

FINAL REPORT

INSTITUTIONAL FRAMEWORK REPORT

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



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September 2005

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Institutional and Funding Cross Cutting Issues

Prepared for

**National Environment and Planning Agency
National Capacity Self-Assessment Project (NCSA) - Jamaica
10-11 Caledonia Avenue
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LIST OF ACRONYMS

ACCC	Adapting to Climate Change in the Caribbean
CBD	Convention on Biodiversity
CDM	Clean Development Mechanism
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COP	Conference of the Parties
EFJ	Environmental Foundation of Jamaica
FD	Forestry Department
FPI	Focal Point Institution
GEF	Global Environment Facility
GOJ	Government of Jamaica
JaNEAP	Jamaica National Environment Action Plan
KP	Kyoto Protocol
MOA	Ministry of Agriculture
MLE	Ministry of Land and the Environment
MS	Meteorological Service
MWH	Ministry of Water and Housing
NAP	National Action Plan
NBSAP	National Biodiversity Strategy and Action Plan
NCCC	National Committee on Climate Change
NCSA	National Capacity Self-Assessment Project
NEPA	National Environment Planning Agency
NGO	Non Governmental Organisation
NRCA	National Resources Conservation Authority
PIOJ	Planning Institute of Jamaica
PS	Permanent Secretary
PSC	Project Steering Committee
RADA	Rural Agricultural Development Agency
RPPU	Rural Physical Planning Unit
STEPA	Saint Elizabeth Protection Agency
TNC	The Nature Conservancy
TORs	Terms of Reference
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WRA	Water Resources Authority

EXECUTIVE SUMMARY

The National Capacity Self-Assessment was conducted at three levels within the context of the commonly accepted definition of capacity building as ‘the actions needed to enhance the ability of individuals, institutions and systems to make and implement decisions and perform functions in an effective, efficient and sustainable manner’. The three levels are further explained below.

- Individual capacity building refers to the process of changing attitudes and behaviours, usually through training activities which disseminate knowledge and develop skills.
- Institutional capacity building aims at the development of the institution as a total system and focuses on the overall performance of the organization, its functional capabilities as well as its ability to adapt to change.
- Systemic capacity building is concerned with the creation of ‘enabling environments’ i.e. the overall policy, economic, regulatory and accountability framework within which the individuals and institutions operate.

This report focused on analysing the capacity needs and constraints with respect to the institutional and funding concerns across the Rio Conventions. The findings of the report were built on the results from the three thematic assessments¹ and are aimed at further evaluating the issues which were identified as priority areas of action in these reports. The priority areas of action identified from the thematic assessments are listed below in no particular order of significance.

1. National Action Programmes (NAPs) developed and implemented as a matter of priority for Climate Change and Land Degradation.
2. Implementation of the National Biodiversity Strategy and Action Plan (NBSAP) as Jamaica response to the Convention on Biodiversity (CDB).
3. Effective administrative mechanisms established to oversee the implementation of NAPs and NBSAP in areas of coordination, reporting, accountability and performance targets.
4. Incorporation of the NAPs and NBSAP into the corporate plans and work programmes of the executing and collaborating organisations.
5. Development of a harmonised policy and legal framework to support the programmes/activities of the Rio Conventions.
6. Implementation of a comprehensive integrated public awareness programme.
7. Effective coordinated fund raising.

¹ Final Report **Thematic Assessment** Convention on Biological Diversity

¹ Final Report **Thematic Assessment** United Nations Framework Convention on Climate Change

¹ Final Report **Thematic Assessment** United Nations Convention to Combat Desertification

Of greatest relevance to this report are priority areas 1, 2, 3, 4 and 7 which will be dealt with in this report. Items 5 and 6 are examined in the cross cutting legal and public education reports².

Institutional Issues

An evaluation of the underlying issues related to the emergence of the priority areas of action which were identified in the thematic assessments pointed to the need for a more integrated approach to the management of the programmes developed to support the implementation of the Conventions. The weakness and in some cases absence of effective integration mechanisms among and within implementing organizations were regarded as significant capacity constraints which often resulted in bottlenecks in implementation of programmes and a failure to effectively built on the synergies which exist across the Conventions.

Additionally, within the context of the management of each Convention the effectiveness, role, and influence of ‘the Convention Committee’ was brought into question. The absence of Climate Change and Land Degradation Committees to guide the country’s programmes was identified as another capacity constraint which in the case of the Framework Convention on Climate Change and the Convention to Combat Desertification (Land Degradation) has resulted in inadequate performance as it relates to the development of NAPs. It was the view of the stakeholders and the finding of the thematic assessments that where such Committees were not in place they should be established as clearly such groups could play a major role in the implementation of the Convention.

In the case where a ‘Convention Committee’ existed that is for the Biodiversity Convention, the issues of the degree of influence and authority of the Committee to effectively monitor the implementation of NBSAP and to direct and guide inter agency collaboration and coordination were questionable.

The essential and critical question then with respect to an effective institutional framework was not the absence of or effectiveness of ‘Convention Committees’(although this has clearly been identified as a capacity issue) but the challenge of making these committees as effective as possible given that their composition which by necessity is multi-sectoral and the operation which by and large is conducted not under any legal mandate or even policy framework but out of a spirit of interagency collaboration. While in essence this is a good thing the issues of the authority, accountability, and performance of the Committees need to be addressed.

In light of this evaluation, the absence of effective mechanisms for coordination of the work to support the implementation of the Conventions was thought to be a significant capacity constraint. At the highest level of decision-making the need for national coordination of the activities undertaken for the three Conventions was identified as a matter of the utmost priority. Institutional coordination is required in order to establish priorities and direct action in areas which are cross cutting and where the lines of authority may be blurred. Correction of this capacity gap was considered as a priority areas of action in order to have more effective and efficient management of the work of the Rio Conventions.

² Jamaica, Policy and Legal Cross Report, September 2005

Jamaica, Cross Cutting Issues of Public Awareness, Education and Training, May 2005

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Additionally, the development of strong institutions requires not only that capacity issues be addressed but also that also the presence of strong and committed accountable leadership at all levels of the institutional framework. Solutions to those issues perhaps strictly lie outside of an assessment of capacity issues but must be borne in mind as the country strives to improve its performance in this area.

The following issues must be addressed in order to strengthen the institutional capacity:

- establishment of effective mechanisms for coordination of the work across the Rio Conventions, to provide guidance at the highest decision making level on cross cutting technical issues and major funding efforts;
- establishment of functional and effective Convention Committees;
- strengthening of major executing organizations and identification of these organisations for Climate Change and Land Degradation; and
- strengthening of mechanisms for monitoring and reporting as a strategy to improve accountability.

Funding Issues

The absence of sufficient funding was a recurring finding of all the NCSA reports. The inadequacy of funding was identified as a capacity constraint. By and large this gap is due to a combination of factors which include insufficiency of skills and experience in fundraising as well as the absence of a coordinated approach to seeking funding to support the work across all three Conventions.

It must be noted that although all the issues related to Jamaica's meeting its environmental obligations are not related to the issue of funding, the ability of the country to seriously address the implementation of NBSAP of any NAP which may be developed lies in finding additional funding outside of the current levels of funding provided by the government.

The Global Environment Facility (GEF) is the major source of funding for the conventions and while Jamaica has received some support the country has not placed itself in a position to fully take advantages of the opportunities for funding available through the Facility.

