Education and Awareness

- The formal and informal approaches to education and awareness programmes and their effectiveness are discussed and new approaches suggested.
- Who does Environmental Education in T&T?
- Communities view education and awareness as an area of priority for the management of biodiversity resources.
- All sectors call for it to be addressed more comprehensively in the school system.
- It is seen as central to the response of business and industry in their response to biodiversity issues.

EDUCATION AND AWARENESS

Introduction:

Education and awareness of biological diversity is an integral part of environmental education, which can be defined as the process of working with people to develop awareness and understanding of the environment and the human-environment relationship. As the most recent and progressive thinking in our approach to caring for the earth, environmental education captures the biodiversity disciplines and concerns. It is therefore proposed that, recommendations to foster and encourage biodiversity education and awareness, be included within present initiatives for environmental education. Biodiversity education and awareness, should seek to foster awareness, knowledge, skills and finally, a commitment to action to protect and conserve the biological resources of the country. Environmental education in Trinidad and Tobago does not specifically focus on biological diversity, but is interpreted in its wider context.

There is consensus that education and awareness should be a primary focus of any effort to address the conservation of biodiversity in the country. Its neglect in both the formal and informal educational opportunities for citizens of T&T is regarded as a serious omission. It is also regarded as a fundamental cross-sectoral feature that should occur at all levels of the society and among stakeholder groups, and children, in particular.

By concentrating resources on biodiversity education and awareness, there will be constructive consequences for achieving the objective of increasing the country's ability to manage biodiversity, by building a constituency that is knowledgeable and willing to act in the interest of conservation.

Education for biodiversity sensitisation and action, must involve an holistic view of our role and relationship with the living resources, and must address some basic issues such as:

- Respect and care for the community of life
- The change of personal attitudes and practices
- Conservation of the vitality and diversity of T&T's natural environment
- Keeping within the country's carrying capacity
- The empowering of communities to care for our biodiversity resources and ecosystems

Policy statement:
Education and awareness is fundamental to human development, and is a critical component in biodiversity conservation within all sectors of Trinidad and Tobago. It must target all levels of society and sensitise and empower people to participate in the sustainable management of these resources.

Biodiversity & Environmental Education Initiatives:

A number of government agencies and ministries responsible for managing biodiversity have various types of public awareness programmes, e.g. the Wildlife and National Parks Sections, Forestry Division; Fisheries Division; Emperor Valley Zoo and the Botanical Gardens; THA Departments of Fisheries, Forestry, and Tourism, Planning and Development; and the EMA.

NGOs, interests groups, service clubs, etc. also make important contributions to environmental education and public awareness. These include programmes of the Asa Wright Nature Centre, Pointe-a-Pierre Wildfowl Trust, the former Civilian Conservation Corps (CCC), Environment TOBAGO; Fishermen and Friends of the Sea; St. Augustine Rotary Club; San Juan Rotary Club; T&T Field Naturalists' Club; T&T Biological Society; and UWI Biological Society. Additionally, corporate citizens in T&T have become increasingly involved, for example the Royal Bank Young Leaders Project; Carib Glass; Citizens in Action to Restore the Environment (CARE), of the First Citizens Bank, and the Guardian Life Wildlife Fund.

Programmes by these organisations utilise a variety of media in their outreach to schools, specific target groups and the general public. These include newsletters, lectures, exhibitions, maintaining visitation/interpretation sites, resource libraries, developing posters and other promotional materials and training.

Education efforts by the above institutions and agencies may be seen as informal, and principally related to their focus and manpower. They are all severely limited by their resources; are fragmentary and generally operate on an ad hoc basis. Their effectiveness has not been subject to critical evaluation. It should be noted, however, that the Pointe-a-Pierre Wildfowl Trust has had a long history and experience of environmental education, and has established a respected reputation in this field.

The above organisations continue to provide an essential service in what is an otherwise unstructured approach to Environmental Education in the country. They have all, both public and private, collaborated on a number of activities, through formal and informal linkages. As a vital component in resource management, environmental education presents an opportunity for greater collaboration between agencies for the delivery of consistent and cost-effective education programmes.

STRATEGY 1
Education and awareness programmes on biodiversity conservation should build on existing initiatives and fill gaps in formal approaches. They should also foster greater collaboration between conservation and education agencies and other stakeholders.

ACTIONS

1. Commission an interdisciplinary Working Group which will develop a visionary policy and action plan for Environmental Education that will have biodiversity conservation and sustainable development as its basis.
2. The Working Group will be co-ordinated by the EMA and should include participating agencies, NGOs, CBOs, and other interested partners. It will find methodologies to allow integration of appropriate existing conservation education programmes, and be expected to take a holistic approach to the development of informal awareness programmes.
3. Develop an Awareness campaign based on the Environmental Education Action Plan and Policy, which will emphasise the importance of the links between biodiversity and all sectors of development in the country. It will identify the content of the campaign, the media to be utilized, and will target the following groups:
    - Political directorate
    - Decision makers in all Ministries
    - Industry and business
    - Professional organizations
    - Women
    - Householders
    - Farmers
    - Media
    - Local communities
    - Religious organizations
    - Youth
    - Legal community
    - Law enforcement agencies

- Strengthen existing MOU's between the EMA and its participating agencies (through supplemental agreements) to enable the strategies and actions recommended by the NBSAP and those coming out of the Working Group on Environmental Education. These supplemental agreements should **detail** the responsibilities of these entities.

Formal environmental education (EE):

Extracts from the draft policy on Environmental education states the intention of the GoRTT to encourage and infuse EE into both formal and informal education and awareness:

- Environmental Education will be introduced from primary school age to adulthood with the goal of providing knowledge of both local and global environmental issues as well as the skills required to take the individual from awareness to participation; Environment and sustainable concepts will be introduced into all education programmes.
- Cross-disciplinary university courses in fields which have impact on the environment will be encouraged, as well as postgraduate research;
- Adult education and awareness programmes based on local environmental problems will be encouraged.
- Environmental education initiatives throughout the country will be coordinated at the national level.

This policy is a loosely worded document that provides no definite actions, time frames or programmes to achieve its objectives.

The School System:
The Ministry of Education coordinates formal environmental education in schools. Two important initiatives are the Internet-based GLOBE programme, and EnACT (Environmental Education Across the Curricula in T&T) which aim to infuse environmental education across the curricula in primary schools. However, these two programmes are extremely limited in their participation, with GLOBE operating only in two schools. While there is significant environmental content already in the primary school science and social studies curricula, there appears to be a gap in the secondary school system, until the CXC syllabus is encountered. In the CXC syllabi, EE is engaged only in Geography, Integrated Science, Biology and Social Studies.

While the primary school system is gearing up for EE within the next five years, the SEE (Secondary Entrance Exam) system that is replacing the Common Entrance (CE) will only concentrate on two subject areas, Math and English. This presents a contradictory and regressive trend in the primary schools with reference to EE, unless the approach to Math and English infuse extensive environmental content.

While the draft policy on EE "encourages" infusion of EE and sustainable development concepts into the school system, there needs to be more active pursuit of specific actions to achieve these policy objectives. An action plan should detail an implementation schedule, linked to proposed sources of information and funding, and with incentives to accomplish these goals.

There is need for a greater infusion of Environmental Education across the school curricula at all levels. A separate subject area is advocated by many to address a training focus that is necessary in the country. In this light it is essential for T&T to influence CARICOM in the direction that CXC is taking on this issue.
Local, international and regional sources of information and funding should be developed in the pursuit of the policy goals for EE.

STRATEGY 2

- **Promote infusion of Environmental Education (EE) into the pre-school, primary and secondary educational systems.**

ACTIONS:

1. Conduct an assessment of pre-school, primary and secondary programmes to determine the appropriate mechanisms for EE infusion into the curricula.
2. Based on this assessment, develop local and regional educational materials in support of EE and develop additional materials, as required to facilitate EE and awareness throughout the educational system.
3. Build agency partnerships to allow development of these materials (perhaps through a Standing Committee for development of these materials)
4. Use existing educational materials as the basis for EE infusion into the curricula.
5. Advocate further infusion of EE into the CXC curricula, at a regional level through CARICOM, as well as promote practical "hands on" approaches to learning for schools and youth.
6. Develop a training programme for teachers, principals and supervisors in the delivery of EE ideas, concepts and materials (at one of the Tertiary Institutions).
7. Reinstate subjects for SEE which incorporate environmental education.
8. Provide opportunities for accessing information located in international bodies and on the internet.
9. Promote the Global Learning and Observation for the Benefit of the Environment (GLOBE) and Enact projects of the Ministry of Education and other UNESCO associated schools projects.
10. Develop curriculum materials for EE infusion through Teachers Training Colleges

EE and other tertiary education:

Infusion of EE is also essential in tertiary educational initiatives. Tourism for example, is projected to be a major area of economic growth, related to the natural attractions of both islands. Human resource development in this arena needs to strongly integrate EE concepts in development of training modules. Presently, the curriculum of the Tourism and Hospitality Institute (TTTHI) is inadequate in light of the recent focus on eco-tourism. This institution needs to expand its offering in terms of content and delivery, to stakeholders in the eco-tourism sector, including communities, which provide tour-guiding services in many areas. Degree courses offered at the UWI need to be more flexible and should actively encourage cross-sectoral approaches to the natural science disciplines.

Policy Statement

Incorporating the effects of human activity on biodiversity, is essential in tertiary educational initiatives, especially in disciplines projected to be a major economic growth areas. Human resource development in these arenas needs to strongly integrate EE concepts in development of training modules. Tourism and Industry have also been identified as significant growth areas, where integration of Conservation and biodiversity concepts into their training modules and seminars, has become necessary.

STRATEGY 3

- **Promote biodiversity and environmental education at the Tertiary (University and Technical) levels, especially in disciplines projected to be major economic growth areas (e.g. Tourism and Industry).**

ACTIONS

1. Introduce a mandatory basic environmental education course at the Year 1 level, which exposes all students to issues in biodiversity conservation at a national and regional level.
2. Introduce degree programmes in Environmental Management, Forestry, Conservation Biology and Geography at the University of the West Indies, St. Augustine and other Tertiary institutions, and make these courses as electives to other degree programmes.
3. Introduce Environmental Studies through an inter-disciplinary approach.
4. Provision of scholarships, overseas attachments, student exchanges, career guidance and other incentives to encourage a wide exposure to environmental education.

Environmental Education is a fundamental issue for the conservation of biodiversity in T&T in all sectors. There needs to be an active and visionary policy on EE and awareness at formal levels of the educational system and training institutions and a holistic approach to the informal awareness activities. Closer collaboration and cohesion of existing programmes is desirable.

In discussions of the sector reports, all stakeholder contact groups put the Education and Awareness issue extremely high on the listing of priorities. Their preferred approaches to it, are expressed in the following:

The contact group workshops on the Education and Awareness issue

There is a lack of appreciation by individuals and the national community of the need for biodiversity protection and conservation and its contribution to the quality of life in the country. Sustainable use of biodiversity needs to be a national and individual priority issue. This is

illustrated by gaps in Education and Awareness of Biodiversity and conservation in all sectors of the national community.

There is an ignorance of the relationship between human activities and their impacts on biological diversity. The poor understanding of these relationships in the larger community has contributed to

- **Lack of a sense of community "ownership" of the resource,**
- **A lack of responsibility for managing and conserving the resource**
- **Inadequate extension support strategy**

Neither formal nor informal education programmes has resulted in biodiversity conservation.

WHAT THE COMMUNITIES HAD TO SAY ABOUT EDUCATION AND AWARENESS

- **We need an education system in this country that will help us to do things, not just say things.**
- **We need moral and spiritual grounding on this issue. Change in the consciousness of people must precede other actions**
- **The private sector need to get involved in education efforts in an holistic way, other than the little competitions they sponsor.**
- **Green Clubs in schools could be funded by the private sector**
- **We are far behind in the awareness drive for the environment. We have a serious problem with education in this country and we need to get back to basics**
- **We need action now or we will have nothing left to save!**
- **People who have the knowledge don't know how to impart it, and those who know how to impart don't have the knowledge. We need training of teachers for environmental education.**

STRATEGY 4

- **Utilize Organizations and Agencies involved in informal environmental education as foci for development of an appropriate informal education programme.**
- **Collaborate with corporate business, (e.g. the industrial sector) as they can contribute financing, expertise on advertising, public relations and communications.**
- **Education and awareness programmes should use cultural and artistic traditions, including drama and skits as vehicles for environmental education.**
- **Use religious organizations to promote biodiversity conservation and promote stewardship, through emphasis on relevant religious practices, teachings and cultural values.**

ACTIONS:

1. Develop demonstration projects at relevant locations, as opportunities for practical outdoor experiences and sensitisation on biodiversity issues and encourage sustainability. (E.g. rehabilitation of quarried sites and hillsides, or clean-up campaigns along river and coastal ecosystems).
2. Institute special days and quizzes etc. as environmental promotions.

STRATEGY 5

- **Encourage the use of financial incentives to fund environmental education and awareness programmes on biodiversity.**

ACTIONS

1. Establish a biodiversity fund of utilize existing funding mechanisms, into which the corporate sector would contribute. These funds would be used for community conservation programmes (especially in communities that have suffered biodiversity degradation through corporate activities).
2. Seek financial support from other commercial activities e.g. the National Lotteries to fund environmental education and awareness .
3. Establish a Caribbean Environmental fund.
4. Encourage private enterprise to finance conservation NGOs.

Communities were aware that some of their own practices contributed to the depletion of resources and felt that education programmes could help them to understand the linkages between cause and effect, and develop their ability to contribute to the management of these resources. In addition to educational programmes, they wanted information generally about environmental developments, EIA's and other government policies and programmes that would affect their lives, environment and incomes. Interviewees during this project expressed the view that lack of information and education had often been responsible for the failure of state sponsored community projects.

Education and awareness in the communities must lead to their empowerment to engage in the co-management of their natural resources through partnerships with the relevant agencies on an ***equal*** footing.

STRATEGY 6

- **Promote the sensitisation of communities to biodiversity concerns through shared planning and management of these resources.**

ACTION

1. Identify and implement meaningful demonstration projects and opportunities for co-management that would involve communities in their planning and execution (eg. hillsides replanting and quarry restorations).
2. Make biodiversity a part of holistic community programmes, which emphasize linkages between community activities and the environment.

In recognising that the education and awareness issue is pivotal to all other aspects of biodiversity conservation - our attitudes and our ability to manage these resources - and that it is central to the way we perceive and pursue policy, enforcement, decision-making, community participation and capacity building and planning, directives for education and awareness should be integrated into national sectoral policies, encouraging an holistic approach to biodiversity conservation, starting at the national planning level.

STRATEGY 7

- **Encourage companies to develop Environmental Management Training Programmes, which include biodiversity components.**

ACTIONS

1. EMA and other government entities to collaborate with companies in developing in-house training programmes on biodiversity conservation, relevant to their activities. Support for such activities can be solicited from the larger companies, NGOs, CBOs, and international agencies. Industry will be strongly encouraged to share experiences and information on environmental management and training approaches.
2. Disseminate information on biodiversity conservation through the use of company newsletters.

STRATEGY 8

- **Mount a permanent mobile exhibition and other annual exhibitions, which would highlight Trinidad and Tobago's biodiversity. (e.g. during World Environment Day)**

ACTIONS

1. EMA to work with industry and other partners to host an annual national exhibition on biodiversity conservation.
2. Ensure proper publicity for the exhibition so that a wide cross-section of the population attends.
3. Encourage school participation by close liaison with the Ministry of Education.
4. Specifically target Trade Schools and other apprenticeship institutions.
5. Publicly acknowledge companies making significant strides in preserving the environment and biodiversity, through some award system.
6. Promote "hands-on" field exercises.

STRATEGY 9

- **Utilize law enforcement to demonstrate public awareness about biodiversity.**

ACTIONS

1. Highlight judgments associated with biodiversity conservation (monthly or quarterly), explaining clearly the problem and implications of the violation(s).
2. Promote public education and information about the provisions of environmental legislation.
3. Integrate principles of biodiversity conservation into National Sectoral policies.

Policy

- The policy context for the conservation of biological diversity is investigated.
- Outdated, present and draft policies are introduced, discussed and gaps identified.
- Both the process at arriving at policy and policy implementation were found wanting

Introduction
Policy statement
Policy issues
Conflicts
New policy directions
Strategic plans and policy
International Conventions
Policy and public participation
Contact group input
Community comments

POLICY

Introduction:

Current conservation and management of the biodiversity in T&T occurs primarily through Government institutions. These Ministries, through their policies, plans and programmes, determine approaches to control the exploitation of species, protect rare, threatened and declining species, as well as manage ecosystems and control overabundant species. While the policies of the majority of Ministries have impacts on biodiversity, one Ministry has the major responsibility for the management of biodiversity resources.

The Ministry of Agriculture, Land and Marine Resources is the primary agency with responsibility for the day to day management of biodiversity in the country, and formulation of policies and legislation that govern these activities. For administrative purposes, the Ministry has divisions for Forestry, Fisheries and Agriculture. Management and use of other biodiversity resources *ex situ* are the mandate of the Botanical Gardens and the Emperor Valley Zoo. A number of other key Ministries have policies that impact on the management and conservation of biodiversity in the country. These include, but are not limited to, the Ministries of Planning and Development, Housing and Settlements, Energy and Energy Based Industries, Works and Transport, Public Utilities, and Trade, Industry and Consumer Affairs.

Policy Statement:
In keeping with the vision of Trinidad and Tobago and our international obligations of pursuing a course of sustainable development, through Agenda 21 and other agreements, it is recommended that a National Commission for Sustainable Development be set up, to integrate the country's policies in pursuance of this goal. A strategy and action plan for biodiversity should be one facet of this larger goal of sustainable development.

STRATEGY 10

- **Integrate policy objectives for biodiversity conservation into policy statements for all sectors, to promote its rational and holistic management and sustainable use.**

ACTIONS:

1. Establish a National Commission for Sustainable Development to integrate Trinidad and Tobago's obligations under the Convention on Biodiversity (and other agreements) with the country's policies.
2. Organize Ministerial workshops to discuss integration of biodiversity concerns into sectoral policies, and discuss their implications to plans, programmes and projects of all Ministries.
3. Establish interagency policy planning teams.
4. Initiate a systematic review of Government policies, which affect biodiversity conservation and make policy interventions to ensure biodiversity concerns are addressed.
5. Conduct an assessment to determine how institutions can be strengthened to enable development of an integrative policy process.

Policy Issues:

Outdated policies:
Sectoral policies that govern biodiversity illustrate the huge time gaps in the policy planning cycles in these sectors. Many of these policies still await approval. The lack of acceptance by the decision-makers of updated draft policies has been identified by agencies as a significant issue affecting their mission and ability to adapt to changing needs and conditions.

STRATEGY 11

- **Adoption of 5 – 10 year policy planning cycles by natural resource management agencies.**

ACTIONS:
1. Institute proactive policy/legislative review cycles by all resource management agencies

Conflicts:

The development of sectoral Policies in isolation has led to inherent conflicts between these policies. For example, Agricultural Policy seeks to increase agricultural production for food security, while Forest Resources Policy seeks to increase the forest estate to at least 33% of the land area. These may be conflicting objectives in terms of land space and management of the resources to optimise production systems. Indeed, even within individual policies there are inherent conflicting goals, without identifying any mechanisms for analysing these effects and finding a balance. e.g. Forest policy articulates conflicting goals such as optimising timber production and the conservation of ecosystems and species. Policies generally tend to maximise the yield of resources, without the necessary managerial capability for the respective resources.

