

# **ITTO PROJECT COMPLETION REPORT**

## **Project Identification**

**Title:** Implementation of the Sustainable Forest Management Programme of the Iwokrama International Centre

**Serial Number:** PD 297/04 Rev.3 (F)

**Executing Agency:** Iwokrama International Centre

**Host Government:** Republic of Guyana

**Starting Date:** March 1, 2008

**Actual Duration (months):** 18 (March 07 – August 08)

**Actual Project Costs (US\$):** \$702,596.00

## **Part I: Executive Summary**

### **1. Project Background**

PD 297/04 Rev. 3 (F) was approved by the ITTC in May 2006, the Project Agreement was signed in August 2006 and the first disbursement was made in November 2006. However, project execution did not start until March 2007, after finalization of the arrangements with the private sector joint-venture partner which was a key assumption for the development objective. This also allowed time for the procurement of key project equipment and the mobilization of key project personnel.

This project derived from ITTO Project PD 10/97 Rev. 1 (F) “*A Sustainable Management Model in the Iwokrama Rainforest*”, that was completed in April, 2004. Along with a number of other important outputs, that project was able to complete the draft sustainable forest management plan. The principal objective of this project was to complement and support the implementation of that plan. This project was one of the main components of a strategic action developed by Iwokrama with a view to sustainable forest development.

Guyana’s commitment to the principles of sustainable forest management was reflected in the enactment of the Iwokrama Act, which was passed in Parliament on March 14 1996. The Act provided the legal framework for Iwokrama by setting aside approximately 360,000<sup>(1)</sup> ha of rainforest, established the Iwokrama Centre for Rainforest Conservation and Development and placed the management of the Iwokrama Programme Site under the Centre.

At the time of project start-up, Iwokrama had worked to support the building of community and national institutions and forged the basis for collaborative management. Iwokrama had also developed substantial built infrastructure within the Iwokrama Forest including a field research station, eco-tourism facilities, canopy walkway, ranger stations and satellite camps.

<sup>(1)</sup> The Iwokrama Act of 1996 describes the Forest as being approximately 360,000 ha, however GIS mapping shows the actual size of the Iwokrama Forest to be 371, 681 ha.

The development objective of the project was to address the lack of knowledge and general misunderstanding about the sustainable nature of forest activities and the profitability of forest utilization.

The first specific objective of the project was to manage the area in order to maximize net revenue from sustainable production of forest goods and services, while developing local employment and training opportunities and providing capacity building and technology transfer programmes for the Amerindian communities.

The second specific objective was to demonstrate, through effective monitoring, how the approach adopted is delivering lasting ecological, economic and social benefits to local, national and international communities.

Five key outputs were envisaged from the project as follows:

1. Training and technology transfer in the development and implementation of silvicultural programmes provided.
2. Training and technology transfer in operational practices related to forest management provided.
3. Forest management and silviculture counterparts trained.
4. Socio-economic monitoring programmes developed and implemented to evaluate the impact of the forest management activities on the local Amerindian communities.
5. Bio-physical monitoring programmes developed to evaluate the impacts of forest use on flora, fauna, water and soil resources.

The sustainable management of natural tropical forests requires a population with sufficient knowledge about organization and planning of forest production, including silvicultural techniques, to ensure sustainability. Iwokrama's strategy for the implementation of the sustainable forest management plan was through the development of human resources from local communities through on-the-job training.

As Iwokrama would be in the process of implementing the harvesting component of the management plan through their joint venture partnership, the intent of the present project was to provide capacity building, training and technology transfer programmes, as well as to develop and implement complementary operations and procedures for the management plan such as silvicultural programmes; RIL harvesting procedures; and the establishment and initial measurement of a permanent sample plot system.

The project would implement a programme for monitoring bio-physical and socio-economical impacts of forest use, based on an Integrated Monitoring Protocol to be developed for the entire Iwokrama operation.