In June 2005 the GEF Council met to discuss and elaborate on initial proposals for programming directions and tools for GEF-4. The GEF Council wants to ensure that it is responsive to the evolving perspectives of the international community with respect to the global environment and sustainable development. The third Overall Performance Study of the GEF has made some policy recommendations for replenishment of the fund which has been endorsed by the Council. These recommendations need to be considered by Jamaica in light of the findings of NCSA which has identified funding as a major capacity constraint.

The following is proposed for the GEF 4 programme:

(a) move towards more integrated approaches to the natural resource management challenges that span the global environmental agreements; and

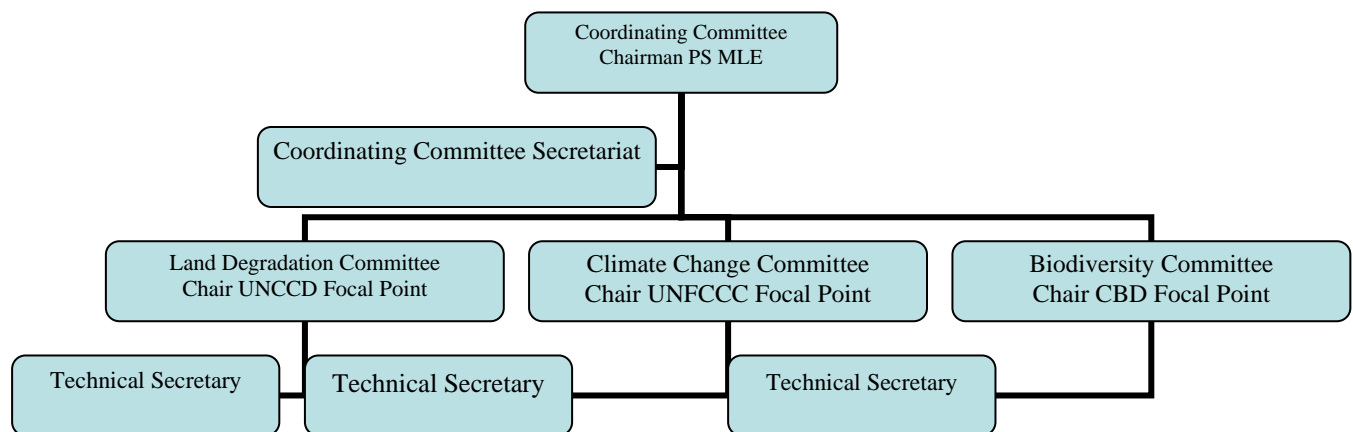
(b) enhancing the potential for sustainable project outcomes, paying even greater attention to integration of global environmental challenges into natural sustainable development policies and programmes.

Pursuing integration across focal areas will allow the GEF to fulfill its role as catalyst and facilitator of global environmental sustainability and Jamaica must be aware of this policy approach within the GEF and focus its fundraising strategy towards the integration of the cross cutting issues across the Conventions.

Funding beyond the contributions from the GOJ is required to address the implementation of programmes which will support Jamaica’s efforts at meeting its environmental obligations with regard to the Rio Conventions. However, to access funding available through the GEF, non-traditional and bilateral sources, there needs to be an integrated strategically coordinated approach guided by the MLE. Additionally, The GOJ needs to re-examine its current allocation to the environmental sector. The MLE however, faces capacity constraints at the level of staffing and expertise and the organisation must be strengthened to effectively perform that role.

Recommendations

The major recommendation of this report addresses the need to strengthen the institutional coordination mechanisms which should result in more effective programme implementation in the medium to long term. Effective coordination mechanisms will result in more effective technical programmes and funding raising efforts both of which will contribute significantly to building stronger institutions which are critical to the country successfully and sustainably addressing its environmental obligations with regard to the Rio Conventions. It is recommended that Jamaica establish a ‘Conventions Coordinating Committee’. The proposed coordination structure is shown in the Figure below and fully described in Chapter 4 of the report.



Proposed Organisational Chart Rio Conventions Coordination

Additionally the following actions should be taken:

- strengthening of the Convention administrative capability within each of the main executing organisations;
- selection of an executing organization for Land Degradation;
- formation of ‘Convention Committees’ for Land Degradation and Climate Change;
- introduction of stronger mechanisms of accountability, reporting and performance parameters for the ‘Convention Committees’; and
- centralization of cross cutting fund raising efforts with direction through the ‘Conventions Coordinating Committee’.

1 BACKGROUND

The National Capacity Self Assessment for Global Environmental Management is a GEF funded project implemented by the United Nations Development Programme and executed nationally by the National Environment and Planning Agency (NEPA).

The project is intended to allow the country to assess and evaluate the status of its efforts to fulfill the environmental obligations of the three Rio Conventions (Climate Change, Biodiversity and Land Degradation). A critical step in this evaluation was the thematic assessments which examined the country's achievements to date and identified the capacity issues including systemic bottlenecks which are hindering Jamaica's efforts to meet its commitments to the Conventions.

The thematic assessments for the Convention on Biodiversity (CBD), United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCBD) have all been completed and the findings within the reports identified a number of institutional and funding concerns as capacity constraints which have affected Jamaica's performance in respect of the implementation of the Conventions. The NCSA process has also identified a number of priority areas of action and these are as follows.

1. National Action Programmes (NAPs) developed and implemented as a matter of priority (Climate Change and Land Degradation).
2. National Biodiversity Strategy and Action Plan (NBSAP) to be Jamaica's programmatic response to the CBD, that is, the focus will be on implementation of the NBSAP.
3. Effective administrative mechanisms to be established to oversee implementation of NAPS (reporting, accountability, coordination, performance targets).
4. Incorporation of NAPs into corporate plans and work programmes (effective interagency project management).
5. Develop harmonised policy and legal framework to support implementation.
6. Comprehensive integrated public awareness programmes implemented.
7. Effective coordinated fund raising.

Most if not all of these priority actions require a strong institutional framework, sufficient funding and effective coordination to be successfully implemented.

This report outlines the findings of the institutional and funding cross cutting assessment and provides recommendations related to the establishment of an effective mechanism to oversee the coordination of Jamaica's response to its environmental obligations under the Rio Conventions.

2 ANALYSIS OF INSTITUTIONAL ISSUES

This chapter presents the major findings of the thematic assessments with regard to institutional and funding issues. These findings formed the basis of the analysis of the cross cutting institutional and funding capacity constraints. A number of organizations are discussed in this chapter of the report and the detailed descriptions of their functions are found in **Appendix I**.

2.1 Institutional Framework CBD

The National Biodiversity Secretariat was established within NEPA's Biodiversity Branch in March 2003 "as a supporting mechanism to implement and monitor the NBSAP and funded by the NRCA. It was originally proposed in the NBSAP that the Secretariat operate for a duration of 3 years with a staff complement of five. However, the Secretariat operated for 18 months with a staff complement of 2 and the contracts of the Secretariat's staff ended August 31, 2004.

During its operation 12 project proposals were written. The majority of the projects are part of, or relates to the proposed project concepts of the Action Plan and have the ranking of priority or highest priority. Others have been in response to immediate needs of other biodiversity related Conventions such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). These proposals are in varying stages of preparation and some have already been submitted to various funding agencies and are awaiting responses.