However, without any mechanism to resolve and manage these inherent conflicts and competing objectives, policy objectives continue to hamper a coherent vision for the conservation of biodiversity in the country, and the implementation of individual policy goals. This situation is aggravated by outdated and draft policies under which Ministries operate, as well as lack of data, information and analysis of policy goals, in the refining of policy objectives.

Development in isolation also affects our ability to evaluate the effects of one sector on the other. All policies suffer from lack of appraisal and evaluation that should be an integral part of the policy planning process. There effects on the long-term sustainability need additional focus and appraisal.

Policy implications of the different sectors need more discussion and integration between divisions and agencies to avoid conflicting objectives and goals.

STRATEGY12

- **Resolve conflicts between policies that affect the management and conservation of biodiversity**

ACTIONS

1. Initiate conflict management and resolution workshops for stakeholders in the public (e.g. Ministry of Agriculture, Land and Marine Resources and Ministry of Housing and Settlements) and private sector and at the community level.
2. Develop consensus on criteria for resolution for fundamental conflicts within, and between policies.

New Policy Directions:

- **National Environmental Policy 1998**

The recent National Environmental Policy makes a tremendous leap in the protection of the country's biodiversity through its articulation of the specific policy objective, to "**conserve the biological diversity of the country and the stability and resilience of the ecosystems'.**
It provides the best example of an environmental policy framework, which is supportive of protection of biological diversity, including its goals for Environmentally Sensitive Species (ESS) and Environmentally Sensitive Areas (ESA).

- **Forest Policy**

An examination of the 1981 draft Forest Resources Policy indicates that some of its objectives address the maintenance of biological diversity. It is relatively progressive in terms of the conservation of these resources. However, conflicting statements within it indicate that the Division needs guidance from the public (through public and community consultations and with the political directorate/legislature) and from sound information on policy impacts, to define criteria for the resolution of such fundamental and inherent conflicts.

The aims of the policy as they relate to biodiversity conservation are:

- To manage these resources for optimum combinations of their productive, protective, recreational, aesthetic, scientific and educational capabilities; in order to
- Conserve sufficient representative areas of natural ecosystems to ensure their perpetuity;
- Ensure that the public is made aware of the importance and management of forests, forest resources and species;

Strategic Plans vs. Policy:

Some agencies have taken the approach of formulating strategic plans (in which policy directions are incorporated) for pursuing their vision, in lieu of approved policies. Two examples of this are the Wildlife Strategic Plan (1995), and the Tourism Master Plan (1994).

Wildlife Strategic Plan

The Forestry Division's Wildlife Section (1995) developed a strategic plan, which provides a clear direction for the agency with respect to the management of game species, threatened species, over-abundant species and threatened habitats. It provides a good blueprint for the Division, and urgently needs to be integrated into the Forestry Division's Forest Resources Policy document.

Tourism Master Plan

TIDCO developed a Master Plan (1994) to direct the growth of the tourism industry in T&T. This plan, also, has been used as the background document for policy formulation and new draft legislation.

Policy and Legislation Connections:

Policy needs to inform the legislation that governs both the growth and management of a particular sector. It is frequently the case that legislation is updated and/or redrafted, without a formalised policy, as in the cases of the Forest Resources Draft Policy and Bill, draft legislation for National Parks and other Protected Areas, and Tourism Development. New legislation may therefore be directed by strategic plans, policy (draft or approved), discussion papers on vision or directions for the sector. In light of the proliferation of conflicting policy and legislation drafts, it is recommended that the logical progression of process and planning tools be standardised.

The additional problem of policy documents not articulating mechanisms for implementation, was also seen as being obstructive to achieving policy objectives. Of particular mention were the financial and institutional arrangements.

STRATEGY 13

- **Develop a clear policy process for adoption by Government entities and ensure that strategic action plans of these entities incorporate implications on biodiversity conservation and the environment as a whole.**

ACTIONS:

1. Introduce annual Auditing and Appraisal systems to monitor policies, plans and programmes in Ministries that impact biodiversity.
2. Based on these Auditing and Appraisal systems, mandate where necessary, policy interventions to ensure biodiversity conservation is addressed.
3. Each Agency should hold discussions with other appropriate agencies and stakeholders to reach agreement on a policy process using guidelines on policy formulation prepared by the Ministry of Planning and Development.
4. Identify indicators for monitoring progress with policy objectives, strategies and actions during this policy process.
5. Natural resources management agencies will develop creative financial instruments to achieve policy objects for biodiversity management.

International Conventions:

The proliferation of international conventions and agreements for the sustainable use, conservation and management of natural resources has often formed the basis of policy directions for biodiversity. As signatories to several of these conventions, Trinidad and Tobago needs to incorporate their provisions into sectoral policies, and legal developments on biodiversity issues. Some of these include:

- The United Nations Convention on the Law of the Sea (UNCLOS III),
- Agenda 21
- The Convention on Biological Diversity (CBD)
- The Cartegena Convention
- The International Code of Conduct on Responsible Fishing,
- The Convention on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks on the High Seas,
- The Inter-Governmental Agreement on Fisheries (IGA) among CARICOM countries,
- The General Agreement on Tariffs and Trade (GATT) and North American Free Trade Agreement.
- The Ramsar Convention
- The Convention on the Trade of Endangered Species (CITES)
- International Convention on Atlantic Tunas (ICAT)

A number of these conventions encourage countries to put mechanisms in place, to effect the management and monitoring of practices, with the threat of sanctions and trade barriers. Trinidad and Tobago needs to be pro-active to these conditionalities to prevent punitive measures being used against the country.

STRATEGY 14

- **Incorporate provisions of international agreements and conventions to which the country is signatory, into national policies and legislation.**

ACTIONS:

1. Select and incorporate provisions from specific conventions and agreements (such as the Convention on Biodiversity and the Convention on International Trade in Endangered Species of Wild Fauna and Flora), into national and sectoral policies and legislation.
2. Adopt the "ecosystem management " and adaptive management approaches in policy, legislation and management planning.

Policy and public participation:

Several national policy processes recognise the importance of public participation in policy planning, decision-making, management and implementation. The draft Fisheries (1994) policy and National Wetland Policy (1997) included significant public participation in developing the policy process, and stressed co-operative management as a key strategy for conservation and sustainable use.

While public, community and stakeholder participation is gaining popularity, resistance to co-management policies remains strong in some sectors of the state's agencies. Government's responsibility to manage and utilise the nations biological resources sustainably, must involve the voices of those who use the resources, and those communities in which the resources are located. Participation of stakeholder communities and other organisations must be a key element in policy planning and implementation.

In conducting this exercise, both stakeholders and communities were consulted on these issues, and distinct trends and similarities were evident. These ideas, voiced here on the issue of policy and its formulation, are in agreement with the sector specialist reports and recommendations:

<u>THE CONTACT GROUP WORKSHOPS</u> felt that Policy and Legislation was the second priority area that affected the conservation of biodiversity in Trinidad and Tobago:

- **The process at arriving at policy for the different sectors needs to be more participatory, involving community and public input at all levels, from policy formulation, decision-making processes, management and implementation.**
- **Policies for the protection and conservation of biodiversity need to be integrated across the sectors for the country's development.**
- **Policy and incentive programmes can be contradictory, e.g. Fisheries draft policy and incentive programme.**
- **There is no process for the management and resolution of conflicts in different policies.**
- **The use of financial instruments should address policy directions for the sustainable use of the resources and also be sensitive to the social and cultural issues of Trinidad and Tobago.**

<u>What the regional public consultations had to say about policy and planning process:</u>

- **Things must not be done in a topsided manner in which the communities are not aware.**
- **The action of the State is highhanded, they have no respect, they are operating in a Massa highhanded way, the way they are doing things !**
- **We are suspicious of all these studies and plans because we never hear anything about them again after they pick brains for information.**
- **A holistic approach is needed for development and protection of biodiversity if we are to engage in sustainable development.**
- **Consultation should also be an educational experience and target community groups.**

STRATEGY 15

- **Institutionalise public participation in the development of government policy for the conservation and management of biodiversity.**

ACTIONS:

1. Incorporate stakeholder, community and public participation in the development of public sector policy.
2. Include as appropriate, stakeholders (e.g. NGO's and CBO's) on boards of management, and committees that manage and plan biodiversity conservation.
3. Mandate government and private sector developers to obtain input from communities on plans, policies and developments, which will impact biodiversity in their areas.

STRATEGY 16

- **Make sectoral interventions to increase the sensitivity of policy to biodiversity concerns.**

ACTIONS:

Agriculture:

1. Revisit the existing agricultural policy to allow recognition of the need for conservation of agro-biodiversity.
2. Restructure existing pesticide approval policy and procedures to include recognition of the need for biodiversity conservation.
3. Develop environmentally sensitive disposal practices for agricultural wastes, for adoption/use by farmers.
4. Introduce/update policy and procedures for *ex-situ* conservation of agro-biodiversity, which will include maintenance of seed banks, tissue culture, field collections and cryo-preservation.
5. Modify agricultural policy to include :
    - the biological value of the land as a criterion in land distribution.
    - to prevent the alienation of remaining natural forests owned by the State
    - mandate the redistribution of those State lands currently under agriculture, but which are clearly under-utilized.
6. The Ministry of Agriculture, Land and Marine Resources must develop and implement a programme to rehabilitate agricultural State lands that have been abandoned.
7. Ministry of Agriculture, Land and Marine Resources and Ministry of Housing and Development should discontinue alienation of State-held agricultural lands for development and housing.
8. Review the existing physical development plans for Tobago, to classify and zone land, and enforce development restrictions on agricultural land.
9. Government and lending agencies should restructure land distribution and agricultural loan programmes to reward adoption of environmentally sensitive practices by the farming community.

Marine Biodiversity and Fisheries:

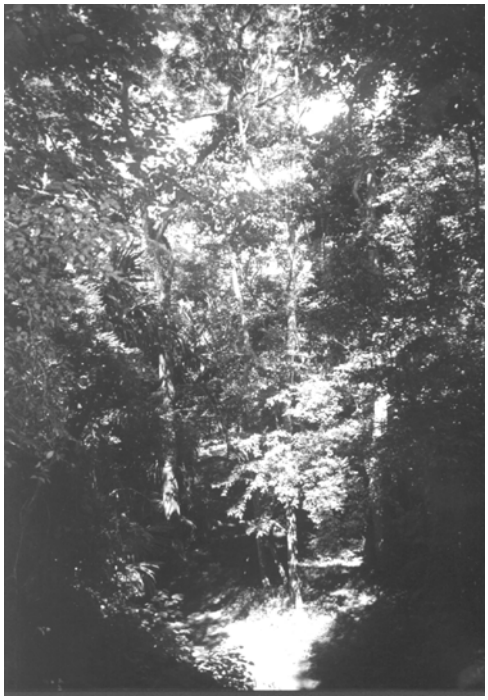
1. Update the fisheries policy document to incorporate management of freshwater environments.
2. Refine the draft policy document (using FAO assistance) and revise the Tobago Development Plan to strengthen conservation of marine biodiversity and fisheries.
3. Obtain public comment on the draft policy through regional consultations prior to submission to Cabinet.
4. Incorporation of relevant public comments and submission of the policy document to Cabinet
5. Complete (using FAO assistance) and release draft Fisheries Management Bill.
6. Establish a Fisheries/Marine biodiversity Monitoring Unit as recommended by the Bill.
7. Reconsider the option of seconding Coast Guard and Marine Police staff to the Monitoring Unit.

STRATEGY 17

- **Develop and implement holistic management plans following designation of a protected area, prohibited area or resource management area.**

ACTIONS:

1. Formulate and implement management plans, which explicitly address sustainable use of commercially exploited species.
2. Mandate community and stakeholder involvement as well as other state stakeholders in the planning and implementation of management plans.
3. Determine critical financial and human resource needs for the implementation of management plans.
4. Provide communities with the training (institutional capacity) required to fill key roles in resource conservation.
5. Monitor and evaluate management progress through use of indicators of success.



Legislation & Enforcement

- The present state of legislation governing biodiversity issues, *in-situ* and *ex-situ* conservation is discussed
- Conflicts of management and authority are still unresolved.

Introduction
Contact Group Input
Existing Legislation
Secondary Legislation
Stakeholders Input
Community Comments
Enforcement Issues
Draft and Pending Legislation
Common Legislative Trends

LEGISLATION AND ENFORCEMENT

Introduction:

In Trinidad and Tobago, the management (for exploitation and protection) of biological resources is governed by or effected primarily through laws relating to State lands, forests, agriculture, wildlife and fisheries (see table below).

For contemporary renewable resources management, some of these Acts and their associated regulations do not provide an adequate framework since they date back to the early part of the century. An example of this is the lack of implementation of two major initiatives for protected areas. This has been responsible for the continued use of provisions in legislation (e.g. Forest Act) that are not entirely appropriate in today's evolving systems of resource management. A number of these Acts have had amendments and regulations added over the years, but require more comprehensive redrafting. Many of them are now under review for the purposes of revision, drafting of regulations, consolidation and rationalisation.

Existing Legislation	Year	Draft Bill (Year)
State Lands Act (57:01)		
Forests Act (66:01)	1950	1998
Conservation of Wildlife Act (67:01)	1953	1999
Fisheries Act (67:51)	1916	1995
Agricultural Fires Act (63:02)	1965	
Environmental Management Act No. 3	1995	
Tobago House of Assembly Act No. 40 of	1996	
Marine Areas (Preservation and Enhancement) Act, Chapter 37:02,	1970	
Archipelagic Waters and Exclusive Economic Zone, Act No 24	1986	

The Forests Act:

The Forests Act details regulations for the sale of forest produce, but provides little additional direction for the protection and management of natural forest lands. While identifying areas as Forest Reserves, this Act imposes no restriction on access to these areas. This has resulted in destruction of forested areas from a number of threats, including fires and squatting.

Two major initiatives for a system of protected areas have occurred during the last 20 years. Their lack of implementation has been responsible for continuation with the outdated system of Wildlife Sanctuaries and Forest Reserves. More recently, within the last 15 years, the Forest Act has been used (in lieu of updated legislation for protected areas) to declare Prohibited Areas, offering added protection to certain sensitive areas, at vulnerable times.

This ad-hoc approach to the management of our biodiversity resources, and management by prohibition, is not in the best interests of *in situ* conservation. It is an ineffective and inadequate method that can be described as ***crisis management by prohibition*****.** Except where additional resources and/or communities, e.g. the turtle-nesting beaches of Matura, Fishing Pond and

Grande Riviere, have become involved in conservation and helped to fill the management and enforcement gap, it has not been a proven success.

More recently, the severe dry season of 1998 saw a dramatic increase in forest fires, prompting the declaration of some 23 Forest Reserves as Prohibited Areas. This was in an effort to keep the human presence out of these Reserves, in the hope that it would stop the fires. Management by exclusion has not resulted in the protection or conservation of these resources, it has not stopped fires or squatting in the Aripo Savannahs, hunting in the Trinity Hills nor rice farming in the Nariva swamp, and is unlikely to do so in the foreseeable future. A more comprehensive and updated approach to *in situ* conservation must be pursued, as with the Protected Areas draft legislation.

The people want to become involved

- **An holistic approach is needed for the development and protection of biodiversity if we are to engage in sustainable development.**
- **The community wants to play a bigger role, but you have to encourage us. We are not getting any support when we take action.**

STRATEGY 18

- **Make legislation and regulations more effective management tools, through harmonization and by incorporating the use of new technologies and stakeholder involvement.**

Actions:

1. Develop and update legislation for conservation of protected areas, landscapes and species, consistent with current international trends.
2. Resolve conflicting provisions in relevant biodiversity legislation (e.g. the inconsistency regarding the harvesting of marine turtles, between the Conservation of Wildlife Act and Fisheries Act.
3. Mandate the use of new technologies for the protection of non-commercial, undersized and endangered marine species, in harvesting practices.
4. Formalize stakeholder and community participation in institutional arrangements.

The Conservation of Wildlife Act:

The Conservation of Wildlife Act replaced earlier legislation for the protection of “wild birds” and “ground game”. The conservation of the terrestrial fauna of the country is primarily achieved through this piece of legislation. However, its narrow interpretation, largely through regulation of hunting, by a system of permits, closed seasons and wildlife refuges (wildlife sanctuaries), has fallen far short of the expectations that could provide adequate protection to the country’s biological diversity.

It is unable to address the more complex issues surrounding the protection of biological diversity such as endangered species populations, habitat conservation and exotic species management.

Its regulations have not provided the flexibility to effectively control the levels of harvest and hunting effort applied to game populations. Finally, with fines ranging between TT$1,000 - 2,000, it is clear that it has ceased to be a deterrent to poaching, as these penalties are no longer considered significant.

The Fisheries Act:

The primary piece of legislation governing fisheries in the territorial sea (and internal waters) is the Fisheries Act. The regulations specify broad fish protection mechanisms such as net size restrictions, minimum landing size of fish, restrictions on the harvesting of fish and shellfish in certain areas, zoning of trawling operations, mandatory use of Turtle Excluder Devices (TEDS), the harvesting of marine turtles between March 1 and September 30. This last regulation is in direct conflict with the Conservation of Wildlife Act, which provides protection while the animals are on land.

The Marine Areas (Preservation and Enhancement) Act:

The Marine Areas (Preservation and Enhancement) Act, Chapter 37:02 provides for the designation of restricted areas for biodiversity protection, recreation or research for both marine flora and fauna. It has been used for the protection of only one area to date—the Buccoo Reef area in Tobago.

As a twin-island state, Trinidad and Tobago's territorial waters exceed its land area, and as such, the sustainable utilization of its marine resources is vital to its economic activities, and its cultural and social development. As conflicting practices and competition for the marine resources intensifies, it becomes necessary to safeguard more areas for the continuing protection and conservation of fishing stocks and breeding and spawning grounds, etc.

Strategy 19

- **Utilize the National Parks and Other Protected Areas Act and the Environmentally Sensitive Areas provision of the Environmental Management Act for the declaration of added marine protected areas**.

Actions:

1. Involve stakeholders and communities in the identification of areas for designation as protected areas.
2. Involve stakeholders and communities in the planning, management and enforcement of regulations in these areas.

The Environmental Management Act:

The Environmental Management Act, of 2000 provides for a co-ordinated approach to environmental management through a national environmental strategy, environmental programmes, public awareness and an effective regulatory regime. As a coordinating agency, the EMA does not engage in the day to day management of the country's biodiversity. Other subsidiary legislation under the Environmental Management Act is in preparation, which seeks to prevent or mitigate loss or degradation of resources, through enabling regulations for Environmentally Sensitive Species (ESS) and Environmentally Sensitive Areas (ESA). This

legislation also includes the formulation of regulations for effluent standards; to provide for permits and licenses, and to determine environmental impact through certificates of environmental clearance (CECs). These will clearly have some effect on effluents, particularly in watercourses that have detrimental effects on freshwater and marine biodiversity.

