

# FINAL REPORT



# TREES FOR TOMORROW PROJECT



Canadian International  
Development Agency

Agence canadienne de  
développement international



# Final Report

of the

## Trees for Tomorrow Project Phase II

1998 - 2006

Canadian Executing Agency

**TECSULT INTERNATIONAL LTD.**

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## FOREWORD

The purpose of this Final Report is to document the activities and outputs of the Trees for Tomorrow Project-Phase II and to provide a strategic overview of the impact the Project has had on the forestry sector in general, and the Forestry Department in particular, in Jamaica.

The Government of Canada, through the Canadian International Development Agency; the Government of Jamaica, represented by the Forestry Department of the Ministry of Agriculture and Lands, and the Canadian Executing Agency, initially a consortium of Tecsub International Ltd. and ORM Resources Canada Ltd. (formerly Simons Reid, Collins) from January 1998 to December 31, 2002 with Tecsub assuming full responsibility after January 1, 2002, have fully supported the Project during its period of implementation.

The outstanding achievements of the Project are due to the excellent cooperation and collaboration among these three entities and the high calibre of Project personnel.

It is hoped that the success of the Project in building the capacity of the Forestry Department will encourage the Government of Canada, and other partners in development, to continue supporting the forestry sector and the Forestry Department in the years ahead.

John Latham  
Senior Forestry Advisor/Project Manager



Lignum vitae (*Guaiaecum officinale*), Jamaica's national flower.

## CONSERVATOR'S MESSAGE

On behalf of the Forestry Department in the Ministry of Agriculture and Lands and Jamaica's forestry sector, I wish to thank the Canadian International Development Agency, Government of Canada for the assistance it has provided through the Trees for Tomorrow Project-Phase II.

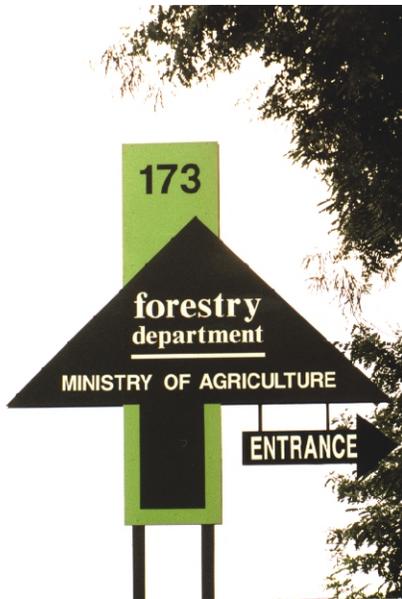
Phase II of the Project has, for more than eight years, provided crucial technical and financial support for the work of the Forestry Department. Under this highly successful Project much has been achieved including capacity building within the Department and improved forest resource management across the island.

Our forest database, other forest management tools and community-based approach to forest management have set a high standard for other forestry agencies across the Caribbean region and garnered the Forestry Department international recognition as an effective and professional organisation.

The original design of Phase II was appropriate and responded to Government of Jamaica priorities for the forestry sector in general and the Forestry Department in particular. The Project extended over a lengthy time period during which new issues arose and I am pleased and appreciative of the flexibility of the Project to respond to these changes.

The personnel provided by the Canadian Executing Agency, ORM Resources Canada Ltd. and Tecsub International Ltd., and the Forestry Department personnel assigned to the Project were, for the most part, exceptionally good, dedicated, and professional. I wish to thank everyone for their hard work which resulted in the outstanding achievements and outputs of the Project and the successful transfer of information from the CEA personnel to the staff of the FD. Project-initiated activities have been fully integrated into the Forestry Department's day to day operations and this situation is proof of the sustainability of the Project.

The great strides the Forestry Department has made with the assistance of the Trees for Tomorrow Project has prepared it for the process of transformation to an Executive Agency which will enable us to better meet the opportunities and challenges for the continued management



## ACKNOWLEDGEMENTS

On behalf of the Canadian Executing Agency, I wish to thank the Canadian International Development Agency for giving us the opportunity to provide assistance to the Forestry Department of Jamaica through the Trees for Tomorrow Project-Phase II. I would like to thank Mr Pierre Lessard, Project Manager and Forestry Specialist in the Americas Branch of CIDA, for his inspiring vision, commitment and continuous support over the years in helping the Project to achieve its goal to improve the management and conservation of forest and tree crops for the sustainable development of the people of Jamaica. I would also like to thank the CIDA representatives of the Canadian High Commission in Jamaica for their full support to the Project.

I wish to thank the Permanent Secretary of the Ministry of Agriculture and Lands, Chairman of the Project Steering Committee and the representatives of the Government of Jamaica institutions for their continuous support to the Tress for Tomorrow Project. In this regard, I would like to commend the Government of Jamaica for the level of support to the Project in view of the budget cutbacks that affected the entire public sector in the latter years of the Project.

I would like to acknowledge the contributions of all Jamaican participants in this successful Project and particularly all the Forestry Department staff. In this regard I wish to show my deepest gratitude to Miss Marilyn Headley, Conservator of Forests for her exceptional commitment and continuous support to the Project and to Mr Owen Evelyn, National Project Manager for his professionalism, dedication and full support to the Project activities during the last eight years.

I wish to thank all the Canadian staff in long and short term assignments in Jamaica who brought their skills, knowledge, professionalism and personal dedication in making this Project successful. In particular I would like to thank Mr John Latham, Project Manager in Jamaica and Mrs Susie Latham, Agro-economist, for their dedication and professionalism.

I would like to commend the professional commitment and dedication of our Canadian based Project Executive Director, Mr Jacques Poirier for his efficient management of the Project personnel, material and financial resources from the CEA office in Québec.

Tecsalt is particularly honoured to have collaborated with its Canadian Executing Agency partner, ORM Resources, to the successful implementation of the Trees for Tomorrow Project.



## CHAPTER 1: INTRODUCTION

Before the arrival of Europeans in 1494, Jamaica was covered from seashore to mountaintop with forest except for the scattered clearings of the indigenous Taino people. In the following centuries large tracts of forests were cleared for commercial agricultural production as well as for growing subsistence foodstuffs. An expanding population and the growth of export markets for plantation crops continued the deforestation process. By the mid to late 20<sup>th</sup> century, the once magnificent forests had been reduced to such an extent that less than ten percent of the country remains covered with relatively undisturbed natural forests.

National interest in the restoration of the country's forests began in the latter part of the 19<sup>th</sup> century with a Government-commissioned report which recommended, among other conservation measures, the gazetting of forest reserves. In the 1920s, the Government started an informal policy of providing free tree seedlings to land owners for replanting bare mountain slopes. An island-wide forestry service came into being with the passing of the Forest Act in 1937 which created the Forestry Department.

Since then approximately 90,731 hectares of forest land had been declared protected areas, and by 1965 the Forestry Department had established nearly 4,000 hectares of plantations, chiefly with hardwoods. With technical assistance from various international agencies, the Forestry Department began a programme to develop the country's forest resources which increased the area of industrial pine plantations to a total of 6882 hectares by 1977.

The success of these plantations led to the formation in 1979 of the Forest Industries Development Company (FIDCO) to manage the resource



The Cockpit Country has the largest contiguous areas of undisturbed forests in Jamaica.

*The area of forest managed by the Forestry Department at present is 110,077 hectares, of which 90,731 hectares are forest reserves and 10,346 hectares are Crown lands.*



*Some 5,000 hectares of Caribbean pine still exist today, mainly on the steep upper watershed lands of Eastern Region. Pine has adapted well to the upper watershed sites and regenerates naturally, even on steep, rocky sites.*

and to extend the plantations. Although FIDCO fell short of logging and planting targets, by the late 1980s, approximately 11,000 hectares of pine plantations had been established. Soon thereafter, hurricanes challenged the wisdom of growing softwoods in a hurricane region. In 1988, Hurricane Gilbert destroyed more than 50 percent these plantations, and FIDCO ceased operations.

At one time Jamaica had what was arguably one of the best forestry services in the Commonwealth. Forestry staff were respected by the general population; forest reserves were patrolled, and harvesting and planting were done in a planned and orderly manner. In recent years it has become increasingly difficult for the Forestry Department to maintain these essential activities. The Government of Jamaica's cutbacks in expenditure and staff, in large measure due to the country's adherence to a strict structural adjustment programme in the early to mid-1990s, had reduced the Forestry Department to a remnant of what it once was.

Forest reserves have been encroached and forests cleared to grow food and provide fuelwood. Beginning in the 1980s, the high value of Blue Mountain coffee led to the extensive clearing of natural forests at higher elevations. It is apparent from the evidence of landslides, soil erosion, and flooding in a number of watersheds and from the siltation of rivers, that urgent attention needs to be given to forest management and conservation in Jamaica's watersheds.



Remnants of Caribbean pine plantations on the lower slopes of the Blue Mountains.

On the positive side, Jamaica has some of the richest forest growing soils in the world. The moist tropical areas of the east and drier areas of the west can produce a wealth of forest products. The farmers of Jamaica have been practising agroforestry for generations and, with minimum assistance,

## CHAPTER 2: PROJECT DESCRIPTION

### BACKGROUND

The roots of the Trees for Tomorrow (TFT) Project go back to the late 1980s when the Canadian International Development Agency (CIDA) participated in the preparation of Jamaica's National Forestry Action Plan (NFAP). The NFAP stated that to stem the current trend in forest resource deterioration in Jamaica, changes were needed that "will provide for a stronger participation in the management and development of the national forest estate, a more interactive role for the Forestry Department with the rural population and other resource-related agencies".

In September 1989 CIDA mounted a planning mission to study the Jamaican forestry sector and to recommend a development assistance project in the sector. The mission proposed an institutional support project to CIDA to assist the Forestry Department, the Government department responsible for the administration of the Jamaican forestry sector and the management of the forest resources.