A Biodiversity Committee, a committee of the NRCA³ was also established in part to support the work of NEPA in implementing the CDB. The Terms of Reference (TORs) for the Committee are:

- monitor the implementation of the National Strategy and Action Plan on Biological Diversity (NBSAP) in Jamaica;
- address the gaps and challenges in the Biodiversity Strategy;
- identify research needs for Jamaica;
- evaluate and advise on the NBSAP; and
- any other terms to be agreed by the Committee.

It was envisioned from a review of the TORs that the Biodiversity Committee play a major role in the implementation of the NBSAP. However, the main question to be asked is does the Committee have the necessary, administrative support and influence to effectively monitor and direct the implementation of the NBSAP? Furthermore does the Focal Point Institution in this case the Ministry of Land and Environment (MLE) have a role in guiding, directing and monitoring the NBSAP? And is the Ministry better placed to do so given the mandate of the organization? In this regard also the capacity of the Ministry in terms of staffing and other resources would need to be examined should this be the case. At the very least while the Committee could remain in NEPA its chairmanship given the mandate ought to be reassessed.

The thematic report posed a number of questions in evaluating the role and performance of the Committee. Does the Committee have the right mix of persons/institutions? Are all members pulling their weight? Do all members attend meetings regularly and if so is his/her contribution

³ NRCA is the legal Authority through which NEPA has its mandate for environmental management
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significant? Should the Committee meet more frequently? The issue therefore is that the formation of a Committee is not the full answer to implementing the Convention. Perhaps more important is establishing mechanisms for facilitating the work, measuring performance and demanding accountability.

The effectiveness of the Committee is therefore a key capacity issue. It is interesting to note that while the now defunct National Biodiversity Secretariat was established with the view to providing the administrative support to the implementation of the Convention there is a sense in which that model too did not work. While conceptually the idea was a sound one, the mechanism to effectively integrate the work of the Secretariat into the implementation of the Convention was weak. In a sense the Secretariat performed like a project (third wheel) and was not effectively institutionalised within NEPA. This maybe one of the reasons for its relatively short lived existence. The challenge then is to find a way to provide the necessary administrative support for the Convention in a way which is integral to the existing organizational structure.

The current proposal within NEPA to fill that institutional gap is that the Biodiversity Branch will now be responsible for the implementation of the NBSAP. This proposal brings with it the need to strengthen the Biodiversity Branch in terms of suitable qualified personnel with a clear description of the requirement tied to the job descriptions and performance appraisals. In light of the GOJ's freeze on hiring staff and general tight budgetary constraints the question of how to achieve implement this proposal becomes the key question.

The implementation of the NBSAP as Jamaica's programmatic response to the CBD was identified as a priority action. While the implementation of the NBSAP is a multi organizational task across a number of sectors the NEPA is the main executing organization ultimately responsible with the implementation of the programme. Discussions with the Director of Projects and Programmes of NEPA indicate that the actions within the NBSAP (along with those of all the Biodiversity related Conventions), will be incorporated within the Jamaica National Environment Action Plan (JaNEAP) at its next review, which is scheduled for the last quarter of this financial year. Additionally, the projects will be incorporated into Corporate Plans of the agency over time. This is a major and important step toward institutionalising the Plan but only part of the answer.

The issue again returns to the matter of funding the work to be done all of which cannot be supported by the budget. Clearly the answer lies in finding additional support through project and various bilateral and multilateral funding sources, that is, a move towards 'insitutionalising projects'. Currently the organisational structure is more on a functional than projected based and needs to move towards a matrix structure (combination of functional and projects) which will accommodate the execution and integration of projects into the day to day operations of the agency.

2.2 Institutional Framework UNFCCC

The Meteorological Service (MS) is recognized as the Focal Point Institution for Jamaica for climate change and climate change related issues. The MS has been involved in the mainstream of Climate Change activities longer than any other Jamaican institution. This was first accomplished by the role of the Directors of the Service in their role as Jamaica's Permanent Representative to the World Meteorological Organization, the international organization responsible for bringing the issue to the world's attention.

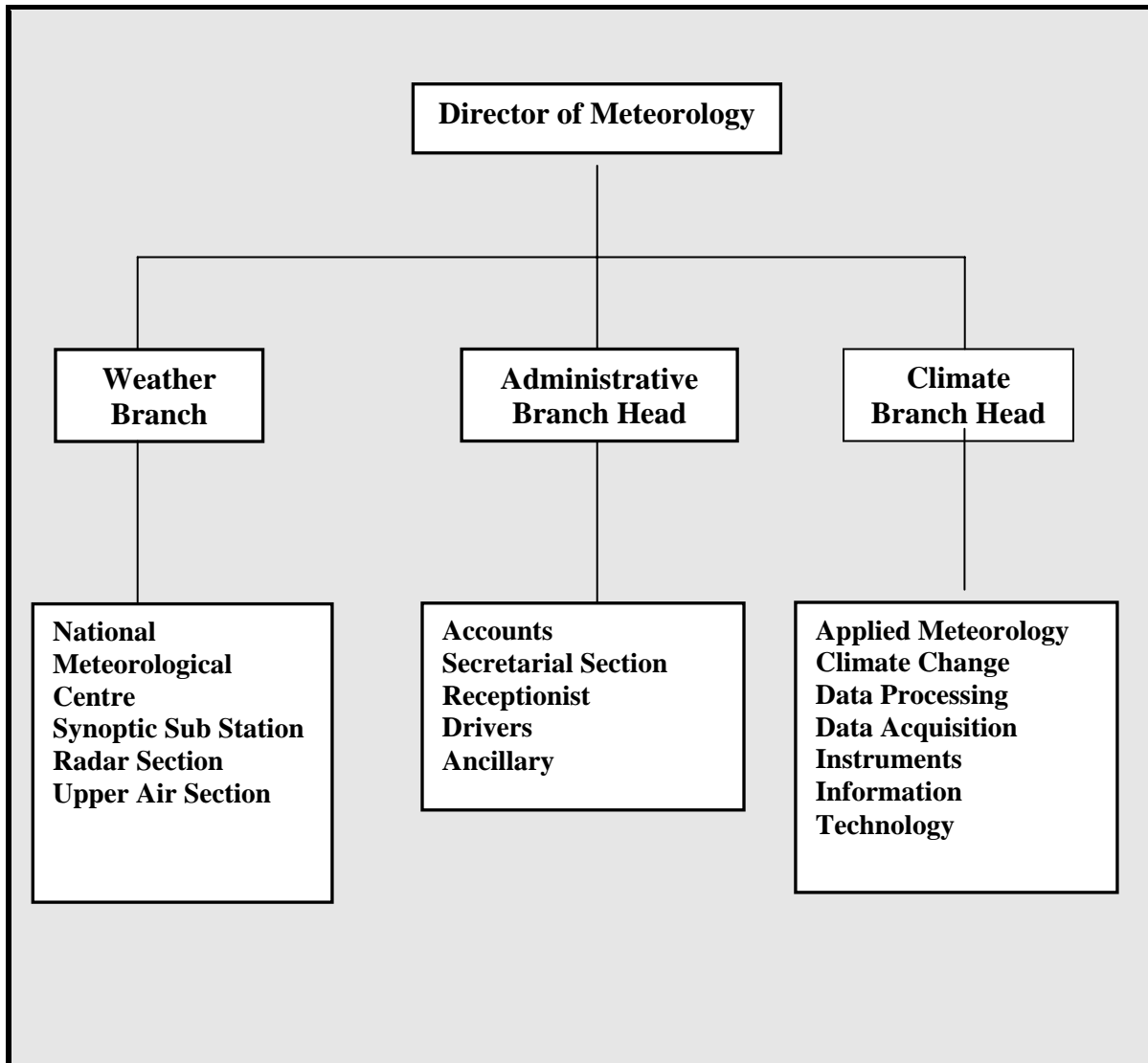


Figure 1 Organisational Chart Meteorological Services

Climate Change issues are the responsibility of the Director of Meteorology. However these duties have been delegated to the Head of the Climate Branch who is the National Focal Point of Jamaica to the UNFCCC. See organisational chart in Figure1.