The Tobago House of Assembly (THA) Act:

This Act gives responsibility to the Tobago House of Assembly for the formulation and implementation of policy in respect of matters relating directly and indirectly to the conservation of the resources of biodiversity. These are land and marine parks, agriculture, fisheries, forestry and the environment.

The State Land (Regularisation of Tenure) Act 1998:

This Act provides protection for squatters from eviction from State lands, facilitating their occupation by providing letters of comfort and leasehold titles in certain designated areas of the country. Its intention is to develop "sustainable human settlements" without identifying how this is to be achieved.

Of particular note are the areas to be designated or have already been identified for regularisation of squatters.

The Minister has the power to add areas to the schedule, once the area is not included in the following categories, and must consult with State agencies to ensure compliance with these requirements:

- A green belt area, such as a forestry conservation area;
- An area required for the protection of water resources;
- Designated under section 4(1) of the Environmental Management Act as an Environmentally Sensitive Area.

The schedule of areas detailed for regularisation does not conform to the requirements set out above, from the act. Just one example is the Aripo Savannahs Prohibited Area, a proposed Scientific Reserve Protected Area.

Common flaws in all these Acts, are that they provide no framework for the management of the habitats or ecosystems, and no mandate for management plans to be effected. Management, therefore, proceeds in an ad-hoc fashion, without the proper information and data to inform management decisions. As with policy, the legislation also contains a number of "conflicts" that are "resolved" by new legislation superseding the old, or taking powers from an institution and vesting them in another.

Secondary Legislation:

There is an extremely wide range of other legislation related secondarily to the above Acts, which contribute generally to conservation of species or habitats. In particular:

- The Town and Country Planning Act Chapter 35.01 of 1969.
- The Customs Act, Chapter 78:01
- The Plant Protection Ordinance of 1940, Chapter 23:17 and the Plant Protection Regulations of 1953.
- The Animal (Diseases and Importation) Act No. 19, Chapter 67:02 of 1954
- The Control of Importation of Live Fish Act, Chapter 67:52.
- The Archipelagic Waters and Exclusive Economic Zone Act of 1986,
- The Fishing Industry (Assistance) Act of 1955, Chapter 85:03.
- The Sawmills Act Chapter 66:02.

- The Bee Keeping and Bee Products Act Chapter 67:53
- The Cocoa and Coffee Industry Act Chapter 64:20

There is sometimes confusion about which agencies are responsible for the implementation of different pieces of legislation, and the actual mandate of agencies in terms of their management responsibilities. This confusion is only partially to blame for the common perception of agencies "passing the buck" in terms of enforcement of the country's laws.

Stakeholders input: The problems were articulated by the stakeholders of all sectors on the legislation issue as follows:

- **Existing legislation is outdated and does not conserve the biodiversity of the country, even from the traditional policy perspectives of Agriculture, Forestry, Wildlife and Fisheries.**
- **Legislation for the protection of individual species can be contradictory.**
- **The legislation that does exist for the protection of our biodiversity is poorly enforced.**
- **Lack of environmental management programmes within the Industry and Tourism sectors.**
- **Insufficient incentives in the Tourism & Industry sector for the conservation of biodiversity, and conversely there are insufficient disincentives for the destruction of biodiversity.**

The public consultations produced colourful, vociferous comments on legal aspects of biodiversity management, and especially enforcement. They are quoted extensively:

The communities speak out about law enforcement

- **About logging operations: What they are saying to the common man is that certain people are above the law**
- **It is common knowledge that the logging trucks passing after six o'clock and on weekends, when Foresters don't come out.**
- **Its clear as daylight what needs to be done. Everybody knows the answer!**
- **Nobody with the powers to enforce the law is doing it.**
- **There is extensive large scale logging in areas of the northeast, with some logging operations having been there for years. Members of communities along the coast have reported several cases over the years. It is general public knowledge who is carrying out these operations.**
- **The response by the Forestry Division is tardy, they say they can't do anything if the logs are coming from private lands, they don't know where the boundaries are.**
- **The trawlers break the laws and regulations of where they should be fishing. They fish day and night from Saut d'eau to Toco, ketching everything in the sea.**

…but the communities also contribute to the problem

- **Villagers felt that 95% of those who hunted in the villages did not have permits and that 95% of these persons hunted all year round. There was a mentality that natural things "can't done". Yet they also realise that they have to go further into the forest for wildmeat, and that their catches are also smaller.**
- **Villagers hunt both for subsistence and for commercial gain.**
- **A trap gun hunter is a lazy hunter.**
- **Some depletion of the resources was also blamed on the fishermen themselves. With specific reference to Lobsters and King fish. It was noted that the spawning grounds for king fish were protected during the spawning period, but that fishermen violated this, because fish were plenty at this time, as they congregate to spawn. By so doing, they caught these fish at their most vulnerable time, removing reproducing adults. Lobsters were caught in smaller and smaller sizes, including the berried females.**
- **Fishermen need education about the fishery resources. They need to be regulated too, to prevent their excesses, and breaking the law.**

Enforcement Issues:

The consensus among those interviewed was that while the existing laws may contain some weaknesses, additional legislation will not necessarily improve the situation. This is due mainly to the inability of the officers to enforce the current laws. The main reasons given are staff shortages, demoralisation, generally poor attitudes to environmental issues, (the magistracy in particular) the poor presentation and delays of cases, the low penalties imposed by the courts, conditions of service in the public service including poor remuneration, corruption in the ranks, all of which serve as further disincentives to the enforcement officers.

Certain NGOs and CBOs have expressed a willingness to assist the state agencies, such as the Forestry Division, in patrolling the environment, once they are provided with the appropriate accreditation and support. In light of the current staff situation in the Forestry Division and other enforcement agencies, the offer by such organisations merits serious consideration. The principles adopted by the Forestry Division in establishing the formal structure for the Honorary Game Wardens may be applicable to other resource protection efforts.

Strategy 20

- **Improve law enforcement success rate and utilize it as an important tool for management and sensitisation on biodiversity conservation.**

Actions:

1. Build on existing law enforcement initiatives for protection of species and ecosystems (e.g. the Honorary Game Warden System and Environmental Police).
2. Coordinate law enforcement activities between enforcement agencies and the communities.
3. Involve NGO's in sensitisation and enforcement efforts.
4. Provide adequate marine vehicles, maintenance and recurrent expenditure for the Coast Guard to police fisheries offences (e.g. Those related to trawling offences).
5. Make similar provisions for terrestrial law enforcement activities.
6. Increase fines and penalties for infringement of laws.
7. Conduct regular programmes to sensitise the Magistracy, Police and Coast Guard, to the long-term effects of detrimental activities on biodiversity.
8. Expedite establishment of the proposed Environmental court or commission to address biodiversity and environmental crimes.
9. Utilize the critical opportunity for public awareness about biodiversity by highlighting judgments on a regular basis.

Draft and Pending legislation:

New legislation is being drafted in a number of areas to address the constraints to effective management of biodiversity resources in existing legislation. These drafts have made significant progress in updating management principles and in upgrading local legislation in keeping with some of T&T's international obligations. However criticism of some of these new drafts relate to their compatibility, continuing overlapping of responsibilities, lack of identification of resources to implement their provisions and institutional arrangements.

In view of the shortcomings identified for the effective management of the resources, there is no doubt that revision and consolidation of the relevant laws is urgently needed. The intimate inter-relationships involved in management of the country's biodiversity require legislation to be informed by a precise articulation of the institutional arrangements, and roles and responsibilities for administration. In this context, the development of the Environmental Code under the Environmental Management Act is critical. This exercise is to be completed within the next two years and will undertake a comprehensive evaluation, consolidation, rationalisation and modernisation of the written laws and various programmes, which address environmental issues.

Among the pending draft legislation for *in situ* conservation are:

- The Forest Resources Bill
- Fisheries Bill (1995)
- National Parks and Protected Areas Bill

Common legislative trends:

These new draft bills have incorporated a number of recent resource management tools, which are to be encouraged, including:

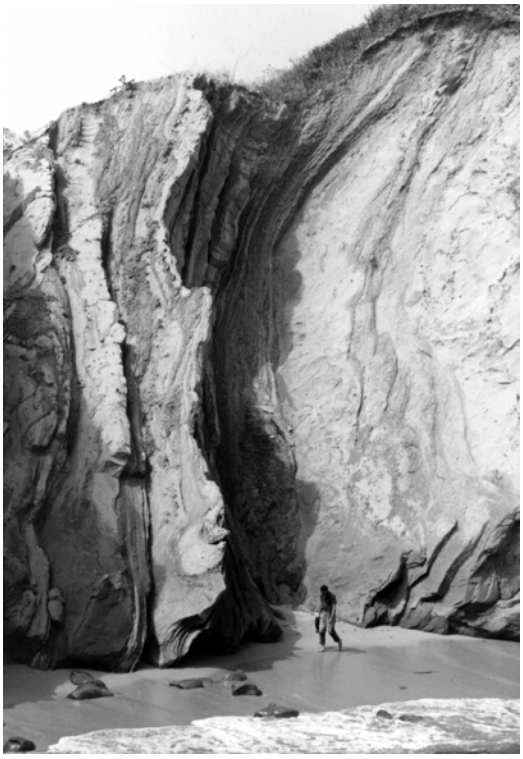
- Setting up of independent funds to address issues of the sectors that are presently funded primarily by central Government, and generally considered to be severely under-funded.
- Shift towards an ecosystem approach to management of biodiversity resources. This is of note, as the ecosystem approach to management is only now being promoted by the Convention on Biodiversity. The integrative nature of ecosystems and species has been recognised, in efforts to manage these resources by all agencies.
- Institutionalising stakeholder and community participation on management and authority boards and committees.

STRATEGY 21

- **Incorporate into new legislation and amendments, recent advances in planning and management for the sustainable use of biodiversity resources.**

ACTIONS:

1. Identify the necessary institutional arrangements for implementing legislative reform.
2. Include the necessary mechanisms, and facilitate agreements for controlling activities on private lands, especially those deemed to be Environmentally Sensitive Areas or found to have Environmentally Sensitive Species.
3. Identify financial instruments and other sources of funding and initiatives that would be used for the management and conservation of biodiversity.
4. Utilize a separate fund into which these monies would be put, and detail how this fund will be managed.
5. Formalise and integrate stakeholder and community participation in institutional arrangements, e.g. Boards, Committees.



Information and Research

- Planning and management for the country's biodiversity is found to suffer from the lack of research and information on species and ecosystems.
- Baseline studies and monitoring of biodiversity are inconsistent.

Introduction;
Contact group input

INFORMATION AND RESEARCH

Introduction:

All institutions bemoan the paucity of information and research that should inform their management operations. There are significant gaps in the knowledge base of all sectors about our biodiversity resources and the impact upon them from economic activities such as tourism and industry. Basic population assessments and baseline data against which one could measure changes that affect biodiversity are largely non-existent. Where information does exist, there is often limited access to it. Little value is put on research locally, and this is reflected in its funding.

Collaboration between research and managerial institutions needs strengthening to achieve the objectives of biodiversity management and conservation in the national interest.

Our ability to manage and conserve our biological resources is severely compromised by the poor information base, and its narrow focus.

THE CONTACT GROUP WORKSHOPS expressed the problems of information and research in the following ways:

- **We do not have an applied research programme to provide information required for effective management and policy formulation that addresses biodiversity.**
- **Research baseline studies to develop national databases of biodiversity information are needed.**
- **People don't know what information exists, where it is available and are sometimes unwilling to share information.**
- **There is a need to collect and make accessible information that exists, for use by all sectors, and for the education and sensitisation of the stakeholders.**
- **There is a lack of information on the impacts of sector activities on biodiversity.**
- **There is a lack of information/data on the flora and fauna of the country, their populations, distribution, biology and the effect of impacts on them.**
- **There is inadequate communication between the managers of biodiversity in the country, and the research institutions that could assist in providing information to increase management capability.**

The management of biodiversity is fundamentally about people's utilisation of these resources, and therefore requires an holistic approach. Research in this area therefore must be applied to the problems that managers face, and include socio-economic data, as well as the environmental and biological. In this respect, priority research needs should be identified by each sector, for enhancing the sustainable use options of biodiversity. Collaboration between research and management agencies should be a priority for the national interest to enable biodiversity management and conservation.

In lieu of much needed information, the CBD suggests that the "lack of full scientific certainty should not be used as a reason for postponing measures" for protection of biodiversity. If we begin to apply what we already know, however inadequate, and critically evaluate what we apply, we will build the applied information that we require to manage these resources.

We must encourage a system whereby biological and environmental information flows from those who have it to those who need it. Decisions affecting biodiversity and the environment are being made continuously at all levels of society in the government, non-government and private sectors. Data that are poorly organised, inaccurate and too difficult or too expensive to access are equally useless. The importance of up-to-date information is also relevant for the assessment of development applications including coastal development and fisheries, and their potential impact on biodiversity.

For the improvement of research information to enhance our capacity to manage biodiversity it is mandatory to develop and improve linkages between academia, the private sector and government agencies.

STRATEGY 22

- **Prioritise research needs in collaboration with research institutions and the private sector.**

ACTIONS:

1. Conduct a detailed inventory of the resource, including the status and distribution of species important for agro-diversity conservation as well as the economic value of ecosystem services.
2. Identify sources of additional data to fill these information needs (eg. The private sector)
3. Establish a clearinghouse for bibliographic data, identification services, and database management for biodiversity in the country.
4. Government entities and other research bodies responsible for biodiversity management should identify priority areas for applied research.
5. Utilize research data to evaluate and update policies, plans and programmes.
6. Articulate more clearly the impacts of industry on biodiversity.
7. Research the ecological relationships, ecosystems and the threats to biodiversity, as well as develop indicators for monitoring environmental changes affecting biodiversity.
8. Use appraisal and evaluation tools to determine the effect of policies on biodiversity.
9. Increase research in tissue culture and cryopreservation
10. Establish realistic environmental standards, related to operations within the industrial sectors, and their impact on the environment.
11. Feedback environmental assessments into the planning and management cycles

STRATEGY 23

- **Identify support for research activities.**

Actions:

1. Government should support relevant applied research programmes through annual appropriations and incentives such as scholarships.
2. Management agencies need to develop a system of incentives to research institutions/students to conduct research projects.
3. Identify creative mechanisms for funding and other support for applied research
4. Identify national and international organizations as potential sources of funding and other support.

STRATEGY 24

- **Encourage collaboration with government and other research institutions and the private sector.**

ACTIONS:

1. Encourage close collaboration between research institutions (IMA, UWI, NIHERST) and the management agencies. (EMA, MALMR), to develop an applied research programme that will provide the information required for more effective management.
2. Research institutions, to consider their role in fulfilling the research needs for biodiversity. (NIHERST and UWI in particular should be involved in this process)
3. Establish clear links with industry as partners in research. Industry could assist in funding research, especially in areas that are of concern to industry and their effects on biodiversity.
4. Address the protection of information and other intellectual property rights.

STRATEGY 25

- **Broaden access to, and provide opportunities for, sharing information, consideration being given to the cost of information and the need for cost-sharing in acquisition of information.**

ACTIONS:

1. Articulate an information policy at the National and Institutional levels, for the sharing of information, but which recognizes ownership rights associated with the origin of such information.
2. Implement a central clearinghouse for data and information relevant to biodiversity, which can be accessed by researchers, managers and the public. Consideration must be given to the emerging National Environmental Information System (NEIS).
3. Promote institutional strengthening as it relates to the acquisition and management of data.
4. Promote linkages between industry and government environmental planning agencies, for information sharing.

STRATEGY 26

- **Utilize cost effective and appropriate research techniques and technologies.**

ACTIONS:

1. Develop technical expertise and standard methodologies for specific research projects.
2. Train personnel and encourage technology transfer.
3. Provide adequate incentives and remuneration.
4. Provide access to training opportunities.

Commitment and Capacity

- Agencies that manage biodiversity resources are found wanting and their capacity deemed inadequate.
- Both commitment and capacity are linked to political priorities for conservation and the environment.
- Capacity is defined at in terms of orientation, training and manpower, in Government Agencies and in the NGO community.
- The public's perception of commitment and capacity is voiced in their own words.

COMMITMENT AND CAPACITY

Introduction:

The Ministry of Agriculture, Land and Marine Resources is the main line Ministry that manages the biodiversity resources of the country. Through its various divisions it has direct responsibility for fisheries, forestry, agriculture, wildlife and protected areas for *in situ* conservation, and through the Emperor Valley Zoo, Botanical Gardens, research and experimental stations, nurseries and gene bank collections for *ex situ* conservation. Its capacity to manage these resources is therefore the central focus of this section. The commitment of research institutions, particularly the University of the West Indies is questioned, in terms of the relevance of their research goals to national and regional resource management needs.

Commitment:

Commitment was generally defined as **political commitment to biodiversity conservation** and interpreted by the relevant agencies in terms of allocation of resources, finances and manpower to divisions.

The public's perception of political commitment continues to be negative, in spite of the limited progress that continues to be made by successive Governments. This perception appears to be based on the poor performance of the sector with respect to day-to-day management of biodiversity; the insensitivity of Government agencies to community concerns and especially lack of enforcement of the law. There appears to be a significant gap between the progress in the legislative and policy arena and actual implementation of this perceived progress that is related to the capacity of institutions to carry out their mandated functions.

Commitment and capacity issues were linked by participants to political priorities, or lack thereof, for conservation generally. They view the apparent lack of accountability of the public sector charged with this responsibility as a direct reflection of this lack of commitment. The activities of the state were also seen as contradictory and conflicting, and not supportive of its own policies and programmes.

Trinidad and Tobago is signatory to a number of international agreements of which environmental and biodiversity issues are the focus, but have not put the necessary staffing and programmes in place to implement the associated activities. Public officers, who felt the political and institutional commitment was lacking once the agreements were signed, often articulated this. NGOs also expressed the view that the signing of some of these agreements was to make Trinidad and Tobago conform to international directions. However, unless there was external pressure related to funding or trade issues, there was little commitment to incorporate these trends and concepts into national programmes.
Indeed this weak political commitment was clearly exhibited during the period of this project. Continuous efforts were made to involve the political directorate in discussion of the issues through private sensitisation sessions and public meetings. The response was consistently and extremely poor.

Here's what the communities thought about the political commitment to biodiversity and the environmental issues:

Community quotes

- **Environment as a whole is treated as nothing by the politicians. It is one of the most important things in our general survival, but it is going to be a task to convince the politicians.**
- **No way we can re-green Trinidad without political commitment at the highest level. We spinning the same wheels in the same mud and won't make an impact in our lifetimes.**
- **A society can push its political leaders from the bottom up, but it's a long process. The last wild hog will die while we're doing this. While we are sitting here, the loggers are moving throughout the country.**
- **We have written to several Ministries detailing various concerns of fishermen, and have found officials to be discourteous, they do not acknowledge correspondence, and they do not involve us in any follow up action, if and when they take any!**
- **A strategy and action plan must have behind it those 20,000 signatures, like those for Nariva, for it to work?**

To balance the argument for political commitment, recent approaches are being pursued that should have positive effects on the management of biodiversity and on environmental protection in general. These include:

Submission of new legislation to the Parliament and Senate, including the

- Forest Resources Bill
- National Parks and Wildlife Regulations

New Policy Directions on the environment including:

- National Environmental Policy
- International agreements and obligations i.e. CBD, UPOV, IPR legislation
- Advanced preparation of a National Parks and Watershed Management project for funding by the World Bank.
- Cessation of rice farming in Nariva Swamp which is a Ramsar site.
- Expansion of the Honorary Game Warden programme.