The current National Forest Policy recognizes the vital role of the forests in maintaining the earth's climate and ecosystems and that they are an increasingly important source of income and wealth for national development. Forest laws are being reviewed and updated to support the implementation of the new policy.

The overall objective of Guyana's National Forestry Policy is: *The conservation, protection, management and utilization of the nation's forest resources, while ensuring*

*that the productive capacity of the forests for both goods and services is maintained or enhanced.*

The Guyana Forest Commission has benefited from a number of international donor projects, including support from ITTO in the development of a RIL training centre; fire management strategy; and utilization of lesser known species, among others

The project's planned duration was 18 months with an overall budget of USD 702,596 of which ITTO contributed USD 406,836. The project's duration was not extended and no additional funding was requested.

## **2. Project Achievements**

### **2.1 Outputs Achieved**

**Output 1.1** - Training and technology transfer in the development and implementation of silvicultural programmes

All activities under this Output were achieved as planned. Selected Iwokrama staff and members of the local Amerindian communities were involved in all phases of the work from inception and design through field establishment and measurement to final data analysis and mapping. The principal activities were:

- The volume and decay study of 155 trees of 23 species was completed and the field data was processed and analyzed. Outputs included an improved system for assessing defects and estimating volumes in standing trees for forest inventories;
- A total of 12 PSPs were established (2 in each of the 4 major commercial forest types for long term growth and yield assessment, plus 4 to assess the effects of different harvesting intensities). Outputs include a PSP database, key map, detailed plot maps and guidelines for remeasurement;
- Development of data management programs with links to the GIS mapping system for pre-harvest inventories, Volume & Decay studies and PSPs;
- Reforestation programme activities that included seed and seedling collection; nursery establishment and field species trials;
- Iwokrama's sustainable forest management programme and timber harvesting operation received FSC certification in January 2008;
- The ITTO Criteria and Indicators for SFM were applied at project start-up and again at project completion.

**Output 1.2** - Training and technology transfer in operational practices related to forest management

Operational training was completed for the volume and decay field work, the permanent sample plot field work, the pre-harvest inventory field work and supervision and monitoring of harvesting operations. Additional training was provided to field personnel in: principles of SFM and FSC certification, the GFC

Code of Practice, occupational health and safety, labour laws (ILO) and the National Insurance Scheme (NIS).

The ITTO Project team was also provided with the opportunity to provide training to trainees participating in Iwokrama's "Ranger", "Tour Guide" and "Collaborative Management" training programmes, in the form of lectures, visual aids and field trips. This training included the principles of SFM and basic silvicultural systems. The majority of the trainees in these programmes were from country-wide indigenous communities.

Reduced Impact Logging (RIL) training in harvest planning, directional felling, skidding, preventative maintenance and forest roads was provided to Iwokrama staff and members of the local communities who were employed by the joint-venture company responsible for timber harvesting.

### **Output 1.3 - Forest management and silviculture counterparts trained**

Forest management training was provided to three (3) counterparts during the course of the project (one university graduate in forestry and two forestry technicians). Subsequent to the completion of the project, a fourth counterpart (with a Master's degree in forestry) took up service with Iwokrama as Assistant Forest Manager. All counterparts received training in the basics of SFM including forest inventory, harvest planning and supervision, as well as maintenance of harvesting production records.

Silviculture counterpart training was provided to three (3) university graduates in forestry (one with a Master's degree) during the course of the project. Key activities undertaken included assisting with the volume and decay study and the permanent sample plot programme, from inception and design through field establishment and measurement to final data analysis and mapping, as well as establishment of the forest nursery and conducting species trials.

### **Output 2.1 – Socio-economic monitoring programme developed**

The final version of the Socio-economic Monitoring Protocol for Iwokrama's forestry based activities was completed. Work shops and consultations were held with the Fair View Village council and residents, as well as with other stakeholder groups within the NRDDDB, to assess critical issues and concerns about the socio-economic impacts of timber harvesting. These sessions also provided information on socio-economic impact monitoring findings to date as well as key indicators that needed to be tracked as part of the Integrated Monitoring System. This process also included assisting Fairview Village with the development of their Community Development Plan.