- The Focal Point is the main negotiator for climate change issues for Jamaica. These negotiations are facilitated through the sessions of the Subsidiary Body for Implementation and the Subsidiary Body for Scientific and Technical Advise and the Annual Conference of the Parties (COP) of the UNFCCC. Nationally, the FP is responsible for coordinating the implementation of Climate Change enabling activities in particular the preparation of national communications. At the national level the Meteorological Service's role includes:

- Focal Point National Consultations Report for Project Proposal: Caribbean Planning for Adaptation to Global Climate Change
- Focal Point and chair of the National Implementing and Coordinating Unit for the regional projects:
 - Caribbean Planning for Adaptation to Global Climate Change
 - Adapting to Global Climate Change in the Caribbean
 - Mainstreaming for Adaptation to Climate Change
- Project Coordinator Preparation of the Jamaica's Initial National Communication to the UNFCCC
- National Coordinator for the Preparation of Jamaica National Issues Paper for Integrated Adaptation Planning and Management for Climate Change

There are members of other organisations who play a role in the country's climate change programme and these are described in **Appendix II**.

The thematic assessment report found that while the MS was the FP institution there was often a blurring of the lines of authority and the FP's function seemed sometimes to be shared between the GEF Focal Point and the Ministry of Foreign Affairs and Foreign Trade. Additionally, activities are undertaken in several agencies without any synergy or coordination and many institutions whose work is of some relevance to climate change are unaware that there is a role for them in the implementation of the Convention.

In addition to those major findings a number of bottle necks were identified which have hindered Jamaica's Climate Change Programme. These are; (i) no climate change secretariat established; (ii) no functioning National Climate Change committee; and (iii) the need for a broad based public awareness campaign.

The absence of a NAP for Climate Change and climate Change Committee to guide the development of programme areas which would allow the country to more effectively meet its obligations to the Convention are major capacity constraints. A review of the country's achievements to date show that while there has been some achievements there is room for significant improvement in this area.

Given the cross cutting nature of climate change involving issues of energy management, forestry, coastal zone management, public education, adaptation and mitigation of the effects of climate change in the main, the task for addressing these issues go well beyond the reach of the MS. This organisation itself faces significant resource challenges in effecting its current role as FP. The reach and effectiveness of the country's response to climate change requires a strengthening of the institutional and funding support for the area and this initially must come in four ways:

- strengthening the institutional capacity of the FP institution;
- widen the involvement of relevant organisations in climate change agenda by establishing an effective climate change Committee involving both the private and public sectors;
- developing a cohesive programme of action around which the country can focus its activities on climate change based on national priorities; and
- expanding opportunities for funding support through projects.

As previously discussed in Section 2.1 the formation of a Climate Change Committee or development of a plan is only a partial answer. Similar issues arise here as were analysed in the previous section with respect to the effectiveness of the Committee and finding ways outside of the budget to fund climate change programmes.

2.3 Institutional Framework UNCCD

The responsibility for the UNCCD and the National Focal Point were transferred from the Ministry of Water and Housing (MWH) to the Ministry of Land and Environment (MLE) in 2003. The National Focal Point is the official liaison with the UNCCD Secretariat and is the Senior Director for Emergency Management and the Weather Services Unit in the MLE. The unit oversees the work of Disaster Preparedness, and Emergency Management.

Currently the unit is understaffed despite the fact that representations have been made to the Services Commissions to provide an additional staff member for the Emergency Management and Weather Services Unit of the Ministry of Land and Environment as of 2005 April. The duties of this person will include but not be restricted to the work involved in the implementation of the UNCCD.

The UNCCD Working Committee, established in 2000, is currently inactive, having not met since 2002 September. The current members are the (MWH, the MLE, Ministry of Agriculture, (MOA) the Rural Physical Planning Unit (RPPU), the Water Resources Authority (WRA), the St Elizabeth Environmental Protection Agency (STEPA), the Planning Institute of Jamaica (PIOJ), the Forestry Department, the Attorney General's Department and Member of Parliament, Sharon Haye-Webster.

It must also be noted that to date no agency has been identified to be the lead agency for the execution of the of Jamaica's obligations to the UNCCD. Additionally, the country is yet to develop and implement a NAP.

The thematic assessment for Land Degradation provided a number of recommendations with respect to strengthening the institutional and funding framework for Land Degradation. These are:

- the development of an appropriate system of accountability for the Convention within the system of government;
- selection and appointment of a lead agency for implementing the programme of action for UNCCD;
- public and private sector investment in water storage systems to increase reliable sources of water; and
- the provision of capital funds to allow the implementation of critical projects and to facilitate needed research.

The issues which are important to developing and strengthening the institutional capacity for Land Degradation are similar to those which have been discussed for the CBD and UNFCCC but more profound. Additionally, the matter of the absence of appropriate mechanisms for accountability is certainly evident in the case of how Jamaica has so far implemented its obligations to the UNCCD.

There were no acceptable explanations provided for the absence of a Land Degradation Committee or why the country has yet to produce a NAP when funding has been in place for the last eighteen months. Finally, there is little coordination between the work of land degradation and the other activities being carried out for the CBD and UNFCCC although there are clear synergies.

The issue of strengthening institutional capacity therefore goes beyond the matter of organisational structures but must include mechanisms for monitoring and reporting the work programmes against agreed performance parameters, increasing accountability that is there must be consequences for underperformance and systems to take corrective action for all of the Rio Conventions.

2.4 Summary Key Institutional Issues

The analysis of the institutional issues has concluded that the following are the key issues which need to be addressed in order to strengthen the existing institutional framework and enhance the country's ability to meet its environmental obligations to the Rio Conventions. Arguably, the development of strong institutions is the most important critical success factor for implementing and sustaining effective programmes of action. While funding is a vital issue, the effective and efficient use of funds is unlikely to take place in the absence of strong institutions.

The development of strong institutions requires not only that capacity issues be addressed but also the presence of strong and committed accountable leadership at all levels of the institutional framework. Solutions to those issues perhaps strictly lie outside of an assessment of capacity issues but must be borne in mind as the country strives to improve its performance in this area.