STRATEGY 27

- **Establish an adequate means of sharing information, training and experiences amongst agencies and their stakeholders.**

ACTIONS:

1. Conduct a programme to identify stakeholders, relevant government agencies, relevant NGOs and other key players in biodiversity conservation.
2. Develop a series of interactive workshops to foster mutual understanding among these parties.
3. Define at these workshops, the roles and function of each key player.
4. Establish means to ensure communication and collaboration between key players
5. Develop a training programme to augment organizational skills of NGOs and CBOs to enable adequate representation at fora, and enhance management capabilities.
6. Identify focal people at the community level as disseminators of information.

STRATEGY 28

- **Develop advocacy tools for building consensus on biodiversity issues at the highest political levels.**

ACTIONS

1. Develop a series of seminars designed to develop the capacity within CBOs to organize and lobby government entities on conservation issues, and in the generation of public support for biodiversity.
2. Develop a programme to identify leaders of opinion in communities by NGOs and CBOs. These persons could be promoted as focal points for biodiversity issues in local communities.
3. Build strategic alliances between NGOs, CBOs and government agencies to allow them to lobby political entities on conservation issues.

STRATEGY 29

- **Fully utilize conditionalities in international and bilateral agreements and conventions, to encourage the GoRTT to take the necessary actions to conserve biodiversity.**

ACTIONS

1. Conduct an assessment to identify trade and funding conditionalities from agreements, and determine the impacts that they will have on Trinidad and Tobago.
2. Explore funding and assistance that these agreements may offer for building capacity in SIDS.
3. Encourage diplomatic missions in Trinidad and Tobago to step up sensitisation of the local political directorate to biodiversity issues.

Capacity:

It is the opinion of all the sector specialists, that the capacity of the institutions charged with the management of the biodiversity resources is inadequate to effectively achieve their policy objectives. This is a result of a combination of factors, including

- **The persisting trend to minimise and reduce the public service, which continues to affect the country's ability to manage biodiversity.**
- **The lack of adaptability of these institutions to changing environmental, social and economic circumstances.**
- **Their inability to keep abreast with changing global trends in management.**
- **Weak collaborative efforts between agencies (public sector, private sector, NGOs, CBOs, research institutions).**
- **Resistance to change in sectors of the public service.**

This resistance/inability to change is reflected in:

- Staffing levels, motivation and personnel commitment
- Training levels, gaps and approaches to training
- Levels and deployment of financing
- Organizational efficiency
- Prioritisation within departments
- Continued non-participatory methods of planning and management
- Insensitivity to community needs

Management of biodiversity resources, traditionally emphasising use of research results in making policies and programmes, has increasingly focused on social and economic dimensions. **The greatest challenge to implementing any plan for the country's biodiversity is its people and capacity issues**.

COMMUNITIES RECOGNISE THE HUMAN RESOURCE ISSUES

- **Our human resource is our greatest asset.**
- **We have institutionalised negativism in Trinidad. We have worked for that, it is not an accident. We have not looked at institutional and community building as a tool for development.**
- **A community vigilante group can stop the logging that the Forestry Division cannot stop!**
- **We need more organised action from NGOs and CBOs.**
- **Need to work with and help build NGOs and CBOs who have a programme. Many of them need technical assistance, like writing proposals for small grants.**
- **THA has authority over the environment, but are in transition so they do not have the staffing and tools for the regulations.**
- **Need clear channels for complaints by the public. People are confused as to where to go with their complaints and they get the run around, while no action is taken to rectify complaints.**
- **More complaints will show the present helplessness of people and authorities, and will force new rules and regulations to evolve.**

The key to the overriding organisational and people issues is the concept of ownership. If the management institutions can foster a sense of ownership of our living resources by the key stakeholders, including the wider community, then they will enhance managerial capacity. However, this in itself is a huge challenge in re-orienting the way some institutions perceive their roles, *vis a vis* the inclusion of community. Preparing them for a more participatory approach to management and planning, is key to their being adaptive to changing management roles and responsibilities.

Successful examples of co-management of biodiversity show that innovative approach involving partnerships between state and communities, not only increases the effectiveness of the management, but also build the capacity and confidence of communities to manage. The benefits of such collaboration include the conservation of the resource, the improvement of the skills base of both state agencies and community managers, and the sensitisation of community stakeholders to the need to manage these resources. In light of such experiences, it is recommended that the GoRTT move to encourage joint innovative approaches to management as a tool to build the capacity of institutions, stakeholders and organisations.

Stakeholders, NGO's and CBO's:

Trinidad and Tobago has several active non-governmental organisations and community based organisations, involved in environmental and biodiversity conservation issues. Their focus is as varied as the groups themselves and range in scope from public education and advocacy for changing national legislation for conservation; projects that affect wildlife populations or habitats; lobbying and developmental groups for specific user groups, e.g. fishermen; promoting practices that lessen the impacts of our activities on the environment, like organic farming; organising communities to take advantage of low impact environmental activities, e.g. tourism and tour guiding, user groups, e.g. hunters associations and logging interests.

Most of these organisations are relatively small, numbering fewer than 500 individuals, and traditionally have had their operations funded by member contributions and donations. Such funding mechanisms are being superseded in some groups through active pursuit of environmental consultancies, grant funding, and participation in eco-tourism. These groups need to take a more vigorous approach to funds acquisition, if they are to have a larger impact on conservation.
The general view among the groups that were interviewed in this project however, is that their efforts are not appreciated, they are often not consulted and are perceived as a nuisance by the state managers. Several spoke of the lack of support by the state when they reported illegal activities. Their own growth and capacity in terms of biodiversity conservation is also constrained by the lack of support by the state for their contributions, and this limits the effectiveness of their engagement on these issues.

This NGO/CBOs community has great potential to contribute to the conservation of biodiversity of the country. They represent a committed constituency that could form productive partnerships with the state institutions. Their continued growth and strength is bound up with the state perception and engagement of them. Both the capacities of state agencies and NGOs to jointly manage and conserve biodiversity are inextricably linked. Strengthening of these institutions would benefit the country's biodiversity resources.
Unless there is public understanding and commitment to the conservation of biodiversity, the management of the country's living resources will continue to be unsustainable.

There needs to be a genuine recognition and respect of each sector's contribution and potential to address the biodiversity issues that we face. Neither the state agencies nor the non-governmental organisations will ever have the resources to manage biodiversity independently. It requires the mutual development and support of stakeholders and their institutions to build the country's capacity to manage biodiversity in its broadest sense.

STRATEGY 30

- **Strengthen NGOs and CBOs so that they can play a greater role in the conservation and management of biodiversity towards sustainable livelihoods.**

ACTIONS:
1. Identify mechanisms to institutionalise stakeholder participation in biodiversity planning and management.
2. Encourage and assist NGO's CBO's to properly constitute their organizations and formalize their organization networks.
3. Encourage volunteerism e.g. Honorary Game Warden and Fire Guardians.
4. Promote joint training programmes for resource managers and stakeholders.
5. Conduct capacity building seminars for NGOs and CBOs to enable their participation in project planning and implementation.
6. Develop a series of tourism and environmental management programmes for CBOs and NGOs.
7. Formalize the flow of information between academic and research institutions and the NGO community through information networks.
8. Encourage partnerships with industry to effect the above.
9. Identify funding to strengthen NGOs and CBOs, being sensitive to the geographical location of communities.

Conservation and management of the country's natural resources will continue to remain ultimately the responsibility of public agencies, in spite of collaborative efforts and successes in involving communities. Relevant state agencies are also in dire need of strengthening capacity to manage the biological resources of the country.

STRATEGY 31
Build capacity of State institutions to manage biodiversity.

ACTIONS:
1. Conduct a series of cost-benefit analysis on managerial resources to justify increases in human resources.
2. Take advantage of opportunities to build institutional capacity, offered by international agreements and conventions.
3. Develop a systematic programme to identify training opportunities for agency staff.
4. Provide appropriate infrastructure to allow personnel to apply acquired skills.

The capacity of public agencies to manage and conserve biodiversity is inextricably linked to the growth and development of private organisations - NGOs and CBOs.
Communication and co-operation within and between agencies, and with their stakeholders, is vital to build joint capacity for implementation of the strategies and actions recommended in this document.

Financial Instruments

- The use of financial instruments for the conservation of biodiversity is found to be poorly developed, impacting upon exploitation of the resources and cultural valuation of biodiversity.
- All sectors made recommendations for the creative deployment of financial instruments to reflect the values of these biodiversity resources.
- Ideas emphasised the need to increase funding for the effective management of the resources.

Introduction;
Policy Statement;
Contact Group Input

FINANCIAL INSTRUMENTS

Introduction:

The use of financial instruments as management tools is an area in dire need of attention, to achieve the aims and objectives of the CBD, and, nationally, for the conservation and sustainable use of biodiversity. Financial instruments can play a significant role in facilitating conservation efforts through demonstrating the monetary value of ecosystems and their components.

As the basis of life and the fundamental core of all economic activity, biodiversity is the essence of all human value systems: economic, spiritual, social, cultural, educational and environmental**.** It is, therefore, vital to quantify the contribution biodiversity makes to the national economy, if its management and sustainable use is to become a national priority. Our inability to value biodiversity at a macro-economic level, makes it a low priority when it comes to the sharing of national resources for its management and sustainable use, and the understanding of its loss and destruction. Unfortunately, the present information, research and data collection systems, do not allow us to measure its contribution with any degree of accuracy.

Article 11 of the CBD, on Incentive Measures, suggests that Parties should "adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of biological diversity". The underpinnings of systems and strategies recommended in this NBSAP, for the management and conservation of biodiversity, must be on a sound financial foundation.

Financial instruments have not been more widely utilised for a number of reasons, and these have contributed to attitudes and values about these resources that have encouraged wasteful practices and over-exploitation.

Policy Statement

- **Design a comprehensive financial plan for the management and sustainable use of the country's biodiversity resources through the use of varied financial instruments.**

The strategies employed by these instruments must be designed to:

Strategy 34

- **Change attitudes, behaviour, wasteful practices and technologies, to favour sustainable use of biodiversity.**
-

Strategy 35

- **Value biodiversity and incorporate its values in monetary terms, in national accounting systems and developmental objectives.**

Strategy 36

- **Raise awareness in all sectors of their individual and collective effects on the destruction of biodiversity, through internalising costs by methods such as "polluter pays principles".**

Strategy 37

- **Finance biodiversity management, research, development and sustainable use.**

Strategy 38

- **Adapt economic systems to include the social, cultural, ethical and environmental values of biodiversity.**

Strategy 39

- **Quantify the contribution of biodiversity to the national economy (legal and illegal trade) through the use of indicators of direct employment levels, economic benefit and social well-being.**

Strategy 40

- **Develop an understanding of the driving forces of biodiversity loss, and to use this understanding to target specific economic actions for the sustainable use of biodiversity. (e.g. perverse incentives, insecure property rights, population growth and migration patterns inequitable access and distribution, unregulated externalities, the nature of the demand for natural resources, resource policies, trade imbalances, subsidies, etc.)**

Strategy 41

- **Design sustainable harvesting and non-consumptive use guidelines, e.g. for tourism.**

There are serious "hidden costs" that are passed onto the society through the over-exploitation and destruction of biodiversity, due in part to the under-valuing of these resources. Flooding, due to the destruction of forests and watersheds, and the extreme pollution of rivers by industry, from which the population accesses potable water, are two obvious examples. These have serious and expensive repercussions on other agencies that manage and maintain infrastructure and public utilities.

CONTACT GROUP INPUT: "Our biodiversity resources are seriously undervalued" was the generally held view of all sectors.

- **Financial instruments have not been employed to benefit the conservation of biodiversity. In many cases, they have contributed to the over-exploitation of these resources.**

- **There is a lack of financial instruments that could encourage industry to be sensitive to biodiversity conservation.**

- **Outdated technology in the industrial sector has given rise to negative impacts on biodiversity. Incentives for the use of cleaner technologies should be employed to encourage industry to clean up their act.**

- **Incentives have led to over-capitalisation. Reduction must address social and cultural issues in the society. Examples here were Caroni Ltd. and the social impacts of trying to decrease persons involved in the fisheries sector.**

- **Incentive programme in fisheries is not consistent with directions for fisheries policy.**

- **Inadequate funding for fisheries administration and management in the public sector.**

- **There is a lack of appreciation for the value of biodiversity and its importance to the sustainable development of Trinidad and Tobago.**

- **There is a need to include the valuation of biodiversity in environmental accounting done in the country. Its role can be used as an argument for the protection of biodiversity.**

- **The economic value of certain species was well recognized by persons who exploit these resources, e.g.**
  a) Game species
  b) Cage birds and pets
  c) Poaching of Protected Species.

- **The actual price paid for access to these resources through licenses, permits, royalties etc., is highly subsidised and bear little relation to the commercial value of the resource, nor to its management or replacement costs.**

The above concerns expressed by the sector specialists, stakeholders and communities, illustrate that there is little or no obvious economic incentive to conserve biodiversity and to use it sustainably in T&T, and that this omission has had a number of repercussions on the use of the resources and their management. Financial instruments that do exist, (subsidies etc.) need to be evaluated in terms of their effect on the sustainable use of biodiversity, in the long term.

8. Next steps and future vision

An approach to institutional arrangements is suggested for the coordination of strategies and action for biodiversity conservation.
The continuation of biodiversity planning and next steps for the NBSAP.

Introduction

While the NBSAP provides specific strategies and actions for the management and conservation of biodiversity, it does not attempt to dictate to Ministries and agencies how they must implement these recommendations. However, it is assumed that all agencies, the private sector and NGO's etc, can interpret and utilize these approaches thereby contributing to the national effort. Additionally, more specific actions should also be articulated by the agencies grappling with these problems, in the management of specific natural and national resources. These individual and collective efforts will all contribute to the enhanced management and wise use of the country's biodiversity in the long term.

Where Nariva Swamp meets the sea, a scenic landscape.

The NBSAP should not be viewed as a one time planning exercise, but an on-going and evolving process. As its strategies and actions are implemented, the increasing information base and other results will direct the further prioritisation of projects and plans, and improve the nation's capacity of using its resources sustainably.

The continued planning for biodiversity conservation now requires the relevant institutions to continue to elaborate on specific strategies and actions, already suggested in the document, with a view to internalising and interpreting these proposals, and providing that action framework needed for implementation. The progress and outcome of these initiatives should be fed back to the EMA, through an Advisory Council, for the coordination and reporting of the national efforts under the Convention.

Immediate Institutional arrangements:

To achieve the priority actions and long-term strategies of the NBSAP, institutional arrangements need to be put in place immediately, to provide continuity for the project, to enable further planning and its implementation. The GoRTT should demonstrate its commitment to the project and its process by appointing the relevant full-time coordinators, and providing the necessary financial resources from their allocations. It is proposed that a four pronged approach be instituted for the next phase of the project:

Flower of a bromeliad or wildpine.

- **The EMA as the focal point must ensure the necessary coordination for biodiversity planning in the country. The EMA** must take the lead role in the implementation of articles of the Convention on a national scale, by co-ordinating the continued planning and implementation, including proposing interventions into national policies increasing sensitivity to biodiversity issues and concerns. Its responsibility involves reporting to the Secretariat of the CBD on the progress and implementation of the country's efforts under the Convention. In its co-ordinating role, the EMA must also provide continuity to the whole

process by locating the resources necessary to put elements of the plan into effect.

Iguana basking

- **The THA and the MALMR, having similar responsibilities for daily biodiversity management and the fulfilling of the articles of the Convention,** should assign full-time coordinators from within these organisations, to give effect to the strategies and actions articulated by the stakeholders of biodiversity conservation in the country. A number of the actions are co-ordinating, administrative and participatory in nature, and can be implemented within existing agency arrangements. Co-ordinators should assist in the furthering of the strategies and actions of the NBSAP within the policies, plans and programmes of these public offices, with the full participation of the agencies' stakeholders.

- **The University of the West Indies (UWI) should provide the lead, as a regional research and training institution, for elements of the NBSAP and thus strengthen their contribution to this area of national and regional life. Through their capabilities for taxonomy, tissue culture and potential for applied research, as well as regional and international linkages, all point to the leadership that this institution could play in this initiative.**
  - **UWI** can position itself to make significant contributions to the process through the applied training of students, and offering refresher training for those already in the field.
  - This institution is also relevant to building the country's capacity for fulfilling obligations under a number of international conventions by building up the knowledge base, research, data and training.
  - Priority biodiversity research needs of the managerial institutions should be integrated into UWI research programmes, curricula and student theses.
  - Contractual arrangements between the managerial and research institutions, student attachments and collaborations at varying levels, could provide a way to enable filling these information and research gaps.
  - Interdisciplinary approaches to undergraduate degrees and a Masters programme for management of tropical biodiversity.
  - **A Centre for Biological Diversity** should be established at UWI which would incorporate the National Herbarium and which would develop further capabilities in identification of flora and fauna and ex-situ conservation by tissue culture and cryopreservation. UWI could be contracted by the Advisory Council, through the EMA, to manage this Centre. This Centre would develop an extensive database on biodiversity and conservation efforts of other institutions so that early intervention can be achieved. From this centre UWI can co-ordinate annual indicators of the state of biodiversity, and evaluate the economic and social contributions and impacts on the sector.

Praying mantis impersonates a dried leaf

Flower of Cooperhoop used medicinally for women's problems.

The University of the West Indies, and NIHERST and other research and training organizations (e.g. Cipriani Labour College) may seek to embody

the relevant strategies and actions from this exercise, and fine-tune them for implementation within their programmes of work.

Regional organisations **(CARICOM, CXC)** also must be involved in these initiatives for biodiversity conservation. Approaches should be made through our national representatives on regional planning and policy bodies.

Flowers of the yellow poui

Advisory Council / Task Force

In addition to the priority strategies and actions articulated in this document, the NBSAP process needs continuity into the next phase of project development and implementation. A one-year programme of work, endorsed by the Task Force should be adopted to continue the process.

For this continuation, an **Advisory Council** with the necessary administrative clout, should be appointed under Section 13 of the EM Act, to carry out national obligations under the CBD. The body should have wide ranging representation (as exhibited by the present Task Force), but should include the co-ordinators of the project, from the aforementioned institutions (EMA, MALMR, THA, UWI). This would provide a direct feedback to the Advisory Council, on the progress of the lead agencies. The Advisory Council, through the EMA, should be provided with secretariat support to enable it to carry out the role of monitoring the activities of the various agencies.