### PHASE I

Phase I was implemented by a CIDA cooperant from September 1992 to September 1994. As a preparatory phase for a larger Phase II, the principal activities included providing technical assistance to the FD, training staff, preparing a proposal to reorganise the FD, drafting a new forest policy and new forest legislation, selecting a pilot watershed to demonstrate sound forest management and watershed management practices, and conducting land use and socioeconomic studies in the pilot watershed. The Buff Bay/Pencar watershed was eventually chosen as the pilot area where the field activities of Phase II have been focussed.

### INTERIM PHASE

Extending from October 1994 to December 1997, this phase was the period where many of the activities started in Phase I were completed and put in place. A new Forest Act was passed in 1996 and key positions

### PROJECT GOAL

***The Project goal was to improve the management and conservation of forests and tree crops for the sustainable benefit of the people of Jamaica.***



within the newly reorganised Forestry Department were approved and filled. It was also during this Phase that CIDA finalised the project design and selected a Canadian Executing Agency (CEA) to implement Phase II.

## PHASE II

Phase II of the Project started in January 1998 and was completed in December 2006. The main purpose of Phase II was to strengthen institutional capabilities in the Jamaican forestry sector to plan and implement sustainable forest management and other soil and water conservation measures in Jamaica's watersheds, and, at the same time, increase public awareness of the importance of forests throughout the country.

### Project Components

Phase II of the Project comprised the following five components:

#### Institutional Strengthening

This component included assistance in consolidating the system of forest reserves, staff training, providing technical assistance in the formulation and application of sectoral policies and strategies, developing sectoral planning capabilities, and developing a national forestry awareness programme.

#### Forest Management

This component included developing a forest land use data bank, collecting and analysing forest resource information, preparing and implementing forest management plans, and providing support to reforestation initiatives.

#### Watershed Management (in the Pilot Watershed)

The Buff Bay/Pencar watershed was chosen as the pilot area during Phase I of the Project. This component included preparing and implementing a detailed forest management and land use plan, developing extension programmes, and undertaking a public awareness campaign within the pilot watershed.

#### Canadian Executing Agency Project Management

This component included managing the Project, both in Canada

and in Jamaica, preparing an inception report, purchasing of equipment, and preparing progress reports by the Canadian Executing Agency.

**Canadian International Development Agency Project Management**

The component included monitoring, controlling and evaluating the Project by the Canadian International Development Agency.

**Project Organisation**

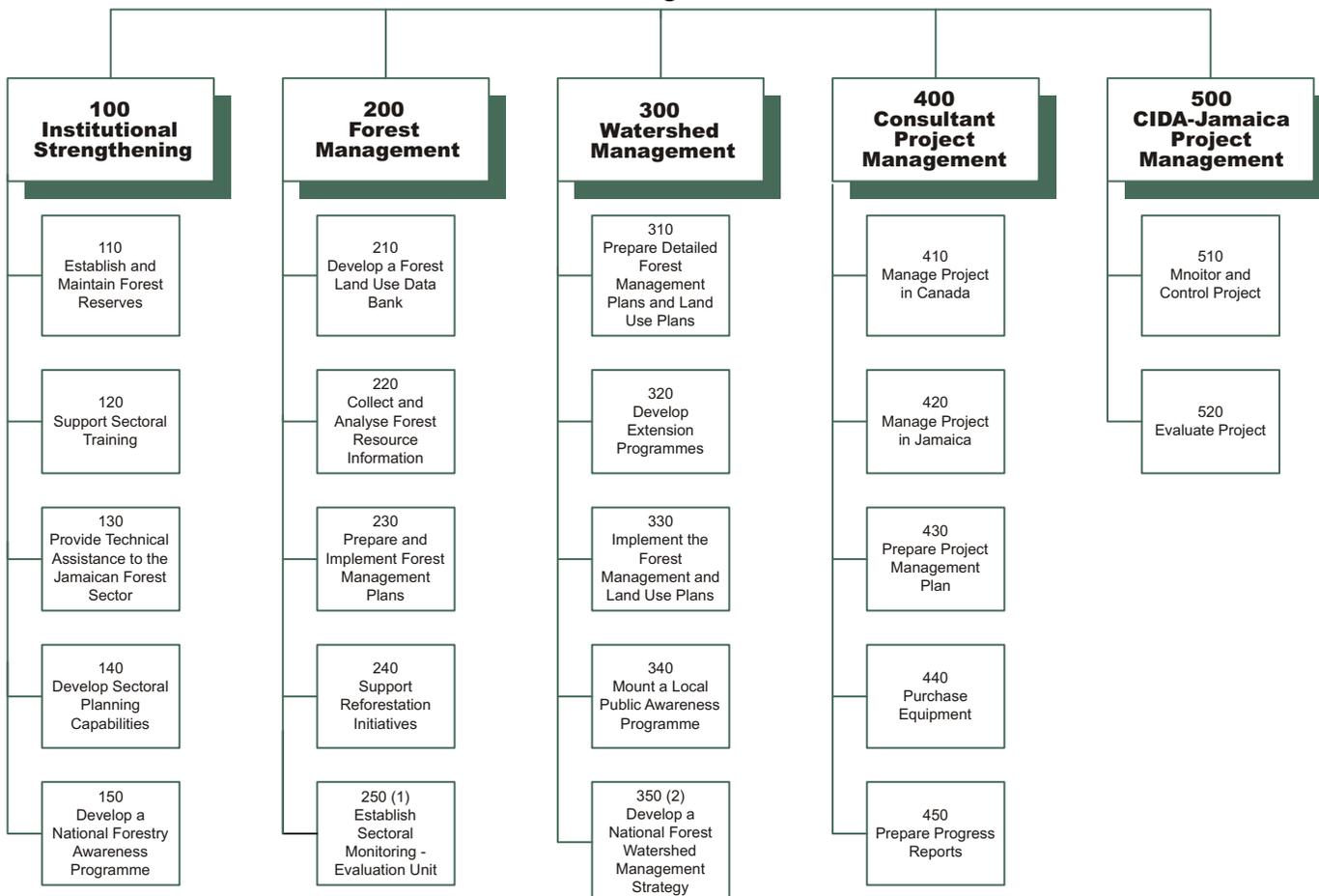
The Phase II Canadian Executing Agency planning team arrived in Jamaica in January 1998 to begin preparation of the Project Implementation Plan. This was completed in September 1998 and, following a review by the Forestry Department in consultation with all stakeholders, a revised Project Implementation Plan was submitted and approved in March 1999.

The Canadian Executing Agency Project Manager took up residence in Jamaica in March 1998 with

**Work Breakdown Structure**

The work breakdown structure for the Activities within the Project Components is shown in Figure 1.

Figure 1.

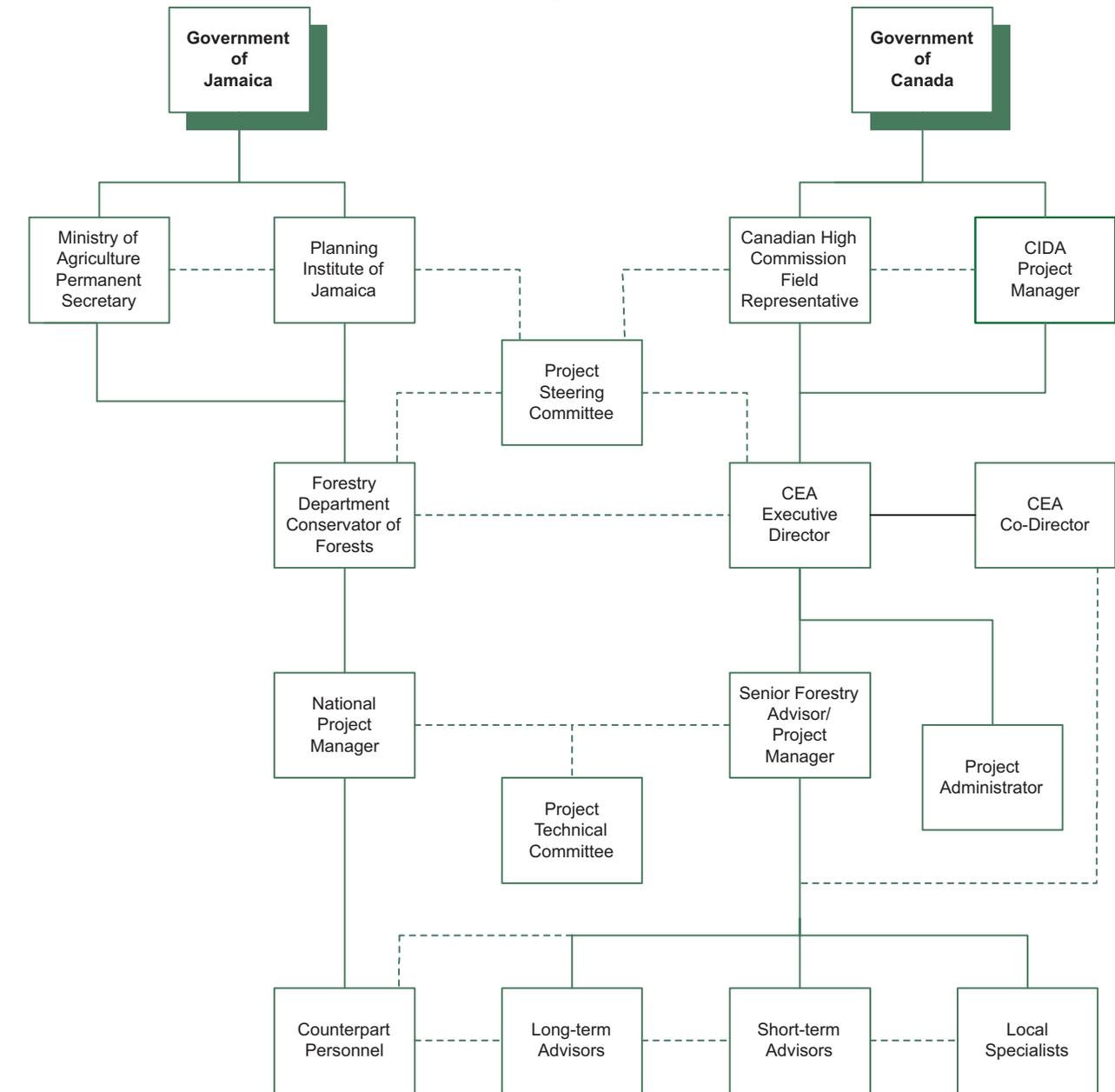


(1) This Activity was removed from the Statement of Services in Contract Amendment #4.  
 (2) This Activity was added to the Statement of Services in Contract Amendment #4.

