion and Cooperation in Research

Gaps:

- Scientific, technological, technical, socio-economic and other relevant research not vigorously pursued;
- Efforts to understand and to reduce the uncertainties regarding the causes, effects, magnitude and timing of climate change in Guyana not adequate; and
- Efforts to determine the socio-economic consequences of potential response strategies have been minimal.

Issues:

- Researchers are not motivated to pursue studies in the relevant areas of research;
- Routine non-climate change tasks does not allow for sufficient time to be spent on research;
- Climate Change 'research' at the University of Guyana is left to graduating students who are doing their long paper studies;
- Cooperation among the government, private sector and research institutions need to be enhanced; and
- Policy direction is not in evidence.

Article 4.1(h): Exchange of Information

Gaps:

- There is no legal information relating to Climate Change; and
- A system for information exchange is not documented.

Issues:

- Laws on climate change regulations and practices need to be developed; and
- A policy and a plan for climate change information gathering and sharing has not been worked on.

Article 4.1(i): Education, Training and Public Awareness

Gaps:

- Education programmes in the schools and the University are not in existence or is not focused on Climate Change;
- Training of non-NCC members and in the Regions in climate change impact monitoring and response actions not done; and
- Public Awareness activities are few and of short durations. MACC's Public Awareness programmes are not designed to address the needs of the local communities in Guyana.

Issues:

- Training and retention of staff of the agencies not in the NCC requires to be addressed;
- Training of regional administrative officials and community leaders not addressed;
- Public Awareness programmes do not last for very long in order to keep Climate Change in the memory of people, especially in the interior communities; and
- Education programmes for the schools have not been addressed.

Article 4.1(j): Communication with the Conference of Parties

Gaps and Issues: See Article 12.

Article 4.5: Development and Enhancement of Endogenous Capacities

Gaps:

- Information availability to Guyanese not adequate; and
- Policy in seeking developed country assistance not in place.

Issues:

- Assessment of needed EST's required;
- Assessment of endogenous capacities and technologies needed; and
- Methodology for seeking developed country assistance needs to be clarified.

Article 4.7: Taking into Consideration Other Over-riding Priorities of Developing Countries

Gaps:

- Cooperation among the agencies involved in Poverty Alleviation and those involved in Climate Change adaptation not adequate; and
- Programmes of activities requiring funding and technological assistance have to be developed and prioritized for consideration by the developed country Parties and the Financial Mechanism.

Article 4.8: Consideration to Necessary Actions

Gaps:

- Actions related to funding, insurance and transfer of technology limited; and
- The COPs and the developed countries need to be addressed on Guyana's needs arising from adverse effects of climate change and the impacts, on development, of response measures.

Issues:

- A programme for funding of response measures, insurance for regions, communities and/or people affected, and transfer of technology needs to be urgently addressed; and
- The COP needs to be sensitized on Guyana's Climate Change impacts and draw the attention of the developed country parties to the urgent assistance needed.

Article 5: Research and Systematic Observation

Gaps:

- International and intergovernmental efforts to strengthen national scientific and technical research capacities and capabilities very limited; and

- Knowledge of weaknesses in the Guyanese capacity and capability areas not documented.

Issues:

- A study of the sectors and institutions which require assistance to address institutional and individual weaknesses in the conduct of scientific and technical research is needed.

Article 6: Education, Training and Public Awareness.

Gaps:

- See Article 4.1(i); and
- Retention of trained staff for sufficiently long periods

Issues:

- See Article 4.1(i); and
- The problems of losing trained staff were not solved and many of the participants are either retired or have left the jobs. Therefore, the experience of the trained staff has gone with them while the new staff awaits training and projects to come to Guyana. Some agencies made use of the training of their staff by making them trainers of other staff. The equipment which was acquired required maintenance but the lack of spares, unqualified maintenance technicians and the inadequacy of budget allocations will not allow for continuity of data records for a sufficiently long time.

Article 12: Communication of Information related to Implementation

Gaps and Issues: See Article 4.1. Whatever activities have been acted on should be reported to the COPs.

4.3.2 Conditions which govern implementation of the Convention

The gaps and issues indicated above are subject to conditions stipulated in the Convention. These are:

- Article 4.1 is to be implemented, taking into account Guyana's priority responsibilities and its specified national and regional development priorities, objectives and circumstances;
- Greenhouse gases controlled by the Montreal Protocol are not to be addressed in these Articles; and
- Economic and social development and poverty reduction are the first and over-riding priorities of Guyana.

4.3.2 Kyoto Protocol Articles

The Protocol Articles of interest to Guyana and the actions taken so far, in Chapter 3, are used to indicate the gaps which exist and to determine the issues which result in the gaps.

Article 10(a): Formulation of National Programmes

Gaps: Local emission factors are not available for the sectors of importance.

Issue:

- Updates of national inventory of ghgs will require better estimates of emission factors.

Article 10(b): Mitigation and Adaptation Programmes

Gaps and Issues: See those highlighted for Convention Article 4.1

Article 10(c): Environmentally Sound Technologies

Gaps and Issues: See those highlighted for Convention Article 4.1

Article 10(d): Systematic Observation Systems and Data Archives

Gaps and Issues: See those highlighted for Convention Article 4.1

Article 10(e): Strengthening of National Capacities

Obligation: Strengthening of national capacity building (human and institutional as well as secondment of personnel for training experts) for facilitating public awareness of, and public access to, information on climate change.

Gaps and Issues: See those highlighted for Convention Article 4.1

Article 12: Clean Development Mechanism

Gaps:

- Guyanese capacity to take projects through the CDM processes not developed.

Issues:

- A programme of activities for project identification, baseline studies, project proposal development and negotiations with the CDM Board and companies and countries is necessary.

4.3.3 Categorization of Issues

Convention issues

The several Convention Issues are categorized as:

- Inventory of ghgs: preparation and update;
- Adaptation Sector Plans: Coastal Zone Strategies and Plans, and activities;
- National Communication: Initial communication and update;
- Mitigation Sector Plans: Technology, energy and other sectors' activities;
- Systematic monitoring and research;
- Response to impacts of Climate Change effects;
- Education, Training and Public Awareness; and

- Access to information.

Protocol Issues

The Protocol issues are categorized as:

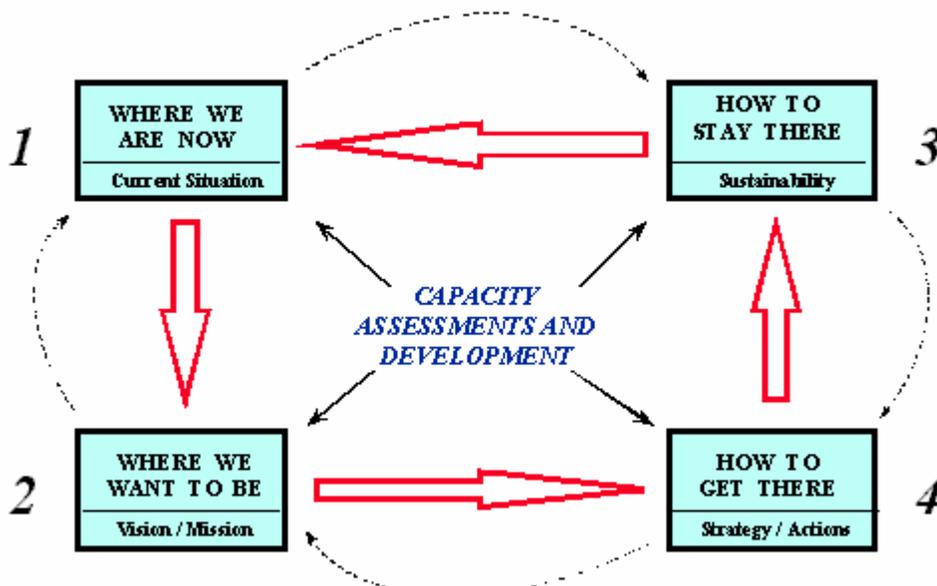
- Mitigation activities;
- Environmentally-sound Technologies;
- Activities to further the implementation of Article 4.1 of the Convention; and
- CDM Activities.

5.0 ASSESSMENT AND PRIORITIZATION OF ISSUES

5.1 CAPACITY ASSESSMENT AND DEVELOPMENT

Using the UNDP guide for Capacity Assessment and Development- see Figure 1 for a copy of a UNDP slide, it is clear that the assessment must start with the position as is at present. Then it is necessary to identify the elements of what needs to be done by the country with regards the UNFCCC. The capacity, to move the country from the present situation to the position which it needs to be in, will then be evaluated to inform on what needs to be done in order for the Country to respond in a timely fashion to the Convention and to the decisions of the COPs. As Figure 5.1 demonstrates, it is not enough to just bring matters up-to-date. It is important that measures be taken to sustain the capacity to respond to the needs of the Convention and the Country. It means that the process of evaluation is no one-time action but rather, it is a process which will evolve as the country's development level changes and as the Convention needs require the attention of the country.

