



LAND TENURE CENTER
University of Wisconsin - Madison

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LAND USE POLICY AND ADMINISTRATION PROJECT (LUPAP)

REPORT

ASSESSMENT OF STATE LAND MANAGEMENT IN TOBAGO

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Executive Summary

A. Background

1. This study is an assessment of state land management in Tobago in order to assist the Tobago House of Assembly (and staff in agencies assigned the responsibility of State land management) to better manage State land.
2. The study, which is an initial assessment, seeks to clarify the roles and responsibilities of the office that the Director of Land Management Services and the Director, Natural Resources and Environment in Tobago House of Assembly.
3. State lands including constituted forests cover 10,772 hectares in Tobago. 3,958 hectares of these lands are under declared forest reserves. State lands outside these forest reserves that are under forest cover is estimated at 3000 hectares. In addition, 4700 hectares of acquired estates are available for future agricultural/housing development. This broadly represents the extent of land resources available to the State for conservation, promotion of productive activity and generation of income and employment.
4. The Tobago House of Assembly has the responsible for the management of this large estate, preservation where needed lands for posterity, and promotion of development of land for various purposes determining the competing demands of various sectors, be they agriculture, industry, commercial, housing, forestry, wildlife conservation or tourism. This makes it incumbent upon the Tobago House of Assembly to construct an institutional structure by virtue of which state land resources may be located, evaluated, conserved, distributed and managed so that they may be utilized on a sustainable basis and to the greatest national advantage.

B. Findings

1. The Tobago House of Assembly in terms of the Tobago House of Assembly Act is responsible for the formulation and implementation of policy in respect of state lands, land and marine parks, forestry and environment, town and country planning and many other subjects identified in the schedule to the Act. However, the legislative authority conferred on the Tobago House of Assembly under the Act in respect of State lands cannot be discharged as there is no legal instrument to administer or manage state lands except under the existing State Lands Act.
2. This difficulty is seen in the management of the records pertaining to Leases, Licenses and Agreements issued in Tobago. These are either with the Commissioner of State Lands and the Department of Land Management Services does not have access to this data, or are in the State Lands Information System (SALIS) and the Land Administration Division MALMR expresses no obligation to administer them.
3. The role and objectives of the Department of Land Management Services is heavily tilted towards surveying and data gathering and the Department does not possess the

organizational structure nor the manpower requirements to locate, evaluate, conserve, distribute and manage state lands.

4. While there is no serious problem of squatting in Tobago at the present time, the staff of the Department of Land Management Services can be better utilized with increased emphasis being placed on co-ordination with other law enforcement authorities and Departments that have field officers, such as agriculture, to share information on encroachment onto state lands.
5. The statutory responsibilities of the Director of Natural Resources and Environment cover a very wide range and include watershed management, forest resources management, park management, wildlife management and pollution abatement and control. The statutory responsibilities are derived from the Tobago House of Assembly Act and Forest Act, Litter Act, Environment Management Act, Conservation of Wild Life Act and Sawmill Act.
6. The Department as it subsumed the former Forestry Section in Tobago has the basic organization structure needed to implement part of its many statutory responsibilities but needs considerable strengthening in the field of formulating policy and implementing plans for forestry, watershed management, wildlife, park management, wetland management, and pollution abatement and control.
7. All institutions that manage natural resources and the environment need at some point in time to develop their own research capacities. The Department of Natural Resources and Environment needs to start thinking how it will do so jointly (with tertiary level institutions like the IMA) and separately.

C. Recommendations for the Department of Land Management Services

1. It is recommended that a policy paper be developed on state land management. Such paper should cover land use planning and zoning, evaluation of land for capability, prioritization of demand on the basis of objective criteria, conservation of environmentally sensitive areas, mode of distribution of state land, including selection procedure, eligibility criteria, unit of alienation, unit of sub-division etc., regulatory aspects of state land management, including enforcement of lease conditions, transfer of leasehold rights, penalties for non-adherence, issue of permits and licenses, containment of squatting/encroachment of State lands and incentives for private sector investment in State land in Tobago.
2. In order to overcome the legislative impediment in the operation of the State Lands Act, it is recommended that the Director of Land Management Services be appointed Deputy Commissioner of State Lands with full authority to carry out duties and functions laid out in the Act. It may be necessary to select a person from the public service as Director of Land Management Services to conform to Section 4(2) of the Act.
3. The responsibility for renewing the leases lies with the Director of Land Management Services. He however may need a clearer mandate to act accordingly. Information sharing should become a key first-step in the consolidation of the data and information resource base of the Department. All files presently with the Commissioner of State Lands pertaining to Tobago should be copied and delivered, to that the Director, Land Management Services so that he can pursue action on them. The Director should ensure that data pertaining to all future action in respect of leases are entered methodically and that the lease management system proposed by LUPAP for Trinidad is also transferred to Tobago.
4. With respect to the Agricultural Leases in Tobago, the Director of Lands and Surveys, the Director Land Administration in the MALMR and the Director of Land Management Services of Tobago should jointly agree on respective responsibilities and determine what actions each office will assume as its responsibility. If the officials cannot agree among themselves, a higher authority should demarcate the areas of responsibility.
5. The Director of Land Management Services should develop a document identifying the processes for each activity he is expected to undertake, with details of work steps. He should also seek to utilize the valuable data pertaining to zoning, land use and land capability, generated by the Town and Country Planning Division, the Policy Development and Research Institute and the Interim National Physical Planning Commission in putting together the framework for determining the demands for State land from various sectors.

6. The Staff of the Department should attend the training courses that are being designed for the staff of the Commissioner of State Lands in Trinidad covering subject areas of state land management, land laws, computer literacy etc.

D. The Department of Natural Resources and Environment

1. The Director of Natural Resources and Environment should be provided with external assistance to develop a clear policy document in respect of forestry and environment providing a framework for integrating environmental considerations into general economic and social programs.
 2. As part of a mobilizing strategy to arrest degradation of the environment it is recommended that the preparation of action plans be initiated in respect of the following:
 - (a) National Parks Management
 - (b) Tobago Wetlands Management
 - (c) Coastal Zone Management
 - (d) Pollution Abatement and Control
 - (e) Forestry and Wild Life Management
 3. It is necessary to urgently develop a pollution management strategy and to propose institutional, management, economic, financial and technical measures needed for implementation. As tourism plays a major role in the economy in Tobago, very early action is required to develop these strategies.
 4. The involvement of local communities in forest management is very consistent with Tobago's approach to a broader level of participation in planning decisions. The Department of Natural Resources and Environment has a perfect opportunity to adopt some of the lessons from positive experiences gained by other countries in involving local communities in forestry management.
39. The Department of Natural Resources and Environment has been given a wide mandate but does not possess the staff resources and skills to implement the program. Similarly, physical and financial resources to strengthen the capacity of the Department have been identified. It is recommended that these requirements be provided with the least possible delay.
39. Institutions that manage natural resources and environment need to develop their own research capacities over a period of time. It is recommended that assistance be given to develop this arm of the Department

Chapter 1. Background to the Study

1. Study Objectives and Scope

This study is an assessment of state land management in Tobago in order to assist the Tobago House of Assembly (and staff in agencies assigned the responsibility of State land management) to better manage State land.