**Project Organisation and Management Structure**

Figure 2 shows the organisation and management structure of the Project. The authority and lines of communication between the Jamaican and Canadian Project personnel, the Governments of Jamaica and Canada and the Project committees are indicated.

Figure 2.



———— Direct Administrative Reporting/Authority  
 - - - - - Liaison, Participation or Technical Direction/Communication

### Project Budgets

Table 1 outlines the Government of Canada Project expenditures by contract codes. Table 2 outlines the Government of Jamaica

Table 1.

BUDGET LINE ITEM (as per contract)	CONTRACT CODE #	EXPENDITURES
Short-term Personnel Fees	1.1	2,427,400
Locally Engaged Personnel Fees	1.2	146,137
Canadian Outside Consultants	1.3	117,448
Jamaican Outside Consultants	1.4	412,999
Long-term Personnel Fees	1.5	1,960,096
Short-term Personnel and HO Expenses	1.8	365,000
Long-term Personnel Expenses	1.9	1,327,057
Field expenses	1.10	1,570,000
Training Costs	1.11	1,110,755
Equipment	5.0	864,316
<b>GRAND TOTAL (Canadian dollars)</b>		10,301,208

Table 2.

COMPONENT/CATEGORY	TOTAL EXPENDITURE
PROJECT MANAGEMENT	
Compensation of Employees	38,567,711
Travelling Expenses & Subsistence	4,912,756
Rental	6,201,085
Public Utilities	3,489,892
Goods and Services	16,609,146
Awards & Indemnities	118,024
<b>Sub-total</b>	69,898,614
INSTITUTIONAL STRENGTHENING	
Training	
Establish Forest Reserve Boundaries	
Purchase of Equipment (Capital Goods)	934,979
Grants & Contributions	2,486,796
<b>Sub-total</b>	3,421,775
FOREST MANAGEMENT	
Lands & Structures	4,140,440
Interest Rates	
<b>Sub-total</b>	4,140,440
<b>GRAND TOTAL (Jamaican dollars)</b>	77,460,829

## CHAPTER 3: PROJECT RESULTS

Detailed Project outputs and results have been presented on a regular basis throughout the term of the Project in Quarterly and Annual Progress Reports. These are summarised in the following sections by Activity within each Component. A summary list of Project outputs is shown in Appendix

### 100 INSTITUTIONAL STRENGTHENING

#### 110 Establish and Maintain Forest Reserves

The surveying and demarcation of the forest reserve boundaries proved to be much more complex, difficult, and costly than originally anticipated. Nevertheless nearly 100 km of boundaries, mainly in heavily encroached areas, have been re-surveyed and bushed. This has been accomplished with a combination of contracted commissioned land surveyors and Forestry Department staff using GPS technology.

New survey monuments have been positioned where necessary and signage proclaiming the area as a forest reserve have been erected along the re-opened boundaries. In places where the forest reserve boundary abuts or crosses a well travelled thoroughfare, informative signs advising the public of the protective status of the area have been posted. Furthermore, the boundaries in areas close to settlements are also marked by the planting of distinctive tree species.

A patrolling plan was prepared in collaboration with the Forestry Department and is being implemented in stages as resources allow. A cellular telephone network was established for field communications. The patrolling activity in the Department is not yet as effective as it should be due mainly to a lack of sufficient transportation for the wardens and forest officers. Despite these constraints, over 250 incidences of illegal activity within forest reserves or other protected areas were identified and dealt with by the Department in collaboration with the Commissioner of Lands, the Island Special Constabulary Force, and the National Environment and Planning Agency.

The national forestry awareness programme has heightened public concern about illegal activities on forest reserves and, as a result, there has been an increasing number of suspected illegal activities being reported by private citizens and community groups.

The provision of a Legal Officer by the Government of Jamaica to the Forestry Department coupled with the Project activities has increased

Re-opening reserve boundaries in Cockpit Country using GPS.



“We must emphasise how pleased we are that the Trees for Tomorrow Project saw fit to include NGOs from east, central and western Jamaica to represent the island ... for participation in Training in Interpretive Writing [in Colorado Springs, U.S.A.]” Paula Hurlock, Executive Director, The Dolphin Head Trust (June 2003).

the ability of the Department to prosecute offenders under the Forest Act 1996 and Forest Regulations 2001. Furthermore, the availability of professional legal expertise within the Department has raised the confidence and willingness of field officers to undertake investigative duties following the detection of illegal activities in the forest reserves.

### 120 Support Sectoral Training

During the first year of the Project a training needs analysis was carried out and a training plan developed. Based on this analysis the Forestry Department and the Project agreed that the training plan would put emphasis on long-term professional and technical training as well as on-the-job training. Provision was also made for short-term training through attendance at short courses, workshops, seminars and study tours.

The training plan was reviewed and adjusted annually to reflect the changing needs of the Forestry Department.

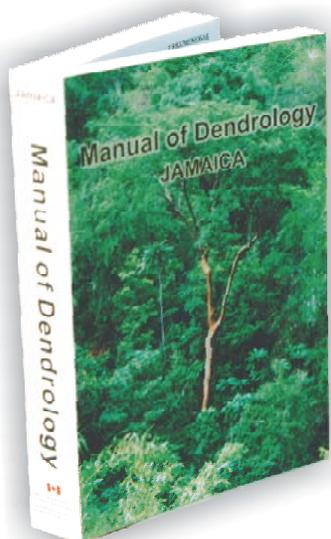
In 2001, a second training needs analysis was undertaken which focussed on the foresters and forest wardens. This analysis led to the preparation of a comprehensive report, *Forestry Field Skills Training Programme*, which documents the required training courses, together with an outline of the curricula, to address knowledge gaps identified during the analysis.

Eight Forestry Department staff have obtained a Bachelor's degree; two have received a Master's degree; and ten have received a Technical Diploma through funding provided by the Project.

Over 1600 person days of short-term training have been provided to Forestry Department staff, and other stakeholders in Jamaica's forestry sector such as teachers, farmers, environmental non-governmental organisations, and other Government of Jamaica agencies including the Island Special Constabulary Force.

A training status report completed in the final year of the Project found that all the Forestry Department senior management and technical staff are suitably qualified for the positions they fill.

Although budget constraints did not allow the Project to undertake many of the training activities recommended in the *Forestry Field Skills Training Programme*, the document is being used to guide the prioritisation and provision of in-house training by the Forestry Department and its partner



agencies.

### 130 Provide Technical Assistance to the Jamaica Forestry Sector

The Project has assisted the Forestry Department to become much more capable of carrying out the core functions of its mandate as stated in the Forest Act, 1996 and to meet selected programme objectives defined in the *National Forest Management and Conservation Plan 2001*.

The following manuals, prepared with technical assistance from the Project, now guide delivery of Forestry Department functions and services:

- Five-year National Reforestation Plan (2000)
- Seeing the Wood and the Trees: Gender Equity for the Forestry Department and the Trees for Tomorrow Project (March 2000)
- Biophysical Inventory Manual (July 2000)
- Forest Regulations, (2001)
- Working with Communities - a Manual for Foresters (February 2001)
- Forestry Department Citizens Charter (June 2001)
- Enforcement Manual for Forest Officers (April 2002)
- Aerial-photo Interpretation Manual (June 2002)
- Guidelines for Plantation Establishment and Management in Jamaica (September 2002)
- Guidelines for Writing Biophysical Inventory Reports in Jamaica (September 2002)
- Guidelines for Preparing Local Forest Management Plans in Jamaica (September 2002)
- Manual of Dendrology Jamaica (2003)
- Ecological Land Classification for Forest Conservation and Management in Jamaica (January 2003)
- Manual on Nursery Practices (June 2003)
- National Inventory Report 2003 (July 2004)
- Agroforestry Guide for Jamaica (March 2005)
- Procedures for Ortho-Photo Production - User Guide (November 2005)
- National Forest Patrolling Plan (January 2006)
- Methodology for Establishing Permanent Sample Plots and Monitoring Jamaican Forests (2005)
- Manual for GIS - Data conversion and edition (December 2006)
- Manual for GIS - Master reference (December 2006)
- GIS System manual (December 2006)

In anticipation of becoming an executive agency under the Public

*"The many years of research and final two years of fieldwork which resulted in the Manual of Dendrology-Jamaica is certainly time and effort employed in a worthwhile endeavour. I look forward to taking the time out to peruse this fine publication."* - The Honourable P.J. Patterson, Prime Minister of Jamaica (March 2004).

*"Among the outstanding achievements of the project have been the capacity building at the Forestry Department ... and the National Forest Management and Conservation Plan. With these fundamental tools, the private forestry sector is now in a strong position to assist in implementing the goals of this plan in accordance with the strategies and actions for sustainable forestry development outlined therein."* - Keats Hall, Conservator of Forests 1969 to 1981, now Executive Director of The Forest Conservancy (March 2005).

Sector Modernisation Programme of the Government of Jamaica, the Forestry Department's senior managers have prepared a revised organisation structure for its technical operations. This revised structure incorporates additional positions needed for the Department to fulfill its mandate.

Private investment in the forestry sector in Jamaica is constrained by a lack of information about local, regional, and world forest products markets and the financial feasibility of commercial timber plantations. This situation was redressed with the completion of a pre-feasibility study in 2006 for the development of a financially viable private sector forest product (timber processing) based industry in Jamaica. The findings of the study suggest that such development could in fact be feasible and financially viable. These findings will be widely presented to potential investors/participants and it is hoped that this industry will become a reality in the near future.

A gender equity strategy was prepared in 2000 that is integral, rather than additional, to the Forestry Department's activities and priorities. Developed and implemented through a process of consultations with staff and a series of gender equity oriented workshops, the development process of the strategy has become a reference model for other Government of Jamaica agencies and one non-governmental organisation.