Figure 1: UNDP's Programme Management Life Cycle



Current Situation

Cabinet Decisions have led to the creation of the NCC and the NREAC which make recommendations to Cabinet on matters related to Climate Change. There is an advisor to the President on Sustainable Development who also plays a major part in the work of the NCC and the NREAC.

Many of the agencies in the NCC and the NREAC have legislative mandates for their primary activities. Their mandates do not directly address climate change. However, they do work on Climate change projects.

Many activities were undertaken under the CPACC and the MACC regional projects. Coastal zone assessment, adaptation studies and public awareness were and are being addressed.

Mitigation studies in reduction of emissions in the rice and wood sectors and pilot/demonstration projects in bio-fuels are examples of abatement measures. The Guysuco co-generation project will be a major CDM activity under the Kyoto Protocol for Guyana.

Vision/Mission

With regards the Convention and its Protocol, the Mission is to achieve implementation of the Articles of relevance to Guyana in such a way and in sufficient time to reduce the impacts/hardships on the people without disrupting the pace of socio-economic development, and to provide timely reports to the COPs.

Strategy/Actions

The strategy has the following components:

- Sustainable Development has to drive all activities in the Environmental Conventions, the National Development Strategy, the Poverty Reduction Plan, the Millennium Goals activities and the other Development Programmes;
- Strengthen the mandates of the agencies to include climate change activities;
- Make use of regional projects which can provide benefits to the country in addressing some of the Articles of the Convention and its Protocol while seeking to garner funds, human and other resources, and training for the agencies to address capacity weaknesses to implement other relevant Articles;
- Make use of South-South cooperation activities; and
- Work closely with the UNFCCC Secretariat, the COPs, the GEF and other funding agencies, and with the developed country Parties to enable the country to build capacity to implement the Articles of the Convention and the Protocol.

Sustainability

It is recognized that capacity-building is a continuous process. Given that there are certain realities which will always present obstacles in the way of maintenance of satisfactory capacity levels, it becomes necessary that monitoring, evaluation and forward-planning be an integral part of the capacity-building mechanism in the Government with regards the Convention and the Protocol so that timely actions can be taken to address capacity issues.

The programme for monitoring, evaluation and forward-planning will require consideration of the following areas:

- Human Resource: retirement of personnel, migration of staff, motivation for staying on the job, career improvement, skills training;
- Infrastructure: comfortable office space, adequate furniture and equipment, proper maintenance and availability of tools to get the job done;
- Timely reporting to higher officials and to the COPs: Bottlenecks in the system must be critically examined and recommendations put forward to remove them; and

- Availability of adequate funding, local as well as external: The funding obstacles which impede the smooth implementation of projects and other activities will require to be examined in order for actions to be taken to address them.

5.2 REVIEW OF PRIORITY ISSUES IN UNFCCC IMPLEMENTATION

This work is guided by the GEF document titled 'A Guide for Self Assessment of Country Capacity Needs for Global Environment Management', GEF, Washington, September, 2001'.

Website: 'http://dgef.unep.org/capacity_building/NCSAs/guidebook'.

5.2.1 The Priority Issues in UNFCCC and Kyoto Protocol Implementation

The categories of issues will now be examined in terms of a Prioritization Matrix to indicate the national priorities for the implementation of the UNFCCC in Guyana. Tables 6 and 7 provide the prioritization matrices for the categories of issues for the Convention and the Protocol.

Table 6: Issues Prioritization Matrix for UNFCCC

Issue Category	Scale of Problem	Level of Concern	Ability to Adequately Address Issue	Priority Ranking
Inventory of ghgs: preparation and update	Global/National	High	Low	2
Adaptation Sector Plans: Coastal Zone Strategies and Plans, and activities	National	High	Low	1
National Communication: Initial communication and updates	Global/National	High	Low	2
Mitigation Sector Plans: Technology, energy and other sectors' activities	Global/National	High	Low	1
Systematic monitoring and research	Global/National	High	Low	3
Response to impacts of Climate Change effects	National	High	Medium	1
Education, Training and Public Awareness	National	Medium	Medium	3
Access to information	Regional/ Local	High	Medium	3

Notes:

The scale of the problem can be local, regional, national or global.

The level of concern can be low, medium or high.

The ability to adequately address the issue can be low, medium or high. Priority ranking is as follows:

- 1- most important;
- 2- important;
- 3- important but does not require urgent attention;

Table 7: Issues Prioritization Matrix for the Kyoto Protocol

Issue Category	Scale of Problem	Level of Concern	Ability to Adequately Address Issue	Priority Ranking
Mitigation activities	Global/National	Medium	Low	2
Environmentally-sound Technologies	Global/National	Medium	Low	2
Activities to further the implementation of Article 4.1 of the Convention	National	High	Low	1
CDM Activities	National	High	Low	1

The notes for Table 1 apply.

5.2.2 Assessment of the Issues in the Prioritization Matrix

General

The matrices given above show that all but one of the UNFCCC issues are of national scale. One is of local and regional scale. Many are also of Global scale since occurrences in Guyana can influence scientific findings for the world, and contribute to reduction/increase of the global average emissions of ghgs. The one issue which is of regional/local scale is the one dealing with public awareness and information flow to the communities. This was a matter of concern to the stakeholders in the regions.

The level of concern ranges from medium to high. The flood impacts have raised the level of concern for most issues to High. Education, Training and Public Awareness is indicated as of Medium concern because it is seen as second in priority to those which can alleviate the current pressing problems of adaptation and mitigation.

The ability to address the issues is a capacity matter and ranges from low to medium but five Convention issues and all Protocol issues are ranked low in terms of capacity. The constraints affecting these issues are major and will need to be addressed in order for improvement to be realized.

Convention Issues: The priority ranking for the Climate Change issues ranges from 1 (most important) to 3 (important but does not require urgent attention). The floods and sea-level breaches make the adaptation issue one which has severe problems, that is 1. Mitigation is another issue which is very critical to Guyana at this time when very high costs of fuel imports will restrict/hamper development in the economic sectors. Hence it is of a number 1 rank. Another number 1 ranked issue is the response to the effects of Climate Change since

the vulnerable communities are primarily poor and without the financial and human resources to respond meaningfully. For Guyana, inventory of emissions and sinks of ghgs and the updating of the National Communication must necessarily give way to the number 1 ranked issues given above but they are important for the implementation of the Convention and have been ranked 2 or important issues. Systematic monitoring and research; Education, Training and Public Awareness; and Access to information are also important but must give way to those issues which can significantly affect socio-economic development in the country and are ranked as number 3 issues or important but does not require urgent attention.

It must be recognized that the NCSA project arose as a result of the developing countries not being able to implement the Convention because of capacity problems. Guyana, and other countries, has an obligation to implement its commitments under the Convention. The capacity problems which hinder socio-economic development in Guyana must also be seen to hinder implementation of Convention commitments. Capacity development must therefore address all the issues identified above.

Protocol Issues: The issues are ranked as numbers 1 and 2 in terms of priority. CDM can bring tremendous economic benefits to the Country and so it must be a major Protocol issue to be addressed in terms of capacity building. Activities for the implementation of the Convention Article 4.1 require to be addressed if Guyana is to achieve the objective of the Convention. This issue is therefore to be assigned a priority level 1 rank. Mitigation activities and Environmentally-sound Technologies are issues which can be addressed in CDM projects and in other mitigation projects but, without them, Guyana's implementation of the Convention and its Protocol will be inadequate. Hence they are ranked as number 2 issues.

5.2.3 Relevant Issues Addressed in the Capacity Building Initiative of GEF/UNEP

As a consequence of the COP and COP/MOP decisions on capacity building, the GEF funded a study to identify capacity issues in the regional groups. The Latin America and the Caribbean (LAC) and the Small Island Developing States (SIDS) reports were of interest to Guyana. The issues of relevance to Guyana are given as follows:

Latin America and the Caribbean

- Guyana is affected by climatic variations such as the El Nino/ ENSO and intense wave action on the sea defence as a result of intense Atlantic storms;
- A consequence of sea-level rise can be loss of coastlands due to overtopping of sea defences leading to damage to infrastructure and intrusion of salt water into rivers and ground water aquifers;
- Agricultural production may be influenced by global warming and effects of Climate Change. Livestock production may also be affected by the increase in the abundance of fungal organisms;
- Changes in rainfall patterns and distribution may cause health problems as a consequence of the spread of infectious diseases;
- Guyana's total ghg emission is small as compared to the Annex II Parties; and
- Continuity in the application of policies and stability in the country are essential for adaptation actions to be of benefit to the people.