This assessment begins with the documentation of a clear strategy for effective State land management, and then moves to strengthening of state land management facilities and procedures, and for having a better ability to meet the legal, procedural and administrative demands of the positions and their co-ordination. The study, which is an initial assessment, clarifies the responsibilities of the office that the Director of Land Management Services and the Director, Natural Resources and Environment in Tobago House of Assembly and attempts to:

- (i) define the main problems they face
- (ii) assess the existing staff and facilities capabilities with dealing with these problems
- (iii) explore and develop linkages between offices they have to work with
- (iv) develop proposals for improving the efficiency of the offices in the use of their available resources; and
- (v) outline proposals for improving the efficiency and effectiveness of the offices in meeting their legal responsibilities with land management

1.1. Overview of State Land Resources in Tobago

The total land area in Tobago is 30,106 hectares. 34% of the land area or 10,772 hectares is owned by the State. Of these State lands, 3,958 hectares are under declared forest reserves. These reserves have established legal boundaries and are protected by law from indiscriminate use.

State lands outside these forest reserves that are under forest cover is estimated at 3000 hectares. They have not been surveyed but are under forest cover. The balance of state land that is available for agricultural, housing and other uses is approximately 3800 hectares. Most of the State land available for future agricultural and other development consists mainly of acquired estates (areas include agricultural land, forests, existing settlements, and land used for other purposes) as follows:

Table 1: Estate Lands Owned by the State

| Name of Estate | Extent (hectares) |
|---------------------------|-------------------|
| Blenheim | 48.2 |
| Bloody Bay | 195.1 |
| Calder Hall | 30.8 |
| Castara + Land Settlement | 206.8 |
| Roxborough "Forest Park" | 280.0 |
| Goldsborough | 951.4 |
| Lure | 675.3 |
| Hope | 416.2 |
| Kendal | 229.0 |
| Richmond | 531.2 |
| Studley Park | 251.0 |
| Belle Garden | 70.4 |
| Hatts Grant | 32.0 |
| Mt. St. George Estate | 168.0 |
| Louis Dior | 244.0 |
| Old Government Farm | 210.0 |
| Hope/Mason Hall | 156.0 |
| Smithfield | 8.0 |
| Total | 4703.4 |

The incidence of illegal occupation of State lands for agricultural and housing purposes is not very high, even though some reports attribute such high incidence (Report of the Committee appointed to interview applicants for lease of State Lands in Tobago).

The incidence of encroachment is seen only in three areas, as indicated by the Director of Land Management Services.

Table 2: Incidence of Encroachments

| Location | Number of Encroachments (Approx.) |
|-------------------|--------------------------------------|
| Buccoo | 6 |
| Castara | 30-40 |
| Louis D'or Estate | 20-30 |

The present indications do not support the notion of renewed enthusiasm for agriculture among the rural population, particularly the younger people. In fact, the tendency seen is for the younger generation to move away from agriculture and engage in other more profitable pursuits. No agricultural census has been done since 1982, to verify these trends but the tendency can be seen by any observer.

As seen from the above statistics, 64% of the land area is private. This includes private lands under forests. The total population of Tobago is 50,000. With such a small population, it cannot be said that there is inordinate pressure for land. Nor can it be said

that giving state land would spur agricultural productivity. People of Tobago have access to private land but we might expect that pressures on State land may grow from people who cannot enter the real estate market, due to high prices particularly for housing.

1.2 Legal Framework

The legal framework is based on the Tobago House of Assembly Act No.40 of 1996. This Act repeals and replaces the Tobago House of Assembly Act, Chap. 25:03 and provides for the membership, powers and functions of the Tobago House of Assembly and its Executive Council.

Under Section 25(1) without prejudice to section 75(1) of the Constitution, the Assembly is responsible for the formulation and implementation of policy in respect of the matters set out in the Fifth Schedule. The Fifth Schedule which describes the areas of responsibility of the Assembly includes amongst many others State Lands, Land and Marine Parks, Tourism, Agriculture, Forestry, Town and Country Planning, Highways and Roads, Industrial Development, Environment and Housing. The formulation and implementation of policy in regard to these subjects have been placed as a legitimate function of the House of Assembly.

Under Section 54, at first glance, it would appear that all State owned lands and other property of every kind located in Tobago except the residences of the President and the Prime Minister are to be administered by the THA.

However, it should be noted that the applicability of the State Lands Act to Tobago was not repealed by the Tobago State Assembly Act and therefore remains in force. While all state lands are vested in the Assembly, the State Lands Act remains as the only legal instrument available for alienation of State lands.

1.3 Declared Land Policy Initiatives of the Tobago House of Assembly

As part of the development of the agro-tourism sector in Tobago, the Executive Council of the THA is expected to undertake development of a series of pilot programs to distribute special land leases to qualified residents in Tobago wishing to develop and maintain the appropriate plants and enterprises. In the process of determining the appropriate structure of this lease program, the Executive Council will undertake a special needs assessment of the agro-tourism interface. This is to determine the extent to which a state lands lease program should be developed, and the terms on which leases should be obtained. In relation to this, the Executive Council will initiate a set of studies aimed at rationalizing land use in Tobago.

The Executive Council will accelerate the development of the Tobago Parks System. Special emphasis will be given to the Tobago wetlands within the framework of continued management of all national wetlands.

Rapid economic development in Tobago implies a growing demand for housing. The Executive Council will continue to upgrade the infrastructure in the villages. The

program to develop and distribute serviced lots will be put on fast track. The Executive Council will move aggressively to bring an end to squatting. A study will be commissioned to determine the best approach to development and distribution of leasehold land for housing, agriculture and tourism.

The development of a comprehensive Tobago Land Information System will be continued. New initiatives will be taken to control and rationalize squatting, and the Tobago State Land Distribution/Regularization Program will be put on a faster track.

1.4 Principal Strategies and Measures

The principal strategies and measures planned are as follows:

- (a) Accelerate the development and maintenance of the Tobago Parks System
- (b) Emphasize the Tobago wetlands within the continued management of all national wetlands
- (c) Control and rationalize squatting
- (d) Continue the development of a comprehensive Tobago Land Information System
- (e) Continue Tobago State Land Distribution/Regularization Program

Chapter 2.: The Department of Land Management Services

2.1 Role and Objectives of the Department of Land Management Services

The role of the Department of Land Management Services is described as:

- (a) To ensure implementation of the Tobago House of Assembly land policies
- (b) To provide efficient and effective services with the support of a coordinated management structure supporting the Director

The objectives are as follows:

- (a) Conservation and management of State's lands and State's interest in alienated land
- (b) Development and disposal of State lands in accordance with Tobago House of Assembly policies and requirements
- (c) Management of requisite surveying and mapping services for State land management purposes
- (d) Development and maintenance of survey infrastructure, basic mapping program and spatial reference system for the Land Information System

2.2. Organizational Structure

The Department is headed by a Director with the responsibility of the overall management of the Department and reporting to the Secretary for Agriculture. The Department is divided into four units, namely:

- (1) Surveying and Mapping with the following responsibilities-
 - a) Redefinition of State boundaries as and where required
 - b) Execution of sub-division surveys
 - c) Provision of a coordinated land survey framework to support the operation of the Land Information Unit
 - d) Execution of other surveys e.g. acquisition, topographical, engineering as and when requested by other authorities provided that the necessary procedures are established
 - e) Production of maps and plans to assist in resource management
- (2) Land Information- responsible for the following:
 - a) Completion of the existing State Agricultural Land Information System (SALIS) program and the expansion of this to accommodate all state lands
 - b) Collection, updating and processing of spatially referenced land related data and the maintenance of a data base to aid in the management of the state's lease portfolio and interest in state lands and alienated land where state has reserved and residual interests as well as the administration of land settlement schemes
- (3) Monitoring and Maintenance – with responsibility of effective monitoring, maintenance of state property to curb incidence of squatting and other illegal activity as well as to allay environmental concerns e.g. dumping etc.