#### 140 Develop Sectoral Planning Capabilities

The activities of the Forestry Department were brought into focus and prioritised in the five-year *National Forest Management and Conservation Plan* ("Forest Plan"). Implementation strategies were developed for each area of activity. Input for the *Forest Plan* was received from the Forestry Department, the private sector, non-governmental organisations, other government agencies as well as individual private citizens. The *Forest Plan* was adopted by Cabinet in 2001 and was used as the strategic guide for all Forestry Department and Project activities for the five-year period of 2001 to 2006.

A Roundtable Meeting of Partners in Development, sponsored in part by the Project, was held in February 2002 to garner support for the *Forest Plan* from the international donor community and the Jamaica private sector. Although no bilateral or multilateral donor support materialised, the local private sector, other government agencies and The Nature Conservancy (a U.S.-based international environmental non-



Roundtable participants on a field trip to Buff Bay watershed.

*"My Ministry endorses the national effort to conserve and restore our country's forests as proposed in the five-year Plan and we offer our full cooperation in support of its implementation."* - Phillip Paulwell, Minister, Ministry of Industry, Commerce & Technology (June 2001).

The production and distribution of printed media included 62,000 posters, 62,000 calendars, 21,000 stickers, and 145,000 information brochures, forest awareness messages in the national Yellow Pages directory beginning in 2001, a Trees of Jamaica stamp series, poster displays for exhibitions, school and public meetings and conferences and over 100 articles in a "Tree Talk" Column in the Children's Own newspaper.

governmental organisation) have come forward with assistance for the Forestry Department in areas of reforestation, public awareness, and forest protection.

The Project facilitated the establishment of the National Forest Management and Conservation Fund (The Forest Fund). The Forest Fund, as proposed in the *Forest Plan*, is to be used by the Forestry Department for forest conservation, restoration, maintenance, development and management. To accomplish this, the Fund is mobilising resources from the Government of Jamaica, the Jamaica private sector, bilateral funding agencies and local and international donors. To date, the Fund has accumulated a capital of JMD\$550,000.

The Forestry Department sourced funding through the FAO National Forest Programme Facility for Jamaica to undertake a review and update of the Forest Act, 1996. The Project's involvement in the preparation of a new forest act was therefore limited to reviewing and commenting on the new legislation before its presentation to Cabinet for enactment. With financial assistance from the same Facility, the senior management of the Department and Project staff undertook a review of the *Forest Plan* during a 2-day retreat in October 2004 as part of the preliminary process to prepare the next five-year forest plan.

The Project assisted the Forestry Department in the successful negotiation of a debt swap agreement under the United States' Tropical Forest Conservation Act. The agreement provides US\$16 million to be deposited, over the next 19 years, in a local fund to be used for forest conservation activities undertaken by non-governmental organisations.

At the request of the Forestry Department, the Project curtailed involvement in the development of an integrated management and reporting structure for the Department as the same exercise is being undertaken by the Public Sector Reform Unit of the Cabinet Office as part of the modernisation of the Forestry Department into an executive agency.

With assistance from the Project, the Forestry Department produced an Annual Report for 2003, the first such report for over 20 years, and 2004.



The Open Day and Exhibition at Head Office in Kingston.

### 150 Develop a National Forestry Awareness Programme

The Communications Strategy developed in the first year of the Project



Students on a field trip to Head Office in Kingston.

has been followed and adaptations made as needed. The forest awareness programme has undoubtedly been the most visible Project activity and it has also been one of its most successful. Public and key stakeholder support for the Forestry Department has increased tremendously, as has its overall image and visibility.

The forest awareness programme reached a wide cross-section of the population with information, public awareness messages, and displays tailored to the target audience.

In addition to printed material, forest awareness messages have been delivered to the general public through a 3-minute children's video with 100 copies distributed to schools; three 3-minute general audience videos; a community drama (stage play); and eight 5-minute radio features. A very successful National Tree Planting Day was launched in 2003 and is now a firmly established annual event involving the participation of schools, private firms and government and non-government organisations. Corporate sponsorship of the Day's activities has steadily increased from year to year.

To build on the general forest awareness messages, the Project prepared a teaching resource document titled *Forest Connections: the forest in your classroom* which provides educators with forestry-based lesson ideas and activities that fit into the standard curriculum. This document was approved by the Ministry of Education and Youth. Sponsorship for printing 10,000 copies for distribution to schools nation-wide is being investigated by the Forestry Department.

Children and youth, between ages 11 to 21, were a key target group in the forest awareness programme. Presentations on a variety of topics and issues on forests and the forest environment have been made by Forestry Department and Project staff at hundreds of schools, summer camps and 4H Club meetings across Jamaica. Beginning in 2003, the Forestry Department, with Project support, organised an annual Open Day and Exhibition at the Head Office in Kingston and in each of the three Forest Regions. Special invitations were extended to schools and



This poster was one of the most popular with educators.

the response was overwhelmingly positive. At the first Open Day at Head Office, nearly 500 students and teachers toured exhibits mounted by the Forestry Department and other private sector organisations and government agencies with a stake in the forestry sector. In 2004, the numbers had grown to over 800 and in 2005, over 900 students and teachers were given tours of the forest-related information exhibits.

The Project has assisted with the refurbishment of the Forestry Department library to make it more accessible and comfortable for students and other members of the general public who come to consult the Department's reference books. The provision of forest education materials was given a major boost with the launch of the Forestry Department website in 2001. All the technical studies and manuals prepared by the Project, as well as other selected documents, are now accessible in digital format on the site.

The Project and the Forestry Department have gained international exposure through the submission of papers to technical and professional journals as well as the presentations of papers at international conferences. The Project itself has been the subject of several articles published in international forestry and development journals:

- International Tropical Timber Organisation (ITTO), *Tropical Forest Update*, Volume 14, Number 3, 2004
  - Review of *Manual of Dendrology-Jamaica*.
- International Society of Tropical Foresters (ISTF), *ISTF News*, Volume 25, Number 3, September 2004
  - Published an article titled *Jamaica's Local Forest Management Committees*
- European Union's Technical Centre for Agriculture and Rural Cooperation, *Information Communication Technologies (ICT) Update for African, Caribbean, and Pacific (ACP) Countries*, Issue 19, July 2004
  - Published an article titled *TFT/FD Raising Environmental Awareness in Jamaica*.
- International Aluminum Institute, *Sustainable Development Series, Third Bauxite Mine Rehabilitation Survey*, June 2004
  - Discussion of the innovative Memorandum of Understanding between Alcoa Minerals of Jamaica LLC (JAMALCo) and the Forestry Department.
- FAO international journal of forestry and forest industries, *UNASYLVA*,

"... I have enjoyed a close working partnership with the Jamaica Forestry Department for several years. This partnership was largely due to the changes brought about by Forestry's association with the Trees for Tomorrow project. It is no exaggeration to say that the Forestry Department has been totally transformed to the extent that it is regarded today as an example of professionalism among government institutions." - Terry Williams, Country Programme Director, The Nature Conservancy (March 2005).



Students getting a "hands on" demonstration on seedling production at Mt Airy Nursery.

## 200 FOREST MANAGEMENT

### 210 Develop a Forest Land Use Data Bank

The Project has supported the Forestry Department in establishing one of the best environmentally-oriented data bases not only in Jamaica but in the Caribbean.

A comprehensive Geographical Information System (GIS) has been created to maintain a Forest Resource Data Bank containing several data sets such as land use/forest cover, topographic and other base map features, and biophysical inventory data. Information from the updating and re-surveying of forest reserve boundaries using Global Positioning System technology has also been incorporated in to the Data Bank.



The Department's GIS Unit and Forest Land Use Data Bank is highly regarded locally and regionally.

Biophysical inventory analysis software has been developed and is being utilised. The biophysical inventory and other data has been used to generate detailed map sets of selected watershed management units and a national forest land use/cover map.

Forestry Department staff in the GIS Unit are fully conversant with using and maintaining this data base. A Forest Resource Data Bank GIS Manual has been prepared that documents procedures for using and maintaining the various components.

Non-proprietary information within the data bank is freely shared with outside clients who are requested to sign an end-use compliance agreement. The Forestry Department has assisted over 200 organisations and individuals with requests for information and staff training. Where appropriate, end-users are charged, based on cost recovery, for the information to promote sustainability of the GIS Unit's activities. The success of this data bank was internationally recognised in 2000 when the Forestry Department was presented with a "Special Achievement in GIS" award at ESRI's 20<sup>th</sup> Annual Users Conference.

In order to assure the integrity and protection of the data bank, *Information Technology (IT) Policies and Protocols* for the use of the entire Forestry Department computing network by all staff have been prepared and implemented.

### 220 Collect and Analyse Forest Resource Information

Forestry Department staff have been trained in photo-interpretation and biophysical inventory field sampling. Manuals for these activities have

*"The Aerial-photo Interpretation Manual ... is an excellent resource guide for basic photogrammetry and photo interpretation. The Land Information Council of Jamaica would like to incorporate portions of the manual in its training programme and therefore kindly requests your permission to do so."*  
Jacqueline daCosta,  
Permanent Secretary,  
Ministry of Land and Environment (January 2003).