SIDs

- A sustainable development strategy is fraught with both difficulties and opportunities. Even advanced countries have difficulties grasping and implementing these concepts;
- Guyana has several islands which are inhabited and support agriculture and other economic activities. They are under threat from the outflow from the rivers and from the ocean actions- wind, high tide, salt water intrusion and disruptions in the Guyana Current;
- Financial constraints are the single most limiting factor in environmental management in Guyana; and
- Capacity challenges: lack of adequate funding, inappropriate scale and scope of initiatives and policy frameworks, scarcity of technical expertise, and poor infrastructure.

5.2.4 The critical issues for Guyana

Having examined the issues in the prioritization matrix and in the LAC and SIDS considerations, it is timely to analyze those issues which are urgent and will impose major constraints on Guyana's socio-economic development.

- **Adaptation:** Floods accompanying rains have been affecting development in many communities in the coastal and inland areas. The signs are appearing that interior communities may be in for impacts similar to that in the coastal regions. There is a need for urgent decisions on how to deal with the problems of ineffective drainage and sea and river overtopping;
- **Response measures:** Many of the vulnerable communities are incapable of responding to the impacts which cause pain and suffering to the people. Public awareness coupled to action-oriented programmes will have to be addressed within the communities as well as in the schools. Training will have to be identified for selected community persons. The response measures will have to be urgently tackled so that community leaders can be assured that they can take some positive actions until help comes from outside the community; and
- **Systematic monitoring and research:** An Early Warning System is a priority for each region. This will involve international cooperation, cooperation among the agencies which are responsible for responding to local disasters and involvement of the communities in monitoring and responding to adverse impacts.

6.0 CAPACITY CONSTRAINTS AND OPPORTUNITIES

This work is guided by the GEF document titled 'A Guide for Self Assessment of Country Capacity Needs for Global Environment Management', GEF, Washington, September, 2001'. Website:http://dgef.unep.org/capacity_building/NCSAs/guide_book'

Capacity constraints will be examined from the point of view of the barriers to the implementation of Convention articles and decisions in Guyana. The prioritized list of categories of issues indicated in the previous chapter shall be used to determine the capacity constraints which create the issues and do not make for a successful and aggressive implementation of the Convention and its COP decisions in Guyana. Opportunities are then put forward for addressing the constraints which are indicated. *It must be remembered that opportunity actions must not become a burden on the economy and must not be allowed to take precedence over socio-economic development and pressing emergency activities- see the opening words of Article 4.1 of the Convention.*

It must also be noted that the basis of the implementation problems is that '*Financial constraints are the single most limiting factor in environmental management...*- quoted from the SIDS report mentioned above'. The Public Service is not one of the attractive institutions which can draw the attention of the qualified persons because of the poor salaries which obtain in this institution. Arising from this, there is a set of constraints which follow and are responsible for the creation of gaps.

6.1 A RANGE OF REASONS FOR THE CONSTRAINTS IN GUYANA

The source for this Section is the SIDS and LAC reports on Country Development Needs and Priorities under the Capacity Development Initiative of the GEF- UNDP Partnership. 2000.

- a) International assistance in finance, training and some consultancies do not last for a sufficient time period so that many can be trained and put to long-period practical work in order to function capably in their jobs. Training of trainers is not adequate if they do not have the funds and managerial backing to train others. Migration of trainers adds to the problem.
- b) It must be recognized that only so much can be done with limited resources. The human and financial resources which are usually available cannot, in general, energize available workers to efficiently dedicate themselves to the official tasks, while the daily stress of living takes its toll on workers' ability to address the official tasks.
- c) Limited statutory power to effectively carry out mandates can create confusion as to the priority of tasks to be handled by agencies, and do not make for urgency in doing climate change tasks.
- d) Inadequate institutional capacity of sector and other agencies and departments to meet the obligations of Guyana adds to the dilemma of these agencies which must apportion work to the staff in accordance with policy directions from Ministers and higher officials, mandates given by Parliament and Cabinet, and in accordance with routine tasks for which the agency was established and receives budgetary allocations.
- e) Limited human and financial resources affect the entire governmental structure in Guyana.

- f) Differing priorities of the agencies, departments and Ministries require a policy framework to address Climate Change activities.
- g) The paucity of skilled negotiation persons in the field of Climate Change is not good. Guyana is not actively involved in the negotiations either at Conference of the Parties level or at the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI) levels. As a consequence, Guyana responds to COP decisions rather than pursue actions which were deliberately discussed and agreed upon by Guyanese. This sends a signal to those who have to be involved in activities in Guyana that it is a Convention whereby decisions have to be followed and not negotiated.
- h) Expertise in the area of the CDM in Guyana is scarce. The comments given in (g) above also relates to the Protocol and the CDM.
- i) No public awareness programme to educate the Public is being planned for by the lead agencies except for those under the MACC project. This project however is dominated by issues which affect the islands in the English-speaking Caribbean. Guyana, with its mountains, flat lands, savannahs, rivers, islands, conservancies and its eco-tourism will have to do its own work to sensitize its people on Climate Change issues.
- j) Efficient inter-agency collaboration requires a policy framework to address the important cooperation which is necessary for the technical and other skills to come together to work for the good of Guyanese.

Guyana is a developing country with several socio-economic activities competing for the limited human and financial resources available for development and for taking care of local and country-wide poverty issues. While the Government sees the usefulness of the Convention to Guyana, it must make judicious use of the resources and assess the relative importance of the development issues and problem matters, and support for the Convention issues. The lead agencies must therefore be able to influence the higher officials and the political directorate on Climate change issues, especially the adaptation issues. Programme planning and development will be needed to define the role of Climate Change in the context of the other issues which compete for the limited resources.

6.2 GENERAL CONSTRAINT FACTORS

6.2.1 Individual Level Constraints

- **Job Requirements and Skills Levels:** There are many posts which require particular qualifications and skills but these are not available so inadequately qualified persons are often required to 'act' up in higher positions;
- **Training and retraining:** Academic training does not make one an expert in a field. Work experience is required for many years. Academically trained persons without particular skills training do not provide the best leadership to the team which has to do the work. Also, training can be forgotten when the job is done and is not repeated quickly enough;
- **Access to information:** This is difficult in Guyana with regards the UNFCCC. It is not that information material is not available but a laborious search is required to obtain relevant information;
- **Personal/Professional networking:** Computerized networking and tele-conferencing is not available to the two lead agencies and the NCC members but individuals are in contact with each other via e-mails and telephones; and

- **Adequate remuneration:** This is a significant constraint to getting the motivation for doing the job properly and going the extra mile when called upon to do so.

6.2.2 Institutional Level Constraints

- **Mission/strategic management:** The lead agencies have clearly defined mission statements. However, these are not formulated to include protection of Guyana from the effects of Climate Change;
- **Structure/ Competencies:** The lead agencies need to be restructured to accommodate activities associated with Climate Change. Training will allow managers to provide better management competence;
- **Processes:** Planning, quality management, monitoring and evaluation of activities and projects need to be strengthened;
- **Human Resources:** The human resources are not adequate and not sufficiently skilled. The deployment of inadequately-skilled persons may not be appropriate but the reality is that the scarcity of the resource leaves the manager with no other option;
- **Financial Resources:** The management of the finances is upright and effective. However, the lead agencies rely mainly on external funding, *via* projects, to carry out Climate Change activities. There are no substantial national budgetary allocations for implementation of a Climate Change Programme;
- **Information Resources:** Relevant information on Climate Change issues are not always available to the Public and are not effectively managed and distributed. Also, various agencies have duplication of functions or some are vested with parts of a function while the other part(s) is/are the responsibility of another agency. The consequence of this is inadequate information sharing and cohesion;
- **Security of Information:** All agencies must devise means to secure documents which are sensitive in order to avoid leakages;
- **Infrastructure:** Material requirements such as offices, vehicles, computers and monitoring devices are managed in accordance with the regulations in the Public Service. However, they are always inadequate or not available. Both lead agencies require more office space and vehicles. Computers and monitoring devices are mostly acquired as project tools. The problems associated with regular maintenance cannot be overlooked for they present a major constraint to data collection continuity and database expansion; and
- **Technology Transfer:** It is important for all to realize that minimal technology transfer to Guyana will occur if Guyanese officials do not interest companies and developed countries to use the Convention and the Kyoto Protocol to do business with Guyana. Our political and administrative officials and business and corporate officials must be taken on board in order for them to be involved.