- (4) Administration – all necessary administrative activity to support efficient management of the Department including clerical and accounting services

2.3 Human Resources – Staff Composition

The following is the approved composition of the Department.

Table 3: Staff of Department of Land Management Services

| Post | Number |
|-------------------------------|--------|
| Director | 1 |
| Legal Officer | 1 |
| Land Surveyors | 2 |
| Survey Technicians/Assistants | 2 |
| Field Crew/Chain men | 6 |
| State Lands Supervisor | 1 |
| State Lands Inspector | 1 |
| State Lands Patrolmen | 2 |
| Draughtsman | 1 |
| Register Clerk | 1 |
| Clerk Typists | 2 |
| Driver/ Messenger | 1 |
| Total | 21 |

Out of the 21 positions, 13 are currently filled. The positions which are not filled at present include the Legal Officer, Survey Technicians/Assistants, Draughtsman, Register Clerk, Clerk Typists and the Driver/Messenger.

2.4 Duties and Functions of the Director

The Director of Land Management Services is required to be an experienced Land Surveyor skilled in cadastral surveying and preferably trained in the discipline of Estate Management. The officer must possess effective human resource management skills, be a team work specialist, and possess enough applied experience to be competent in the implementation and formulation of policy in respect of Lands and Marine Parks, Forestry, Highways and Roads, and Housing Development.

The Director is also required to:

- (a) Champion the establishment of the State Lands Information System;
- (b) Advise the Secretary for Agriculture, THA on the definition and sub-division of lands for distribution;
- (c) Ensure that State lands are properly defined and sub-divided according to established procedures of Vertical and Horizontal Control;
- (d) Manage the lease regulation and monitoring functions of the Department in accordance with the policy guidelines of the Executive Council;

- (e) Ensure that lands are utilized in an efficient, cost effective manner, consistent with proper environmental and natural resource conservation practices;
- (f) Establish a Cadastral Registry with ample security for the appropriate storage of documents;
- (g) Effectively manage a team of subordinate staff to efficiently deliver the above mentioned services of the Department

2.4.1 Surveying and Mapping Function

At the present time, the surveying and mapping function of the Director cover the program of surveys to determine boundaries of lands occupied by state agencies and for the execution of rationalization of tenancies of state agricultural land. The Director is expected to manage the lease regulation function as well. Under the rationalization effort undertaken, the Executive Council of the Tobago House of Assembly has agreed to the following:

- (a) New 30 year leases to be offered to 77 farmers - the recommended plot size ranges from 0.34 hectares to 8 hectares
- (b) Leases to be renewed for 10 farmers- the plot size ranges from 0.60 to 8.00 hectares
- (c) New leases to be offered with reduced extents to 19 farmers- the remainder has been recommended for reforestation
- (d) Whole parcel to be repossessed in respect of 44 farmers
- (e) The availability of state lands for agricultural purposes be advertised in the media by January 2000
- (f) An interview and selection committee has been appointed
- (g) Tenants who seek lease renewal and are owing outstanding rent will be required to pay all arrears before lease renewal
- (h) Lands be systematically zoned in accordance with the capability of the land, the resources available and environmental considerations, to encourage optimum use of agricultural lands

There are 252 leases covered under the State agricultural land administered by the Department of Agriculture, Lands and Marketing. However, except for one lease, all other leases have not been renewed. The renewal of the single lease too has taken place prior to the introduction of the Land Information System. The lease term has expired in the balance 251 leases, but action still needs to be taken to renew them.

The State Agricultural Land Information System (SALIS) was designed not only to computerize data but also to facilitate that these leases are managed well, including renewal and collection of rents in time. Under the THA Act all work pertaining to state lands is a subject under the purview of the Tobago House of Assembly. As such, we would assume that the responsibility for renewing the leases lies with the Director of Land Management Services. He however may need a clearer mandate to act accordingly.

An important aspect in land use is the ability of the agency to determine the suitability of a plot of land for a particular purpose in relation to competing demands from various sectors. If this exercise is done on an ad-hoc basis, it would result in proliferation of

uneconomic units and environmental degradation. Care has to be taken in the determination of these demands. Attraction of investment alone or political expediency cannot justify lack of planning of land use. The Executive Council of the Tobago House of Assembly under paragraph (h) above has accepted the importance of zoning, land capability assessments and environmental concerns in the development and distribution of land. However, it appears that the Department of Land Management Services does not have the capacity within its establishment nor can it, from its current administrative position mobilize the resources available within other agencies to give effect to this policy position.

2.4.2 Monitoring and Maintenance Function

This function primarily consists of curbing incidence of squatting and other illegal activity as well as allaying environmental concerns. The Supervisor of State lands and the two patrolmen assigned to him are expected to prevent incidence of squatting. While there is no serious problem of squatting in Tobago at the present time, the staff can be better utilized if there is better co-ordination with other law enforcement authorities and Departments that have field officers, such as agriculture, to share information on illicit occupation of state land. Unless this is done, these three officers cannot be expected to cover the land area to prevent illicit encroachment.

2.4.3 Administrative Function

The major and most obvious impediment to the Director being an effective administrator of his office is the fact that he lacks his own clerical and accounting staff. The Director has to seek the help of the office of the Secretary of Agriculture to get correspondence processed and the budget is managed by the Secretary, through the Administrator.

2.5. State Agriculture Land Information System (SALIS) in Tobago

The objectives of the State Agricultural Land Information System as far as Tobago is concerned can be summarized as follows:

- (a) The establishment of a comprehensive computerized State Agricultural Land Information System and data base for the management of State land
- (b) Compilation of a full inventory of all State agricultural lands in Tobago to establish tenure status, levels of utilization, rental payment status and compliance with the terms and conditions of lease/agreements;

The project scope is as follows:

- (a) Individual parcel surveys of all regular and irregular holders of State agricultural lands;
- (b) Field data verification and coding;
- (c) Departmental data collection and coding;
- (d) Data entry and map digitization

Tobago is attempting to utilize the experience gained by the Ministry of Agriculture, Land and Marine Resources in the setting up of the land information system in Trinidad, and the field investigations necessary to capture the data for the system. The Tobago

House of Assembly must be commended for its foresight in seeking to expand this project to cover all state land in the island in the future.

The SALIS uses a data collection form that has nine sub-sections. They are as follows:

- (a) Land parcel definition
- (b) Official record of tenure
- (c) Field investigated tenure information
- (d) Information on occupier
- (e) Information on rents
- (f) Information on land use
- (g) Agriculture commodity data
- (h) Information on water supply
- (i) Information on data collection

While an agricultural information system will require agriculture crop data for their needs, it is prudent to find out what this enormous amount of data that are being generated and computerized at considerable expense are being used for. In Tobago, up to now, this data is not being utilized for any purpose. As mentioned in the previous paragraph, even the tenure information, information on rents etc., is not utilized for recovery of rents and renewal of leases at the appropriate time. If the State Agricultural Land Information System is to be expanded to cover all state lands in Tobago, it does not appear to be necessary to collect all the data mentioned above, as such data would be of limited use for state land management.

While SALIS project expects not only to computerize the data but also to provide lease documents to those occupying these state agricultural lands, this important aspect of the SALIS project must be re-emphasized, particularly in Tobago.