The following issues must be addressed in order to strengthen the institutional capacity:

- establishment of effective mechanisms for coordination of the work across the Rio Conventions, to provide guidance at the highest decision making level on cross cutting technical issues and major funding efforts;
- establishment of functional and effective Convention Committees;
- strengthening of major executing organizations and identification of these organisations for Climate Change and Land Degradation; and
- strengthening of mechanisms for monitoring and reporting as a strategy to improve accountability

3 ANALYSIS OF FUNDING ISSUES

3.1 Overview

All three thematic assessments identified inadequate funding as a major capacity issue. Where funding has been obtained there is the perennial problem of work being stopped or stalled once project funding support ends. This often results in little substantive achievements, slows the rate at which work can be effectively performed and certainly hinders a sustained programmatic effort.

There is recognition that given the competing demands for GOJ funds from other sectors of the economy while the government can make incremental contributions to the Rio work programme it cannot fully fund a programme to address the priority issues across the three conventions. There is a within the country a clear recognition of the need for project funding to augment GOJ financial support. In this regard, two significant capacity constraints have been identified these are:

- the lack of an integrated, coordinated and effective fundraising programme; and
- the inadequacy of skills in the area of fundraising and project development.

There are funding opportunities available from external funding sources but there is often a lack of coordination across the Conventions to access substantial funding (medium sized to large project funding). Additionally, there is not sufficient of a focused effort to obtain external funding support from bilateral and multilateral partners for the environment and sustainable development agenda.

There needs to be a move towards ‘insitutionalising projects’ within the executing organisations to facilitate a ‘pipelines of projects which need to be structured to flow in such a manner as to facilitate a medium to long term approach to funding work for the three Conventions. Such an approach would require some organizational change from functional to matrix structure which will accommodate the execution and integration of projects into the day to day operations of the relevant organizations.

The following sections of the report evaluates the opportunities which available for funding.

3.2 Global Environmental Facility ⁴

The GEF was initially established as a pilot program in 1991 to provide financing to more developing countries for the incremental costs of projects that produce global environmental benefits in four areas: biodiversity, climate change, international waters, and ozone depletion. At the UN Conference on Environment and Development in 1992 (Earth Summit), the GEF was recognized as a source of funding for Agenda 21 and other outcomes of the Conference.

In 1994, governments agreed to a restructuring of the GEF. The Facility was identified as a mechanism for international cooperation for the purpose of providing new and additional grant and concessional funding to meet the agreed incremental costs of measures to achieve global environmental benefits. Governments participating in the GEF agreed to expand the GEF focal

⁴ Global Environmental Facility, Programming Document GEF 4, June 2005
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areas to include land degradation and persistent organic pollutants in support of the UN Convention to Combat Desertification and the Stockholm Convention on Persistent Organic Pollutants.

In 1994, the GEF Trust Fund was replenished (GEF-1) at \$2.0 billion for 4 years. In 1998, the Trust Fund was replenished at \$2.75 billion (GEF-2, 1998-2002) and in 2002; donors committed \$3 billion to GEF-3 (2002-2006). Negotiations took place in June 2005 on the fourth replenishment period. It is assumed that the fourth replenishment will cover GEF operations and activities for the four years July 1, 2006 to June 30, 2010.

Over the years of its operation the GEF has been evaluating its experiences in funding global environmental and it is moving towards a more integrated cross cutting approach to funding. In June 2005 the GEF Council met to discuss and elaborate on initial proposals for programming directions and tools for GEF-4. The GEF Council wanted to ensure that it is responsive to the evolving perspectives of the international community with respect to the global environment and sustainable development. The third Overall Performance Study of the GEF made some policy recommendations for replenishment of the fund which were endorsed by the Council. These recommendations need to be considered by Jamaica in light of the findings of NCSA which has identified funding as a major capacity constraint.

The GEF Council and the international community have consistently emphasized the GEF's core mandate of providing new and additional financing for the agreed incremental costs of projects and programs in developing countries that produce global environmental benefits. This mandate continues to be the underlying rationale for GEF activities. However, since the Rio Conventions were signed in 1992 scientific analysis and international review have deepened knowledge of the root causes of global environmental challenges. This experience and knowledge provided the basis for improved approaches to achieving on-the-ground results and enhancing the sustainability of our efforts. Additionally, Parties to the Conventions have gained valuable experience over the many years of implementing programmes to meet their obligations through in part with GEF assistance. Both these groups have underscored the critical relationship between environmental protection and development and the interconnectivity of global ecosystems.

In light of these experiences there is currently an evolving view about the 'how' of environmental management and about the need for a better integration of environment and development thinking. This thinking has been reflected in the evolution of the four global environmental conventions for which the GEF serves as a financial mechanism. The GEF will be reflecting this evolution in its approaches and tools to fulfill its core mandate.

The following is proposed for the GEF 4 programme:

- (a) move towards more integrated approaches to the natural resource management challenges that span the global environmental agreements; and
- (b) enhance the potential for sustainable project outcomes paying even greater attention to integration of global environmental challenges into natural sustainable development policies and programmes.

These decisions by the GEF must be taken into consideration as Jamaica addresses the matter of securing funding to support the work programmes which will be developed. Clearly the move towards integrated cross cutting projects within the GEF will require that Jamaica approach its project development and funding efforts with a more synergistic view rather than a strictly thematic focus particularly for medium to large scale projects.

3.3 Non Traditional Sources of Funding

There are also a number of non-traditional funding mechanisms which are emerging. The coming into force of the Kyoto Protocol has opened up a window through the Clean Development Mechanism. The Kyoto Protocol is an outcome of the UNFCCC which sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. The Protocol significantly strengthens the Convention by committing Annex I Parties (Developed Countries) to individual, legally-binding targets to limit or reduce their greenhouse gas emissions. Under the Kyoto Protocol, industrialized countries are to reduce their combined emissions of six major greenhouse gases during the five-year period 2008-2012 to below 1990 levels. The Protocol's Adaptation Fund, established in 2001, will assist developing countries to cope with the negative effects of climate change.

The National Designated Authority for the Kyoto Protocol is the MLE. The GOJ through the Ministry should encourage the development of projects related to the energy sector, reforestations, solid waste management all of which have some relationship to the three Rio Conventions. The Nature Conservancy (TNC), Environment Foundation of Jamaica (EFJ)⁵ and the soon to be operational Forest Fund⁶ are also avenues which can be tapped for what can be regarded as non-traditional sources of funding.

Many of these sources of funding will require the mobilisation of the private sector and NGO community. Strategies have to be developed which encourage partnerships with the GOJ and these types of organizations to address the issues in a cohesive manner. The MLE is best placed to direct and coordinate these efforts but must be strengthened in terms of the staffing and expertise required to effectively carry out this function.

3.4 Bilateral Sources

The country should also approach a number of its bilateral partners for funding specific aspects of its national programmes for support of work in the area of the conventions. However, to do so successfully will require a clear understanding of the programmatic areas as outlined in the 'National Action Programmes' and coordination at the highest level.

3.5 Summary Key Funding Issues

Funding beyond the contributions from the GOJ is required to address the implementation of programmes which will support Jamaica's efforts at meeting its environmental obligations with regards to the Rio Conventions. Despite this fact the GOJ should place higher priority on funding

⁵ EFJ funding cannot be directly accessed by GOJ

⁶ The GOJ cannot directly access financing from the Forest Fund

the environment sector for which there is a clear justification as part as a policy which will save the country money is the medium to long term. A closer attention to the environment has an integral part of the development process is slowly being acknowledged which should be supported by increased budgetary allocation.