6.2.3 Systemic Level Constraints

- **Policy framework:** The policy as obtained currently does not directly address Climate Change as an issue in its own right. Climate Change is grouped under the protection of the atmosphere component of the EPA Act but it is bigger than just dealing with the atmosphere. The effects will be seen on land, coastal waters and the rivers, socio-economic sectors, and on the people. Several sectors of the country's socio-economic

drive will be affected by global warming and the consequences of it and sector operations can promote negative impacts in the climate of the regions and the country.

- **Legal and regulatory framework:** Laws are needed for the sectors to adhere to and to guide businesses to follow actions which are climate-friendly. Environmental Impact Assessments (EIAs) should be fashioned to take climate change impacts into consideration.
- **Management Accountability framework:** Institutional responsibilities are not clearly defined and the EPA and the Hydrometeorological Service work as best as they can to implement the Convention in Guyana. It was pointed out earlier that while the EPA has the mandate *via* the protection of the atmosphere component of the EPA Act, the Hydrometeorological Service is Guyana's Focal Point to the UNFCCC and is the agency which coordinates the local components of the Caricom project, MACC. While these two agencies are held accountable for Climate Change, they are accountable for many other activities which relate directly to the agencies' work programmes that are budgeted for from the National Treasury.
- **System Level resources:** The human, financial and information resources are not adequate to address the activities demanded by the Convention and its decisions.
- **Processes and Relationships:** At the national level, institutions relate to each other well but they all have skills shortages and financial inadequacies.

6.3 PARTICULAR CONSTRAINT FACTORS

6.3.1 Inadequate Policy Framework

Individual: Many of the representatives within the agencies represented on the NCC require training to efficiently deal with the issues which arise. A legislated Policy direction can address the skills training which are required. Individual representatives have substantive agency duties as well as the additional Climate Change duties.

Institution: Climate Change has not been the reason for the creation of any of the existing agencies and divisions of Ministries. These agencies took on the responsibilities because of Cabinet Decisions and Ministerial directions. "The EPA Act exists, the Water Bill exists and all other sectors operate under their Acts/Decisions. Cross-Sectoral issues are usually addressed holistically during inter-sectoral meetings"- quoted from the Focal Point to the UNFCCC. What is needed however is the formulation of a Policy Framework indicating the differing mandates of the EPA and the Hydrometeorological Service and the clear Climate Change directives for the other sector agencies. Then the sector agencies will have the political backing for institutional strengthening to deal with Climate Change issues and to seek budgetary allocations and training for the relevant staff. Policy direction is also needed for delegating Ministries and agencies to coordinate adaptation, mitigation, technology transfer, education, training and public awareness, scientific and technological research and Climate Change Monitoring. The job descriptions of NCC participants need to be reexamined to reflect the additional tasks associated with Climate Change

System: There is need for a Management Accountability Framework to be set up to regulate the activities of the NCC members and to provide information to the higher officials and the political directorate of progress, obstacles and the evolution of climate change implementation in Guyana and elsewhere. The NREAC can be strengthened to play this role.

6.3.2 Response to the Convention Negotiations

Individual: There are not many persons who are qualified for negotiating at the Meetings. The Government may send delegations which cannot cope with the several negotiating activities that are carried on and so their contribution may be minimal. Access to information in a timely manner may allow delegations to discuss agendas prior to leaving for the Meetings.

Institution: The lead agencies and other NCC members need to be restructured to cater for Climate Change as a priority activity and provide training for managers to develop improved management competence and negotiating skills.

System: The Ministries/agencies must develop the capability to provide the human, financial and other resources to facilitate adequate responses to the Convention and to assist the Government representatives to participate in Meetings of the Convention.

6.3.3 Timely Follow-up actions

Individual: Inadequate skills training and absence of competent back-up staff members can lead to long delays and even no responses.

Institution: The lead agencies need to improve planning, information resources and infrastructure to support efficient monitoring of responses to requests and calls for actions from Guyana on matters dealing with Climate Change.

System: Legal and regulatory frameworks for the activities of the NCC in addition to the provision of the resources required for improved performance of the institutions are necessary.

6.3.4 Caricom projects will not satisfy the Climate Change requirements of Guyana

Individual: Training to deal with inland and interior impacts is needed. Training within the communities is also needed.

Institution: Guyana has a vulnerable coastal zone like the CARICOM islands but, like Belize, it has other geographical and economic zones which are vulnerable to the effects of global warming and Climate Change. MACC adaptation efforts, not intended to address adaptation issues beyond the coast, are welcomed but are not sufficient to address Climate Change in Guyana though they shall provide experience to the institutions in Guyana. These institutions need to address the hinterland problems.

System: Education, training and awareness should be seen as key factors towards driving the sharing of the national resources towards issues concerning Climate Change matters.

6.3.5 Capacity building is an evolving process

Individual: The Project builds capacity by training individuals, especially stakeholders, to deal with issues of capacity building. It will not be in Guyana's interest to allow the training to go to

waste by not seeking to have an agency continuously re-assess the capacity needs and resources at timely periods in order to sustain the gains which may be derived from the project.

Institution: Training and retraining efforts should be seen as important for evaluating capacity needs.

System: The national responsibility to ensure that capacity needs are evaluated often is neglected but is needed to evaluate their resources versus the tasks which they have to perform and the quality of the outcome of these tasks.

6.3.6 Communication with the Convention on local disasters

Individual: No individual is tasked to examine local-scale disasters from a Climate Change perspective, within the agencies.

Institution: The NCC is not yet in the position to assess local/region-scale disasters and there has not been official communication with the UNFCCC Secretariat and/or the COPs on these events and possible links to Climate Change.

System: There needs to be a policy direction on information which should be sent to the UNFCCC Secretariat on local-scale disasters which could be as a result of the effects of Climate Change. It must be a requirement that regional and international assessments of local disasters be reported to the Secretariat of the UNFCCC and for them to be brought to the attention of the COPs.

6.3.7 Inadequate budgetary allocations and staff

Individual: The Finance Ministry official in charge of budgetary allocations must be sensitized of the essential work of the lead agencies.

Institution: All NCC members need to pursue increased budgetary allocations for their Climate Change tasks.

System: It is difficult for the Government to allocate higher levels of financing when there are not enough local funds to address other pressing matters. External funding assistance can be sought.

6.3.8 Public and private sector education, training and public awareness

Individual: There are not enough trained and skilled persons available.

Institution: The Ministry of Education and the NCC needs to collaborate on the NEEPAS programme to include Climate Change in all components.

System: All Ministries require to be apprised of the impacts related to their work. The

perception of climate change not being a concern of certain ministries has to be changed by a concerted effort at imparting facts to the officials.

6.3.9 Projects must have wide participation in the NCC

Individual: A close working relationship has to be developed between the sector businesses and the NCC. Data-collection and emissions factor studies ought to be done by trained staff of NCC agencies.

Institutional: Inadequate financial and human resources do not allow for exchange of information between the NCC and the business agencies. The NGOs are underutilized.

System: The Civil Defence Commission, the communities (via the Ministry of Regional Development) and the Guyana Defence Force are major response agencies and should be members of the NCC.

6.3.10 Data collection on climate change variables

Individual: Skills development and training are not adequate for staff, in the Hydrometeorological Division and other agencies to handle new technologies.

Institution: The Hydrometeorological Service and some of the other NCC members lack the funding to acquire equipment to monitor climate and climate change variables.

System: Support needs to be canvassed, from those who direct the budgetary allocations, for funds to effect climate change monitoring. All Ministries need to address training to look for signals of global warming and climate change.

6.3.11 Information resources and databases

Individual: Access to information and adequate salaries are hindrances to staff.

Institution: The establishment of a proper climate change database and a central information office is hindered by inadequate funding for equipment, trained staff and monitoring instruments.

System: Higher officials have to be convinced of the need for the information office and the database. More effort has to be put into engaging the UNFCCC Secretariat, GEF and the developed country parties to fund equipment, training and database software.

6.3.12 Information flow to local agencies

Individual: Sufficient staff numbers not available to handle the task.

Institution: There is need for coordination of information distribution.

System: Funding for information collection and distribution will be required.

6.3.13 Clearinghouse mechanism for dissemination and security of Information

Individual: Training will be required.

Institution: There is a need to implement mechanisms for distribution and security of climate change information.

System: Authorization required for actions to implement the relevant component of the Climate Change Action Plan. A programme for screening information is not in place. The agencies with library services need to coordinate their activities for storing, securing and disseminating climate change information.

6.3.14 Benefits to staff must be improved

Individual: Motivation to perform efficiently and with dedication is not always present, especially at the junior levels of staffing.