2.6. Facilities

One of the difficulties which strikes an observer of the Department of Land Management Services is the physical separation of the Headquarters and other units. The Department Headquarters is housed in a small wooden structure, presumably a unit in a former farm. Here the Director sits with two surveyors and their assistants. The Land Information Unit, on the other hand, is housed in a farm bungalow, away from the headquarters. This unit is expected to maintain and update the State Agricultural Land Information System (SALIS) in respect of Tobago. An Agriculture Officer manages it. The location of units of the Department in two different locations does not augur well for management, supervision and direction.

The SALIS unit has only one officer but is not able to manage the data that have been computerized as they do not possess adequate training in the use of data. The Unit has computers and ancillary equipment for use in developing the information system. It is understood that nearly 95% of the data relating to agricultural land has been computerized i.e. out of 252 state land parcels used for agriculture and data are being updated using an update/progress form.

The Department of Land Management Services has only the following physical assets

Table 4: Equipment of Department

| Item | Age |
|--|------------|
| EDM (Red Mini) Survey Equipment (not in working order) | 8 yrs |
| Computer (1 No.) (SALIS) | 11/2 yrs. |
| Computer (1 No.) | 4 yrs. |
| Laser Printer | 4 yrs. |
| Inject Printer | Same |
| Copier Machine | Same |
| Scanner | Same |
| Fax Machine | 1 yr. |

2.7. Budgetary Resources

The budgetary allocations for the two programs carried out by the Land Management Services, the amounts released and the expenditure for the years 1996, 1997, 1998 and 1999 are as follows:

Table 5: Budgetary Allocations to Programs

| SALIS Program | Allocation | Actual Release | Expenditure |
|---------------------|--------------|----------------|-------------------|
| 1996 | 250,000 | 250,000 | 247,547.17 |
| 1997 | 250,000 | 250,000 | 232,958.40 |
| 1998 | Not Provided | 100,000 | 97,171.40 |
| 1999 | Not Provided | 100,000 | 99,812.27 |
| 1999 | Not Provided | 100,000 | 99,841.03 |
| Total | | | 777,330.27 |
| Survey/sub-division | | | |
| 1997 | 200,000 | 200,000 | 192,623.02 |
| 1998 | 150,000 | 125,000 | 112,918.12 |
| 1999 | Not Provided | 100,000 | 99,591.19 |
| Total | | | 405,132.33 |

For the period 1996-1999, the State Agricultural Land Information System has consumed TT\$ 777,330. The outputs from this investment are the computerization of 252 parcels of agricultural land and updating the data through field officers. The survey and rationalization exercise has consumed TT\$ 405,132 for the period 1997-1999. The progress made on the rationalization by way of number of parcels was not available.

2.8. Land Policy Framework

The Tobago House of Assembly Act under Section 25 (1) confers responsibility on the Assembly for the formulation and implementation of policy in respect of State lands and land use. However to-date no policy document has been specifically developed for the

important area of state land management and land use to guide the performance of these functions. However, it is encouraging to note that the Tobago Development Plan states that a study would be commissioned to identify an appropriate system for the development and distribution of leasehold land and set up a land bank which would provide the necessary land resource for future housing settlements. We wholeheartedly endorse this suggestion.

It is not clear at the moment what the forums might be for bringing policy issues that surface in the course of implementing the functions other than at discussions with policy makers.

A land policy framework may also be useful in helping the Department of Land Management Services to formulate an annual plan of operations. We can also see the Department employing a monitoring and evaluation system to monitor performance and actively promoting training programmes for its staff.

Chapter 3: The Department of Natural Resources and Environment

This chapter presents the current organizational structure of the Department of Natural Resources and Environment in the Division of Agriculture, Lands and Marketing of the Tobago House of Assembly. It provides an insight to the statutory responsibilities entrusted to the Director, the organizational structure, organizational arrangements, main functions and activities and the resources made available to deliver the resources.

3.1. The Statutory Responsibilities of the Director

The statutory responsibilities entrusted to the Director of Natural Resources and Environment include:

- Watershed Management
- Forest Resources Management
- National Parks Management
- Wild life management
- Pollution Abatement and Control

These statutory responsibilities are derived from the Tobago House of Assembly Act and the following pieces of legislation, which the Director is expected to administer in Tobago.

- (a) The Forest Act and its amendments
- (b) Litter Act
- (c) Environment Management Act
- (d) Conservation of Wildlife Act
- (e) Sawmill Act and its amendments

The provisions of the Forest Act and the Litter Act together with their regulations govern the activities. The regulations for the Environment Act are being developed at the present time.

3.2. Organizational Structure

The Department of Natural Resources and Environment was established in September 1999 and has subsumed the former Forestry Section in Tobago. It is headed by a Director and the organization structure provides for a Deputy Director, even though such post has not been filled. Both positions of Director and his Deputy have not been approved by the Ministry of Public Administration. At present, the Director functions in an interim capacity.

The Department has five sections. They are as follows:

- 1) Watershed Management and Forest Industries
- 2) Wildlife
- 3) National Parks
- 4) Environment Management
- 5) Research

The Department comprises a staff of 48 persons. The majority of the staff are laborers (34), but it also includes game wardens, foresters and environment agents.

Table 6; Staff Composition of Natural Resources Department

| Position | Number |
|---|---------------|
| Director of Natural Resources and Environment | 1 |
| Environment Research Officers | 2 |
| Forest Rangers | 1 |
| Natural Resource Officer | 1 |
| Foresters | 3 |
| Game Wardens | 3 |
| Environment Agents | 3 |
| Laborers | 34 |
| Total | 48 |

It has an operating budget of \$1.9 million, with 83% of its expenditures on staff and 15% on equipment and facilities. The equipment includes 2 4-Wheel Drive vehicles and a 32 Ft. boat.

Table 7: Budgetary Resources of Natural Resources Department

| Cost Category | Cost (TT\$) |
|------------------------------------|--------------------|
| Staffing | 1,650,000 |
| Physical Resources(equipment etc.) | 300,000 |
| Consumables | 40,000 |
| Total | 1,990,000 |

The Department of Natural Resources and Environment also needs to consider instituting an annual program of work. This would give credence to any system to monitor the progress of work undertaken during a given year or to evaluate the contribution made by staff towards the realization of the goals.

3.2.1 Watershed Management and Forest Industries Unit

The watershed management and forest industries section is headed by one Forester and includes one Forest Ranger, and twenty-six laborers. The Forester is a Diploma holder of the Eastern Caribbean Institute of Agriculture and Forestry (ECIAF). This unit handles all direct planting on the island. It has its own nursery of local hardwoods. The main species that are propagated are as follows:

- (a) Mahogany
- (b) Cedar
- (c) Cypress
- (d) Poui

The unit adopts development of mixed plantations and has discontinued the introduction of any exotic species by way of policy. The planting program is a moderate one and extends to approximately 10 hectares per year. Planting is done in denuded areas and hurricane affected areas of state lands. Want of land for planting affects expanding the

program. This is due to the fortunate situation that Tobago is experiencing as forests are still intact and very little squatting is found within forest areas.

A considerable extent of forested land is privately owned and the unit provides free seedlings and free labor to keep denuded private lands under forest cover. However, the response from private landowners is not encouraging. At the present juncture, there is no legal instrument to force these private forest landowners to bring the denuded areas under forest cover. The Department is presently conducting discussions with private landowners as to what incentives need to be given to promote forestry.