One Year Programme of Work

Although the NBSAP completed the activities that were planned for the project, it was unable to address in sufficient detail certain activities that are necessary for the adequate conclusion of this stage of biodiversity planning. Complementary activities to prepare the strategies and actions for implementation should occur during 2000. At a recent regional Biodiversity Planning Support Programme (BSPS) workshop, all territories expressed concerns that the planning period within which they were expected to produce an NBSAP was too short, especially for a process that was designed to be participatory. Bringing an NBSAP to the point where implementation is the next step, requires more in-depth planning and negotiation than is at present built into the short time frame of NBSAPs. The following one year programme of work would put the project on a stronger foothold for implementation.

Scenic Leeward coast of Tobago.

A one-year programme of work should include:

1. **Workshopping** the NBSAP in all Ministries, to sensitize persons to the value of biodiversity.
2. **Identifying specific interventions** to be made in sectoral policies, for the conservation of biodiversity.
3. Presentations to private organisations, NGOs, Regional co-operations, CBOs, and villages, to **promote public awareness** about biodiversity issues.

T-Bay Sans Souci

Coconut estate at the Cocal

4. **Economic evaluation** of the biodiversity sector to the country's economy, formal and informal. Some comprehensive information needs to be gathered and analyzed to strengthen arguments for the conservation of the sector, and for the design of relevant financial instruments for economic sustainability. This has been a serious shortcoming of the NBSAP, due to the lack of information in this area, and has had repercussions for the lack of specific actions recommended. Some creative collection of information making the connections between biodiversity and the costs of environmental clean-up and remediation, need to be done. This is a longer-term study that could be accommodated under the NBSAP. One of the first tasks of the Advisory Council should be the finalization of Terms of Reference for this study.
5. **Project proposals from some of the specific** strategies and actions should be undertaken with targeted agencies, for implementation.
6. **Funding sources identified** to assist in the implementation of recommended projects, priority strategies and actions.
7. **A Clearing house mechanism (CHM),** using the guidelines of the CBD, should be planned and established to give effect to the dire need to share information among stakeholders. The collection of various bibliographies and data bases is already available in some institutions, and, during the NBSAP, offers to share this information openly with stakeholders have been made (eg. Fisheries Division, THA, UWI, CARINET). These initiatives must be followed up linking the CHM to the National Environmental Information System (NEIS) of the EMA.
8. **Identification of priority data gathering and research projects** and the planning for their execution.
9. **Elaborating commitments from agencies, NGOs, CBOs etc.** and the identification of specific strategies and actions that they would take the initiative for.
10. **Evolving the mechanism for continued collaboration and coordination** of implementation of the NBSAP.
11. **The continuation of the political sensitization process**
12. **Articulating legal mechanisms for implementing strategies and actions.**

Education and awareness workshop session at the National Consultation.

APPENDIX 1
Priority Strategies and Actions for the National Biodiversity Strategy and Action Plan (NBSAP)

Education and Awareness

Strategy	Priority Actions	Lead Entity	Partners	Funding Sources	Indicators
Education and Awareness Programmes on biodiversity conservation should build on existing initiatives and fill gaps in formal approaches. They should also foster greater collaboration between conservation and education agencies and other stakeholders.	All three identified in the text-body of this report	EMA THA	Ministry of Planning And Development, Ministry of Agriculture, Land and Marine Resources Ministry of Education Ministry of Information NGO's and CBO's	Central government and the National Lotteries Board	Completion of actions 1 & 2 within 6 months. Completion of action #3 as soon as Working Group is Constituted.
Promote infusion of Environmental Education Into the primary and Secondary educational Systems.	All nine actions identified In the text-body of this Report	Ministry of Education THA	Ministry of Agriculture Land and Marine Resources UNESCO Institute of Marine Affairs NGO's NIHERST	Central Government	Activity on all identified actions by the end of the school Year 2000.
Promote the sensitization of communities to biodiversity concerns through shared planning and management of these resource	Both actions identified in The text-body of this Report	Ministry of Agriculture, Land And Marine Resources THA	Min. of Community Development IMA, NGOs, CBOs Women's Federation Village Council Federation Youth Council	Central Government UNDP Private Sector Ministry of Health Min. of Information Min. of Planning	Development of an action plan, and demonstration project Within six months.

Strategy	Priority Actions	Lead Entity	Partners	Funding Sources	Indicators
Utilize Organizations and Agencies involved in informal environmental education as foci for development of and informal education programme.	Both 2 actions identified in The text-body of this Report	EMA THA Environment Tobago	Chamber of Commerce TTMA, AMCHAM IRO, Division of Culture	Private Sector Environment Fund	Implementation of at least three of the actions identified in the text-body of the report, by World Environment Day 2000
Collaborate with corporate business, (e.g. the industrial sector) as they can contribute financing, expertise on advertising, public relations and communications.			IMA, CBOs, NGOs Tobago Heritage Committee TIDCO Pointe a Pierre Wildfowl Trust		
Education and awareness programmes should use cultural and artistic traditions, including drama as vehicles for environmental education. Use religious organizations to promote biodiversity conservation and stewardship, through emphasis of relevant religious teachings and cultural values					
Promote biodiversity and environmental education at the Tertiary (University) and Technical levels, especially in disciplines projected to be major economic growth areas (e.g. Tourism and Industry)	All three actions identified In the text-body of this Report	NIHERST THA	UWI, TTHTI Ministry of Planning And Development	Ministry of Planning and Development	Completion of action # 1 by academic year 2001 Commencement of actions 2 and 3

Legislation and Enforcement

Strategy	Priority Actions	Lead Entity	Partners	Funding Sources	Indicators
Make legislation and regulations more effective management tools, through harmonization and by incorporating the use of new technologies and stakeholder involvement.	Develop and update legislation for conservation of protected areas, landscapes and species, consistent with current international trends.	EMA THA	Ministry of Agriculture, Land and Marine Resources Tobago House of Assembly Stakeholders IMA	Government of Trinidad and Tobago FAO UNDP International Donors	Proclamation of proposed legislation
Improve law enforcement success rate and utilize it as an important tool for management and sensitization on biodiversity conservation.	Build on existing law enforcement initiatives for protection of species and ecosystems (e.g. the Honorary Game Warden System and Environment Police)	Ministry of Agriculture, Land And Marine Resources THA	EMA, NGOs, CBOs Ministry of National Security Tobago House of Assembly	Government of Trinidad and Tobago Corporate Sponsors National Lotteries Board UNDP-GEF	Increase in the number of interactions between law Enforcement entities and the public.
	Conduct regular programs to sensitize the Magistracy, Police and Coast Guard, to the long-term effects of detrimental activities on biodiversity.	EMA	IMA, NGOs, CBOs Judiciary Ministry of Agriculture, Land and Marine Resources Ministry of National Security	Government of the Republic of Trinidad and Tobago Corporate Sponsors Regional Authorities	
	Expedite establishment of the proposed Environmental court or commission to address biodiversity and environmental crimes.	EMA THA	Ministry of the Attorney General Judicial and Legal Service Commission	Government of Trinidad and Tobago Environmental Fund	Establishment of the Environmental Court

Institution and Capacity

Strategy	Priority Actions	Lead Entity	Partners	Funding Sources	Indicators
Establish an adequate means of sharing information, training and experiences amongst agencies and their stakeholders.	Conduct a programme to and identify stakeholders, relevant government agencies, relevant NGOs other key players in biodiversity conservation.	EMA THA	NBSAP Task Force	Government of the Republic of Trinidad and Tobago	Establishment of a database of stakeholders
	Develop a series of interactive workshops to foster mutual understanding among these parties.	EMA THA	NBSAP Task Force	Government of the Republic of Trinidad and Tobago	Establishment of information system, completion of workshops, and meetings with focal points.
	Define at these workshops, the roles and function of each key player.	NBSAP Task Force	NGOs, CBOs	EMA	List of Focal Points
	Establish means to ensure communication and collaboration between key players	EMA	Private Sector	Government of the Republic of Trinidad and Tobago Non-governmental sources	Establishment of an e-mail network
Develop advocacy tools for building consensus on biodiversity issues at the highest political levels.	Develop a programme to identify leaders of opinion in communities by NGOs and CBOs. These persons could be promoted as focal points for biodiversity issues in local communities.	NBSAP-Task Force	NGOs, CBOs	None identified	List of focal points compiled
	Develop a series of seminars designed to develop the capacity within CBOs to organize and lobby government entities on conservation issues, and in the generation of public support for biodiversity.	COPE	International NGOs	International NGOs, Local NGOs Private sector	Policy changes and interventions by NGOs

Strategy	Priority Actions	Lead Entity	Partners	Funding Sources	Indicators
	Build strategic alliances between NGOs, CBOs and government agencies to allow them to lobby political entities on conservation issues.	COPE	Relevant Government agencies NGOs, CBOs	None identified	Membership on committees, incorporation of conservation Issues into policy.
NGOs and CBOs should be strengthened so that they can play a greater role in the conservation and management of biodiversity towards sustainable livelihoods.	Encourage and assist their NGO's, CBO's to properly constitute their organizations and formalize organization networks	Ministry of Legal Affairs Ministry of Community Development THA	Forestry Division EMA International Agencies	Government of Trinidad and Tobago International Donors	Registration of NGOs/CBOs. Development of a tracking System for membership, meetings, and audited accounts
	Conduct capacity building seminars for NGOs and CBOs to enable their participation in project planning & implementation.	THA Ministry of Community Development	Regional Agencies NGOs International NGOs Forestry Division	Government of Trinidad and Tobago International Donors	Completion of proposed seminars and development of Project proposals.
	Promote joint training programmes for resource managers and stakeholders.	Ministry of Agriculture, Land And Marine Resources THA	UWI NGOs	Government of Trinidad and Tobago International Donors	Number of persons receiving training in resource management

Information and Research

Strategy	Priority Actions	Lead Entity	Partners	Funding Sources	Indicators
Prioritize research needs in collaboration with research institutions and the private sector.	Conduct a detailed inventory of the resource, including the status and distribution of species important for agro-diversity conservation as well as the economic value of ecosystem services. Identify sources of additional data to fill these information needs (eg. The private sector)	Ministry of Agriculture, Land And Marine Resources THA	UWI CARINET IMA	Microsoft	None identified
	Establish a clearinghouse for bibliographic data, identification services, and database management for biodiversity in the country.	EMA	UWI, THA	International funding sources	6 month reviews
	Government entities and other research bodies responsible for biodiversity management should identify priority areas for applied research.	Ministry of Agriculture, Land And Marine Resources THA EMA	Other national Research institutions	None identified	A report to be generated within a specific time frame
	Research the ecological relationships, ecosystems and the threats to biodiversity, as well as develop indicators for monitoring environmental changes affecting biodiversity.	UWI	IMA & Other research institutions	None identified	Production of timely reports on the status of the project. Annual seminar on research findings.

Strategy	Priority Actions	Lead Entity	Partners	Funding Sources	Indicators
Identify support for research activities.	Government should support relevant applied research programmes through annual appropriations and incentives such as scholarships.	Ministry of Agriculture, Land And Marine Resources THA	UWI CARINET	Government of the Republic of Trinidad and Tobago	Budget approval and timely disbursement of funds.
	Management agencies need to develop a system of incentives to research institutions /students to conduct research projects.	EMA Ministry of Agriculture, Land And Marine Resources	UWI NIHERST CARINET	Government of the Republic of Trinidad and Tobago	None identified
	Identify creative mechanisms for funding and other support for applied research	EMA THA	NIHERST	None identified	None identified
	Identify national and international organizations as potential sources of funding and other support.	EMA	NIHERST UWI	None identified	None identified
Encourage collaboration with government and other research institutions and the private sector.	Encourage close collaboration between research institutions (IMA, UWI, NIHERST) and the management agencies. (EMA, MALMR), to develop an applied research programme that will provide the information required for more effective management.	EMA Ministry of Agriculture, Land And Marine Resources THA	Research institutions	None identified	Establishment of a formal collaborative mechanism Or appropriate legal mechanism
	Research institutions, to consider their role in fulfilling the research needs for biodiversity. (NIHERST and UWI in particular should be involved in this process)	UWI	NIHERST IMA Other research institutions	None identified	Inclusion of biodiversity/conservation projects in Work programmes

	Establish clear links with industry as partners in research. Industry could assist in funding research, especially in areas that are of concern to industry and their effects on biodiversity.	All relevant orgs. Doing biodiversity Studies TTMA	Industry	None identified	The number of successful collaborative projects between Industry and research institutions
Broaden access to, and provide opportunities for, sharing information, consideration being given to the cost of information and the need for cost- sharing in acquisition of information	Articulate an information policy at the National and Institutional levels, for the sharing of information, but which recognizes ownership rights associated with the origin of such information.	EMA	IMA National Library and Information System	None identified	Policy document produced
	Implement a central clearinghouse for data and information relevant to biodiversity, which can be accessed by researchers, managers and the public. Consideration must be given to the emerging National Environmental Information System (NEIS).	EMA/NEIS	UWI	None identified	Posting of data on NEIS
	Promote institutional strengthening as it relates to the acquisition and management of data.	EMA Min. Of Agriculture Land and Marine Resources	Research Institutions THA	None identified	Sharing of information acquired, and maintenance of Database to ensure data are current.
	Promote linkages between industry and government environmental planning agencies, for information sharing.	EMA Ministry of Agriculture, Land And Marine Resources	Research Institutes	None identified	No duplication of effort and cooperative projects.
Utilize cost effective and appropriate research techniques and technologies.	Develop technical expertise and standard methodologies for specific research projects.	Specific institutions	None identified	None identified	None identified
	Train personnel and encourage technology transfer.	NIHERST	UWI	None identified	Development of a cadre of trained personnel
	Provide adequate incentives and remuneration	Specific institutes	None identified	None identified	Satisfaction and retention of staff
	Provide access to training opportunities	Specific institutes	None identified	None identified	None identified

POLICY AND COMMITTMENT

Strategy	Priority Actions	Lead Entity	Partners	Funding Sources	Indicators
Integrate policy objectives for biodiversity conservation into policy statements for all sectors	All as identified in the text	EMA THA	None identified	None identified	None identified
Develop a clear policy process for adoption by Government entities (incl. National Budgets) and ensure that strategic action plans of these entities incorporate implications on biodiversity conservation and the Environment as a whole	All as identified in the text	EMA THA	None identified	None identified	None identified
Make sectoral interventions to increase the sensitivity of policy to biodiversity	All as identified in the text	EMA	None identified	None identified	None identified
Institutionalize public Participation in the Development of government policy for the conservation and management of biodiversity	All as identified in the text	EMA MALMR	All Government Ministries	None identified	None identified

Appendix II

NBSAP Stakeholders

Armadillo Environmental Action Group
Asa Wright Nature Centre (AWNC)
Biosystematics Network of the Caribbean (CARINET)
Blanchisseuse Tourism Action Committee
Brasso Seco Tourism Action Committee
Carapichima Tourism Action Committee
Caribbean Forest Conservation Association (CFCA)
Caribbean Network for Integrated Development (CNIRD)
Centre for Gender and Development Studies
Caribbean Fisheries Research & Management Programme (CFRAMP)
Caribbean Fisheries Training and Development Institute (CFTDI)
Chaguaramas Development Authority (CDA)
Citizens Action to Restore the Environment (CARE)
Civilian Conservation Corps (CCC)
Classic Tours and Travel Ltd.
Claxton Bay Fishermen Association
Council of Presidents of the Environment (COPE)
Crews Inn Marina and Boat Yard
Discovery Tours
East Trinidad Hunter's Association
Environment Tobago
Express Newspapers
Fisheries Division (MALMR)
Fisheries Society of Trinidad & Tobago
Fishermen & Friends of the Sea
Fishing Pond Community and Environmental Group
Forestry Division (MALMR)
Foundation for Enhancement and Enrichment of Life (FEEL)
Grande Riviere Environmental Awareness Trust (GREAT)
Grande Riviere Tourism Action Committee
Guardian Newspapers Ltd.
Horticultural Society of Trinidad and Tobago
Independent Newspapers
Institute of Marine Affairs (IMA)
Inter American Development Bank (IDB)
La Fillete Tourism Action Committee
Las Cuevas Tourism Action Committee
Maracas Hotel
Maracas Tourism Action Committee
Min. of Agriculture, Land and Marine Resources (MALMR)
Min. Attorney General & Legal Affairs

Min. of Culture & Gender Affairs
Min. of Consumer Affairs
Min. of Education
Min. of Energy & Energy Industries
Min. of Finance
Min. of Housing and Settlements
Min. of Local Government
Min. of Planning and Development
Min. of Public Administration & Information
Min. of Public Utilities
Min. of Social & Community Development
Min. of Sport & Youth Affairs
Min. of Tobago Affairs
Min. of Trade, Industry & Consumer Affairs
Min. of Works & Transport
Multi-gear boat owners Association
Nanan's Bird Sanctuary Tours
National Housing Authority (NHA)
National Organization of Fishing and Allied Co-operative Societies (NOFACS)
Nature Seekers Incorporated (NSI)
National Institute Higher Education Research Science & Technology (NIHERST)
Newsday
North-eastern Hunter's Association
Organic Agricultural Society of Trinidad and Tobago
Paria Springs Trust
Pax Nature Tours
Piparo Tourism Action Committee
Pointe a Pierre Wildfowl Trust
Rapid Environmental Assessments Limited (REAL)
Royal Bank Young Leaders Project
San Fernando Fishing Co-op
Sawmillers Cooperative Society Ltd.
SERVOL
Small Business Development Company (SBDC).
South East Eco-tours
South East Hunter's Association
South-West Hunter's Association
Tobago House of Assembly

- Agriculture Lands & Marketing
- Department of the Environment
- Division of Agriculture, Forestry and Marine Affairs
- Division of Tourism
- Education Department
- Marine Affairs Section
- Planning Division
- Policy Research and Development institute

The Toco Foundation
Tourism & Industrial Development Company (TIDCO)
Tobago Hunter's Association
Travel Agents Association of Trinidad & Tobago
Trawler Owner's Association
T&T Mirror
Trinidad & Tobago Agricultural Society
Trinidad & Tobago Association of Village Councils
Trinidad & Tobago Bed and Breakfast Association
Trinidad & Tobago Biological Society
Trinidad & Tobago Chamber of Industry And Commerce
Trinidad & Tobago Citizen Agendas Network
Trinidad & Tobago Coast Guard
Trinidad & Tobago Field Naturalists Club (TTFNC)
Trinidad & Tobago Game Fishing Association
Trinidad & Tobago Golf Association
Trinidad & Tobago Hotel & Tourism Institute
Trinidad & Tobago Hotel Association
Trinidad & Tobago House of Representatives
Trinidad & Tobago Hunter's Association
Trinidad & Tobago Incoming Tour Operators Association
Trinidad & Tobago Manufacturers Association
Trinidad & Tobago Orchid Society
Trinidad & Tobago Resource Development Network
Trinidad & Tobago Solid Waste Management Co. Ltd. (Swmcol)
Trinidad & Tobago Tourist Transport Services Association
Trinidad Publishing Co. Ltd.
United Nations Development Programme (UNDP)
Urban Development Corp. of Trinidad and Tobago
University of the West Indies
UWI Biological Society
UWI Dept. of Management Studies
UWI Dept. of Natural Sciences
Water and Sewerage Authority (WASA)
Wildways Limited
Windsurfing Association of Trinidad and Tobago
Yatch Services Association of Trinidad and Tobago

APPENDIX III

Articles 1-20
CONVENTION ON BIOLOGICAL DIVERSITY,

Preamble

The Contracting Parties,

Conscious of the intrinsic value of biological diversity and of the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components,

Conscious also of the importance of biological diversity for evolution and for maintaining life-sustaining systems of the biosphere,

Affirming that the conservation of biological diversity is a common concern of humankind,

Reaffirming that States have sovereign rights over their own biological resources,

Reaffirming also that States are responsible for conserving their biological diversity and for using their biological resources in a sustainable manner,

Concerned that biological diversity is being significantly reduced by certain human activities,

Aware of the general lack of information and knowledge regarding biological diversity and of the urgent need to develop scientific, technical and institutional capacities to provide the basic understanding upon which to plan and implement appropriate measures,

Noting that it is vital to anticipate, prevent and attack the causes of significant reduction or loss of biological diversity at source,

Noting also that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat,

Noting further that the fundamental requirement for the conservation of biological diversity is the in-situ conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings,

Noting further that ex-situ measures, preferably in the country of origin, also have an important role to play,

Recognizing the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing, equitably, benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components,

Recognizing also the vital role that women play in the conservation and sustainable use of biological diversity and affirming the need for the full participation of women at all levels of policy-making, and implementation for biological diversity conservation,

Stressing the importance of, and the need to promote, international, regional and global cooperation among States and intergovernmental organizations and the non-governmental sector, for the conservation of biological diversity and the sustainable use of its components,

Acknowledging that the provision of new and additional financial resources and appropriate access to relevant technologies can be expected to make a substantial difference in the world's ability to address the loss of biological diversity,

Acknowledging further, that special provision is required to meet the needs of developing countries, including the provision of new and additional financial resources and appropriate access to relevant technologies,

Noting in this regard the special conditions of the least developed countries and small island States,

Acknowledging that substantial investments are required to conserve biological diversity and that there is the expectation of a broad range of environmental, economic and social benefits from those investments,

Recognizing that economic and social development, and poverty eradication, are the first and overriding priorities of developing countries,

Aware that conservation and sustainable use of biological diversity is of critical importance for meeting the food, health and other needs of the growing world population, for which purpose access to and sharing of both genetic resources and technologies are essential,

Noting that, ultimately, the conservation and sustainable use of biological diversity will strengthen friendly relations among States and contribute to peace for humankind,

Desiring to enhance and complement existing international arrangements for the conservation of biological diversity and sustainable use of its components, and

Determined to conserve and sustainably use biological diversity for the benefit of present and future generations,

Have agreed as follows:

Article 1. Objectives

The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

Article 2. Use of Terms

For the purposes of this Convention:

"Biological diversity" means, the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

"Biological resources" includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.