Institution: NCC members must strive to convince the relevant agencies of the need for improved salaries and allowances. This can be done via the NREAC and its Chairman, the Prime Minister.

System: There are limited funds available. More efforts required to attract external funding for long-term projects.

6.3.15 Monitoring and scientific research

Individual: Training and skills development need to be addressed by all sector agencies and key stakeholders.

Institutional: The U.G. has to set up mechanisms to conduct research into local climate change issues. All relevant sector agencies and stakeholders should also be involved. Adaptation studies for each Region are critical to plan for response measures.

System: Funding support needed for actions to address monitoring and research into climate change in Guyana and on effects on local communities.

6.3.16 Technology development and transfer

Individual: The skills and the training in the different sectors and in the IAST are not adequate.

Institution: The IAST will require funding to take up the challenge of addressing Climate Change matters. The EPA has shown that it can attract funding for studies into Climate Change matters.

System: The Government has shown an urgency to get the IAST moving towards addressing alternative fuels and other technological alternatives to conventional technologies. The support is there from the Government and from the private sector. A programme of technology options is needed.

In addressing these constraints, the Government and its NCC will have to initiate moves to change things for the better. It will be required to seek and influence the approval and thinking of the Political Directorate and the higher officials in the relevant Ministries. It will also be necessary to work closely with the UNFCCC Secretariat and the GEF in order to identify countries and businesses which can be encouraged to engage with Guyanese to further the objective and decisions of the Convention and its Protocol. It will also be necessary to influence regional project negotiators to do more for Guyana.

6.4 CATEGORIES OF OPPORTUNITIES TO REDUCE CONSTRAINTS

6.4.1 The Basic Commitments

Guyana has certain commitments under the UNFCCC. Figure 6.1 gives a snapshot of the responsibilities of Guyana with regards the UNFCCC. The responsibilities are:

- Monitor Climate Change- temperature changes, sea-level changes, climate changes, and emission changes;
- Monitor and adapt to the adverse effects (sea-level rise, droughts and floods, intensity of wave action) of Climate Change ;
- Take measures to reduce impacts (agriculture, food and water systems, ecosystem and biodiversity, land degradation, human settlements and human health) on socio-economic activities; and
- Take actions to mitigate Climate Change in Guyana.

6.4.2 Guyana's Adaptation Problems

Guyana has been doing what it can in the face of the reality of fewer monitoring stations and inadequate accounting of local disasters. Responding to impacts on the population, natural systems and socio-economic development path are all adaptation issues. Guyana has benefited from the CPACC and MACC projects for the Caricom States but these projects are not sufficient for a Guyana which is responding to local disasters in the present time and which have vulnerable inland and interior communities. Guyana has a relatively small population which should be protected from the effects of Climate Change. Guyana's tourism is not of the 'sea and sun' type and is vulnerable to excessive rainfall or deficient rainfall and temperature rises. Crops and livestock can be affected by fungal organisms which thrive in high moisture areas. Actions cannot wait for economic growth to occur. The UNFCCC has mechanisms for assistance to be sought by developing countries in need, and, Guyana has to take actions to fully make use of the UNFCCC for this facility.

6.4.3 National ghg inventory Commitment

Reporting on emissions of ghgs and their concentrations is a commitment for Guyana to act on. Two projects have been initiated by the lead agencies of the NCC but the mechanisms for continuous and systematic collection of climate change data and measuring of the emissions have not been put in place. There is a need to have the relevant agencies identified for collecting

particular types of data (energy, transportation, forestry, agriculture, solid waste, human waste, climate, etc.). This type of data consists of collection of raw data, processing the data, applying emission factors and obtaining amounts of carbon dioxide approximations.

Training and computer hardware and software will be required by the agencies. Initially, the Hydrometeorological Service collected the data under the Initial Communication Project. It is now the time to divide the work among the agencies in the NCC, effect training and start the exercise for the Second Communication.

A question was raised by a stakeholder as to whether the mandates of the agencies include this work. This has to be assessed by the agencies and raised with the NREAC and its Chairman for clarification and direction from the Cabinet. The Convention requires that Guyana make inventories of carbon dioxide emissions from the relevant sectors and report same to the COPs. The matter of the lack of resources was also raised by this stakeholder. Human, training and financial resources will be required by the agencies. The COPs and the Financial Mechanism, the GEF, should be approached for assistance and the Government should be encouraged to meet the recurrent costs for this exercise.

6.4.4 Principles for addressing Constraints Removal

- Ensure national ownership, leadership and commitment;
- Utilize existing coordinating mechanisms and structures, if appropriate;
- Make use of the provisions and responsibilities in the Convention and its Protocol;
- Promote comprehensive participation;
- Adopt a holistic approach to capacity building; and
- Adopt a long-term approach to capacity building within the broader Sustainable Development context.

With these principles in mind, the issues are now explored and opportunities are presented for the removal of constraints by consideration of the creation of new capacities, mobilizing/redeveloping of existing capacities and enhancing existing capacities.

6.4.5 Constraint Removal Proposals

Policy development to guide institutions and individuals

Creating New Capacities: None

Mobilizing/redeveloping existing capacities: NCC to develop draft of a policy framework in layman's terms and seek approval to move it to the Ministry of Legal Affairs for scrutiny and for preparation of a draft policy framework document for submission to Cabinet for discussion and for further action. A Specialist may be required to guide the preparation of the framework document.

Enhancing existing capacities: Funding may be required for the hiring of legal and other officer(s).

Timely Response to the Convention and participation in Convention Meetings

Creating New Capacities:

Create a Climate Change Centre to serve as the coordinating mechanism to drive Guyana's Climate Change activities. The Cabinet should determine the agency to be responsible for the Centre.

Mobilizing/redeveloping existing capacities: Shift staff members to the Centre with responsibility to track queries and responses from the UNFCCC and related Agencies. Also, seek approval to remove some vacancy positions and replace them by Climate Change positions with adequate job specifications and salaries. All agencies should be called on to cooperate in this staffing activity.

Enhancing existing capacities: Funding for this centre (which will include staff recruitment or redeployment, training and equipment and materials) will be required to be sourced from the funding agency for the Convention and from the country's budget.

Timely follow-up actions

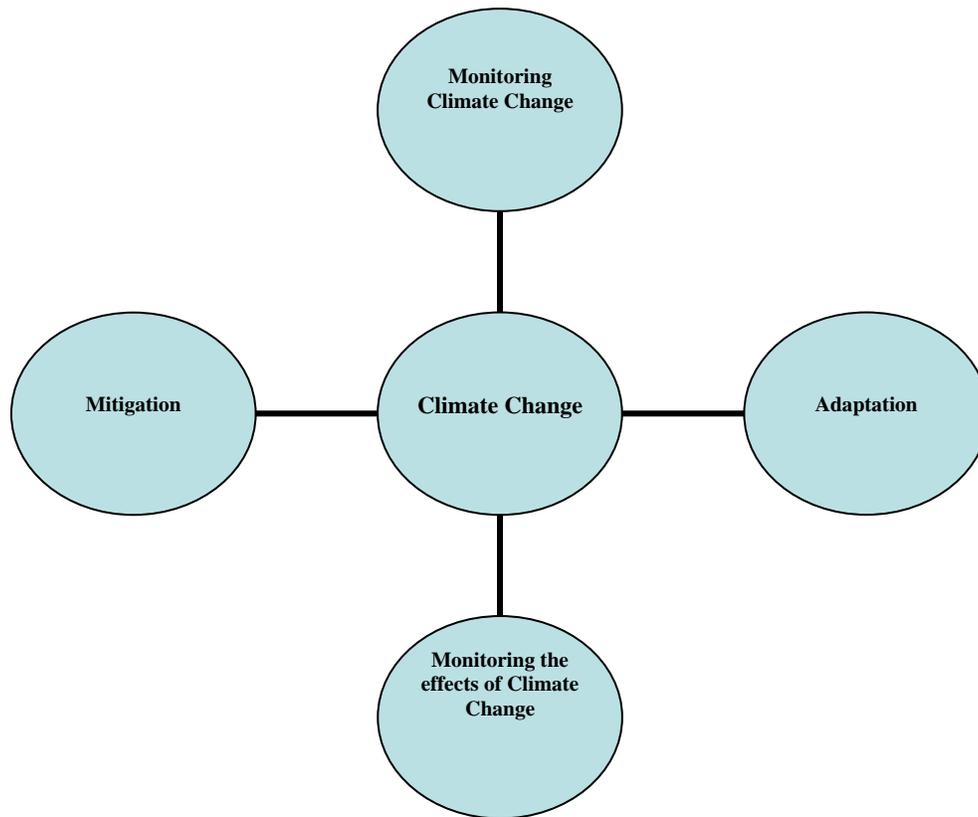
Creating New Capacities:

Appoint skilled and trained staff to work on Climate Change assignments in the NCC member institutions.