Tobago has banned the sale of timber from declared state forests and state lands as far back as 1985. Individuals purchase trees from private forest landowners and no effort goes into replacing the felled trees. The Forests Act has been amended in November 1999 preventing felling of trees listed in the new Second Schedule to the Act without a Felling Permit. A private landowner has to obtain a Removal Permit from the Director of Forestry to transport such felled timber. Tobago is embarking on implementing the amended Forests Act and expects to mount a publicity campaign to give adequate notice to private landowners in the early part of the new year (2000), followed by letters of warning. Failure to heed these warnings will result in prosecution of offenders.

Tobago has two permanent sawmills and approximately ten portable sawmills. With the construction boom that is being experienced, interest in portable sawmills is increasing. However, bulk of the construction timber is being imported from southern USA. Local timber is mainly used for furniture manufacture.

3.2.2 The Wildlife Unit

A Forester, with three Game Wardens to assist him, currently heads the Wildlife Unit. The emphasis is mainly on the protection of the fauna found in the forested areas on the island. The four game species that are found are iguana, agouti, tattoo (armadillo) and wild water hog. No attempt has been made to collect data on flora due to non-availability of botanists to handle such work. The section issues licenses under the existing Wildlife Act and the hunting season is confined to October 1 to end of February. However, under the existing Act, no limits can be imposed on the number of game that can be hunted by each license holder. Around 60 permits are issued for hunting every year.

This Unit also performs a unique function of wildlife pest control. The orange wing parrot and the cocorico have been found to be agricultural pests. Based on requests from farmers, officers of the unit carry out controlled culling. This is a service provided free of charge by the state. Tobago does not intend to introduce any wildlife species into the reserves. However, it encourages captive breeding of wild life through the private sector and over thirty persons are presently engaged in this activity. The species that are being bred are wild hog and agouti for meat. It is envisaged that this measure would ease the pressure on wild life reserves for meat.

The unit also manages two off shore wildlife reserves, in two islets namely, St. Giles and Little Tobago. These are specially reserved for sea bird colonies. A system of nature trails

is maintained in Little Tobago for visitors. The unit has a boat to maintain these reserves. The Main Ridge Forest Reserve, located on the main island is considered to be the oldest forest reserve in the western hemisphere having being established in 1765.

A comprehensive audit survey of wildlife has not been carried out to determine the extent to which certain species have become endangered. No expertise is presently available within the Department to conduct such a survey. Similarly, no expertise is available on flora in Tobago.

3.2.3 The National Parks Unit

The third Unit handles National Parks. It has been proposed that the Main Ridge Forest Reserve be declared a National Park and the two off shore islands be declared as the Eastern Tobago National Park. The Eastern Tobago National Park is for the preservation of marine and terrestrial reserves, particularly coral life and bird life. The area between Little Tobago and the mainland is considered the prime diving site in Tobago. Other diving site is located in Buccoo where a shallow platform is found in the ocean.

This unit is headed by a Forester and eight laborers. However, this unit would become so much more effective, were it to have professionally qualified persons to manage its portfolio. Of particular importance would be persons trained in park management and wild life management.

3.2.4 Environment Management Unit

The fourth Unit is the Environment Management Section. This unit has two Environment Research Officers. One has a Master's Degree in Management in Marine Environment Resources and the other a Bachelor's Degree in Environment Management. In addition the unit has a Natural Resource Officer and three Environment agents. The Natural Resource Officer is a Diploma holder from ECIAF. The Environment Agents have no formal qualifications and two of them are retired coast guards.

This Unit is expected to launch an environmental education program, mainly a schools program, for the younger generation as well as community groups. It is designed to be an environmental awareness program. A limited amount of films, a slide projector, a VCR and a monitor are available with the unit. The biggest environmental problem in Tobago is in disposal of solid and liquid waste, particularly sewerage. The badly functioning sewerage plants on the island result in partially treated and untreated sewerage entering the sea. We are aware that the Institute of Marine Affairs has done some work on solid and liquid waste pollution in Tobago.

Standards have to be set for water, air, and noise pollution. There is no legal instrument to undertake this at the present time. However, the Environment Management Authority and the Tobago House of Assembly are expected to sign a Memorandum of Understanding and it is believed that this will be the starting point for better cooperation in the future. The Environmental Management Authority has the mandate to develop standards for environmental parameters.

3.2.4 *The Research Unit*

The last Unit is Research. This Unit is only on paper. The expertise is presently not available. However, a person with a Master's Degree in the research field would fit into this portfolio.

3.3 Policy on Natural Resources and Environment

The Tobago House of Assembly Act under Section 25 (1) confers responsibility on the Assembly for the formulation and implementation of policy in respect of matters set out in the Fifth Schedule. The subjects that fall within the portfolio of Natural Resources and Environment are:

- (a) State Lands
- (b) Land and Marine Parks
- (c) Forestry
- (d) The Environment

No specific policies have been formulated in respect of any of the subject areas mentioned above. However, the Tobago Development Plan also mentions that the Executive council of the THA will accelerate the development of the Tobago Parks System and that special emphasis will be given to the Tobago wetlands within the framework of continued management of all national wetlands. In terms of public sector investment, the expediting of the Tobago Park System has been included in the infrastructure program.

3.4 Principal Strategies and Measures

Among the principal strategies and measures planned that cover the natural resources and the environment portfolio are the following:

- (a) Accelerate the development and maintenance of the Tobago Parks System
- (b) Emphasis on the Tobago wetlands within the continued management of all national wetlands
- (c) Conservation Areas Development Program

Chapter 4. Conclusions and Recommendations

The conclusions and recommendations that follow are based on the data and information furnished by the respective agencies. It is clearly evident that the Land Management Services of Tobago have been established without a clear mandate, an identified policy, or with any reasonable provision of resources to carry out the mandate. The Department of Natural Resources and Environment, as it subsumed the former Forestry Unit has some resources and organizational capacity within it. However, its assumed mandate is very wide, and thus requires significant inflows of physical, manpower and financial resources to function effectively.

4.1. Land Management Services

It should be borne in mind that the Department of Land Management Services was newly established under the Division of Agriculture Lands and Marketing in the Tobago House of Assembly in 1998. It is not surprising that many features of operations of the Department are not present at this time. In the paragraphs that follow, an attempt is made to define current and potential problems, arrive at conclusions and outline proposals for improving the efficiency and effectiveness of the institution in meeting the responsibilities cast on the Director of Land Management Services.

4.1.1 Identification of Problems

The problems faced by the Director, Land Management Services in relation to management of state lands in Tobago can be summarized as follows:

- (a) Non-availability of a clear policy and mandate
- (b) Unclear legislative authority conferred on the Tobago House of Assembly to enable them to carry out the duties and functions of management of State Lands
- (c) Non-availability of records pertaining to leases, licenses and other agreements entered into in Tobago (presently all files are with Director, Lands and Surveys)
- (d) Non-demarcation of area of responsibility and action between the Office of the Commissioner of State Lands and the Director of Land Management Services in Tobago
- (e) The weaknesses in the organizational structure to perform the mandated functions or the management of state lands
- (f) Inadequate staff resources and skills
- (g) Absence of an Annual Plan of Operations
- (h) Non-determination of a clear process for each activity
- (i) Non-use of Land Use and Land Capability Data available with other agencies
- (j) Existing system of communication and linkages between Agencies in Trinidad and Tobago
- (k) Need for co-ordination with other law enforcement authorities and Departments that have field officers, to share information on illicit occupation of state land.
- (l) Absence of a training program for staff

- (m) Absence of a Performance Appraisal System for the staff
- (n) Inadequate physical resources
- (o) Inadequate financial resources

4.1.2 Developing a Policy Framework for Action

There is no doubt that the need for a policy framework for the actions of the Department of Land Management Services has been recognized. The document describing the role of the Department describes its role as ‘implementing the Tobago House of Assembly land policies’. The same document also describes the ‘development and disposal of State lands in accordance with Tobago House of Assembly policies and requirements’.