For the GOJ to access funding available through the GEF, non-traditional and bilateral sources there needs to be an integrated strategically coordinated approach guided by the MLE. The MLE however, faces capacity constraints at the level of staffing and expertise and the organisation must be strengthened to effectively perform that role.

4 RECOMMENDATIONS

4.1 Institutional Framework

In order to strengthen the institutional framework the following issues must be addressed:

- establishment of effective mechanisms for coordination of the work across the Rio Conventions, to provide guidance at the highest decision making level on cross cutting technical issues and major funding efforts;
- establishment of functional and effective Convention Committees;
- strengthening of major executing organisations and identification of these organisations for Climate Change and Land Degradation ; and
- strengthening of mechanisms for monitoring and reporting as a strategy to improve accountability

Conventions Coordination

In regard to improving coordination it is proposed that a Convention Coordinating Committee be established within the MLE. The Committee would be chaired by the Permanent Secretary (PS) and have the CEO of each of the three implementing organizations as its members. The FPs would be ex-officio members of the Committee. The proposed coordination organizational structure can be seen in Figure 2.

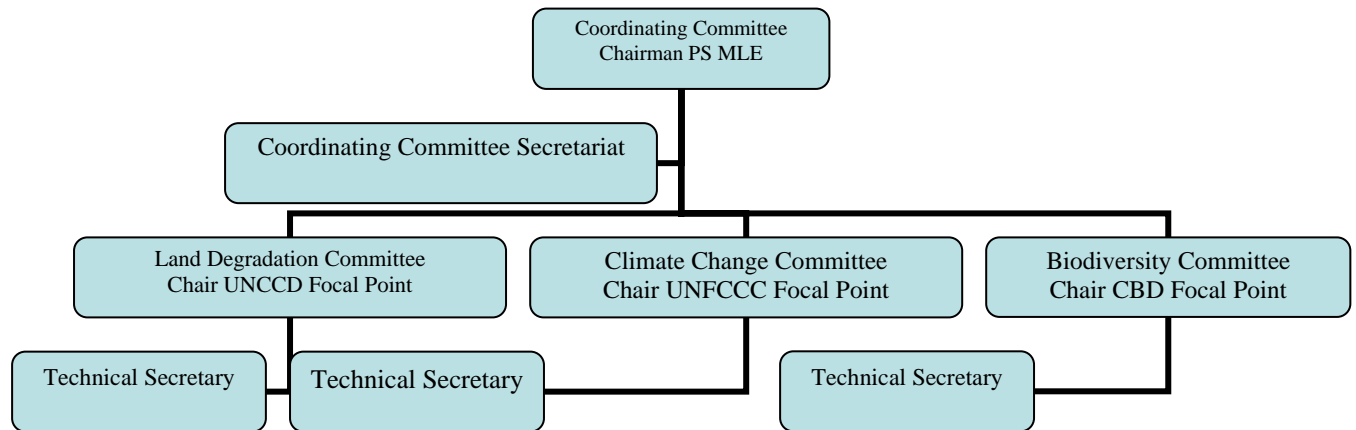


Figure 2 Proposed Organisational Chart Rio Conventions Coordination

The TORs of the Coordinating Committee should be as follows:

1. Monitor the implementation of the programmes of action for the three Conventions to ensure the country is meeting its international environmental obligations.
2. Report to Cabinet and Parliament on the country's progress/performance.
3. Liaise with the PS Board for effective inter ministerial/interagency support and collaboration.
4. Approve the appointment of and TORs for Convention Committees (that is biodiversity, climate change and land degradation)
5. Direct the coordination of cross cutting issues regarding the three Conventions for example:
 - Development of comprehensive integrative public education programme;
 - Develop harmonised policy and legal framework to support implementation; and
 - Effective coordinated fund raising.
6. Strengthen dialogue/interaction with donor agencies at the bilateral and multilateral levels.

Convention Committees

The mandate and membership of the Convention Committees for each thematic area should be reexamined. The membership of the Committees should comprise organizations from public and private sectors and NGOs who can provide technical support and guidance to the implementation of the programmes of action.

The proposed role of each Committee is as follows:

1. Act as resource persons and provide technical guidance to the implementation of the national programme.
2. Evaluate and advise on the programme of action.
3. Provide information on activities within their own organisations which will inform and support the national programmes of action.
4. Support through organisation's own work programmes the implementation of the programmes of action.
5. Review and comment on issues/reports which have to be addressed from time to time.
6. Identify research/data needs.
7. Any other terms to be agreed by the Committee.

Implementing Organisations

All organisations responsible for implementing the Conventions should be strengthened. The programmes of action should be incorporated in corporate plans and work programmes. Each organisation should act as technical secretary to the respective Convention Committee.

With regard to the selection of a suitable implementation organisation for the UNCCD there are three organisations which could be considered given the scope of their operations. These are:

- Water Resources Authority (WRA);
- Forestry Department (FD);
- Rural Physical Planning Unit (RPPU); and
- Rural Agricultural Development Agency (RADA)

In light of the cross cutting nature of the activities within the purview of the FD, the present institutional capacity and leadership cadre, it is recommended that the Forestry Department be selected the implementing organization for UNCCD.

The MS is the Focal Point for Climate Change and the capacity constraints faced by this organisation will need to be addressed for it to effectively perform as a Focal Point. This observation is also true for the MLE which is the FP for both UNCCD and CBD. However, consideration should also be given to the selection of an implementing organisation for climate change other than the MS which is currently performing both roles.

4.2 Funding

Funding beyond the contributions from the GOJ is required to address the implementation of programmes which will support Jamaica's efforts at meeting its environmental obligations with regards to the Rio Conventions. Despite this fact the GOJ should place higher priority on funding the environment sector for which there is a clear justification as part as a policy which will save the country money in the medium to long term. A closer attention to the environment has an integral part of the development process is slowly being acknowledged which should be supported by increased budgetary allocation.

To access funding available through the GEF, non-traditional and bilateral sources, there needs to be an integrated strategically coordinated approach guided by the MLE. The MLE however, faces capacity constraints at the level of staffing and expertise and the organisation must be strengthened to effectively perform that role.

APPENDICES

APPENDIX I: BACKGROUND ON RELEVANT INSTITUTIONS

MINISTRY OF FOREIGN AFFAIRS AND FOREIGN TRADE

With the advent of independence, Jamaica attained the status of a sovereign state with the right to take full responsibility not only for national security and defences but also for its relations with the international community and foreign countries. On that basis, Jamaica was able to:

- Negotiate treaties and agreements which protected Jamaica's national interests;
- Set up consular services in foreign countries to protect the interests of Jamaicans overseas;
- Collect and analyse information on political, economic, trade and social developmental issues which had an impact on the island's national goals; and
- Participate in multilateral activities through membership in international and regional organizations.

In order to achieve these objectives, the Ministry of External Affairs was established on the attainment of Independence on 6 August 1962. The name was changed to Ministry of Foreign Affairs in 1976, in an effort to more accurately reflect the portfolio responsibilities of the Ministry. The name was later changed to include the Ministry of Foreign Trade in order to encapsulate the economic responsibilities of the Ministry.