Mobilizing/redeveloping existing capacities: Train staff to track and report status of follow-up actions.

Enhancing existing capacities: Develop a programme for following up on activities, highlighting obstacles and putting up recommendations for removing obstacles.

Figure 2: A Snapshot of Guyana's Obligations under the UNFCCC



Coastal Zone Management Policy Direction

Creating New Capacities: A coastal zone unit should be set up in the EPA.

Mobilizing/redeveloping existing capacities: Shift the available staff to the coastal zone unit.

Enhancing existing capacities: A Policy Framework Legislation should be enacted for coastal zone monitoring and management. It should reflect the mandatory need for cooperation and joint activities to lessen the impacts of Climate Change effects.

Climate Change requirements of Guyana

Creating New Capacities: Develop an adaptation and a mitigation programme for Guyana and seek to have a Climate Change Centre established to drive national, regional and local Climate Change activities. One Member agency of the NCC suggested that, due to limited fund availability, the Climate Change Centre should be set up within an already existing institution to deal with national programmes and to lead the cooperation with the Caricom Climate Change Centre. It is also recommended that the Climate Change Centre take on the role of the information Centre in order to reduce capital and recurrent costs and infrastructure difficulties.

Mobilizing/redeveloping existing capacities: Address existing vacancies by modifying job specifications and job descriptions to suit Climate Change specifications.

Enhancing existing capacities: Train and develop skills in inventory compilation and emission factors, adaptation for personnel in the regions and communities, and mitigation for industry personnel.

Capacity building as an evolving process

Creating New Capacities: Establish a Capacity Building Unit in the EPA to monitor and evaluate the capacity building efforts coming out of this Project.

Mobilizing/redeveloping existing capacities: Train EPA staff or recruit staff to continue the work, of the Project staff, to sustain/oversee the capacity building efforts of the NCC.

Enhancing existing capacities: Seek funding for the staff of the Unit recommended to continue the work of the Project.

Communication with the Convention on local disasters

Creating New Capacities: None

Mobilizing/redeveloping existing capacities: Mobilize NCC Members to compile reports on the local climate change disasters and seeking approval to inform the UNFCCC Secretariat about the contents of the report and any assistance required. The emphasis here should be for the COPs to be called upon to take note of the report and to have the Financial Mechanism directed to provide all that are necessary to assist Guyana and its affected sectors and people to cope with the challenges posed by the disasters.

Enhancing existing capacities: None.

Budgetary allocations and staffing

Creating New Capacities: A Policy Framework backed by Parliament and Cabinet can allow for budgetary allocations for more activities relevant to climate change and more staff members to do the tasks. Agencies can then move to address climate change activities on a regular and timely basis. More staff and funding can then be requested from the National Treasury.

Mobilizing/redeveloping existing capacities: None.

Enhancing existing capacities: Provide training to improve the ability to perform more tasks and easing of the work-load of existing staff.

Public and sector education, training and Public Awareness

Creating New Capacities: Implement NEEPAS modification as suggested in the Climate Change Action Plan.

Mobilizing/redeveloping existing capacities: The relevant Ministry of Education division will be requested to address the proposal in the Climate Change Action Plan.

Enhancing existing capacities: Provide funding for creating the new capacity in the Ministry of Education.

Wider participation from the Private Sector, NGOs, CDC, Military and Ministry of Regional Development

Creating New Capacities: None

Mobilizing/redeveloping existing capacities: Training to be provided to these groups in Climate change impact monitoring, disaster preparedness and response mechanisms when impacts result in hardships.

Enhancing existing capacities: Expand the membership of the NCC by invitation to the interested organizations.

Public and sector participation

Creating New Capacities: Create an Information Centre to address Climate Change Convention information sharing with the public and the relevant energy, industry and other businesses

Mobilizing/redeveloping existing capacities: Shift some clerical/ administrative staff to the Information Centre and train them to perform efficiently.

Enhancing existing capacities: Train staff to encourage wider participation and on information processing and sharing.

Data collection on climate change variables

Creating New Capacities: Seek funding for the procurement of equipment, hiring of trained staff and vehicles for transport of equipment and staff

Mobilizing/redeveloping existing capacities: Shift at least one experienced meteorological observer/ maintenance staff member to the Climate Centre.

Enhancing existing capacities: Train existing staff members on the observer/maintenance team of the Hydrometeorological Division in techniques and skills to maintain and collect data from the climate change equipment

Information resources and databases

Creating New Capacities: Establish/Improve on a Climate Change database at the Hydrometeorological Division with adequate networking for the sharing of information

Mobilizing/redeveloping existing capacities: Shift available staff to the database and information units.

Enhancing existing capacities: Develop the skills needed to input data into the database and to analyze data.

Clearinghouse mechanism for dissemination and security of information

Creating New Capacities: An Information Centre was already proposed; computerized networking to be established with relevant firewalls among NCC members, the media, the sector agencies, the NGOs and the regional administrative offices.

Mobilizing/redeveloping existing capacities: None

Enhancing existing capacities: Provide the staff with the know-how for making information available for use by others.

Benefits to staff

Creating New Capacities: None

Mobilizing/redeveloping existing capacities: None

Enhancing existing capacities: Seek support and approval for improved salaries from the Government Treasury for the existing staff members.

Monitoring and scientific research

Creating New Capacities: The Hydrometeorological Division to be provided with the equipment and staff to monitor Climate Change in Guyana and its Exclusive Economic Zone (EEZ); U.G. to be provided with the funding, training and data to undertake research into topics of relevance to the Climate Change.

Mobilizing/redeveloping existing capacities: None

Enhancing existing capacities: Provide short courses for existing staff members who are already trained in disciplines which can address Climate Change studies.

Technology development and transfer

Creating New Capacities: Provide the IAST with the skills to assess technologies which can be used in Guyana for ghg emission reduction in the sector agencies

Mobilizing/redeveloping existing capacities: Mobilize the staff of the IAST to address the development and transfer of technology Article in the Convention.

Enhancing existing capacities: Provide the skills to the U.G. for identifying suitable technologies for transfer to Guyana.

Kyoto Protocol Implementation

Creating New Capacities: None

Mobilizing/redeveloping existing capacities: Train GO-INVEST and other relevant institutions to deal with CDM initiatives.

Enhancing existing capacities: Provide suitable training for staff of the IAST, U.G., and sector agencies in the CDM processes and procedures, identification of relevant technologies, and involvement of businesses.

Notes:

1. Funding by the Government will be very difficult to be realized. Funding by the Financial Mechanism to the UNFCCC, the GEF, can be realized but takes time and officials' efforts. It

also needs project proposals to be prepared and submitted either directly or through the Conference of the Parties. The hiring of a Funding Specialist to write project proposals and seek funding for priority activities will be useful to Guyana's Climate Change efforts.

2. A collaborative and cooperative system effort can overcome many of the constraints but it will require information to be provided to all relevant officials in the system.
3. A serious review of the vacancies in the agencies needs to be done with a view towards filling some of them with staff for the new units or for initiatives, within the agencies, for furthering the implementation of the Convention.

6.5 CAPACITY BUILDING MEASURES

The capacity constraints which exist in Guyana all stem from a serious lack of funds to deal with, not only Climate Change, but with all the Conventions, environmental or otherwise. With regards Climate Change, a funding mechanism, the GEF, is available for the provision of funds as directed by the COPs. Also, there are developed countries which have programmes to support developing country adaptation, mitigation and other climate change projects.

6.5.1 Creating New Capacity

The following measures are proposed:

- a) Create a Climate Change Centre in an NCC member organization.

This Centre will be the operational arm of Guyana's Climate Change Programmes and will oversee the Climate Change activities of the NCC and sector agencies. It will also cooperate with the CCCCC to garner funds and resources for projects in Guyana.

- b) Appoint skilled and trained staff to occupy positions in the NCC and in the lead agencies.

Noting that Guyana has a difficulty retaining skilled staff, it becomes necessary for skilled and professional staff to be recruited and be paid improved salaries.

- c) Seek funding for the capacity building needs which cannot be addressed by the Government of Guyana.
- d) Develop programmes to address adaptation, mitigation and ghg emission factors and baseline studies (for the CDM projects)
- e) Establish a Capacity Building Unit in the EPA to oversee the Capacity evolution in the implementation of the Convention.
- f) Create an Information Centre in the Hydrometeorological Service to act as a clearing-house for information distribution and security. It should also function as the hub for a network consisting of NCC members, sector businesses, NGOs, regional administrations and media agencies. Protection of information requiring security clearances will have to be built into the network system. This Information Centre can be a part of the proposed Climate Change Centre.
- g) Seek funding for the data collection tasks of the Hydrometeorological Service.