The Director of Land Management Services at the present time does not have within his establishment, the skills required to develop such a policy document, although his experiences can be very useful in contributing to such. However, the Planning and Development Research Institute (PRDI), should be encouraged to either develop such a policy paper on its own or oversee the development of such policy statements with external assistance. Indeed, this would be a valuable attribute to its economic planning studies.

Closely related to the policy framework is the question of re-visiting the mandate given to the Director, Land Management Services. Currently, his duties and functions are heavily tilted towards surveying. The entire profile of this Department in the area of State Land Management in Tobago should be amplified.

4.1.3 Legal Instruments to Manage State Lands

There is no legal instrument to administer or manage such lands except the existing State Lands Act. The applicability of the State Lands Act to Tobago has not been repealed and therefore one has to assume that the State Lands Act is the only available piece of legislation to act on. The State Lands Act confers duties, functions and powers on the Commissioner of State Lands. The Director, Land Management Services does not derive any authority under the Act. In order to overcome this impasse, the current LUPAP project is exploring more appropriate options for the operation of a Land Management Authority in Trinidad & Tobago.

One option within the context of Tobago is to have the Director, Land Management Services be appointed as Deputy Commissioner for State Lands in Tobago, with full authority to carry out the duties and functions laid out in the Act. Under Section 4(2) of the State Lands Act. This section states, inter alia., that the ‘President may by Order empower the Commissioner of State lands or any Deputy Commissioner Of State lands to exercise any of the rights exercisable by him.’ Section 8 of the Act also states the ‘there shall be in the public service one or more Deputy Commissioners of State lands.’ In order to conform to this Section, it may be necessary to select a person from the public service as Director of the Land Management Services in Tobago. The THA may wish to further explore this option.

4.1.4 Mutual Data and Information Sharing.

The files pertaining to issue of leases, licenses, agreements and acquisitions relating to Tobago are kept with the Director of Land and Surveys. We support the idea of the office of the Commissioner of State Lands being a central repository of all data and information on State Land management in Trinidad & Tobago. The LUPAP assessment on the Commissioner of State Lands proposes the establishment of a Lease Management System. In establishing this system, it is being proposed that the leases pertaining to Tobago should be identified separately and the data shared with the Director of Land Management Services, so that he would have an automated system of leases pertaining to Tobago. Similarly, the Director should ensure that data pertaining to all future action taken in respect of these leases are entered methodically and the system maintained. He should at regular intervals share this information with the Commissioner of State Lands.

Information sharing is also needed in the protection against encroachment. While there is no serious problem of squatting in Tobago at the present time, the staff can be better utilized if there is co-ordination with other law enforcement authorities and Departments that have field officers, such as agriculture, to share information on illicit occupation of state land. Regular meetings with law enforcement authorities and other agencies having field staff would help. Unless this is done, the three officers assigned for this task cannot be expected to cover the land area and to take any meaningful action to prevent illicit encroachment.

4.1.5 Memoranda of Understanding as per Responsibilities and Action

From the information obtained from both parties, it is safe to surmise that no action is being pursued by the Commissioner of State Lands on leases pertaining to Tobago. Neither can the Director, Land Management Services pursue action on his own initiative, as the legal debacle has not been resolved. Even if it is resolved in the manner suggested in Section 3.2.2. , it is necessary for both heads to agree clearly and in writing, on the areas of authority and the processes. For example, the processing of leases and licenses can be undertaken by the Director, Land Management Services, and a copy of the registered lease and Plan can be furnished to the Director of Surveys as well as the Commissioner of State Lands.

The procedure and actions in regard to acquisitions in Tobago should similarly be resolved through a discussion and written agreement. The issue of Survey Orders and monitoring of progress is another area requiring attention. The Director of Surveys and the Director of Land Management Services should determine how best the issue of Survey Orders should be executed in respect of Tobago, to avoid unnecessary delay that is prevalent at present. Action on issue of agricultural leases has stopped. Both parties agreeing on their respective responsibilities can resolve this matter. The Director, Land Administration of the Ministry of Agriculture and the Director, Land Management Services should jointly determine their areas of authority.

The study conducted on the Commissioner of State Lands has identified all the processes and work steps in relation to activities conducted by the Commissioner of State Lands.

Therefore, it would be relatively easy for these two officers to sit down and determine what each one is entitled to do. State land work undertaken in Tobago should not result in confusion as a result of non-availability of records. If the officials mentioned above cannot agree among themselves, a higher authority should demarcate the areas of responsibility and determine the procedure pertaining to each activity.

4.1.6. Strengthening the Organizational Structure

The organizational structure of the Department of Land Management Services has heavily tilted towards surveying and data gathering for the State Agricultural Land Information System. However, it can be strengthened if steps are taken to provide the institutional capability for this office to perform the following functions:

- (a) Identify all state lands in Tobago and develop an inventory of all State lands in Tobago
- (b) Accumulate and utilize all Land capability assessments and evaluation of such lands in processes of rational allocation between different users based on objective criteria, supported by a reliable and systematized data base
- (c) Contribute to planning concepts and development of state land based on land resources management strategy and land use planning. This should be rooted in scientific knowledge integrated with agriculture, housing and other policies of the Tobago House of Assembly
- (d) Advise the Tobago State Assembly and the Executive Council on land policy, acquisition of private land, reclamation, resumption, conservation, distribution policies and criteria for selection
- (e) Execute the regulatory aspects of leases, including timely collection of revenue and prevention of squatting
- (f) Issue licenses for quarries, mines and for land reclamation
- (g) Encourage private sector investments in State lands including incentives for housing, industry, commercial activity and for agriculture
- (h) Maintain close coordination with physical and economic planning authorities on zoning and planning approvals for state lands selected for development

The Office can be further strengthened with the following additions to staff:

Table 8: Possible staff additions in Land Management Services

| Position | Number | Purpose |
|--------------------------|----------|---|
| Land Officer | 1 | Landwork/database management |
| Draughtsman/Cartographer | 1 | Identification/updating of State lands on 1:10,000 ward sheets/drawing survey plans |
| Data Entry Clerk | 1 | To maintain the Lease Management System and the SALIS |
| Clerk (Administrative) | 1 | To handle correspondence/accounts |
| Typist | 1 | Typing |
| Driver/Messenger | 1 | For vehicle |
| Total | 6 | |

As part of the institutional strengthening process the Director of Land Management Services should be supported to develop an Annual Plan of Operations. This would provide the basis for the determination of priority areas of work and performance standards, and reduce the confusion among staff as to their responsibilities. The Lease Management System for Tobago would provide the Director with the volume of work pertaining to leases. Similarly, he should be in a position to identify well in advance the survey program and the land distribution program. A program for reporting on status of state land parcels and on encroachments should be furnished by the Supervisor of State lands.