### **Output 2.2 – Bio-physical monitoring programme developed**

The final version of the Bio-physical Monitoring Framework for Iwokrama's forestry based activities, as well as monitoring manuals were completed. Baseline floral and faunal data was collected for the areas subject to sustainable harvesting activities in 2007, 2008 and 2009. Further baseline data will continue to be collected for subsequent harvesting areas. The bio-physical monitoring program also covers the extent and severity of soil disturbance and soil erosion,

as well as the protection of water bodies and the monitoring of water quality. To this end, post harvest inventory procedures have been developed for the bio-physical monitoring of Management Units after harvesting has been completed. Road and river monitoring patrols have been established for monitoring site integrity.

A number of the PSPs established under this project (Output 1.1) will assess the impact of different harvesting intensities on the bio-physical environment.

## **2.2 Specific Objectives Achieved**

A qualified forest management team is now in place at Iwokrama, comprised of junior Guyanese professionals. Personnel from the Amerindian communities have been trained and are employed in a variety of forest management, forest harvesting and processing activities. The Joint-Venture timber company (ISTI) is well-established and revenues from the operation have increased exponentially over the duration of the project.

The socio-economic and bio-physical integrated monitoring and evaluation programmes have been developed and implemented. Preliminary studies and stakeholder consultations indicate a high level of satisfaction among the local communities with the new timber operation. Preliminary studies also indicate minimal negative impact to date on flora, fauna, water and soil resources.

## **2.3 Contribution to Achievement of the Development Objective**

Iwokrama has signed Collaborative Management Agreements with Fair View Village and with the NRDDB for the management of the resources of the Iwokrama Forest. Iwokrama created a wholly-owned subsidiary company – Iwokrama Timber Inc. (ITI), to manage the sustainable timber business. ITI formed a partnership with Fair View Village through a Shareholders Agreement guaranteeing a percentage of the net timber revenues to Fair View. ITI then formed a joint-venture company (ISTI) with Tigerwood Guyana Inc. (TGI) for the sustainable harvesting, processing and marketing of timber from the Iwokrama Forest.

ITI attained FSC certification in January 2008. TGI is currently exporting in excess of 400 m<sup>3</sup> per month of certified sawnwood, one year after project completion.

## **2.4 Situation at Project Completion**

Through seminars, lectures and hands-on involvement with the timber business, members of the local communities and other stakeholders now have a broader understanding of the basics of SFM and the principles of FSC certification. The concept of sustainable management being demonstrated by ITI is now being used as a model in many of the local communities for the management of their own natural resources.

Communities are represented at the highest levels in the business and have a director on the board of ITI. This representation gives community delegates exposure to high level decision-making and governance issues, improving the scope of their knowledge and their understanding of financial statements, as well as their capacity to bargain.

The timber operation has also provided employment and opportunities for spin-off businesses in the communities.

### **3. Target Beneficiaries Involvement**

The Iwokrama Centre and staff were the most immediate beneficiaries of the project as the results are, and will continue to be, applied directly to the Iwokrama Forest. Iwokrama staff participated directly in all project activities, attended workshops and training programmes and acted as counterparts to international consultants.

The project was designed in consultation with the GFC, which was also a major beneficiary. Collaboration continued with the GFC throughout the design and implementation of the volume and decay study and the PSP programme in order that the results may be integrated into the national system of forestry research.

The Amerindian communities in and around the Iwokrama Forest not only participated in decisions related to project activities, identification of potential economic benefits, training opportunities and potential impact, but also were beneficiaries of training in a number of key forest management disciplines. A large proportion of the permanent staff at Iwokrama's Field Station and at the joint venture timber operation comes from these Amerindian communities.

### **4. Lessons Learned**

#### **4.1 Development Lessons**

##### Project Design –

The aspect of project design which most contributed to the successful completion of the development objective was the firm commitment of all major stakeholders (Iwokrama, Government of Guyana and the local Amerindian communities) to making the joint venture timber operation a reality.