- h) Establish database equipment and skills at the Hydrometeorological Service.
- i) Establish early warning systems for each region and provide staff to relevant agencies for operating the systems.

Note: A decision will have to be made, given that approval for these new capacities is obtained, on the priority to be given to each of these projects and to seek funding for them.

6.5.2 Mobilizing or redeveloping existing capacities

- a) Shift staff members to new units or to new tasks.
- b) Address shortage of staff by changing the job specification and description of jobs which have been vacant for a long time to those of jobs required for Climate Change duties.
- c) Mobilize staff to produce reports on local disasters and relation to Climate Change.
- d) NCC to seek authority to send reports on local climate change-related disasters to the COPs of the UNFCCC and to solicit assistance for adaptation works.
- e) Seek the intervention of the Ministry of Education and the EPA to have the NEEPAS school programme expanded to include Climate Change.

6.5.3 Enhancing Existing Capacities

- a) Provide skills and training to existing staff members of the NCC agencies and the U.G.
- b) Obtain better salaries for the skilled staff.
- c) Provide training for staff in information sharing, security of information and on networking activities.
- d) Provide training for staff identified for data processing and analysis.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The Consultancy was to effect the production of a Stock-Taking and Thematic Assessment on the United Nations Framework Convention on Climate Change (UNFCCC) with a view towards identifying and characterizing critical capacity constraints relevant to effective environmental management in Guyana. The objective of the exercise will be to develop a plan of action to address the constraints which were identified in this and the other two environmental conventions: the UNCBD and the UNCCD. The Terms of Reference of the consultancy is provided in Chapter 1.

7.1 THE CONSULTANT'S WORK

The work of the consultancy included the following:

1. Stock-Taking of previous capacity assessment studies, reports, and existing capacity building programmes.
2. Gap analysis to determine the status of Guyana's current programmes under the UNFCCC.
3. Thematic Assessment on Climate Change:
 - Identifying and reviewing priority issues in implementing the UNFCCC;
 - Identifying capacity constraints for implementing the priority issues;
 - Assessing the constraints at the individual, institutional and systemic levels;
 - Categorizing opportunities in terms of creating new capacities, mobilizing/redeveloping existing capacity and enhancing existing capacities; and
 - Identifying necessary corrective actions.

7.2 STOCK-TAKING, GAP IDENTIFICATION AND ANALYSIS

The Convention and its Kyoto Protocol were examined to indicate what Guyana's obligations were. The Articles of relevance were identified in Chapter 1, Guyana's obligations were clarified and current actions were indicated in Chapter 3. Past actions were also indicated under the heading of current actions.

The Stock-Taking analysis considered the following:

- Guyana's obligations under the UNFCCC and the Kyoto Protocol;
- Current National Provisions for implementation;
- National Convention Reports and Action Plans;
- Assessment of Climate Change information resources and databases;
- On-going projects and measures;
- Previous projects and their results and experience gained;
- Linkages with the other Rio Conventions;
- Linkage with the Montreal Protocol;
- Policy framework and inter-agency coordination; and

- Sustainable Development and the Convention.

The result of the gap analysis is summarized in the following Tables 8 and 9.

Table 8: Summary of Gaps in Implementation of the UNFCCC

Convention Article	Gap(s)
Article 4.1(a)	Update of national inventory of ghgs not prepared.
Article 4.1(b)	National mitigation programme not prepared. National adaptation measures not prepared.
Article 4.1(c)	Promotion and cooperation in mitigation projects not addressed in many sectors such as in industry, mining and agriculture.
Article 4.1(d)	Projects are required to implement results of studies.
Article 4.1(e)	Plans need to be implemented.
Article 4.1(f)	A programme for taking climate change considerations in socio-economic policies and actions needs to be developed.
Article 4.1(g)	No agency/institution has been tasked with the responsibility for research coordination. Meteorological Stations need to be expanded to monitor the Climate System. A Climate System Data Archive is required.
Article 4.1(h)	A Clearing-house mechanism is not in place.
Article 4.1(i)	A plan to execute an education programme has not been implemented. Training opportunities are not widely participated in. Public Awareness activities not widely participated in.
Article 4.1(j)	None
Article 4.5	A programme of activities is not prepared.
Article 4.8	Programme of actions related to funding, insurance and transfer of technology not available.
Article 5	A programme of data collection needs not available.
Article 6	A coordinated programme is not available.
Article 12	Projects for financing not submitted to the COP.

Table 9: Summary of Gaps in implementation of the Kyoto Protocol

Protocol Article	Gaps
Article 10(a)	No studies done on local emission factors, activity data and socio-economic conditions for the preparation of national inventories.
Article 10(b)	Programmes not developed.
Article 10(c)	A phased programme has not been addressed.
Article 10(d)	Gap addressed under the Convention.
Article 10(e)	A coordinated programme required.
Article 12	Guyanese expertise not available.

For each Article, the gaps and the current actions were compared and issues were identified. These issues were categorized as:

- Inventory of ghgs: preparation and update;
- Adaptation Sector Plans: Coastal Zone Strategies and Plans, and activities;
- National Communication: Initial communication and update;
- Mitigation Sector Plans: Energy and other sectors' activities;
- Systematic monitoring and research;
- Response to impacts of Climate Change effects;
- Education, Training and Public Awareness; and
- Access to information.

7.3 CONSTRAINTS AND OPPORTUNITIES

A range of reasons for the Constraints in Capacity Building in Guyana was highlighted from the LAC and SIDS reports on the GEF's Capacity Building Initiative. Then the factors associated with the constraints were considered by examining them from the individual, institutional and systemic levels. It was indicated that the root cause for all constraints was financial limitations.

Opportunities for addressing the constraints fall into the three recommended categories as follows:

- **Creating new capacities:**
 - a) Create a Climate Change Centre in an NCC member institution.
 - b) Appoint skilled and trained staff for various positions in the NCC agencies.
 - c) Seek funding for the capacity building needs which cannot be addressed by the Government of Guyana.
 - d) Develop programmes to address adaptation, mitigation and ghg emissions inventory.
 - e) Establish a Capacity Building Unit in the EPA.
 - f) Create an Information Centre in the Hydrometeorological Service.
 - g) Seek funding for the data collection tasks of the Hydrometeorological Service.

- h) Acquire database equipment for the Hydrometeorological Service and the EPA.
 - i) Set up computerized networking facilities in the NCC agencies for access to information, data and documents. This can be extended to the Media, the NGOs and the regional offices.
- **Modifying/redeveloping existing capacities:**
 - a) Shift staff members to new units or to new tasks within the same department.
 - b) Address shortage of staff by changing the job specification and description of jobs which have been vacant for a long time to those of jobs required for Climate Change duties.
 - c) Mobilize staff to produce reports on local disasters in relation to Climate Change.
 - d) NCC to seek authority to send reports on local disasters to the COPs of the UNFCCC and to seek assistance for rehabilitation works.
 - e) Seek the intervention of the Ministry of Education and the EPA to have the NEEPAS school programme expanded to include Climate Change.
 - **Enhancing Existing Capacities**
 - a) Provide skills and training to existing staff members of the NCC agencies.
 - b) Obtain better salaries for the skilled staff.
 - c) Provide training for staff in information distribution, security of information and on networking activities.
 - d) Provide training for staff identified for data processing and analysis.

7.4 RECOMMENDATIONS

There are many tasks which are required to be undertaken by Guyana in honouring the country's obligations under the UNFCCC and its Kyoto Protocol. Given the current drainage impacts on the socio-economic development of the country, it will be difficult for the Government to accomplish these tasks without assistance. Funding will be required from the financial mechanism of the Convention, the GEF, for capacity building activities but it will take time and effort. It is recommended that the opportunities be addressed in the following manner:

1. Place emphasis on short-term (within 3 years) activities to address all articles which require that Guyana communicate with the COP. Inventories (and accompanying studies, data collection and analyses), programmes for adaptation and mitigation and reporting on impacts should be of the first priority. The next priority should be to act on Education and Public Awareness, scientific monitoring and research (with emphasis on linking local disasters to climate change) and on disaster preparedness for the communities. A funding specialist should be recruited to fashion the programmes and activities into realistic project proposals and to solicit funding for them.
2. Then, examine the policy framework with a view towards detailing a legislative policy document which addresses climate change by focusing on the management structure, communication among institutions, education and public awareness, the role of the NGOs, the media and priorities for Guyana.
3. Train Guyanese in the CDM processes and identify projects for submission to the CDM Board when suitable external partners have been identified.