4.1.7 Establishing procedure for Each Activity

The Director should develop a document identifying the processes for each activity clearly, with details of work steps. Such a document will enable the staff to know what exactly needs to be done on receipt of an application from the public or from other Governmental agencies pertaining to state land. These processes should cover the subject areas of new leases, renewals, grant of consents/assignments/mortgages, sub-division, change of use, quarries, mines and land reclamation, issue of advisory notices and termination notices and land acquisition.

These procedures must also include a formal system of communications and linkages between governmental agencies handling state land work in Trinidad and the Department of Land Management Services under the Tobago House of Assembly

While there is no serious problem of squatting in Tobago at the present time, the staff can be better utilized if there is co-ordination with other law enforcement authorities and Departments that have field officers, such as agriculture, to share information on illicit occupation of state land. Regular meetings with law enforcement authorities and other agencies having field staff would help. Unless this is done, the three officers assigned for this task cannot be expected to cover the land area and to take any meaningful action to prevent illicit encroachment.

4.1.8 Enhancing the Resources available

Staff training may be an expensive investment in the initial case. However, in working out a Memorandum of Understanding with the office of the Commissioner of State Lands, the Director may seek co-participation of members of his staff in training courses designed for the staff of the Commissioner of State Lands in Trinidad covering subject areas of state land management, land laws, computer literacy etc.

Whether work involved pertains to surveying, land allocation, leases, issue of advisory notices or such other work, it is essential that norms of performance be established for each officer. Job specifications and indicators of performance can be developed at a low cost, drawing on the experiences of similar offices in Trinidad.

The Department of Land Management Services as mentioned earlier is housed in two locations. It should be housed in one building to ensure closer supervision of work. It is

recommended that serious considerations be given to providing the Department with the following items as first steps:

Table 9: Recommended Equipment Acquisition

| Item | Number |
|------------------------|--------|
| 4 Wheel Drive Vehicles | 2 |
| Photocopier | 1 |
| Survey Software | |
| Phone/ Fax Machine | 1 |
| Tables | 5 |
| Chairs | 5 |
| Filing Cabinets | 5 |

The capital and additional recurrent budgetary requirements for the implementation of the above recommendations include TT\$ 735,998 in capital expenditures and an additional TT\$ 249,020 to the recurrent budget.

Table 10: Capital Budget

| Item | Amount |
|--|---------------|
| 2- 4 Wheel Drive Vehicles | 250,000 |
| 1- Photocopier | 28,000 |
| Software(survey) Compatible to L & S | 20,000 |
| 1-Phone/ Fax Machine | 1000 |
| 5-Tables | 4000x5=20,000 |
| 5-Chairs | 1400x5=7000 |
| 5-Filing Cabinets | 1165x5=5825 |
| Repairs to Building selected to house the Department, including fencing, provision of parking area | 344,173 |
| Survey Equipment (Total Station) | 60,000 |
| Total | 735,998 |

Table 11: Recurrent Budget- Additional Requirements

| Position | Salary/Cola per Annum |
|----------------------------|-----------------------|
| Land Officer | 56,772 |
| Draughtsman / Cartographer | 56,052 |
| Clerk (Administrative) | 37,800 |
| Typist | 33,744 |
| Data Entry Clerk | 33,744 |
| Driver/ Messenger | 30,908 |
| Total | 249,020 |

4.2 Department of Natural Resources and Environment

The Department of Natural Resources and Environment has a very wide mandate covering subject areas of forestry, watershed management, wildlife, park management, wetland management, and pollution control and management. Considering the importance of the subjects mentioned above to the economy of Tobago, this Department should be given very high priority and the resource needs to function effectively have to be provided without delay. The Department has the leadership required to function and some dedicated staff. However, the Director has to be supported by experts in each field, to develop a comprehensive action plan.

4.2.1 Identification of Problems

The problems identified can be summarized as follows:

- (a) Lack of policy direction
- (b) Non-availability of comprehensive action plans for each field of activity
- (c) Inadequate scientific data on fauna and flora in Tobago for conservation planning
- (d) Non-availability of technical assistance for pollution abatement and control
- (e) Lack of involvement of local communities in forest management
- (f) Inadequate staff and skills
- (g) Need for an improved curricula as a guide for educational authorities
- (h) Lack of capacity for training and professional development
- (i) Absence of research capacity
- (j) Inadequate physical resources
- (k) Inadequate financial resources

4.2.2 Developing a Policy Framework for Action

The Tobago House of Assembly Act entrusts the responsibility of policy formulation and implementation on the Assembly on the subject area of forestry and the environment. However, up to now no clear policy document has been formulated in respect of forestry and environment. The Director needs to be given external support to develop a policy paper based on international and local experience and conditions that are typical to Tobago. Such a paper should be prepared in close collaboration with the Tobago House of Assembly, non-governmental organizations, universities and research institutes, and the private sector, covering a wide spectrum of activities and providing a framework for integrating environmental considerations into general economic and social programs.

4.2.3 Comprehensive Action Plans

The absence of action plans for each field of activity inhibits adoption of an overall strategy in arresting degradation of the environment. Such action plans when developed would enable Tobago to identify the most urgent environmental needs and assist policy makers in determining priorities, allocating limited resources and building the institutional capacity to handle complex forestry and environmental issues. The action plans that should be developed can be approached based on priority areas for Tobago. It is suggested that the preparation of such action plans be initiated in respect of the following:

- (a) National Parks Management
- (b) Tobago Wetlands Management
- (c) Coastal Zone Management
- (d) Pollution Abatement and Control
- (e) Forestry and Wild Life Management

There are areas of overlap between such action plans, but in the preparation an integrated approach can be adopted. The Department does not have the expertise within the establishment to develop these plans. It is recommended that the services of ecologists, park planners, pollution control experts and coast management experts be made available, not only to develop these plans but also to train counterpart officers to undertake these responsibilities in the future.

A. Coastal Zone Plan

The control, custody and management of the coastal zone is vested in the State and therefore in the Tobago House of Assembly. The Tobago House of Assembly has the responsibility to maintain, and where possible to improve the quality of its coastal zone. Tobago depends heavily on tourism and is considered to be one of the best beach vacation destinations available. However, adequate attention has not been paid to the preservation of the coastal zone. The Coastal Zone Management Plan should be an instrument to promote the socio-economic well-being of coastal communities in Tobago.

The Plan should define the critical coastal problems, which have resulted in significant economic and social loss. It should describe a management strategy to control coastal erosion; reduce the loss and degradation of coastal habitats such as coral reefs, estuaries and lagoons, mangroves, seagrass beds, salt marshes and barrier beaches, spits and dunes; and address issues relating to loss and degradation of archeological, historical and cultural monuments and sites, and areas of recreational and scenic value. The Plan should be followed up with requisite legislation for Coast Conservation.

Any individual, private company or government agency contemplating setting up a development activity within the coastal zone must accept responsibility for carrying out such activity in a manner that will not significantly affect the stability, quality or productivity of the coastal zone.

B. Scientific Data on Biological Diversity for Conservation Planning

It is abundantly clear that the status of wild life species, both flora and fauna should be established by baseline surveys, and monitored periodically to enable proper planning. Similarly, data should be generated to identify the genetic variation within species, the diversity of species and the diversity of ecosystems in Tobago to enable any conservation planning. At present, under the existing Act any person obtaining a license can take out any number of wild life (fauna) species, without regard to its status, its abundance, diversity or distribution. There is no sustainable harvest regulation nor can this be established without an inventory. 'In situ' conservation of wild genetic resources, inclusive of plants should form part of the mandates of agencies with land management

responsibilities. It is recommended that an assessment of the resources within protected areas be conducted maintaining a record of their size, locations, and habitats. This may need external assistance.