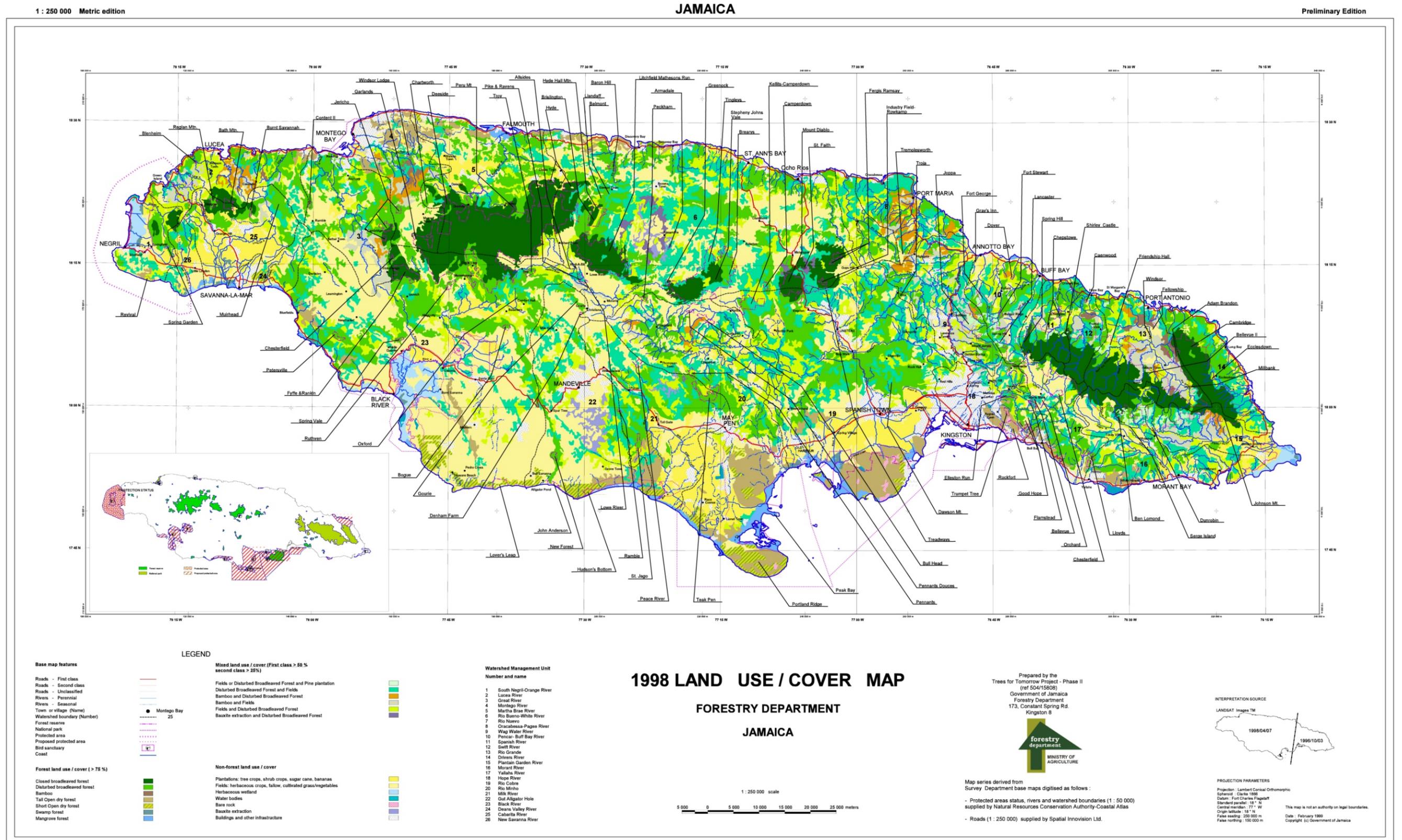


Figure 4: 1998 Land Use/Cover Map of Jamaica.

Table 3. Definitions of forest cover and land use types at 1: 100 000 mapping scale.

FORESTRY DEPARTMENT CLASSES (Landsat TM; 1:100000 mapping scale)		CORRESPONDING TNC CLASSES (1)	CORRESPONDING FAO CLASSES (2)
TYPE (CODE)	DEFINITION		
<b>Forest Land Use/Cover (&gt; 75 %, Minimum unit: 25 ha)</b>			
Closed Broadleaf (PF)	Closed primary forest with broadleaf trees at least 5 m tall and crowns interlocking, with minimal human disturbance	Upper Montane Forest Lower Montane Forest Semi-evergreen Moist Broadleaf Forest (Natural Communities)	Undisturbed Closed Forest
Disturbed Broadleaf (SF)	Disturbed broadleaf forest with broadleaf trees at least 5 m tall and species-indicators of disturbance such as <i>Cecropia peltata</i> (trumpet tree)		Disturbed Closed Forest
Bamboo (BB)	<i>Bambusa vulgaris</i> (bamboo brakes) on the lower shale hills (disturbed forest)	Disturbed Natural Forest (Modified Communities)	Other Wooded Land
Tall Open Dry (WL)	Open natural woodland or forest with trees at least 5 m tall and crowns not in contact, in drier part of Jamaica with species-indicators such as <i>Bursera simaruba</i> (red birch)	Deciduous/Semi-deciduous Broadleaf Forest (Natural Communities)	Open Forest
Short Open Dry (SL)	Open scrub, shrub, bush or brushland with trees or shrubs 1-5 m tall and crowns not in contact, in drier part of Jamaica with species-indicators such as <i>Prosopis juliflora</i> (cashaw) or <i>Stenocereus hystrix</i> (columnar cactus)	Thorn Forest (Natural Communities)	Other Wooded Land
Swamp (SW)	Edaphic forest (soil waterlogging) with a single tree storey with species-indicators such as <i>Symphonia globulifera</i> (hog gum) and <i>Roystonea princeps</i> (royal palm)	Freshwater Swamp Forest (Natural Communities)	Disturbed Closed Forest
Mangrove (MG)	Edaphic forest (areas with brackish water) composed of trees with stilt roots or pneumatophores, species-indicators such as <i>Rhizophora mangle</i> (red mangrove)	Mangrove (Natural Communities)	Disturbed Closed Forest
<b>Mixed Land Use/Cover</b>			
Fields or Disturbed Broadleaf Forest and Pine Plantation (PP)	>50% fields or Disturbed Broadleaf forest; >25% Pine plantation	Forest Plantations (Modified Communities)	Plantations
Disturbed Broadleaf Forest and Fields (SC)	>50% Disturbed Broadleaf forest; >25% fields	Disturbed Natural Forest (Modified Communities)	75% Other Wooded Land 25% Other Land
Bamboo and Disturbed Broadleaf Forest (BF)	>50% bamboo; >25% Disturbed Broadleaf forest	Disturbed Natural Forest (Modified Communities)	Other Wooded Land
Bamboo and Fields (BC)	>50% bamboo; >25% fields	Disturbed Natural Forest (Modified Communities)	75% Other Wooded Land 25% Other Land
Fields and Disturbed Broadleaf Forest (CS)	>50% fields; >25% Disturbed Broadleaf forest	Disturbed Natural Forest (Modified Communities)	25% Other Wooded Land 75% Other Land
Bauxite Extraction and Disturbed Broadleaf Forest (BS)	>50% bauxite extraction; >25% Disturbed Broadleaf forest	Disturbed Natural Forest (Modified Communities)	25% Other Wooded Land 75% Other Land
<b>Non Forest Land Use/Cover</b>			
Plantations (PC)	Tree crops, shrub crops like sugar cane, bananas, citrus and coconuts	Non-forest Land Cover (Agriculture)	Other Land
Fields (FC)	Herbaceous crops, fallow, cultivated grass/legumes	Non-forest Land Cover (Agriculture)	Other Land
Herbaceous Wetland (HW)	Edaphic vegetation (soil waterlogging) with herbaceous plants	Non-forest Land Cover (Natural Communities)	Other Land
Water Bodies (WA)	Lakes, rivers	Water Bodies (Open Water)	Inland Water
Small Islands (SI)	Mostly sand/limestone, unvegetated small islands (cays)	Non-forest Land Cover (Natural Communities)	Other Land
Bare Rock (BR)	Bare sand/rock	Non-forest Land Cover (Natural Communities)	Other Land
Bauxite Extraction (BE)	Surface mining/bauxite	Non-forest Land Cover (Urban/Industrial)	Other Land
Buildings and Other Infrastructure (BA)	Buildings and other constructed features such as airstrips, quarries, etc.	Non-forest Land Cover (Urban Industrial)	Other Land
(1) Mapping types from Grossman, Iremonger and Muchoney (1992) and Muchoney, Iremonger and Wright (1994).			
(2) Guidelines from FAO (1998a, 1998b).			

*“The model for national forest resources assessment used by Jamaica, with a well equipped forest mapping and inventory unit within the Forestry Department, was considered to be the ideal scenario.”*  
 Statement from the FAO Forestry Department report *Forest Resources Assessment 2005: Regional review of national reports for English speaking Caribbean countries.* (February 2005).

A comprehensive land use/forest cover classification system (Fig. 3) has been developed and used as a basis for completing a national forest inventory, four watershed management unit-level biophysical inventories, one biophysical inventory of an area proposed for declaration as a national park, and a retrospective analysis of the national deforestation rate.

The results of the extensive analysis of the biophysical inventory data undertaken in preparation of the National Forest Inventory Report 2003 indicate that the aboveground living biomass (over-storey living biomass, not including roots, litter, dead wood and under-storey) of the Jamaican forests is approximately 88.73 million metric tons. The

Table 4. Total volume and aboveground living biomass by forest type.

Class	Sub-class		Area (ha)	Total volume (,000 m <sup>3</sup> )	Aboveground living biomass (,000 t)
	Code	Name			
Forest	PF	Closed Broadleaf	88230.5	17088.5	15567.0
	SF	Disturbed Broadleaf	174724.6	28909.9	28682.7
	WL	Tall Open Dry	41998.5	1585.9	3384.5
	SL	Short Open Dry	12104.0	275.9	736.9
	SW	Riparian / Swamp	2247.0	407.3	368.8
	MG	Mangrove	9730.8	765.1	1047.3
	PP	Caribbean Pine Plantation	4287.0	512.0	541.5
	HP	Other Species Plantation	3900.0	576.5	630.0
<b>Forest Total</b>			<b>337222.4</b>	<b>50121.1</b>	<b>50958.7</b>
Mixed	SC	Disturbed Broadleaf Forest & Non-Forest Land Use	165953.8	15534.9	20543.1
	CS	Non-Forest Land Use & Disturbed Broadleaf Forest	165639.8	10996.8	17233.4
<b>Mixed Total</b>			<b>331593.6</b>	<b>26531.8</b>	<b>37776.5</b>
<b>Non-forest Total</b>			<b>427600.0</b>	<b>0</b>	<b>0</b>
<b>Grand Total</b>			<b>1096416</b>	<b>76653</b>	<b>88735</b>



weighted average biomass per hectare is 132.7 metric tons, ranging between 60.9 t/ha for the short open dry forest and 176.4 t/ha for the closed broadleaf forest.