"Biotechnology" means, any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use.

"Country of origin of genetic resources" means, the country which possesses those genetic resources in in-situ conditions.

"Country providing genetic resources" means, the country supplying genetic resources collected from in-situ sources, including populations of both wild and domesticated species, or taken from ex-situ sources, which may or may not have originated in that country.

"Domesticated or cultivated species" means, species in which the evolutionary process has been influenced by humans to meet their needs.

"Ecosystem" means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

"Ex-situ conservation" means, the conservation of components of biological diversity outside their natural habitats.

"Genetic material" means, any material of plant, animal, microbial or other origin containing functional units of heredity.

"Genetic resources" means, genetic material of actual or potential value.

"Habitat" means, the place or type of site where an organism or population naturally occurs.

"In-situ conditions" means, conditions where genetic resources exist within ecosystems and natural habitats, and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

"In-situ conservation" means, the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

"Protected area" means, a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.

"Regional economic integration organization" means an organization constituted by sovereign States of a given region, to which its member States have transferred competence in respect of matters governed by this Convention and which has been duly authorized, in accordance with its internal procedures, to sign, ratify, accept, approve or accede to it.

"Sustainable use" means, the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby, maintaining its potential to meet the needs and aspirations of present and future generations.

"Technology" includes biotechnology.

Article 3. Principle

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

Article 4. Jurisdictional Scope

Subject to the rights of other States, and except as otherwise expressly provided in this Convention, the provisions of this Convention apply, in relation to each Contracting Party:

(a) In the case of components of biological diversity, in areas within the limits of its national jurisdiction; and

(b) In the case of processes and activities, regardless of where their effects occur, carried out under its jurisdiction or control, within the area of its national jurisdiction or beyond the limits of national jurisdiction.

Article 5. Cooperation

Each Contracting Party shall, as far as possible and as appropriate, cooperate with other Contracting Parties, directly or, where appropriate, through competent international organizations, in respect of areas beyond national jurisdiction and on other matters of mutual interest, for the conservation and sustainable use of biological diversity.

Article 6. General Measures for Conservation and Sustainable Use

Each Contracting Party shall, in accordance with its particular conditions and capabilities:

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

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

Article 7. Identification and Monitoring

Each Contracting Party shall, as far as possible and as appropriate, in particular for the purposes of Articles 8 to 10:

(a) Identify components of biological diversity important for its conservation and sustainable use having regard to the indicative list of categories set down in Annex I;

(b) Monitor, through sampling and other techniques, the components of biological diversity identified pursuant to subparagraph (a) above, paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use;

(c) Identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques; and

(d) Maintain and organize, by any mechanism, data derived from identification and monitoring activities pursuant to subparagraphs (a), (b) and (c) above.

Article 8. In-situ Conservation

Each Contracting Party shall, as far as possible and as appropriate:

(a) Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;

(b) Develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity;

(c) Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use;

(d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;

(e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas;

(f) Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies;

(g) Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology, which are likely to have adverse environmental impacts

that could affect the conservation and sustainable use of biological diversity, taking also into account the risks to human health;

(h) Prevent the introduction of, control or eradicate, those alien species which threaten ecosystems, habitats or species;

(i) Endeavour to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and the sustainable use of its components;

(j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity, and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices;

(k) Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations;

(l) Where a significant adverse effect on biological diversity has been determined pursuant to Article 7, regulate or manage the relevant processes and categories of activities; and

(m) Cooperate in providing financial and other support for in-situ conservation outlined in subparagraphs (a) to (l) above, particularly to developing countries.

Article 9. Ex-situ Conservation

Each Contracting Party shall, as far as possible, and as appropriate, and predominantly for the purpose of complementing in-situ measures:

(a) Adopt measures for the ex-situ conservation of components of biological diversity, preferably in the country of origin of such components;

(b) Establish and maintain facilities for ex-situ conservation of and research on plants, animals and micro-organisms, preferably in the country of origin of genetic resources;

(c) Adopt measures for the recovery and rehabilitation of threatened species and for their reintroduction into their natural habitats under appropriate conditions;

(d) Regulate and manage collection of biological resources from natural habitats for ex-situ conservation purposes so as not to threaten ecosystems and in-situ populations of species, except where special temporary ex-situ measures are required under subparagraph (c) above; and

(e) Cooperate in providing financial and other support for ex-situ conservation outlined in subparagraphs (a) to (d) above and in the establishment and maintenance of ex-situ conservation facilities in developing countries.

Article 10. Sustainable Use of Components of Biological Diversity

Each Contracting Party shall, as far as possible and as appropriate:

(a) Integrate consideration of the conservation and sustainable use of biological resources into national decision-making;

(b) Adopt measures relating to the use of biological resources to avoid or minimize adverse impacts on biological diversity;

(c) Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements;

(d) Support local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced; and

(e) Encourage cooperation between its governmental authorities and its private sector in developing methods for sustainable use of biological resources.

Article 11. Incentive Measures

Each Contracting Party shall, as far as possible, and as appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity.

Article 12. Research and Training

The Contracting Parties, taking into account the special needs of developing countries, shall:

(a) Establish and maintain programmes for scientific and technical education and training, in measures for the identification, conservation and sustainable use of biological diversity and its components, and provide support for such education and training for the specific needs of developing countries;

(b) Promote and encourage research which contributes to the conservation and sustainable use of biological diversity, particularly in developing countries, inter alia, in accordance with decisions of the Conference of the Parties taken in consequence of recommendations of the Subsidiary Body on Scientific, Technical and Technological Advice; and

(c) In keeping with the provisions of Articles 16, 18 and 20, promote and cooperate in the use of scientific advances in biological diversity research in developing methods for conservation and sustainable use of biological resources.

Article 13. Public Education and Awareness

The Contracting Parties shall:

(a) Promote and encourage understanding of the importance of, and the measures required for, the conservation of biological diversity, as well as its propagation through media, and the inclusion of these topics in educational programmes; and

(b) Cooperate, as appropriate, with other States and international organizations in developing educational and public awareness programmes, with respect to conservation and sustainable use of biological diversity.

Article 14. Impact Assessment and Minimizing Adverse Impacts

1. Each Contracting Party, as far as possible and as appropriate, shall:

(a) Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity, with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures;

(b) Introduce appropriate arrangements to ensure that the environmental consequences of its programmes and policies that are likely to have significant adverse impacts on biological diversity are duly taken into account;

(c) Promote, on the basis of reciprocity, notification, exchange of information and consultation on activities under their jurisdiction or control which are likely to significantly affect adversely the biological diversity of other States or areas beyond the limits of national jurisdiction, by encouraging the conclusion of bilateral, regional or multilateral arrangements, as appropriate;

(d) In the case of imminent or grave danger or damage, originating under its jurisdiction or control, to biological diversity within the area under jurisdiction of other States, or in areas beyond the limits of national jurisdiction,

notify immediately the potentially affected States of such danger or damage, as well as initiate action to prevent or minimize such danger or damage; and

(e) Promote national arrangements for emergency responses to activities or events, whether caused naturally or otherwise, which present a grave and imminent danger to biological diversity and encourage international cooperation to supplement such national efforts and, where appropriate and agreed by the States or regional economic integration organizations concerned, to establish joint contingency plans.

2. The Conference of the Parties shall examine, on the basis of studies to be carried out, the issue of liability and redress, including restoration and compensation, for damage to biological diversity, except where such liability is a purely internal matter.

Article 15. Access to Genetic Resources

1. Recognizing the sovereign rights of States over their natural resources, the authority to determine access to genetic resources rests with the national governments and is subject to national legislation.

2. Each Contracting Party shall endeavour to create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties and not to impose restrictions that run counter to the objectives of this Convention.

3. For the purpose of this Convention, the genetic resources being provided by a Contracting Party, as referred to in this Article and Articles 16 and 19, are only those that are provided by Contracting Parties that are countries of origin of such resources or by the Parties that have acquired the genetic resources in accordance with this Convention.

4. Access, where granted, shall be on mutually agreed terms and subject to the provisions of this Article.

5. Access to genetic resources shall be subject to prior informed consent of the Contracting Party providing such resources, unless otherwise determined by that Party.

6. Each Contracting Party shall endeavour to develop and carry out scientific research based on genetic resources provided by other Contracting Parties with the full participation of, and, where possible, in such Contracting Parties.

7. Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, and in accordance with Articles 16 and 19 and, where necessary, through the financial mechanism established by Articles 20 and 21 with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources. Such sharing shall be upon mutually agreed terms.

Article 16. Access to and Transfer of Technology

1. Each Contracting Party, recognizing that technology includes biotechnology, and that both access to and transfer of technology among Contracting Parties, are essential elements for the attainment of the objectives of this Convention, undertakes subject to the provisions of this Article, to provide and/or facilitate access for and transfer to, other Contracting Parties of technologies that are relevant to the conservation and sustainable use of biological diversity, or make use of genetic resources and do not cause significant damage to the environment.

2. Access to and transfer of technology, referred to in paragraph 1 above, to developing countries shall be provided and/or facilitated under fair and most favourable terms, including on concessional and preferential terms where mutually agreed, and, where necessary, in accordance with the financial mechanism established by Articles 20 and 21. In the case of technology, subject to patents and other intellectual property rights, such access and transfer shall be provided on terms which recognize, and are consistent with, the adequate and effective protection of intellectual property rights. The application of this paragraph shall be consistent with paragraphs 3, 4 and 5 below.

3. Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, with the aim that Contracting Parties, in particular those that are developing countries, which provide genetic resources are provided access to and transfer of technology which makes use of those resources, on mutually agreed terms, including technology protected by patents and other intellectual property rights, where necessary, through the provisions of Articles 20 and 21 and in accordance with international law and consistent with paragraphs 4 and 5 below.

4. Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, with the aim that the private sector facilitates access to joint development and transfer of technology referred to in paragraph 1 above for the benefit of both governmental institutions and the private sector of developing countries and in this regard shall abide by the obligations included in paragraphs 1, 2 and 3 above.

5. The Contracting Parties, recognizing that patents and other intellectual property rights may have an influence on the implementation of this Convention, shall cooperate in this regard subject to national legislation and international law in order to ensure that such rights are supportive of and do not run counter to its objectives.

Article 17. Exchange of Information

1. The Contracting Parties shall facilitate the exchange of information, from all publicly available sources, relevant to the conservation and sustainable use of biological diversity, taking into account the special needs of developing countries.

2. Such exchange of information shall include exchange of results of technical, scientific and socio-economic research, as well as information on training and surveying programmes, specialized knowledge, indigenous and traditional knowledge as such and in combination with the technologies referred to in Article 16, paragraph 1. It shall also, where feasible, include repatriation of information.

Article 18. Technical and Scientific Cooperation

1. The Contracting Parties shall promote international technical and scientific cooperation in the field of conservation and sustainable use of biological diversity, where necessary, through the appropriate international and national institutions.

2. Each Contracting Party shall promote technical and scientific cooperation with other Contracting Parties, in particular developing countries, in implementing this Convention, inter alia, through the development and implementation of national policies. In promoting such cooperation, special attention should be given to the development and strengthening of national capabilities, by means of human resources development and institution building.

3. The Conference of the Parties, at its first meeting, shall determine how to establish a clearing-house mechanism to promote and facilitate technical and scientific cooperation.

4. The Contracting Parties shall, in accordance with national legislation and policies, encourage and develop methods of cooperation for the development and use of technologies, including indigenous and traditional technologies, in pursuance of the objectives of this Convention. For this purpose, the Contracting Parties shall also promote cooperation in the training of personnel and exchange of experts.

5. The Contracting Parties shall, subject to mutual agreement, promote the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of this Convention.

Article 19. Handling of Biotechnology and Distribution of its Benefits

1. Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, to provide for the effective participation in biotechnological research activities by those Contracting Parties, especially developing countries, which provide the genetic resources for such research, and where feasible in such Contracting Parties.

2. Each Contracting Party shall take all practicable measures to promote and advance priority access on a fair and equitable basis by Contracting Parties, especially developing countries, to the results and benefits arising from biotechnologies based upon genetic resources provided by those Contracting Parties. Such access shall be on mutually agreed terms.

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

4. Each Contracting Party shall, directly or by requiring any natural or legal person under its jurisdiction providing the organisms referred to in paragraph 3 above, provide any available information about the use and safety regulations required by that Contracting Party in handling such organisms, as well as any available information on the potential adverse impact of the specific organisms concerned to the Contracting Party into which those organisms are to be introduced.

Article 20. Financial Resources

1. Each Contracting Party undertakes to provide, in accordance with its capabilities, financial support and incentives in respect of those national activities which are intended to achieve the objectives of this Convention, in accordance with its national plans, priorities and programmes.

2. The developed country Parties shall provide new and additional financial resources to enable developing country Parties to meet the agreed full incremental costs to them of implementing measures which fulfil the obligations of this Convention and to benefit from its provisions and which costs are agreed between a developing country Party and the institutional structure referred to in Article 21, in accordance with policy, strategy, programme priorities and eligibility criteria and an indicative list of incremental costs established by the Conference of the Parties. Other Parties, including countries undergoing the process of transition to a market economy, may voluntarily assume the obligations of the developed country Parties. For the purpose of this Article, the Conference of the Parties shall, at its first meeting, establish a list of developed country Parties and other Parties which voluntarily assume the obligations of the developed country Parties. The Conference of the Parties shall periodically review and, if necessary, amend the list. Contributions from other countries and sources on a voluntary basis would also be encouraged. The implementation of these commitments shall take into account the need for adequacy, predictability and timely flow of funds and the importance of burden-sharing among the contributing Parties included in the list.

3. The developed country Parties may also provide, and developing country Parties avail themselves of, financial resources related to the implementation of this Convention through bilateral, regional and other multilateral channels.

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

5. The Parties shall take full account of the specific needs and special situation of least developed countries in their actions with regard to funding and transfer of technology.

6. The Contracting Parties shall also take into consideration the special conditions resulting from the dependence on, distribution and location of, biological diversity within developing country Parties, in particular small island States.

7. Consideration shall also be given to the special situation of developing countries, including those that are most environmentally vulnerable, such as those with arid and semi-arid zones, coastal and mountainous areas.

SECTOR REPORTS : SUMMARIES AND RECOMMENDATIONS

AGRICULTURAL SECTOR REPORT

Agricultural activities which have adverse effects on biodiversity are discussed. These are:

(2) use of pesticides,
(3) disposal of agricultural wastes and
(4) development of areas under natural and secondary vegetative cover for agricultural use.

Importation of pesticides is controlled by the Pesticide Control Board, but the main emphasis is on avoidance of mamalian toxicity and there is no policy to reduce the adverse effects of pesticide use on biodiversity. Use of Integrated Pest Management and better education of farmers and pesticide sales persons needs to be addressed.

Agricultural wastes, mainly from pig and poultry farms, are frequently dumped into rivers and streams resulting in loss of aquatic life. Biodigesters for utilizing pig wastes are being encouraged by Government by way of subsidies for their construction.

There is much abandoned agricultural land, which could be put back into use and thus fiscal policies should encourage this rather than the distribution of state land currently under natural or secondary vegetation.

Land Use policies should be based on the Land Capability Survey of Trinidad and Tobago and land distribution should be aimed at utilizing abandoned agricultural land rather than forest lands. Illegal squatting should be addressed by law enforcement and appropriate land distribution policies.

Loss of agrobiodiversity in the form of landraces and naturally occurring plant and animal species with agricultural potential must be prevented mainly by *ex situ* conservation.

A Biodiversity Centre should be established by an Act of Parliament and attached to the University of the West Indies. Such a Centre would have a division for Agrobiodiversity with an extensive database. The Centre should be provided with funds which could be used for interventions when there is danger of loss of biodiversity by protecting natural habitats and where necessary, establishing *ex situ* conservation facilities.

The Centre should also be able to sponsor research into conservation methods, such as tissue culture and cryopreservation.

CONCLUSIONS AND RECOMMENDATIONS.

While there has been a fair measure of activity for conservation of crop species, these efforts have been uncoordinated and spasmodic. Important material has been lost which could have been saved with a relatively small effort. This is likely to continue in the future if nothing is done.

It is likely that the limiting factor in more effective conservation is not financial resources but lack of a proper management system.

Trinidad and Tobago has recently passed Legislation to protect Plant Breeders Rights and has joined the UPOV (1978) Convention. However there is no specific legislation to protect

agrobiodiversity and so consideration should be given to the question of "Farmers Rights" (see Swaminathan, M.S. (1996) Agrobiodiversity and Farmers' Rights) which are now being recognized worldwide. Thus the landraces referred to in this report have been produced by the efforts of farmers over the years. Also the medicinal plants and handicraft materials which are now recognized have been discovered as a result of community efforts over generations.