C. Technical Assistance for Pollution Abatement and Control

State lands, particularly the beaches of the South-Western parts of the island are being polluted with solid waste from the sewer. There does not appear to be any concerted effort to develop a pollution management strategy or to propose institutional, management, economic, financial and technical measures needed for implementation. Tourism plays a major role in the economy of Tobago. Unless very early action is taken to arrest this situation, it can result in irreparable damage to the economy of Tobago. The Natural Resources and Environment Division has to define water quality, air quality, effluent and emission monitoring requirements and procedures and develop pollution abatement and control criteria in line with national standards set by the Environmental Management Authority. In order to achieve these objectives, the Division needs technical assistance to develop strategies that would likely induce compliance and which would be practical to implement. This should include the following:

- (a) least cost pollution abatement and control systems
- (b) mechanisms to promote environmentally sound decisions regarding tourism/industrial development
- (c) policy guidance
- (d) measures to promote compliance with effluent standards and to minimize waste generation
- (e) reliable pollution monitoring and testing systems
- (f) development of a waste treatment and disposal system for South-Western Tobago
- (g) funding mechanisms for pollution monitoring and control functions
- (h) organizational framework
- (i) a well-developed training program for pollution control for the staff and awareness programs for the public

At present, the Division does not have the expertise in any of the areas mentioned above. It would be necessary to provide technical assistance to enable the Division to build up their capacity in the future.

4.2.4 Involvement of Local Communities in Forest Management

In Tobago, considerable extent of forested land is owned by the private sector. The efforts of the Department to encourage these landowners to replant them have proven to be unsuccessful. The program needs revamping, so that local populations are involved more actively in forest management. Better distribution of forest benefits and introduction of a more efficient and cost-effective management regime may prove to be incentives. In addition, a concerted effort to introduce boundary planting of all private land holdings and planting public land not suitable for other development purposes should be made.

4.2.5 Enhancing the Resources available

The Department of Natural Resources and Environment has been given a wide mandate but does not possess the staff resources or the skills to implement the program to the full. One of the most critical problems facing the Department is the lack of well-trained conservation staff. Their immediate needs are identified below:

Table 12: Qualification Requirements for Conservation

| Skill Type | Minimum Qualifications | Minimum Years of Experience | Staff Category | Number of Staff required | Annual Salary |
|-----------------------------------|------------------------|-----------------------------|-----------------------|--------------------------|-------------------|
| Watershed & Forest Resources Mgt. | B.Sc. | 3 | Professional | 2 | 6000x2x12=144,000 |
| | Diploma | 3 | Technical | 3 | 3500x5x12=210,000 |
| | Certificate | 1 | Administrative | 1 | 3000x1x12=36,000 |
| Pollution Prevention & Control | B.Sc. | 3 | Professional | 3 | 6000x3x12=216,000 |
| | Diploma | 3 | Technical | 3 | 3500x3x12=126,000 |
| | Certificate | 1 | Administrative | 1 | 3000x1x12=36,000 |
| Natural Resources Management | M. Sc. | 3 | Professional/Research | 1 | 8000x12=96,000 |
| Total | | | | 14 | 864,000 |

A. Training Program

The Department of Natural Resources and Environment does need a training program for its staff. The subject areas covering natural resource management and environment are so vast that it would be necessary to first identify the training needs of the institution.

The information provided indicates that the following themes need attention.

- (a) Strategies for conservation of biological diversity
- (b) Private sector participation in forestry
- (c) Development of management plans for National Parks
- (d) Strategies for pollution abatement and control
- (e) Development of a coastal zone management plan

Some of these training programs can be designed in association with Universities and Research Institutes, to suit the needs of the Department within the country. A few programs need to be made available outside the country to permit participants to be exposed to newest technology, research findings and current international approaches.

Such programs become incentives for the staff to remain in service and to contribute to the development of the institution.

B. Consolidating Research Capacity

The institutions that manage natural resources and environment need to develop their own research capacities over a period of time. In the absence of such capacity, these institutions have to engage external researchers on a periodic basis. The Institute of Marine Affairs has played a constructive role in this respect. The Department should continue to collect scientific data, collate all available research and only engage in independent research where there is no possibility for joint funded action. This would avoid duplication of effort.

Among the important sources of information are:

- (a) Stock assessments, providing census data and trends in species and populations of both fauna and flora
- (b) Research publications on natural areas of special concern
- (c) National compilations of flora and fauna (if available)
- (d) National or regional programs monitoring the status of or trends in biological resources
- (e) Research undertaken by local or regional research institutions

A Research Officer to coordinate research activity and to provide training in establishing the research arm of the Department is needed. An International Researcher of proven capacity can be recruited for a limited period for this purpose.

4.2.6 Mobilizing Physical Resources

The following resources are needed by the Department of Natural Resources to effectively implement the program of activities proposed in the recommendations above.

Table 13: Physical Resource Needs

| Resource Needs | Description | Approximate Cost |
|---|---|--------------------|
| Additional Office Accommodation on rent | 1500 sq. ft (additional) | 6x1500x12= 108,000 |
| Transport | 4-wheel drive (3 Nos.) | 375,000 |
| Communication | Two way radio system | 86,000 |
| Office equipment | Photocopier(1No.), Computer (3Nos.) | 95,000 |
| Office furniture | Filing cabinets, desks, chairs, tables | 42,000 |
| Total | | 706,000 |

The Capital and Recurrent Budgetary requirements for the implementation of the above recommendations are as follows:

Table 14: Prospective Capital Budget

| Item | Amount |
|--|---------------|
| 2 4-wheel drive personnel transport Vehicles | 250,000 |
| 1 No. 4-wheel drive utility pickup | 125,000 |
| 1 base station | 30,000 |
| 8 portable two way radios | 56,000 |
| Photocopier | 30,000 |
| 3 Computers, 1 printer | 65,000 |
| Filing Cabinets, desks, chairs, tables | 42,000 |
| Total | 598,000 |

Table 15: Recurrent Budget-Additional Requirements

| Item | Amount (Annual) |
|------------------------------------|------------------------|
| Rental for Additional Office Space | 108,000 |
| Watershed Manager | 72,000 |
| Forest Resources Manager | 72,000 |
| Foresters (3) | 210,000 |
| Forest Rangers (2) | 72,000 |
| Technical Coordinators (3) | 216,000 |
| Technical Assistants (3) | 126,000 |
| Administrative Assistants (1) | 36,000 |
| Research Officer | 96,000 |
| Total | 1,008,000 |

The budgetary requirements to recruit an international researcher to establish the research arm of the Department and technical assistance for development of action plans for coastal zone management, pollution abatement and control, forestry and wildlife management, wetlands management, and national parks management have not been ascertained.

4.2.24. Improved Curricula as a Guide for Educational Authorities

The effective participation of local communities is a pre-requisite for successful implementation of policies and projects pertaining to natural resources and environment. There is no better place to begin this exercise than in the schools. The Department of Natural Resources and the Environment has rightly recognized this important factor and has launched a program to educate the youth and the school children on environmental concerns. The Department of Natural Resources and Environment should assist the education authorities to improve the existing curricula, by highlighting the issues pertaining to natural resource management and environment in Tobago. The curricula should include courses in ethics, sustainability including understanding ecological

relationships, the basic functions of nature, and how individual choices have an impact on nature and other people. Secondary level courses on sustainability should relate to job skills in the sustainable management of natural resources.