The signing of the Collaborative Management Agreements with the NRDDB and with Fair View Village in 2006, as well as the signing of the Joint-Venture Agreement with Tigerwood Guyana Inc. in 2007 laid the groundwork for the successful implementation of this project.

Finally, the dedication of ITI and TGI management and staff ensured that the fledgling timber operation would survive the difficult start-up phase and eventually achieve FSC certification.

##### Intersectoral Links –

There were no perceived changes in intersectoral links affecting the project. The GFC and their Forestry Training Centre continued to support Iwokrama and the project.

### Improved Cooperation –

Cooperation between the relevant parties interested in the project was at the highest level throughout. No improvement was necessary.

### Project Sustainability –

The factors which will most likely affect project sustainability after completion are:

- Continued support from Iwokrama's International Board of Trustees and senior staff;
- Continued donor support of Iwokrama's core programme;
- The financial sustainability of the joint-venture timber operation;
- Successful timber product placement in both export and domestic markets.

## **4.2 Operational Lessons**

### Project Organization and Management –

This project benefited from the existence of a dedicated project manager who was also Iwokrama's forest manager, focused on the implementation of activities and the achievement of outputs. This allowed the close linkage and over-lapping of project activities with day-to day SFM activities to ensure that activities were carried out in the proper sequence and that adequate specialist input was obtained in a timely manner.

### Project Documentation –

All project documentation was routed through the project manager who had sole responsibility for ensuring that adequate records were maintained of all project activities and specialist's input.

### Monitoring and Evaluation –

The monitoring and evaluation of project planning and implementation was an on-going process and not left solely to bi-annual reviews. Early warning signs were heeded and there was sufficient flexibility in the programme to permit changes in scope and/or budget allocation if deemed necessary for the successful achievement of project outputs.

### Roles and Responsibilities of Institutions Involved –

Iwokrama maintained sole responsibility for project implementation. Other institutions, such as the Government of Guyana, donor representatives and community leaders participated in Steering Committee Meetings, providing advisory input at those times.

### Planned and Actual Implementation –

Actions that can be taken to avoid variations between planned and actual implementation (schedules, costs, etc.) are:

- Pragmatic research and planning prior to project formulation;
- Assignment of an experienced, full-time project manager;
- Maintain a clear focus on goals and allow no deviations;
- On-going and consistent monitoring and evaluation;
- Flexibility to revise scope and/or budget allocations if warranted.

#### External Factors (Foreseen) –

One of the principal external factors that influenced project implementation, that should have been foreseen, was the difficulty in obtaining consultants' input within the optimum time frame.

#### External Factors (Unforeseen) –

No unforeseen external factors affecting project implementation were apparent.

## **5. Recommendations**

Project staff would make the following recommendations to improve the effectiveness and efficiency of future similar projects:

#### Pragmatic research and planning prior to project formulation:

Staff must be fully cognizant of the material and human resources required to carry out the project successfully. They must also ensure that the project objectives are realistic and attainable.

#### Assignment of an experienced, full-time project manager:

Complex projects require a full-time project manager for the duration of the project, focused on the implementation of activities and the achievement of outputs, within project budget limitations. The project manager must have project management experience as well as experience in the principal disciplines involved. The project manager would provide the planning and organization necessary to ensure that activities are carried out in the proper sequence and that adequate specialist input is obtained in a timely manner. The project manager would also be responsible for project documentation and maintaining the project "history" and continuity, as well as ensuring on-going liaison with other institutions involved in project implementation.

#### On-going monitoring and evaluation:

Close, critical analysis of project progress must be an on-going process. This could be handled through internal bi-monthly reviews with all parties involved in project implementation. Frank assessments must be made if a project is not performing to desired expectations and measures taken to determine the root cause of delay or failure and to take immediate corrective action.