In India an Expert Committee was established under Dr. M.S. Swaminathan in 1997 to consider Biodiversity Legislation. The main conclusions of that committee for regulatory legislation are given below:

(1) Access to biological resources and information related thereto.
(2) Benefit sharing with conservers of biological resources/creators and holders of knowledge and information relating to the use of biological resources.
(3) Notification of areas important from the stand point of biological diversity as Biological Diversity Heritage Sites.
(4) Protection of threatened species.
(5) Involvement of local bodies in the sustainable management of biodiversity and the preparation of biodiversity registers."

Trinidad and Tobago would do well to follow the lead given by India in considering Legislation to ensure fair treatment for local farmers and communities.

SUMMARY OF MAJOR RECOMMENDATIONS.

1. The establishment by Act of Parliament of a Board for Conservation of Biodiversity.
2. Establishment of an Agrobiodiversity Division within a Centre for Conservation of Biodiversity.
3. The provision of funding to establish a data base and to contract identification and characterisation services.
4. A Pesticide approval policy that recognizes the need for conservation of biodiversity.
5. An environmental management policy that deals with disposal of agricultural wastes.
6. The committment of Government is needed to ensure the collaboration of various Government agencies, particularly the Ministry of Agriculture, Land and Marine Resources, in properly managing the various conservation sites.
7. The funding of research into tissue culture and cryopreservation technologies for conservation of plant and animal material.
8. The enforcement of existing and future environmental protection laws.
9. Development of an agricultural policy that recognizes the need for conservation of Agrobiodiversity.
10. A publicity campaign on the importance of conservation of biodiversity.

FAUNA SECTOR REPORT

A review of the terrestrial biota is provided which surveys the diversity of the country and the challenges to conservation of its biological resources. The existing and proposed regulatory framework within which conservation is carried out in Trinidad and Tobago is reviewed, and weaknesses highlighted. Notable among these is a lack of communication between management agencies, lack of appropriate legislation, lack of a well-defined research agenda and education policy.

Institutional structures within government agencies, NGOs and CBOs, are discussed as well as funding levels and personnel. Also included is an examination of the resource users and the economics of exploiting the terrestrial animal diversity of the country. This review suggests that resource users are currently not paying the economic cost for managing the resource, while gaining tremendous benefit from the resource. It is suggested that such a situation encourages over exploitation of the resource.

Next, a discussion of the causes of biodiversity loss is presented, which suggests that over-harvesting of terrestrial wildlife and habitat modifications - due to squatting and industrial development - are primary causes for loss of biological diversity in the country.

A gap analysis of the sector is included, which identifies lack of information on wildlife populations, need to strengthen biosystematics in the country, lack of funding, lack of trained personnel, need for more public education as some of the gaps in the sector and makes some preliminary recommendations. Based on this study of the sector, it is recommended that the objectives for the sector should be:

1. Increasing public participation in the management of the resource
2. Developing an information base which is accessible by all agencies and users
3. Developing a public education programme which reaches all sectors
4. Developing skills of the resource managers
5. Providing the funding, logistical and legislative climate for conservation
6. Developing an applied-research agenda.

Based on these objectives ten strategic recommendations are made which include:

1. Endorsement of support for the National Parks and Wildlife Authority.
2. Development of an applied research programme, to fill the gap in knowledge on the population biology of the country's terrestrial fauna.
3. Judicial retreat to sensitize justices to concerns of resource managers.
4. Formal mechanisms for co-ordination of action between agencies rather than current ad-hoc committee meetings.
5. Information clearinghouse mechanism for dissemination of data on wildlife and habitat status to the management agencies and the public.
6. New mechanisms for funding fauna research and management programmes including taxing structures, carbon offset programmes and bio prospecting.
7. Joint public education programmes between conservation agencies.
8. Co-management programmes between the National Parks and Wildlife Authority and hunting associations for game species
9. A joint programme be developed between UWI, NIHERST and ECIAF to address these training needs for management agencies.
10. Use of co-management model as a means of encouraging public participation in conservation

PRELIMINARY STRATEGIC RECOMMENDATIONS

1. It is **critical** that the programme establishing the National Parks and Wildlife Authority currently being pursued by the Ministry of Agriculture, Land and Marine Resources be followed to completion, in the most expedient manner possible. Discussions with the NGO community, hunters, government agency personnel and academics suggest that there is general support for the establishment of the new agency and that there is a perceived need for this agency.

2. Development of a program of applied research, which will fill the gap in knowledge on the population biology of the country's terrestrial fauna. This should be developed through collaboration between the primary management Agencies (EMA, Forestry Division, National Parks and Wildlife Authority) and the training and research institutions in the country (IMA, NIHERST, ECIAF and UWI), and any other interested parties. This research programme should focus on monitoring the size of remaining habitats, wildlife population sizes, biosystematics for invertebrates and socio-economics of wildlife use and conservation.

3. Retreat for Judiciary to sensitize them to the pending legislation, provide an introduction to the principles of biodiversity conservation, and indicate the critical role which law enforcement plays in managing these resources.

4. It is critical that the natural resource management agencies (EMA, Forestry Division, National Parks and Wildlife Authority) develop closer linkages. Many of the concerns raised by the individual agencies, could be more effectively addressed if there was a formal mechanism for co-ordination of action between agencies rather than current ad-hoc committee meetings. Although MOU's exist between the EMA and several of these agencies, the interaction between these agencies needs to be further strengthened.

5. Information sharing between agencies was identified as a significant problem for natural resource managers. There needs to be a clearinghouse mechanism for dissemination of data related to wildlife and habitat status in the country, which can be freely accessed by the management agencies and the public.

6. The successes realized by the Forestry Division's Wildlife Section in developing protocols for co-management of marine turtles, suggest that innovative approaches which involve communities can increase the effectiveness of wildlife management programmes. It is imperative that such approaches be encouraged and institutionalized.

7. It is critical that new mechanisms for funding fauna research and management programmes be pursued. Given the tremendous gaps in knowledge of the island's fauna, it is important that funding for applied programmes be found. Novel taxing structures, carbon offset programmes and bio prospecting mentioned above, are only a few of the options which can be explored by the management agencies.

8. Public education remains a major task facing the natural resource management agencies of the country. Here again, there is an opportunity for the agencies to begin thinking in terms of joint programmes. Such an approach may prove more cost effective, and provide increased opportunities for communication between agencies and information sharing.

9. It is critical to initiate programmes in game management that will incorporate the five hunters associations in the country in the process of management. Given the current adversarial relationship between the current management agency and the hunters, it is critical that the

new agency be able to develop the trust of these “clients,” and be able to show how its management can have a positive impact on game populations.

10. It is important that a programme be developed to address the training needs identified previously in this report. To this end, it may prove useful for a joint programme be developed between UWI, NIHERST and ECIAF to address these training needs.

FLORA SECTOR REPORT

7.0. PRELIMINARY STATEMENTS

7.1. OBJECTIVES

On the basis of interviews and discussions with the Non-Governmental Organizations, Community Based Organizations, Public and Private Employees, the following objectives were enunciated:

- To determine the status and distribution of the resources;
- To improve the monitoring and law enforcement capabilities;
- To zone areas strictly for protection purposes;
- To zone areas strictly for production of forest products (timber etc.)
- To diversify plantation forests away from monoculture to indigenous species;
- To detect and control fires more efficiently;
- To reforest degraded areas with tree species that are compatible with the environment;
- To educate the public in the value of the natural biological resources;
- To work with private landowners in developing conservation strategies.

7.1.1 Recommendations

The following recommendations have been suggested in support of biological diversity conservation:

- In light of the uncertainty which exists over the extent, quality and distribution of the vegetation, the recommendation*: Conduct a comprehensive national inventory to determine the status and distribution of the plant community.*
- The Ecological information currently referred to was compiled by Beard (1946). Numerous changes have occurred during the ensuing fifty-three years; the recommendation: *Research the ecology of and threats to the plant community.*
- As the ecological data is upgraded and more information is made available, existing legislation may be obsolete; the recommendation*: Develop legislation which will maintain the integrity of the plant community.*
- One of the significant weaknesses in the system, resides in the inability of the enforcement agency to carry out its mandate because of the lack of adequate

resources, the recommendation: *Provide institutional and human resource personnel to support legislation.*

- The ability of an agency to respond to a rapidly changing environment, is dependent on the degree to which the participants are motivated; the recommendation*: Training programmes to upgrade skills and expertise*.
- No organization working in isolation can achieve the degree of success which is possible through interaction and collaboration among groups with similar interest, the recommendation*: Motivate communities and Ministries to participate in shared management*.
- The current low royalty rates for plant species have accounted for the wastage of this valuable resource, the recommendation*: Establish royalty rates which encourage sound utilization practice.*
- Similar circumstances are experienced by organizations in different regions of the world. Close alliances would redound to be the benefits of all, the recommendation: *Establish linkages with organizations (national and international) that have responsibility for or interest in biodiversity conservation;*
- Numerous organizations are responsible for the management and conservation of the biodiversity. Uncoordinated activities have imposed additional strain of scarce human and financial resources, the recommendations: *Establish an organization with responsibility for coordinating the conservation* of the plant community.

8.0. CONSTRAINTS

The major constraints, which affected the conduct of this study, are the limited time within which this report had to be submitted, the numerous cancelled appointments by persons whose views were sought, and failure to access supporting documents on policies and financial mechanisms held by public and private organizations.

INDUSTRY SECTOR REPORT

Review of the industrial sector's impact on the environment in Trinidad and Tobago and the threat it poses to biodiversity, revealed the following:

1.Industrial Activities that Impact Negatively on Biodiversity

The industrial activities that were considered to have a major negative impact on biodiversity were identified as follows:

- oil & gas production and refining
- quarrying
- sugar production and refining
- rum and beer production
- petrochemicals and energy-based production
- non energy-based manufacturing in the following sectors:
- food and beverages
- chemicals, cosmetics, toiletries and pharmaceuticals
- metal and related products
- miscellaneous manufacturing(jewelry, metal finishing, printing etc)

Oil & Gas Production and Refining

There are three main oil producers, BP/AMOCO (45%), TRINMAR (24%) and PETROTRIN (22%). PETROTRIN is the largest land-based, oil exploration and production company and the sole refiner of petroleum products. The main pollutants associated with oil and gas production and oil refining were determined to be produced waters, refinery wastewater, tank sludge and atmospheric emissions. Of these, produced water and refinery wastewater had the greatest effect on biodiversity.

Quarrying

There are fifty-seven active quarries in Trinidad and three in Tobago. Approximately 6,000 acres of land are being exploited with 75% being State Lands. The main activity was in sand and gravel mining in the Valencia Reserve.

The negative impacts on biodiversity were:

- the silt-laden discharge from the washing plants into the rivers, principally the Oropouche, Turure and Quare rivers, which may be destroying many aquatic species
- destruction of the natural habitat by the clearing and non rehabilitation of forest by legal and illegal operators. The extraction process was inefficient resulting in the exploitation of greater acreage than was necessary.

Sugar Production and Refining

Sugar production and refining carried out by Caroni (1975) Limited's Brechin Castle and St Madeline factories, impact on biodiversity by discharge of effluents with high levels of Total Solids, and BOD into the Cipero and Couva rivers. This may have resulted in the loss of aquatic species, due to the reduction of dissolved oxygen in the water.

Rum and Beer Production

Approximately 19 million litres of rum are produced annually by the two local distilleries. The principal effluent was distillery waste or "Slops", estimated at 170 million litres per annum. Impact on biodiversity is attributed to the discharge of improperly treated "Slops" (high in residual sugar, with a BOD which ranged form 40,000 mg/L to 20,000mg/L, and a pH varying from 4.0 to 6.5) into the public sewer or into the river.
Similarly, the effluents from beer production, high in Total Solids, high BOD and of varying pH, are being discharged into the river.

Petrochemicals and Energy-Based Production

There were approximately thirteen major plants operating in this sector with most of them located in the Point Lisas industrial estate. Several of these were relatively new and operate with high environmental standards. The major environmental problems identified were air borne emissions, and hot, chemically treated water from cooling condensers which are discharged into the watercourse. The hot water discharged into the watercourse is considered to have a negative impact on biodiversity as it may be responsible for the destruction of the nearby mangrove.

Non Energy-Based Manufacturing

It was estimated that there were in excess of two thousand businesses in this group. Most located in the east-west corridor, from Diego Martin to Sangre Grande, and in the western corridor, from Port of Spain to San Fernando. The common environmental problem with this group was the uninhibited discharge of untreated organic and inorganic waste, as well as toxic chemicals into the various watercourses. The cumulative effect of these discharges was considered to be significant and contributed to biodiversity loss. Although some larger companies were moving to address their effluent problems, the smaller companies appeared to be doing very little.

1. Policy and Regulatory Framework

The three principal agencies responsible for policy related to the industrial sector are:

- The Environmental Management Authority,
- The Ministry of Housing and Settlements – Town and Country Planning Division
- The Ministry of Energy and Energy Industries.

Policies presently in place to guide the sector were found to be inadequate and dispersed within several Government Agencies. Often, they did not adequately address environmental protection and biodiversity conservation.

Several new policies and draft legislation are now being developed to address these shortcomings. These include the following:

Energy Policy which is detailed in the "Green Paper for the Proposed Energy Policy for the Republic of Trinidad and Tobago"

- Quarrying Policy
- Forest Resources Act (Draft)

- National Parks and Other Protected Areas Bill

Several Ministries and Authorities are responsible for regulating the establishment and operations of Industry:

Ministry of Housing and Settlements – Town and Country Planning Division

- Ministry of Local Government – Local Health Authorities
- Ministry of Health – Environmental Health Division
- Environmental Management Authority
- Ministry of Energy and Energy Industries
- Water and Sewerage Authority

The following are some of the regulations that impact on the industrial sector.

1. TOWN AND COUNTRY PLANNING ACT CHAP. 35:01
2. MINES, BORINGS AND QUARRIES ORDINANCES CHAP. 26:04
3. PETROLEUM ACT CHAP. 62:01
4. ENVIRONMENTAL MANAGEMENT ACT 1995
5. WATER AND SEWERAGE AUTHORITY ACT CHAP. 54:40
6. PUBLIC HEALTH ORDINANCE CHAP. 12:04
7. STATE LANDS ACT CHAP. 57:01
8. FACTORY ORDINANCE CHAP. 20:02

The overlapping responsibilities under these various regulations have resulted in ineffective regulation of the industry, particularly in the area of environmental protection.

2. Institutional and Human Capacity

There is a shortage of human resources to deal with environmental and biodiversity conservation issues. Shortcomings were identified in the following areas: Policy, Land Use Planning, Environmental Impact Assessment, Monitoring, Environmental Data Management, Enforcement and Training. The Town and Country Planning Division was in the process of executing a programme to increase the manpower capability to evaluate Environmental Impact Assessments. However, there was still an urgent need to address the other areas.

3. Root Cause of Biodiversity Loss

The root cause of biodiversity loss has been attributed to the following:

- Lack of awareness and/or concern for environmental preservation issues, particularly biodiversity conservation issues
- Companies' priorities
- Inadequate and outdated legislation
- Lack of enforcement of existing legislation
- Use of outdated technology

4. Sector Needs and Gap Analysis

The principal need of the sector related to biodiversity were similar to many other sectors i.e. to be convinced that every living thing has a right to life and that protection of that right is everyone's responsibility.

The following were the identified gaps between the industrial sector and biodiversity:

- Perception
- Information and education
- Policies and regulations
- Responsiveness
- Finance

The following strategies were proposed for addressing the gaps:

1. Identify, as accurately as possible, the past and future cost to the country of the impact of industry on biodiversity.
2. Ensure clear policy statements are made on the conservation of biodiversity and habitat preservation.
3. Streamline policies and regulations that govern environmental matters, either under the EMA or under a specific ministry per sector, acting on behalf of the EMA. For example, if the Ministry of Energy and Energy Industries is responsible for management of the quarrying industry, then it must have the authority to enforce environmental mitigation measures in that sector.
4. Identify and register all industrial enterprises, regardless of their size.
5. Encourage or mandate all industrial enterprises, except those of some minimum size, to register a staff member with the EMA as the focal point for environmental issues in the enterprise.
6. Mount a national, public awareness campaign on biodiversity conservation. Use tangible data to demonstrate the real costs and benefits to industry and the country as a whole. Relevant ministries, State agencies, UWI, industry umbrella organizations and NGOs should be encouraged to participate.
7. Increase the number of environmental inspectors available to the EMA.
8. Strengthen the EMA enforcement capability.
9. Establish a regional environmental extension service, whereby officers will be assigned to specific regions, and can work in a collaborative manner with industry to address problems. This service could be similar to the agricultural extension service of the Ministry of Agriculture, Land and Marine Resources.
10. Assist industrial enterprises, to develop environmental management programmes. In these programmes mitigation measures and time frames for implementing them could be identified.
11. Assist industrial enterprises in accessing grant funds or concessionary loans to finance staff training in environmental management, implementation of management systems and mitigation measures.
12. Promote industry involvement in biodiversity conservation projects with the NGOs, Community Based Organisations and Government Ministries.

4. Sustainable Industrial Management Programmes

With the coming of the Environmental Management Authority, there has been an acceleration of effort by some larger companies to develop sustainable industrial management programmes. Some programmes of interest are those of PETROTRIN, TRINMAR, Trinidad Cement Limited, Nestlé Trinidad and Tobago Limited and Caroni (1975) Limited - Rum Division.

Preliminary Statement of Objectives of the Industrial Sector as it Applies to Biodiversity Conservation.

The following statement was proposed.
The industrial sector, cognisant of its role in the economic development of Trinidad and Tobago, and the fact that economic development must be balanced with biodiversity conservation, proposes to do the following:

1. Minimise further adverse impacts on biodiversity
2. Proactively support biodiversity conservation and the sustainable development and use of biological resources.

This will be achieved by:

1. Ensuring operations in the sector comply with all environmental legislation, as well as corporate and industry standards for protection of the environment and biodiversity conservation;
2. Supporting research and working with industry, Government, other public sector agencies and NGOs to establish realistic environmental standards for the various operations within the sector and their impact on the environment;
3. Controlling pollution, emissions and other wastes at source, and ensuring that appropriate and cost effective waste and emissions management programmes are implemented;
4. Pursuing cost effective improvements in plant, equipment and process design, which can result in waste minimisation, effluent and emission quality
5. improvement and waste recycling;
6. Allocating responsibility within each enterprise for developing and implementing specific operational procedures and standards which are consistently stated environmental objectives;
7. Ensuring all employees are aware of the need, and their responsibility, for environmental preservation and biodiversity conservation, and obtain the required knowledge;
8. Restoring environments, as far as practically possible, to some baseline state;
9. Anticipating potential emergencies arising out of operations within the sector which could threaten the natural environment and biodiversity, and prepare appropriate plans to ensure a prompt and effective response to these emergencies;
10. Securing concessionary funding and/or technical and scientific co-operation, which will support local efforts at environmental preservation and biodiversity conservation.