A combination of Project-funded black and white 1:40 000 aerial photography taken in 1999, colour 1:15 000 aerial photography taken in 1989 during Phase I of the Project, Landsat TM imagery and IKONOS imagery has been used for identifying the

land use/forest cover. (Fig.4)

Biophysical inventory and analysis have been integrated into the Forestry Department's annual work plan and will continue as GOJ budget allocations allow. The Project and the Department collaborated with two non-governmental organisations, the Dolphin Head Trust and The Nature Conservancy, in the collection and analysis of forest resource information in specific forest areas and their contribution is gratefully acknowledged.

### 230 Prepare and Implement Forest Management Plans

Following the methodology for preparing forest management plans with community participation developed in the Pilot Area, local forest management plans have been prepared for one additional forest reserve/watershed management unit with others in various stages of preparation. One local forest management committee has been formed outside of the Pilot Area in the area of the Bull Head Forest Reserve in north-central Jamaica.

The Forestry Department has assigned one of the Project-supported university graduates to work on the preparation and implementation of local forest management plans and, in collaboration with the Department's Rural Sociologist, develop income generating activities for local communities.

### 240 Support Reforestation Initiatives

This activity began in 1998 with an evaluation of the Forestry Department's four nurseries followed by rehabilitation work at the Mt Airy, Williamsfield and Moneague nurseries. In 1999 the Project facilitated the preparation of a *Five-Year National Reforestation Plan*. While the targets for reforestation of Crown lands have not been met due to fiscal constraints, the major finding of the *Plan* that the greatest potential for reforestation is on private lands gave impetus to the promotion of its Private Planting Programme by the Forestry Department.

Although the capacity of the Forestry Department to produce seedlings has improved, budgetary constraints limit production. This situation has been alleviated to some extent through funding provided



Williamsfield Nursery



Rehabilitated terraces at Mt Airy Nursery.



Blue mahoe (*Hibiscus elatus*).

While the Department grows more than 30 species of tree seedlings, five species make up 86% of production: Cedar (43%), Honduras mahogany (15%), Jamaican mahogany (11%), Blue mahoe (8%), and Spanish elm (8%)

for reforestation activities by two private sector companies, one non-governmental organisation, one government agency, and one bilateral project. The Project has assisted in increasing the capacity of the Forestry Department for seed collection, cleaning, storing and testing through the upgrading and rehabilitation of the Department's seed processing facilities.

A very successful growing contract for 30,000 seedlings was funded by the Project as a trial process. The Forestry Department has unfortunately not been able to proceed with additional contracts because of government accounting procedures and donor requirements.

The Ministry of Agriculture's mango germplasm bank at Orange River was restored and work began to develop a timber tree germplasm bank in collaboration with the National Arboretum Foundation and the Environmental Foundation of Jamaica at a site in the Hope Gardens in Kingston. The scope of work on the latter project was later severely cut back as funding from the Environmental Foundation of Jamaica was reduced and the management of Hope Gardens assigned to a trust which still has not decided how to proceed.

The Forestry Department, with Project support, has launched its own germplasm bank programme which is presently concentrating on native conifers such as *Podocarpus spp.* Research facilities at the Forestry Department have been improved to facilitate germplasm bank development and other research work.

The Forestry Department has begun collaborating on research projects with the Centre for Tropical Plant Conservation, Fairchild Tropical Botanical Garden (Florida); the Royal Botanic Garden (Edinburgh, Scotland); and the University of the West Indies (Kingston).

### Outcomes

The planned outcomes of the Forest Management Component were:

- establish plans and information systems necessary for sustainable forest management; and

### 300 WATERSHED MANAGEMENT

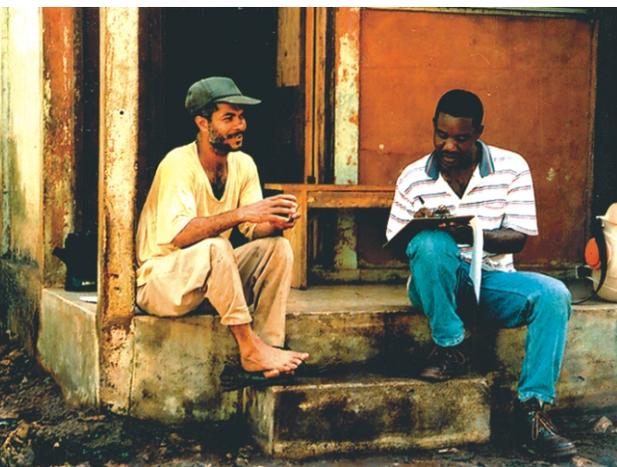
#### 310 Prepare Detailed Forest Management and Land Use Plans (within the Pilot Area)

A detailed local forest management and land use plan was prepared for the Buff Bay/Pencar Watershed Management Unit (the Pilot Area chosen in Phase I) which incorporated community input obtained during numerous public meetings.

This plan is now being implemented by the Forestry Department as resources allow. A step-by-step guide for preparing local forest management plans has been prepared to assist the Forestry

*To promote the idea of local forest management committees the Project and Forestry Department Rural Sociologists designed and led a sensitisation and awareness campaign which included 88 visits to communities, organisations, and group meetings in the four months leading up to their establishment.*

Figure 5. Map showing location of the Buff Bay/Pencar Pilot Area.



Updating the socio-economic study in the pilot area.

Department in preparation of future plans in other watersheds.

#### 320 Develop Extension Programmes

A socioeconomic study of the Pilot Area prepared during Phase I of the Project was updated and, at the same time, a new agroforestry baseline study was undertaken. The findings of the two studies were used to develop an extension programme that included demonstration of appropriate agroforestry practices, school and community group presentations, training work days for farmers and students, and exhibits at community fairs and events.

The agroforestry/extension programme in the Pilot Area includes eight demonstration farms and three school projects with training sessions and work days that have involved over 300 farmers and 500 students and teachers.

The development of the extension programme required a heavy investment in Forestry Department and Project personnel time, travel costs and other expenses. This investment has resulted in the Forestry Department fully embracing extension activities and community involvement not only within the Pilot Area but as part of its core activity and responsibility, working closely with the Jamaica Agricultural Society, the Rural Agricultural Development Authority, the Coffee Industries Board, and numerous local non-governmental organisations.

A guide to working with communities was prepared to assist the Forestry Department with extension and community liaison activities. A guide to agroforestry practices suitable for Jamaica has also been written to aid the Department in the delivery of their community outreach programme.



LFMC members at a training work day.

### 330 Implement the Forest Management and Land Use Plans

As part of the implementation strategy of the national *Forest Plan*, the Project has assisted the Forestry Department in establishing two local forest management committees within the Pilot Area. These committees meet every two months with representatives of the Forestry Department to discuss forestry issues within their respective areas.

The Forestry Department has assisted the Pencar Local Forest Management Committee with the construction of a nursery through the provision of land for the nursery site, technical advice and a small trial contract for seedling production. The Pencar nursery now produces both timber tree and coffee seedlings for sale.

The Buff Bay Local Forest Management Committee has received assistance from the Department in preparing a proposal for funding the development of a nature trail in a forest reserve in their area.

Despite the demands on their personal time, members of both local forest management committees mainly smallholder farmers have expressed their commitment to assisting the Forestry Department in the



School agroforestry demonstration plot.

implementation of local forest management plans. In 2005 the Department secured funding through the FAO National Forest Programme Facility for Jamaica to provide training in forest management topics to committee members to better equip them to participate in the forest management process.

The development and performance of the Pilot Area local forest management committees are proceeding well and the lessons learned from the Pilot Area experiences are being applied by the Forestry Department in other forest reserves.

### 340 Mount a Local Public Awareness Programme

Many of public awareness campaign activities in the Pilot Area are part of the national programme. There is, however, an emphasis on activities such as establishing school nurseries, constructing composting facilities, and soil conservation and slope stabilisation projects with schools in the Pilot Area.

There have been 30 school presentations reaching over 700 students and teachers in the Pilot Area. The community drama (stage play), *Magic Trees*, was written by a teacher in the area. The play, performed by a cast of students from the teacher's school made ten appearances in the Pilot Area as well as in Kingston, the capital city.

### 350 Develop a National Forest Watershed Management Strategy

It was agreed that no Project action was required in this Activity as the Forestry Department's future role in watershed management will be determined by the Government of Jamaica at the time of finalising the National Watershed Management Policy. This Policy will assign various watershed management responsibilities to specific government agencies.

### Outcomes

The planned outcomes of the Watershed Management Component were to develop, test and implement a replicable model of watershed management and soil conservation, with emphasis on the sustainable management for forest lands located in the upper parts and other fragile areas of the watershed.

The development of a replicable forest planning instrument has progressed well with the model being replicated in another watershed management unit by the Forestry Department.

A study conducted by the Caribbean Natural Resources Institute



School programmes have been an integral part of the Trees for Tomorrow Project.

## 400 CONSULTANT PROJECT MANAGEMENT

### 410 Manage Project in Canada

The Trees for Tomorrow Project, Phase II commenced in January 1998 under a contract between ORM Resources Canada Ltd. (formerly Simons Reid Collins), Tecsuit International Ltd, and the Canadian International Development Agency. The original contract term was from January 1998 to December 2002 with a budget of CAD \$7,222,500 including applicable taxes. The contractual arrangements and budget went through several amendments, including the assignment to Tecsuit International of sole control of the Project in January 2002. Phase II was

Table 5. Percent of expenditures.