## **Part II: The Project**

### **1. Project Content**

#### **1.1 Origin**

This project derived from ITTO Project PD 10/97 Rev. 1 (F) “*A Sustainable Management Model in the Iwokrama Rainforest*”, that was completed in April, 2004. Two important outputs of that project were the management level forest inventory and the marketing and utilization study. Based on this information, the project was able to complete the technical-economical feasibility study and the draft sustainable forest management plan. The principal goal of this project was to complement and support the implementation of the management plan.

#### **1.2 Development Objective**

The development objective of the project was to address the lack of knowledge and general misunderstanding about the sustainable nature of forest activities and the profitability of forest utilization.

#### **1.3 Specific Objectives**

The first specific objective of the project was to manage the area in order to maximize net revenue from sustainable production of forest goods and services, while developing local employment and training opportunities and providing capacity building and technology transfer programmes for the Amerindian communities.

The second specific objective was to demonstrate, through effective monitoring, how the approach adopted is delivering lasting ecological, economic and social benefits to local, national and international communities.

#### **1.4 Project Rationale**

With support from the International Tropical Timber Organization, the planning process had been developed for the management of the Iwokrama Forest. Project PD 10/97 Rev.1 “*A Sustainable Management Model in the Iwokrama Rain Forest*” completed the draft Sustainable Forest Management Plan. The process included the development of plans to attract business partners and bring appropriate financial capital for developing forest based businesses both within the area and in neighboring community lands, as well as the kind of business partnerships needed.

The challenge for the Iwokrama Centre was to implement the Sustainable Forest Management Plan and manage the area to maximize net revenue from sustainable production of forest goods and services and demonstrate, through effective monitoring, how the approach adopted is delivering lasting ecological, economic and social benefits to local, national and international communities.

The main problem that the project had to address was the lack of knowledge and general misunderstanding about the sustainable nature of forest activities and the profitability of forest utilization. Some stakeholders were ignoring the real potential of

Iwokrama's forest resources and their potential to generate sustainable income.

An important group of stakeholders was made up of indigenous people organized in their respective communities, who suffered from the same problem of lack of information and misunderstanding about forest management. Although these communities have always lived in and depended on the forest for their livelihood, timber harvesting to supply the market had never been one of their main activities.

Furthermore, most of the stakeholders were unaware of the results obtained through the implementation of forest management projects and did not have any knowledge of the potential of the growth dynamics of the forest, which have allowed forest professionals to design silvicultural techniques that would ensure sustainability in forest utilization practices.

In view of this situation, the project considered it necessary to complement and support the implementation of the Sustainable Forest Management Plan, including the provision of counterpart training to Iwokrama staff in key management areas, as well as capacity building, training and technology transfer at the community level. Local communities and future forestry workers needed to know how to manage the forest based on GFC and ITTO guidelines and understand the results of specific forest management experience in the country.

Also, the project considered it important to implement a comprehensive monitoring system that would evaluate the impact of the activities within the Sustainable Use Area (SUA). Results of the monitoring program would be used to assess current activities and to take corrective measures, if necessary.

## **1.5 Project Location**

The 371,681 ha Iwokrama Forest is located about 345 km south of Georgetown in Guyana's central highland region and is part of the Guiana Shield geological formation (figure 1). It is bounded roughly by the Siparuni and Essequibo Rivers in the north, north-west and north-east. To the south it is bounded by the Siparuparu and Burro-Burro Rivers as well as the Rupununi District.