TOURISM SECTOR REPORT

Tourism is defined by Jafar Jafari as “The Study of Man away from his usual habitat, of the industry which responds to his needs and, of the impacts that man and the industry have on the social, cultural, economic and physical environment”. This definition evolved in the “era of the 3s’, with sun, and sand tourism. Changes in tourist motivations, and no doubt marketing innovations gave rise to alternative forms of tourism such as nature-based tourism popularly called ecotourism.

Ecotourism is described as an activity which consists of trips to relatively undisturbed unpolluted natural areas for the purposes of studying, observing or enjoying the surroundings and wildlife.

The key phrases in these definitions: Man, Impacts of man and the industry on the physical environment; trips to undisturbed natural areas bring to mind the symbiotic relationship between Tourism and biodiversity. On one hand Biodiversity is the essential foundation of ecotourism.

In Trinidad and Tobago for example, the key elements of the tourism product and destination appeal is heavily based on ecology. In Trinidad the product offer consists of many natural assets including The Asa Wright Nature Centre which recently won the islands magazine Ecotourism Award. The Caroni Bird Sanctuary with the famous Scarlet Ibis, The Pointe a Pierre Wildfowl Trust protecting the endangered waterfowl, the Matura Grand Riviere, and Matelot areas popular for turtle watching.

In Tobago the offering is similar - Buccoo Reef and the famous nylon Pool, little Tobago Island; the oldest forest reserve in the western hemisphere, the Main Ridge Forest Reserve; and The Grafton – Caledonia Wildlife Sanctuary - to name a few attractions.

The other aspect is the symbiotic relationship between tourism and conservation as ecotourism provides revenues which can be used to fund conservation efforts. The industry provides the means by which conservation efforts can be paid for in part through user fees at national parks, entrance fees to facilities and fees for tours to privately owned estates.

Ecotourism, however, in its widest interpretation can be destructive to the very resources that gave rise to its popularity if precautions are not taken. While documentation on the negative impacts of tourism on the environment is exhaustive, these can be divided into three (3) broad categories:-

Firstly those which result from the construction of tourist facilities, such as the destruction of natural habitats especially wetlands as in the case of South West Tobago, a concentrated tourist zone, and watershed destruction in the Main Ridge forest Reserve.

Secondly, there are impacts from the operation of tourist facilities, such as hotels and marinas – One of the most critical environmental issues in South West Tobago relates to sewage pollution from hotels which is killing off reef organisms and posing a health hazard. Others include waste-water and grey water from baths, laundries and kitchens, causing damage to reefs and the use of pesticides in landscaping and maintenance of golf courses which filter into the waterways.

Thirdly, there are impacts from recreational activities of tourists. Such as:

- The damage to ground cover and biodiversity loss on hiking trails, when carrying capacity is not determined or monitored as in the case of the Gilpin trail;
- The harvesting of reefs for queen conch and black coral for souvenirs;
- The use of lighting for turtle watching which disorient turtles and affect birthing; and
- The damage to reefs from anchoring of yachts, tour boats and reef walking.

Clearly many of the ecosystems that attract tourists simply cannot support heavy disturbances.

In Tobago for example, there is mounting pressure on the environment in terms of biodiversity loss due to escalating tourist arrivals, who pursue the development of alternative forms of tourism such as ecotourism and the lack of concrete actions to address the problems. The loss of biodiversity is particularly severe in Chaguaramas, as well as in Tobago, as a result of increased tourist visitation and the accompanying construction and operation of tourism facilities to accommodate these tourists. Several projects have been identified which are causing concern to environmental NGO's and the Tobago House of Assembly (THA). This is no doubt one of the considerations which led to development of a tourism policy statement for Tobago as published in the Tobago Medium Term Policy Framework. The Policy statement addresses issues such as infrastructure, the environment, incentivisation, tourism investment and product development.

Trinidad and Tobago like many countries in the wider Caribbean is facing a dilemma. Ecotourism is growing at about twice the rate of tourism in general and is said to account for approximately 20% of Caribbean Tourism. Here in Trinidad and Tobago forecasts for Tourist arrivals are 360.000 in 1999 increasing to 590.000 in the year 2004. At the end of 2000 an additional 1245 rooms are proposed for Tobago.

The dilemma is how to achieve sustainable tourism, the rationale for which is based on two principles:-

(i) The protection of cultural aesthetic and biologically significant areas; and

(ii) The simultaneous attainment of economic benefits to local enterprises, rural communities and the national purse.

In this study a number of sectoral gaps have been identified which are perceived as structural weaknesses which debilitate against effective management of tourism as it relates to Biodiversity.

In order for Trinidad and Tobago to move towards a more sustainable form of tourism these issues must be addressed. They include:-

1. <u>Institutional, Legislative and Policy Issues</u>

Though formal tourism activity can be traced back to some 95 years, the policy and legislative framework can best be described, as being in a state of evolution. The national tourism policy is presently being formulated by the Tourism and Industrial development company (TIDCO), while the Tobago House of Assembly (THA) has published its policy statement in the medium term policy framework. The Hotel Development Act is being replaced by the Tourism Development Act, now in its fourth draft, and the ancillary service sector is still without adequate regulations and standards.

The institutional framework for tourism has changed twice within the last six (6) years. The Trinidad and Tobago Tourist Board was replaced by the Tourism Development Authority in 1989 and TIDCO in 1995. Neither administrations have adequately addressed the issue of tourism and its impact on biodiversity. While TIDCO is perceived as the agency largely responsible for managing the tourism sector, in fact it lacks that ability. Daily decisions and actions are being taken by a multitude of Public Sector institutions. These as well as private sector initiatives inevitably affect or disaffect the industry's development. There is need to strengthen intra – institutional collaboration and co-ordination as well as communication and co-ordination between TIDCO, the Ministry of Tourism, the THA and industry stakeholders.

2. Planning Issues

There is mounting pressure on the environment in terms of biodiversity loss due to (a) infrastructure to accommodate escalating tourist arrivals, (b) the development of alternative forms of tourism such as eco-tourism and (c) the lack of measures to address the problem. There is also concern that tourism projects are not always in harmony with that of national planning objectives. Strategies are needed to achieve specific targets and objectives for the sector as laid out in the national plans.

3. Economic and Fiscal Issues

There is need to ensure that environmental integrity is maintained by tourism projects and that where damage occurs it is compensated for by the responsible parties. In addition, unsound environmental practices such as the use of toxic agrochemicals for landscaping, and marine chemicals for boat repair and maintenance, can be discouraged through the use of discentives such as import taxes.

Other economic measures such as environmental bonds to ensure compliance and incentives may prove to be most effective when used to compliment regulatory mechanisms.

4. Public Education and Sensitization

Historically, tourism was not courted or placed on the national agenda in Trinidad and Tobago. In fact, it was dismissed as an industry which produced "a nation of barmaids and bellboys". Consequently Trinidad and Tobago has not had a tradition of tourism as is the case in Jamaica and the Bahamas.

There is need to sensitize policy makers and the population as a whole about the principles, practices and benefits of tourism and respective roles in facilitating the industry's development.

These objectives and recommendations are by no means exhaustive. If deliberate action is taken on these and other issues, it is likely to contribute significantly to the development of a sustainable tourism industry in Trinidad and Tobago.

Preliminary strategic recommendations conform to similar categories. They include Regulatory and Legislative, Economic, Administrative and Institutional measures, as well as Education and Public Sensitization.

8.0 PRELIMINARY STATEMENT OF OBJECTIVES FOR THE TOURISM SECTOR

In order to achieve the above objectives, effective actions must be taken in areas such as: the use of appropriate technologies and strategies, incentivisation/disincentivisation, legal and financial mechanisms.

In exploring some of these options, planners should be guided by the extensive documentation which exist on best practices in the wider Caribbean and beyond.

8.1 Suggested Regulatory and Legislative Measures

- Command and control measures with the necessary institutional and legislative reform, to make these measures more effective, where environmental damage is severe or irreversible.
- Formulate a tourism development policy which incorporates measures to relieve the negative impacts of tourism development.
- Government to signal its commitment to ecotourism by signing and implementing international treaties and agreements on ecotourism which are seeking to standardize eco-tourism practices.
- Legislative reform on control and command measures, as they relate to the use of private land where environmentally sensitive and critical areas such as water reserve lands exist.
- Establishing a special arbitration tribunal to resolve industrial disputes should they arise in the tourism and related industries.

8.2 Suggested Economic and Fiscal Measures

- Economic measures such as environmental bonds and incentives may prove to be the most effective when used to compliment regulatory mechanisms.
- Devise a system of incentives and disincentives such as differential taxing, lower property taxes etc. to encourage tourism development in zones outside coastal areas.

- Tradeable development quotas can control development in tourist zones. This allows for land owners to be assigned a quota of rooms which is a percentage of the maximum number allowed in the area. Owners may opt to sell or retain this quota.

- Transferring the cost of monitoring (to determine that compliance and mitigation levels are met during project implementation) to the developers.
- Incentives to reduce ecological damage from greywater, waste water etc.
- Disincentives such as import taxes to discourage the use of toxic agro-chemicals for landscaping and marine chemicals for maintenance and repair of boats.
- Revenue instruments such as user fees to reduce volume in both marine and terrestrial protected areas.
- Leasing the seabed for permanent moorings, the lessee then charges a fee for the use of the seabed and in turn charges a nightly fee to boaters which may include daily garbage collection services.
- Charging a head tax for charterers which can in turn be used for managing anchorages and or other tax measures such as a cruising tax, duty on supplies etc.
- Incentives to encourage the use of privately owned land (where critical biodiversity exists) as private reserves for tourist attractions.
- To establish entry prices to protected areas, based on willingness to pay surveys.
- Transferring the cost of monitoring during project implementation to determine compliance and mitigation levels are met to the developers.
- Environmental compliance bonds which are purchased by developers, to ensure compliance with mitigative actions set out as a conditionality to planning permission and to repair and/or to provide compensation for damages occurring during implementation stages.
- Environmental Impact Assessment can be viewed as an economic instrument for environmental management when developers internalize the cost of the study.

8.3 Suggested Administrative and Institutional Measures

- Institute a programme of regularly scheduled consultations with industry stakeholders
- Improve and expand institutional capabilities for tourism and environmental management. Particularly with regard to interinstitutional co-ordination, avoidance of territorialism the use of information technology and support to NGO's and CBO's involved in tourism and the environment.

- Strengthen the role of the private sector in the management of the environment and mitigation enterprises. Private companies can (a) reap benefits from investment in resource - maximizing technologies and (b) develop lucrative businesses in this field.
- Promote the flow and exchange of information, between academic institutions, the NGO community and research institutions, through technology and information networks.
- Avoid duplication of efforts and promote collaboration between donors who fund tourism and environment and sustainable development projects.
- To create a forum for continuous dialogue between TIDCO, the Ministry of Tourism and the THA aimed at reaching a common position on tourism development in Tobago.
- To include a representative from the THA on the Board of TIDCO.
- To establish a governmental inter-agency Tourism Management Committee.

8.4 Suggested Education and Public Sensitization

- Improve educational opportunities (both formal education and practical training) in tourism and the environmental studies for all levels, including policy makers, private sectors managers, the tourism sector and the public at large.
- Raise public awareness of the entire population to tourism and environmental considerations including the benefits impacts, roles and responsibilities.
- Maximize resources through a co-operative approach to public education amongst all institutions seeking to sensitize the public on tourism and environmental matters.

Report of the Specialist Group for the NBSAP Marine and Coastal Biodiversity and Fisheries Sector

A specialist group on Marine and Coastal Biodiversity and Fisheries was invited by the NBSAP, to expand on the issues identified by the sector workshops, for the Marine sector. The participants of this Marine Workshop were selected as specialists in the marine ecology and fisheries field, their purpose was to fill in some of the gaps that would have been left by the departure of the sector specialist Dr. I. Ramnarine.
The participants were supplied with background documentation prior to the workshop.

All six of the sector contact groups identified the same issues that affected the conservation of biodiversity in the country. Although ranked differently by each group, the issues were identical:

- **Education and Awareness**
- **Policy Legislation and enforcement**
- **Information, data and research**
- **Use of financial instruments for the conservation of biodiversity and valuation and environmental accounting**
- **Communication and cooperation within and between agencies, and with their stakeholders**
- **Political commitment to the issue of biodiversity conservation**
- **The capacity of Government institutions to manage the country's biodiversity resources.**

The intention of this workshop was not to rewrite the report, it was too late in the process for that, but rather to :

1. Identify and detail specific actions that are needed for the conservation and management of marine and coastal biodiversity and fisheries in each of the "issue" areas mentioned above.
2. Identify possible partnerships (NGOs, CBOs, communities and business) and their responsibilities to each of the suggested recommendations.
3. Suggest BATs (best available technologies) for the conservation and sustainable development of the sector
4. Provide additional information on existing plans, policies and programmes that are already addressing these issues, that may need to be further strengthened and supported.
5. Prioritize the suggested actions and recommendations.

The following is the result of their deliberations:

NBSAP FISHERIES AND MARINE BIODIVERSITY WORKSHOP
HELD ON 15th July 1999

A) Policy, Legislation and Enforcement

INTRODUCTORY STATEMENT

The following statement defined policy:
Principles and guidelines to direct decision making in accordance with good conservation practice for marine biodiversity and fisheries.

ACTIONS

- Update and revise the fisheries policy document, incorporating issues with respect to freshwater environments
- Revise aspects on marine biodiversity and fisheries in the Tobago Development Plan and consolidate these aspects with National Policy Document
- Pursue technical assistance from the FAO to aid in the refining of the consolidated draft policy document
- Hosting of consultations with various publics to obtain comments on the draft policy document; subsequent incorporation of relevant comments and amendment; submission of the policy document to cabinet
- Preparation and release of a draft Fisheries Management Bill
- Obtain technical assistance from the FAO for the review (and any necessary redrafting) of the Bill
- Initiate public comment process (with associated amendment of the Bill as necessary) and submit to CPC
- Institute Regulations from the Bill which would lead to the establishment of a Fisheries/Marine biodiversity Monitoring Unit
    - Revisit the option of seconding the Coast Guard and a Marine Police to staff the Monitoring Unit

PRIORITIES

Formulation of policies in a policy document for submission to Cabinet (this is inclusive of the consultation process). In summary, the actions would follow a sequential rather than a prioritised order.
1. Formulation
2. Consultation/Amendment
3. Formatting and Submission to Minister/Cabinet

PARTNERSHIPS

Initially, formal partnerships for fisheries and rna6ne biodiversity conservation may be fostered by the hosting of an interactive conference with the relevant divisions of the MALMR, the UWI and the TOA.

Other partnerships would be necessary between research agencies, enforcement agencies, the EMA, NGOS, and political party groups in the communities

BEST AVAILABLE TECHNOLOGY

Utilization of-

- The Internet
- International and regional organisations to access other policy documents
- Outreach programmes
- Multi-media to effect consultations

ADDITIONAL INFORMATION

Use of all existing policy documents (e.g. Land Use and inter agency Policy) and management plans which may be related to or impact upon marine biodiversity and fisheries.

Current relevant legislation (to examine their coherency with current and proposed Fisheries/Marine biodiversity legislation and policy). This would include the THA Act **40**

NB:
The subject of environmental standards should be included as a matter of legislation, treated under the relevant Act(s). As such standards may be declared by Order.

It was also considered that separate policy documents might be required to treat with freshwater biodiversity and fisheries and marine biodiversity and fisheries respectively.

B) Political Commitment and Institutional Capacity to manage Marine Biodiversity and Fisheries

INTRODUCTORY STATEMENT

To engender political will and ensure the adequate provision of resources for the conservation of marine biodiversity and fisheries

ACTIONS

- Lobbying - Alignment with groups and stakeholders to play an advocacy role for marine biodiversity and fisheries management issues

- Promote membership participation with international and regional organizations and conventions associated with marine biodiversity and fisheries management issues

- To demonstrate the economic and political importance of marine biodiversity and fisheries conservation to the national economy with respect to obtaining support from the political directorate

- Sensitization of the political directorate and senior decision makers of the significance of marine biodiversity and fisheries management issues

- Review of the status of the nation's involvement with international and regional conventions/protocols

- Investigate whether the government is meeting convention/protocol obligations

PRIORITIES

1. Demonstration of the importance of marine biodiversity and fisheries to the national economy through scientific and socioeconomic research
2. Sensitization
3. Lobbying / alignment with appropriate international agencies and conventions
4. Promote membership of Trinidad and Tobago with appropriate international agencies and conventions

(Note that priorities 3 and 4 are intended to occur simultaneously.)

PARTNERSHIPS

- Research institutions at the national, regional and international levels/Relevant sectors of Government.
- Government/NGOs at the local and international level e.g. UNEP, FAO, UNDP

- Senior Technocrats e.g. Directors/Senior decision makers e.g. Ministers, Permanent Secretaries

BEST AVAILABLE TECHNOLOGY

Utilization of:

• Seminars and workshops with the use of skilled facilitators
• Electronic and printed media

Communication with politicians at effective fora such as at the party, ministerial and community level

ADDITIONAL INFORMATION

Approved related policy documents

International instruments such as agreements, MOUS, etc.

Political manifestos

C) Communication and Co-operation within and between agencies and with their stakeholders

INTRODUCTORY STATEMENT

To establish an adequate means of effective and timely acquisition of and dissemination of information amongst agencies and their stakeholders.

ACTIONS

- Establishment of a networking mechanism or framework that facilitates open/free communication between parties
- Identify stakeholders, relevant government agencies, relevant NGOs and other key players with respect to fisheries and marine biodiversity conservation
- Promote interactive workshops to foster mutual understanding amongst the parties and foster ownership and co-management of resources amongst all stakeholders
- Recognition of the roles and functions of each party and of individual key
- players
- Establish means to ensure communication and collaboration following prescribed guidelines
- Augmentation of organisations at the community / grass roots level to enable adequate representation at fora and their capacity to implement or outline necessary projects (project proposals)
- Identification of focal people at the community level. i.e. disseminators
- Periodic review, evaluation and interactive communication with respect to decisions taken and activities to be implemented

PRIORITIES

1. Identification of the groups, agencies etc. which would be the components of the mechanism

2. Establish the primary mechanism for communication among the component groups

3. Establish the protocol to be adopted for communication amongst parties

4. Identification of the focal contact personnel

5. Institutional strengthening, particularly for CBOS, NGOs

PARTNERSHIPS

Partnerships were viewed as being equivalent to the established mechanism / framework of the parties. Specific partnerships identified within the mechanism are:

- Government/Research Institutions - Information collection and analysis
- NGO/Communities - Assist in promoting co-management of resources
- Government/Communities - Information sharing and implementation of initiatives; preparation of plans and projects
- All of the above

BEST AVAILABLE TECHNOLOGY

Utilization of:

- Multi-media
- Internet
- Extension services
- Community specific communication services e.g. local radio stations, popular personalities etc.

ADDITIONAL INFORMATION

- Listing of key personnel in communities
- Listing of international agencies, sources of possible funding and other avenues which may facilitate marine biodiversity and/or fisheries conservation efforts
- Listing of media houses as well as contact personnel in this industry
- Umbrella organizations or co-operatives should be targeted in this effort e.g. National Organization of Fishing and Allied Co-operative Society Limited (NOFACS)

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