The Ministry is committed to: -

- The promotion of friendship and cooperation through political and diplomatic channels;
- Promoting international peace and security;
- Providing effective representation of the Government of Jamaica overseas through resident diplomatic missions and consular posts;
- Ensuring Jamaica's participation in bilateral, regional and multilateral fora towards the conclusion of mutually beneficial agreements;
- Monitoring and responding appropriately to external political and economic developments that impact on national development goals; Ensuring Jamaica's compliance with its obligations under bilateral, regional and international agreements; Creating opportunities for foreign trade, investment and tourism; Negotiating technical cooperation agreements, which promote Jamaica's development objectives;
- Securing development assistance and debt relief for Jamaica;
- Projecting a positive image of Jamaica overseas and developing international cultural and sporting contacts; Protecting the interests of Jamaican nationals overseas, returning residents and visitors to Jamaica;

The Ministry of Foreign Affairs and Foreign Trade has through its representatives at the Embassy in Germany participated in several meetings of the Subsidiary Bodies and the Conference of The Parties. The Office to the United Nations in New York provides representatives at the meetings of the General Assembly and the Alliance of Small Island States on climate change activities

Locally, the Ministry chairs the Council on Ocean and Coastal Zone Management and houses its Secretariat. This Council's focus on the Ocean and coast would be important to the implementation

of the Convention as the coastal zone would be heavily impacted and affected by some of the predicted effects of climate change.

MINISTRY OF LAND AND ENVIRONMENT⁷

The Ministry of Land and Environment was established in April 2000. Its creation was in keeping with Government's commitment to ensuring the effective management and administration of land and the sustainable planning and development of the island's built and natural environment.

The Ministry's Mission is *"to achieve the highest level of sustainable environmental and land management practices that support the economic, physical and social well being of all Jamaicans"*.

The Ministry has four (4) Divisions:

- Environmental and Emergency Management
- Land Administration and Management
- Policy, Planning, Development Standards and Mining
- Spatial Data Management

The Agencies that fall under the purview of the Ministry are:

- The National Land Agency (NLA)
- The National Environment and Planning Agency (NEPA)
- The Office of Disaster Preparedness and Emergency Management (ODPEM)
- The National Meteorological Service (NMS)
- The Mines and Geology Division
- The Earthquake Unit
- The Real Estate Board
- The Negril/Green Island Area Local Planning Authority

MINISTRY OF WATER AND HOUSING

The Ministry of Water was created specifically to address the perennial problem of the inadequate supplies of water mainly during the dry seasons. The Ministry at its inception consisted of agencies that represented the life cycle of water from a cloud droplet to a product for consumption or agriculture. These included the Meteorological Service, Water Resources Authority, National Water Commission and the National Irrigation Commission. However, the ministry's mandate has been expanded with the addition of the portfolio of Housing.

The direct role of the Ministry in climate change enabling activities was through the joint effort in the preparation of the Initial National Communication. This collaborative effort was spearheaded by the Senior Director of the Emergency Management and Weather Services Unit at the Ministry and the Focal Point to the UNFCCC from the Meteorological Services.

⁷ Provided by Mrs. A. Calnick Environment Management Division MLE
Jamaica NCSA Final Report Institutional and Funding Cross Cutting Report

MINISTRY OF AGRICULTURE

The agricultural sector is central to Jamaica's economy accounting for approximately 7.3 % of GDP (2003) and employing more than a fifth of the total labour force. The sector currently accounts for almost one fifth of all merchandises exported.

The challenge facing the sector is how to increase efficiency, productivity and competitiveness in order that planned contribution to GDP will be realized. The key threats result from the level of reliance on imports, the use of inappropriate technologies, high cost of capital and inadequate research and development.

The Ministry of Agriculture is seeking to address these and other problems facing the sector through a programme geared at transformation of the sector. This transformation includes the provision of institutional and other support framework for the development of a viable agricultural sector, improvements in the production and marketing of agricultural produce, the adoption of appropriate technologies and promotion of agro-industrial development.

NATIONAL ENVIRONMENT AND PLANNING AGENCY

The National Environment and Planning Agency (NEPA) is an Executive Agency formed by the merger of

- Natural Resources Conservation Authority (NRCA),
- Town Planning Department (TPD) and
- Land Development and Utilization Commission (LDUC).

Under the aegis of the Ministry of Land and the Environment the aim of the merger is to integrate environmental, planning and sustainable development policies and programmes and to improve customer service.

NEPA operates under the following Acts:

- The Natural Resources Conservation Authority Act;
- The Town and Country Planning Act;
- The Land Development and Utilization Act;
- The Beach Control Act;
- The Watershed Protection Act; and
- The Wildlife Protection Act
- The work of NEPA is guided by the following policies and plans:
- Jamaica National Environmental Action Plan (JaNEAP) 1999-2002
- National Physical Plan
- Policy for Jamaica's System of Protected Areas - 1997
- Biodiversity Strategy and Action Plan
- Watershed Management Policy
- Beach Policy for Jamaica
- Environmental Management Systems Policy and Strategy

WATER RESOURCES AUTHORITY

The Water Resources Authority (WRA) is a statutory body of the Government of Jamaica. Formerly known as the Underground Water Authority the Water Resources Authority was established by the Water Resources Act of 1995 and is Jamaica's premiere hydrologic agency.

The responsibilities of the Water Resources Authority include the management, protection, and controlled allocation of the island's surface and underground water resources including its uses. The Water Resources Development Master Plan is the tool that the WRA uses for its long-term development and administration. This provides for economically feasible and environmentally sound decision making on the current and potential use and allocation of our water resources.

The Water Resources Authority achieves its mandate through several activities including:

- Collecting, compiling and analyzing hydrologic data
- Investigating, assessing, planning and allocating water resources
- Environmental monitoring and
- Impact assessment.

The organization has prepared a series of pollution vulnerability maps for the Island highlighting the susceptibility of the aquifers to pollution and also guidelines for the location of solid waste disposal facilities.

The efficient disposal of solid waste on land reduces the emissions of methane a greenhouse gas. Coastal aquifers are threatened from pollution by saline intrusion resulting from accelerated sea level rise.

The units of the WRA consist of:

- General Management,
- Planning and Investigation,
- Resources Monitoring, Environmental Section,
- Computer,
- Finance,
- Administration and Human Development.

The main areas of concern with respect to capacity development for implementing climate change activities are Planning and Investigation, Resources Management Unit and the Environmental Section.

The Planning and Investigation unit is responsible for updating the Water Resources Management Plan, Resources Monitoring for the quantity and quality of surface and ground water systems and the Environment Section for impacts that could affect humans.

FORESTRY DEPARTMENT

The Forestry Department of the Ministry of Agriculture is the lead agency responsible for the management and conservation of Jamaica's forests. Its functions are mandated by the Forest Act, 1996 and are aimed at managing forests on a sustainable basis to maintain and increase the environmental services and economic benefits they provide.

The administrative structure consists of three Regional Offices whose activities are co-ordinated by Forestry Department Head Office, located in Kingston. The Western Region has its office in Montego Bay and encompasses the parishes of Hanover, St. James, St. Elizabeth, Manchester and Trelawny. The Central Region's office is located in Moneague and consists of St. Ann, Clarendon, a portion of St. Catherine and the western-most part of St. Mary. The Eastern Region has its office at the Head Office in Kingston and takes in the parishes of Portland, St. Thomas, St. Andrew, a part of St. Catherine and the greater part of St. Mary.