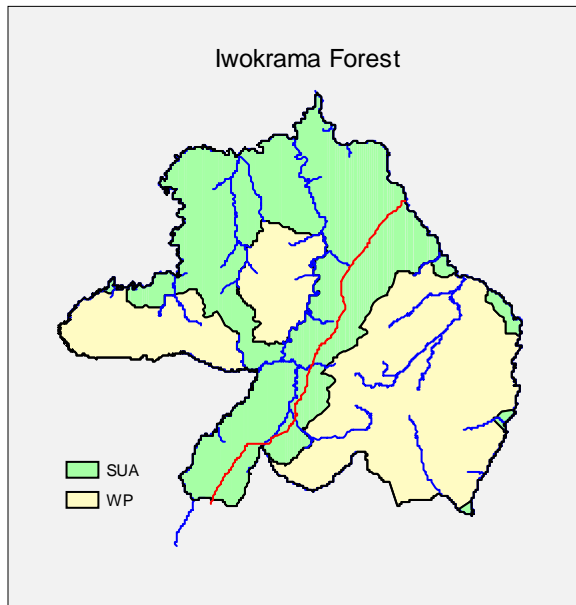
The Iwokrama Forest has been zoned into a Sustainable Use Area (SUA) containing 184,506 ha and a Wilderness Preserve (WP), containing 187,175 ha of forest (figure 2). Timber harvesting will occur in parts of the SUA, but is not permitted in the WP. The WP is intended to maintain biodiversity and to serve as control for the sustainable management of the SUA.

Access is provided by the public road from Georgetown to the Brazilian border, south of the Forest, at Lethem. This road has been recently upgraded so that the drive can be made from Georgetown to Kurupukari, on the northern limit of the Forest, in 5 or 6 hours. The new all-weather Kurupukari-Brazil road bisects the Forest for about 75 km.

Figure 1. Location of Iwokrama Forest



Figure 2. Iwokrama's zones - Sustainable Use Area (SUA) and Wilderness Preserve (WP)



## 1.6 Previous Preparatory Activities

Numerous studies and consultancies were carried out to help to better define the resources of the Iwokrama Forest and develop the Iwokrama work programme. Several other national efforts undertook similar problem analyses which were incorporated into Iwokrama's planning process, such as the National Tropical Forest Action Plan, the design of an ODA-funded project to support the GFC and the design of the Tropenbos-Guyana programme.

Characterization of the Forest had been advanced through mapping of forest types, surveys of flora and fauna and entry of that data into a geographic information system.

Prior to the execution of this project, Iwokrama created a wholly-owned subsidiary company – Iwokrama Timber Inc. (ITI), to manage the sustainable timber business. ITI then formed a tri-partite relationship (Iwokrama Sustainable Timber Inc. (ISTI)) with a Guyanese private sector company and the local communities of the North Rupununi, as represented by the North Rupununi District Development Board (NRDDB). This new partnership would manage the timber operations within the Iwokrama Forest while ITI undertook monitoring and the provision of forest management services to the new company. The project, as proposed, would help Iwokrama to address the lack of knowledge and general misunderstanding about the sustainable nature of forest activities and the profitability of forest utilization and build institutional capabilities toward financial self-sufficiency, while developing local employment and training opportunities and providing capacity building and technology transfer programmes for the Amerindian communities.

At the time of project start-up, Iwokrama had worked to support the building of community and national institutions and forged the basis for collaborative management. Iwokrama had also developed substantial built infrastructure within the Iwokrama Forest

including a field research station, eco-tourism facilities, canopy walkway, ranger stations and satellite camps.

### **1.7 Intended Situation after Project Completion**

At the conclusion of the project, a model would be in place to develop, test and demonstrate techniques of sustainable forest management, which take into account international best practices and forest certification. The process of implementing this model would serve to operationalize and refine the ITTO Guidelines on Sustainable Tropical Forest Management, RIL guidelines and the GFC's Code of Practice, into best practice for sustainable forest management under local conditions.

Through seminars, lectures, training and hands-on involvement with the timber business, members of the local communities and other stakeholders would have a broader understanding of the basics of SFM and the principles of FSC certification. The concept of sustainable management being demonstrated by ITI could then be used as a model by other forest companies, as well as by the local communities for the management of their own natural resources.

### **1.8 Target Beneficiaries and Others Affected**

People from local Amerindian communities, the private sector, the GFC, the University of Guyana and the Iwokrama Center itself would benefit from the results of the project. All trained people would be directly benefited. Through the development of information on a range of forest management practices and opportunities to share this experience with the private sector; stakeholders and other countries and institutions interested in tropical rain forest conservation and management would benefit from the results of this project.