BUDGET LINE ITEM (as per contract)	CONTRACT CODE#	PERCENTAGE
Short-term Personnel Fees	1.1	23,0%
Locally Engaged Personnel Fees	1.2	1,4%
Canadian Outside Consultants	1.3	1,1%
Jamaican Outside Consultants	1.4	4,2%
Long-term Personnel Fees	1.5	19,0%
Short-term Personnel and HO Expenses	1.8	3,5%
Long-term Personnel Expenses	1.9	13,0%
Field expenses	1.10	15,2%
Training Costs	1.11	11,2%
Equipment	5.0	8,4%
<b>GRAND TOTAL</b>		100,0%

extended to December 31, 2006 with a budget of CAD \$11,041,500. The percentage of total expenditures is shown in Table 5 below.

### 420 Manage Project in Jamaica

The Project's financial and personnel resources in Jamaica were well managed. Project Steering Committee meetings were held regularly to keep all stakeholders apprised of progress and get their input for directing Project activities. Over 140 Technical Committee meetings were held in order to obtain input and advice at the technical level on various operational activities.

All Project staff and external consultants involved in the Project undertook their assignments in a positive, professional and effective manner. In fact, the Project Mid-term Review undertaken in December 2000 stated,

“Human resources provided by the CEA [Canadian Executing Agency] and by the FD to TFT have, for the most



part, been exceptionally good, dedicated and professional. Particularly noteworthy is the quality and flexibility of working relationship between TFT and the FD.”

#### 430 Prepare Project Implementation Plan

The Project Implementation Plan submitted in September 1998 was reviewed by all stakeholders and subsequently revised and approved in March 1999.

#### 440 Purchase Equipment

The provision and maintenance of appropriate, modern equipment to the Forestry Department so that it can better fulfill its mandate was a crucial activity of the Project. During the last Project year (2006), repair/maintenance of vehicles was assumed by Project budget.

With CAD \$864,316 (8,4 percent of the total budget) of equipment having been provided, the Forestry Department has become much more effective although after nearly eight years of use, the vehicles and equipments provided will need replacing soon as maintenance costs are increasing rapidly. It is noteworthy that during the last Project year (2005-06), new equipments were provided to the Forestry Department by the CEA to insure a smooth transition. Consequently, three new 4x4 pickup trucks, hardware and software upgrades and licenses, forestry equipments and supplies, new photocopier, network printer, plotter-printer and other equipments such as UPS were bought by the Project

9 pickup trucks (4x4 ),  
1 station wagon,  
7 motorcycles,  
30+ computer systems,  
software and LAN,  
GIS software (with upgrades),  
1 Printer plotter,  
2 Photocopier,  
7 printers,  
3 scanners,  
Office furniture and  
equipment,  
Radios and repeater stations,  
Cellular phones,  
Survey equipment including  
GPS, equipment and  
software,  
Cameras, TVs, video players,  
multi-media projector (Public  
Awareness),  
Field equipment including  
inventory, nursery, seed  
collection/processing/testing  
and planting tools

#### 450 Prepare Progress Reports

A total of 29 Quarterly and 8 Annual Progress Reports; 8 Annual Work Plans; and 8 Annual Training Plans were prepared over the Project period.

#### Outcomes

The planned outcomes of the Consultant Project Management Component were to have a well managed and successfully executed project. These outcomes have been achieved.

The Forestry Department now has the technical capability and corporate environment to continue Project-initiated activities on its own and is limited in doing so only by GOJ budgetary constraints.

Articles describing various activities within the Project have been

## 500 CIDA-JAMAICA PROJECT MONITORING

### 510 Monitor and Control Project

Monitoring of the financial, administrative, and technical aspects of the Project for CIDA was done by the CIDA Project Manager/Forestry Specialist with assistance from the CIDA Development Officers in Jamaica, while the Planning Institute of Jamaica monitored the Project on behalf of the Government of Jamaica.

The Project was monitored through review of the quarterly and annual progress reports and the holding of Project Steering Committee meetings. The Project Mid-term Review noted,

“The Review Mission had the opportunity to participate in the 15<sup>th</sup> Project Steering Committee meeting. It also discussed the pertinence and usefulness of the Steering Committee during interviews. The main conclusion is that the Project Steering Committee is playing a useful role and meeting the purpose for which it was created. Meetings are held twice a year and this appears to be adequate considering project needs and availability of committee members. Reporting is detailed and timely.”

Other than the Mid-term Review and a financial audit of Project expenditures, no external monitoring was done.

### Outcomes

The outcomes of the CIDA-Jamaica Project Monitoring Component were to ensure that the Project progressed as planned, achieved its goals and had the desired impact.

These outcomes have been achieved. The Government of Jamaica, based in part on the improved capacity, improved results/effectiveness and enhanced image, has decided to raise the Forestry Department to executive agency status. Such a move will allow more autonomy in operational decisional making and financial independence.

The Project Mid-term Review stated that, “The Trees for Tomorrow responds to Government of Jamaica priorities for the forestry sector and is fully in line with the National Forest Management and Conservation Plan. Project design is appropriate and so was the decision taken during the preparation of the Inception Report, to change the implementation



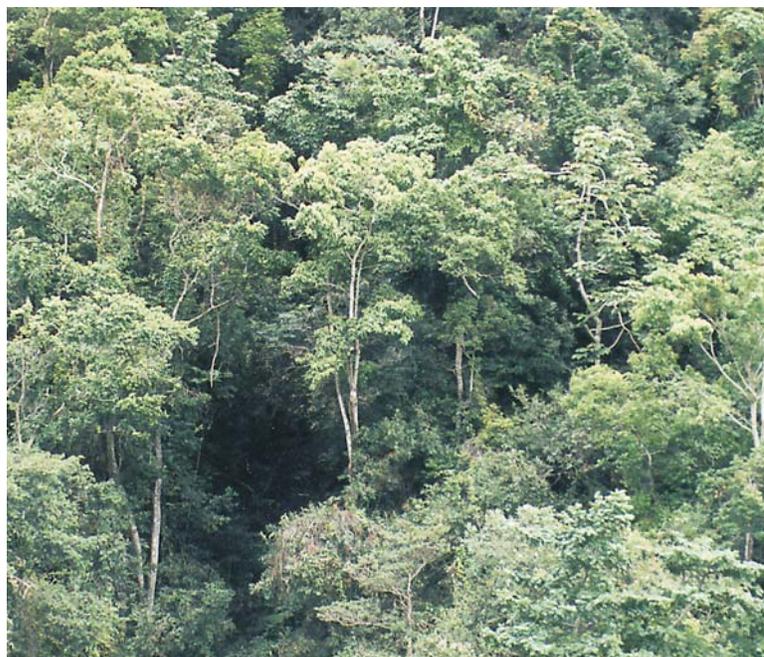
Blue mahoe (*Hibiscus elatus*), national tree of Jamaica.

## CHAPTER 4: DISCUSSION

### LESSONS LEARNED

The lessons learned from the Trees for Tomorrow Project are not intended to be specific to CIDA, forestry nor Jamaica but are directed to any project.

- Long-term donor and host government commitment is required. The Project was a 12-year commitment by the Canadian International Development Agency and the Government of Jamaica.
- Donor commitment and support should be directed to the government agency with sectoral responsibility, not to non-governmental organisations within the sector. CIDA's major commitment and support in the Project was to the Forestry Department which is ultimately responsible for managing all public forest lands.
- Canadian Executing Agency staff should be fully integrated into the host agencies organisational structure and not appear as separate "stand alone" project operations. The Trees for Tomorrow staff identified themselves as representing the Forestry Department, as well as the Project. Working alongside the Department staff, Trees for Tomorrow personnel assumed a mentoring role.
- Project activities should be guided by strong collaboration amongst all stakeholders. Collaboration amongst the stakeholders, Canadian International Development Agency, Canadian Executing Agency, Forestry Department and Planning Institute of Jamaica, was good and activities undertaken on a consensus basis.
- Project design should be appropriate and respond to client priorities. The Trees for Tomorrow Project design was appropriate and responded to the priorities of the Jamaican forestry sector. Flexibility and responsiveness to changing institutional parameters is particularly important with long-term



Broadleaf forest on the lower slopes of the Blue Mountains.



projects.

- Experience shows that efficient coordination and cooperation amongst government agencies, are essentials for sustainable development of forests
- Participation of local communities is an essential feature of sustainability. The establishment of local forest management committees to work with the Forestry Department in specific forest reserves greatly increased the Department's effectiveness and image as a responsible agency serving the needs of the people.
- Public awareness of and support for project activities is of paramount importance. The public awareness campaign for the Trees for Tomorrow/Forestry Department activities was very successful locally, regionally and internationally.
- The Project has demonstrated that performance, effectiveness, and pride in the workplace can be greatly improved through the provision of adequate and appropriate resources.
- Changes in organisational ethos require a significant investment in personnel time, travel costs and other expenses. Working with communities has not been a part of traditional forestry activities in Jamaica and foresters are not trained in this practice. The pilot work in the Buff Bay/Pencar watershed, beginning with community outreach activities and leading to the establishment of the two local forest management committees has contributed to the development of a core group of Forestry Department staff who are highly committed to participatory approaches. In addition, the success of the extension programme and of the local forest management committee initiative has resulted in senior staff accepting the need for more participatory approaches regarding sustainable forest development.
- Project activities/inputs can be used to leverage involvement of other agencies, including private sector interests, through coordination, cooperation and collaboration with them. As Project initiated activities developed successfully, the Forestry Department was able to source additional funds and entered into Memoranda of Understanding with private sector firms, government agencies and non-governmental organisations for specific activities such as seedling production, reforestation, forest inventory and boundary patrolling.
- Project activities have to be accepted/taken-on by the client institution, well before the project ends to facilitate institutionalising project-initiated activities into daily operations. The Forestry Department

has assumed all activities initiated by the Trees for Tomorrow Project pertaining to the Forest Resource Data Bank, the forest inventory programme, the public awareness programme and the extension programme

## RECOMMENDATIONS

It is recommended that the Canadian International Development Agency and other donors continue to support the Jamaica forestry sector in general and the Forestry Department in particular by:

- Assisting the Public Sector Modernisation Programme, Project Management Unit, Cabinet Office, Office of the Prime Minister in “modernising” the Forestry Department.
- Assisting with the preparation of a new National Forest Management and Conservation Plan for 2006 to 2010.
- Assisting with forestry field skills training of wardens, foresters and members of non-governmental organisations and local forest management committees.
- Providing seed money to the National Forest Management and Conservation Fund.
- Providing a long-term forest protection (enforcement) specialist.
- Providing a long-term forest management planning specialist.
- Providing operational funds for activities initiated by the Project until the Forestry Department can fully support the budget for these.
- Farmers who allow the use of their lands for demonstration purposes should be compensated in some direct manner, possible in the form of a land rent or a stipend for labour to maintain the demonstration installation. It is likely that more farmers would have volunteered lands for demonstration of agroforestry/soil conservation practices if the

*“Whenever a Person know that they are going to get some Income from what they are doing, It gives greater Interest to do more and Trees for Tomorrow has done that to many of us in Jamaica. The weakness that I have seen in this Project, is this, there was no Plan to help the People whose farms were chosen as demonstration farms. But I believe that this Project was well Planned. I am hoping that this will be extended in the future.” - Reverend Alexander Robinson, Chairman, Buff Bay Local Forest Management Committee. (February 2005)*

## APPENDICES

## APPENDIX 1: Key Project Participants

### GOVERNMENT OF JAMAICA

#### Ministry of Agriculture and Lands

Richard Harrison                      Permanent Secretary

#### Forestry Department

Noel Bennett	Rural Sociologist
Owen Evelyn	National Project Manager, GIS/Data Bank Specialist
Marilyn Headley	Conservator of Forests
Maxine Hinds	Public Awareness Officer
Alli Morgan	Resource Planning and Management Officer
Patrick Reynolds	Project Extensionist
Howard White	Project Facilitator
Bethune Williams	Project Secretary

#### Planning Institute of Jamaica

Pauline Morrison                      Senior Project Economist

#### Ministry of Finance and Planning

Barrington Hall                      Head, Economic Division, Projects

### GOVERNMENT OF CANADA

#### Canadian High Commission

#### Canadian International Development Agency

Pierre Lessard                      Project Manager

### CANADIAN EXECUTING AGENCY

#### Long-term Personnel

Roland Camirand	Land Use/Reforestation Advisor (1998 to 2002)
Marie Giasson	Rural Sociologist (1998 to 2000)
John Latham	Senior Forestry Advisor/Project Manager (1998 to 2005)
Susie Latham	Agro-economist (1999 to 2005)

Appendix 1 - con't

**Short-term Personnel**

Jacques Poirier	Executive Director (1999-2006)
Dick Dempster	Executive Director/Management Policy Specialist (1998-1999)
Jean-Louis K�rouac	Project Co-director (1998-2001)(2004-2006)
Raul Korngold	Human Resource Development Specialist
Hugh Marshall	Reforestation Specialist
Denis Baron	GIS Specialist
Randy Webb	Data Bank Specialist
Jim Drake	Timber Cruiser
Fernand Beaudoin	Timber Cruiser
Carlos Pinillos	Biophysical Inventory / GIS Specialist
Claude Tremblay	Forest Inventory/Mapping
�tienne Desch�nes	File Management Specialist
St�phane Tremblay	Forest Product Specialist
Guy Parent	Forest Inventory Program Specialist
Fran�ois L�gar�	GIS training Specialist

## APPENDIX 2: Project Outputs

### PUBLIC AWARENESS

- Posters: 62,000
  - “Trees Providers and Protectors”
  - “Our Forests ... Our Future - Mek Wi Protect Dem”
  - “Wood You Believe! We Get so Much from Trees?”
  - “Forest Areas of Jamaica 2002”
- Calendars: 62,000
  - 1999 “Trees ..Our Friends for Life!”
  - 2000 “Your Forests... Your Future!”
  - 2001 “Native Trees of Jamaica”
  - 2002 “The Blue Mahoe Jamaica's National Tree”
  - 2003 “Celebrating 65 Years”
  - 2004 “Forests Forever”
  - 2005 “People Need Trees Forests Forever”
  - 2006 “Plant a Tree Today”
- Stickers: 21,000
  - “Trees for a Greener Future”
  - “Life With Trees! Our Provider, Protector and Friend”
  - “Trees are friends for life so treat them right”
  - “Forests Forever”
- Information Brochures: 145,000
  - “Forestry Department. Who are we and what do we do?”
  - “What is a Forest?”
  - “Forest Values”
  - “Forest Reserves and Forest Management Areas”
  - “Farm Forestry”
  - “Urban and Community Forests”
  - “Private Planting Programme”
  - “GIS and Forestry”
  - “Jamaica's Forest Laws and You”
  - “Local Forest Management Committee Buff Bay/Pencar”
- Videos: 4 x 3 minute videos
  - “You are Tree”(children's video) - 80 copies produced and distributed to schools
  - “Forest Watch” 3 forest heroes (general audience video)

## Appendix 2 - con't

- Forestry and environmental messages inserted in Yellow Pages (telephone directory)
- Trees of Jamaica stamp series
- Articles in Children's Own Newspaper "Tree Talk" - over 80 articles published
- Poster displays for exhibitions, school and public meetings and conferences:
  - "Trees of Jamaica" (Green Expo 2000)
  - "Deforestation, Agroforestry and Soil Conservation" (Denbigh 2001)
  - "Local Forest Management Committees" (Working Forests conference, Gainesville, Florida 2002)
  - "Forest Biodiversity" (Institute of Jamaica, International Day for Biological Diversity 2002)
  - "We are all mountain people" (Green Expo 2002)
  - "Co-management of the Blue and John Crow Mountains National Park (Mountain Forest Conservation and Management conference, Vernon, Canada 2002)
  - "Forests and the Water Cycle" (International Food Day 2002)
  - "Nitrogen Fixing Trees" (launch of the Jamaica Organic Farming Association, 2002)
  - "Native Trees of Jamaica" (65<sup>th</sup> Anniversary Open Day and Exhibition)
  - "Trees for Tomorrow Project" (XII World Forestry Congress - Québec 2003)
  - "Forest Law"; "Private Planting Programme"; and "Who are we" (Forestry Department 2004 Open Days)
  - "Where is your watershed" (Green Expo 2004)
- Nature trail at Head Office: laying out of pathways and permanent labelling of trees

**AERIAL PHOTOGRAPHY**

- Island-wide Black and White - 1:40000

**REPORTS/PUBLICATIONS**

- Perceptions and Attitudes of Lower Income Youth to Current Socio-cultural Issues in Jamaica. A Qualitative Assessment. (July 1999)
- Five-year National Reforestation Plan (2000)
- Seeing the Wood and the Trees: Gender Equity for the Forestry Department and the Trees for Tomorrow Project (March 2000)
- Buff Bay/Pencar Socio-economic Study (updated) and Agroforestry Baseline Study (April 2000)

*Appendix 2 - con't*

- Biophysical Inventory Manual (July 2000)
- Forest Regulations, 2001
- Working with Communities - a Manual for Foresters (February 2001)
- National Forest Management and Conservation Plan (March 2001)
- Forestry Department Citizens Charter (June 2001)
- Watershed Management Study of the Buff Bay/Pencar Watershed Management Unit (July 2001)
- Watershed Management Study of the Rio Minho and Martha Brae Watershed Management Unit (September 2001)
- Forest Management Plan for the Buff Bay/Pencar Watershed Management Unit (November 2001)
- Enforcement Manual for Forest Officers (April 2002)
- Aerial-photo Interpretation Manual (June 2002)
- Guidelines for Plantation Establishment and Management in Jamaica (September 2002)
- Guidelines for Writing Biophysical Inventory Reports in Jamaica (September 2002)
- Guidelines for Preparing Local Forest Management Plans in Jamaica (September 2002)
- Manual of Dendrology Jamaica (2003)
- Ecological Land Classification for Forest Conservation and Management in Jamaica (January 2003)
- Manual on Nursery Practices (June 2003)
- Socio-economic and Agroforestry Assessment of the Rio Minho Watershed Management Unit (June 2003)
- Forest Cover and Deforestation in Jamaica: Analysis of Forest Cover Estimates over time (September 2003)
- Jamaica Forest Management and Conservation Fund Operational Manual (March 2004)
- National Inventory Report 2003 (July 2004)
- Forestry Department 2003 Annual Report (July 2004)
- Agroforestry Guide for Jamaica (March 2005)
- Procedures for Ortho-Photo Production - User Guide (November 2005)
- Forestry Department 2004 Annual Report (January 2006)
- Forest Connections: the forest in your classroom
- National Forest Patrolling Plan (January 2006)
- Development of a financially viable private sector forest product (timber processing) based industry in Jamaica (August 2006)
- Training Status Report (August 2006)
- National Forest Reserve Status Report (August 2006)

*Appendix 2 - con't*

- Public Awareness Programme - Review and recommendations (August 2006)
- Manual for GIS Data Conversion and Edition (December 2006)
- GIS Master Reference Documentation (December 2006)
- GIS System Manual (December 2006)

**PHYSICAL IMPROVEMENTS**

- 9 pickup trucks (4x4)
- 1 station wagon
- 7 motorcycles
- 1 Toyota Hiace mini bus
- 1 Mitsubishi double cab pickup
- 3 Laptop computers
- 30+ computer systems, software and LAN, wireless internet
- GIS software (with upgrades)
- 2 Printer plotter
- 2 Photocopier, 7 printers, 3 scanners and other office furniture and equipment (e.g. UPS)
- Radios and repeater stations; cellular phones
- Survey equipment including GPS equipment and software
- Cameras, TVs, video players, multi-media projector (Public Awareness)
- Legal survey: 85 km
- Nursery resuscitation: Mt. Airy, Williamsfield and Moneague
- Rehabilitation of Forestry Department's seed processing facilities
- Restoration of Mango germplasm bank - Orange River
- Extension to the FD building to house the Project staff and equipment

**TRAINING**

- Bachelors Degree: 8
- Technical Diploma: 10
- Masters Degree: 2
- Short-term training in Forest Management Practices II: over 1600 person-days to FD staff as well as to 45 environmental NGOs

**LOCAL FOREST MANAGEMENT COMMITTEE (LFMC)**