A Conservator of Forests who reports to the Permanent Secretary of the Ministry of Agriculture heads the Department. The Department has a staff of 157 persons, with 38 assigned to Eastern Region, 28 to Central Region, 33 to Western Region and 49 based at Headquarters. There are a further 11 posts that remain unfilled due to budgetary constraints.

The long-term impact of the work of the Forestry Department is the maintenance of soil and water resources, biological diversity and benefits to society, as measured by reduced rates of deforestation and environmental degradation, and contribution to national income. This is being achieved through a variety of activities, including a biophysical inventory of Jamaica's forest resources, development of local forest management plans, promotion of agro-forestry practices and reforestation programmes on public and private lands, tree nursery development, public education, and training and extension activities.

A National Forest Management and Conservation Plan have been prepared and were adopted by Cabinet in July 2001. The 5-year Forest Plan articulates the direction and goals of forest management in Jamaica and proposes strategies, programmes and activities for sustainable forest management.

OFFICE OF DISASTER PREPAREDNESS AND EMERGENCY MANAGEMENT

The Office of Disaster Preparedness and Emergency Management is committed to taking pro-active and timely measures to prevent or reduce the impact of hazards on Jamaica, its people, natural resources and economy through its trained and professional staff, the use of appropriate technology and collaborative efforts with national, regional and international agencies.

After the June 1979 Floods, which devastated sections of Western Jamaica, the Government of Jamaica recognised the need for the establishment of a permanent disaster management organization. This organization would be responsible for coordination and monitoring the response to hazards as well as educating the nation on all aspects of disaster management.

The Office of Disaster Preparedness and Emergency Relief Coordination (ODIPERC), was established in July 1980. In 1993, the name ODIPERC was changed to the Office of Disaster Preparedness and Emergency Management (ODPEM), a statutory body, under the provisions of Section 15 of the Disaster Preparedness and Emergency Management Act.

The ODPEM operates out of the Ministry of Land and Environment with a Board of Management to oversee its activities.

- Implementation of Community and Vulnerability Reduction Programme in Portland
- Development of National Disaster Management Plan and Policies

- Relocation of vulnerable persons as a mitigation measure
- Coordination of response, assessment and clean-up activities for disasters and major incidents.
- Establishment of a National Zonal Programme of community- based disaster management structures and procedures.
- Completion and maintenance of a National Disaster Catalogue and Hazard Data Base.
- Completion of Damage Assessment Reports for disaster incidents
- Establishment of a National Emergency Operations Centre
- Establishment of a National Shelter Programme
- Establishment of Community Flood Warning Systems.
- Establishment of a National Relief and Procurement Policy.
- The development of websites, including one specifically dedicated to children.

PLANNING INSTITUTE OF JAMAICA

The Planning Institute of Jamaica (PIOJ) was established in 1955 as the Central Planning Unit (CPU) with the mandate to provide the Government with research and data information for the development process. The CPU became the National Planning Agency in 1974, however, the functions, remained the same as that of the CPU

In 1984 the Agency became a statutory body and was placed under the Ministry of Finance when its name was changed to the Planning Institute of Jamaica The PIOJ up until August 1997 operated like a Central Government department. In 1995 the Institute was selected as one of the entities to be modernized under the Public Sector Modernization Programme, (PSMP).

The PSMP aims to empower managers of selected agencies/entities by granting them enhanced autonomy in managerial, financial, personnel and operation management, in return for strict accountability for predetermined performance targets.

The mandate of the PIOJ is to achieve the following:

- Initiating and coordinating the development of plans, programs and policies for the economic, financial social, cultural and physical development of Jamaica
- Undertaking research on national development issues
- Providing technical support to Cabinet
- Undertaking consultant activities for Government entities
- Managing external cooperation agreements and programs
- Interfacing with funding agencies
- Maintaining a national socio-economic library
- The PIOJ's involvement in the implementation of the UNFCCC includes the following activities:
 - Monitoring and review of enabling activities to prepare initial national communication.
 - Member of Project Steering Committee
 - Provision of economic and social information on Jamaica's national circumstances for the initial National Communication

APPENDIX II: RELEVANT INSTITUTIONS INVOLVED IN CLIMATE CHANGE

UNIVERSITY OF THE WEST INDIES -CENTRE FOR MARINE SCIENCES

The University of the West Indies (Mona) has a long history of research and graduate training in the marine sciences. The Centre for Marine Sciences (CMS) brings together marine scientists, based in diverse departments, as a multi-disciplinary group, able to work together on the complex environmental and social issues related to the development of coastal and marine resources

Activities related to Coastal Area Management include:

- Ecosystem studies
- Coastline Management
- Pollution Monitoring & Mitigation
- Fisheries, Matriculture
- Research Activities
- Graduate Training
- Undergraduate Training
- Training in underwater photography and diving technology for scientists

UNIVERSITY OF THE WEST INDIES DEPARTMENT OF PHYSICS

The University and the Physics Department was founded in 1948 by Royal Charter to provide higher education in the then British colonies of the Caribbean. The Faculty of Pure and Applied Sciences at Mona include teaching, research and computer laboratories, classrooms, offices, library, prototyping shops, and other back-up facilities for research.

At the old Cable and Wireless station at Stony Hill, the Department has a 22” optical telescope for its Astronomical studies.

The Physics Department has a large local area network running Windows 9x, Windows ME, Windows NT and Solaris. The Department has several PCs, along with two Fujitsu ICL multiprocessing NT servers and a number of Unix Servers and workstations dedicated to both research and undergraduate programs.

CLIMATE STUDIES GROUP MONA

In 1994 Physicists engaged in climate studies formed the Climate Studies Group, Mona (CSGM). This is not unusual since physics is the main discipline used to understand climatic processes such as the equations of motion, thermodynamics, hydrodynamics, radiation, cloud physics and the equations for atmospheric water. Climate, rather than weather, is the subject of investigation by the group.

Major Areas of Research in fundamental and applied physics are:

- Astronomy & Astrophysics
- Atmospheric & Environmental Physics
- Electronic Research
- GPS Research
- GPS Error Correction System
- UWI Integrated GPS System
- Renewable Energy Studies
- Study of Lightning Strikes
- Theory of Solids

UNIVERSITY OF THE WEST INDIES CENTRE FOR ENVIRONMENT AND DEVELOPMENT

This organization was established in the early 1990's by the University of the West Indies (UWI) in its response to the growing concerns of the global community about the threats to the world environment. UWICED is funded partially by the UWI but earnings are made otherwise to ensure its sustainability from one of its portfolio functions of administering grant and loan funds to approved projects, on behalf of international and regional bilateral agencies.

UNIVERSITY OF THE WEST INDIES DEPARTMENT OF CHEMISTRY

The first lecture at UWI was given in 1948 to a group of thirty-three premedical students enrolled in a first year Chemistry class. From these beginnings has emerged a vibrant Department with an establishment of 23 academic staff, 50+ postgraduate students and with an undergraduate population of 750+ students each year.

The Department offers undergraduate courses leading to Majors and Minors in General, Applied and Food Chemistry. The research interests of the staff originally focussed on Natural Products but have since expanded to include a wide variety of topics such as: Reaction Mechanisms, Transition and Lanthanide Chemistry, Bauxite and Alumina processing, Environmental issues, Theoretical and Computational Chemistry, etc.