4. Utilize workshops with specialist trainers to improve skills of staff in the relevant institutions.
5. Encourage U.G. academic staff and other institutions to do work in the climate change areas of importance to Guyana.
6. Do pilot/demonstration projects in the hinterland communities.
7. Train a batch of Guyanese in climate change negotiations and put them to work in getting benefits for Guyana by influencing the climate change negotiations.
8. Take actions to improve the scientific monitoring, analysis and prediction of changes in the climate system.
9. Develop annual work programmes for climate change and review and assess achievements and deficiencies.

A Final Recommendation:

A collaborative and cooperative system effort can overcome many of the constraints but it will require information to be provided to all relevant officials in the system. A system-wide workshop to address knowledge-sharing and strategies for implementing capacity-building measures can help.

BIBLIOGRAPHY

Chapter 1- Introduction

- 1) GUYANA Population, Environments, Economic Activities, Robert Ramraj, published by Battleground Printing and Publishing, North Carolina, U.S.A., 2001.
- 2) Various Newspaper Clippings from the Daily and Sunday Chronicle and the Daily and Sunday Stabroek News for the period 10th October 2005 to 30th January 2006 on floods in Guyana.
- 3) United Nations Framework Convention on Climate Change. UNFCCC Secretariat, Bonn, Germany, June 1992.
- 4) Caribbean: Planning for Adaptation to Climate Change. National Climate Change Bulletin VOL 1, Issue 1, April to June 1999. Hydrometeorological Service, Ministry of Agriculture, Georgetown, Guyana, 1999.
- 5) Mainstreaming Adaptation to Climate Change (MACC). Organization of American States, October, 2002.
- 6) Greenhouse Gas Emission Reduction related to the Rice and Wood Industries in Guyana Project, CIDA/SENES, 2004
- 7) Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories, 1995.
- 8) Kyoto Protocol, UNFCCC Secretariat, Bonn, Germany, December 1997.
- 9) UNFCCC Document FCCC/2000/SB/INF.1

Chapter 2 - Process and Methodology

- 1) United Nations Framework Convention on Climate Change. UNFCCC Secretariat, Bonn, Germany, June 1992.
- 2) Kyoto Protocol, UNFCCC Secretariat, Bonn, Germany, December 1997.
- 3) Decisions of the COPS (from COP1, Berlin to COP9, Milan) to the United Nations Framework Convention on Climate Change, UNFCCC Secretariat, Bonn, Germany, 2003 and onwards.
- 4) Mainstreaming Adaptation to Climate Change (MACC). Organization of American States, October, 2002.
- 5) National Capacity Self Assessment Project, Guyana Project Launch & Workshop, 2005

6) NCSA Guide: Prioritization Matrix, UNITAR/GEF Guide for Self Assessment of Country Capacity Needs, 2001

Chapter 3 - Stock-Taking of Guyana's Implementation of the UNFCCC

1) United Nations Framework Convention on Climate Change. UNFCCC Secretariat, Bonn, Germany, June 1992

2) Kyoto Protocol, UNFCCC Secretariat, Bonn, Germany, December 1997.

3) Guyana's Initial National Communication, inclusive of its Climate Change Action Plan, to the United Nations Framework Convention on Climate Change, UNFCCC Secretariat, Bonn, Germany, June 2001.

4) Decisions of the COPS (from COP1, Berlin to COP9, Milan) to the United Nations Framework Convention On Climate Change, UNFCCC Secretariat, Bonn, Germany, 2003 and onwards.

5) Caribbean: Planning for Adaptation to Climate Change. National Climate Change Bulletin VOL 1, Issue 1 April to June 1999. Hydrometeorological Service, Ministry of Agriculture, Georgetown, Guyana, 1999.

6) Mainstreaming Adaptation to Climate Change (MACC). Organization of American States, October 2002.

7) Guyana's Climate Change Adaptation Policy and Implementation Strategy for Coastal and Low-Lying Areas- Some Issues of Capacity needs, Hydrometeorological Service, Ministry of Agriculture, Georgetown, Guyana, April 2002.

8) Guyana's National Vulnerability Assessment to Sea Level Rise, Environment Protection Agency, Turkeyen, Greater Georgetown, 2002

9) Greenhouse Gas Emission Reduction related to the Rice and Wood Industries in Guyana Project, CIDA/SENES, 2004

10) Information Bulletin on Photovoltaic Systems installed in two Hinterland Communities by the Government with Grant Finances from the UNDP, Electricity and Energy Sectors, Office of the President, November, 09, 2005.

11) World Bank Report No. 34403 on Guyana Bagasse Cogeneration Project. November 3, 2005.

12) Wind Power and Guyana's Energy Needs, Guyana Energy Agency, September 2, 2002.

13) Guyana Shore zone Monitoring Programme, Sea and River Defence Board, 1994.

- 14) Integrated Coastal Zone Management Action Plan, Guyana Environmental Protection Agency, December, 2000
- 15) Institutional Capacity Building Activities on Guyana Sea Defences (ICBA-GSD), Guyana Shorezone Management System, 2005.
- 16) The National Development Strategy, NDS Secretariat, Ministry of Finance, Main Street, Georgetown, Guyana, South America, 1997.
- 17) Strategic Program on Adaptation: Piloting an integrated Operational Approach in the Caribbean, GEF Project Development Facility, 2004.
- 18) The Functions and Organizational Structure of the Hydrometeorological Service, K.E.D. Potter, HyM.-No. GAP. 1, Hydrometeorological Service, Ministry of Works and Transport, Guyana, May, 1978.
- 19) Brainstorming Workshop on the Development of a Regional Partnership for Integrated Capacity Building for MEAs in South Asia, Global Environment Information Centre, Japan, 2006

WEBSITES

- 1) UNFCCC Secretariat, Bonn, Germany.
<http://www.unfccc.int/documentation/items/2643.php>
- 2) UNFCCC Secretariat Bonn, Germany
<http://www.unfccc.int/documentation/decisions/items>
- 3) UNFCCC Secretariat, Bonn, Germany.
<http://www.unfccc.int/resource/docs/nap/guynap01.pdf>
- 4) UNFCCC Secretariat, Bonn, Germany.
<http://www.search.unfccc.int/query.html>
- 5) Hydrometeorological Service, Ministry of Agriculture.
<http://www.guyanaclimate.org>
- 6) Environmental Protection Agency, Turkeyen, Greater Georgetown, Guyana.
<http://www.epaguyana.org>
- 7) Organization of American States, Washington, U.S.A.
<http://www.oas.org/macc>
- 8) Guyana Energy Authority
<http://www.sdn.org.gy/gea>
- 9) IWOKRAMA Carbon Sequestration

<http://www.iwokrama.org>

10) Integrated Coastal Zone Management

<http://www.epaguyana.org>

Chapter 4- Gap Identification and Issues

1) United Nations Framework Convention on Climate Change. UNFCCC Secretariat, Bonn, Germany, June, 1992

2) Kyoto Protocol, UNFCCC Secretariat, Bonn, Germany, December 1997.

3) Guyana's Initial National Communication, inclusive of its Climate Change Action Plan, to the United Nations Framework Convention on Climate Change, UNFCCC Secretariat, Bonn, Germany, June 2001.

4) The Guyana Current, J. Gyory, A.J. Mariano and E.H. Ryan, web-site

<http://oceancurrents.rsmas.miami.edu/atlantic/guiana.html>

Chapter 5- Assessment and Prioritization of Issues

1) A Guide for Self Assessment of Country Capacity Needs for Global Environment Management', GEF, Washington, September, 2001'.

Website: 'http://dgef.unep.org/capacity_building/NCSAs/guidebook'

2) Functions and Organizational Structure of the Hydrometeorological Service, K.E.D. Potter, Hym-No. GAP 1, May 1978.

3) Greenhouse Gas Emission Reduction related to the Rice and Wood Industries in Guyana Project, CIDA/SENES, 2004

4) NCSA Guide: Prioritization Matrix, UNITAR/GEF Guide for Self Assessment of Country Capacity Needs, 2001

Chapter 6 - Capacity Constraints and Opportunities

1) A Guide for Self Assessment of Country Capacity Needs for Global Environment Management', GEF, Washington, September, 2001'.

(Website:http://dgef.unep.org/capacity_building/NCSAs/guidebook)

2) Country Development Needs and Priorities under the Capacity Development Initiative of the GEF- UNDP Partnership. 2000.

Chapter 7- Conclusions and Recommendations

1) Country Development Needs and Priorities under the Capacity Development Initiative of the GEF- UNDP Partnership. 2000.