The local Amerindian communities would be adequately informed on the benefits of sustainable forest management based on reduced impact logging techniques and would have a better understanding of forest harvesting activities and the fact that sound forestry practices will have a low impact on the environment.

Stakeholders would become aware of the importance of protecting the environment to ensure quality of life of present and future generations and would also be aware that the best way to achieve this goal is by implementing forest management plans based on sound principles and guidelines.

The project was designed in consultation with the GFC, which would be one of the most direct beneficiaries through application of practices developed and through training provided. Iwokrama would continue to facilitate consultation with both its national and international stakeholders. During implementation, workshops and other forms of consultation specific to the project were foreseen with the Amerindian communities, industry, the GFC, regional training institutions and others.

The dissemination of information and research results is fundamental to any research program. This was being facilitated by the creation of an international information and communication resource unit. Target audiences included local Amerindian communities, Iwokrama staff, the Guyanese public, and fellow researchers in the international community. This component also included a geographic information system and

database for ease of information management.

## **1.9 Project Strategy**

Many other institutions are carrying out research and training on tropical forest management but Iwokrama is unique in that it can combine research, training and the commercial application of a project of reasonable size in its own forest, thereby increasing opportunities for learning and ensuring feedback into improved management practices. Iwokrama also has the advantage of a virtually undisturbed forest, ready to apply state of the art procedures.

The sustainable management of natural tropical forests requires a population with sufficient knowledge about organization and planning of forest production, including silvicultural techniques, to ensure sustainability. Therefore, Iwokrama aims to implement the sustainable forest management plan through the development of human resources. It is recognized that in general, people from local communities are individuals with an empirical knowledge on the activities they implement, who wish to improve their knowledge base but not through formal studies. In view of this, the project would help to satisfy this need for knowledge and information through on-the-job training.

Iwokrama would be in the process of implementing the harvesting component of the management plan through their joint venture partnership – Iwokrama Timber Inc. Therefore the intent of the present project was to provide capacity building, training and technology transfer programmes, as well as to develop and implement complementary operations and procedures for the management plan such as silvicultural programmes, RIL harvesting procedures and the establishment and initial measurement of a permanent sample plot system.

The project would implement a programme for monitoring bio-physical and socio-economic impacts of forest use, based on an Integrated Monitoring Protocol to be developed for the entire Iwokrama operation.

Iwokrama would apply the ITTO C&I at both the start and end of project implementation in a manner that would allow an assessment of the progress achieved towards sustainable forest management during the project's timeframe.

## **1.10 Risks**

The principal risk that could have affected the implementation of this project would be a delay in locating a joint venture partner and in setting up the operating company. Secondary to that was the risk that the timber operation would prove to be financially unviable. This would directly affect two of the outputs of the project. The outputs that would be affected are related to the local Amerindian communities' on-the-job training and the monitoring of the impact and economics of timber harvesting.

Another risk that was envisaged at the time the project proposal was submitted, but that was resolved prior to project approval, was that Iwokrama and Fair View would be unable to reach a collaborative management agreement for the management of Fair View's titled lands within the Iwokrama Forest.

## 1.11 Outputs

**Output 1.1** - Training and technology transfer in the development and implementation of silvicultural programmes

Silvicultural programmes would be developed as per the Sustainable Forest Management Plan. Training and technology transfer in programme development and implementation would be carried out as part of this output. Key silvicultural programmes that would be considered were:

- Volume and decay study
- PSPs for growth and yield assessments
- Data compilation
- Reforestation programmes
- Forest certification

As Iwokrama Timber Inc would include partnership with a representative body of the Amerindian communities, these communities would benefit directly from this output as they would be part owner/operators of the timber company.

### **Activity 1.1.1** – Design Volume and Decay and Growth and Yield Programmes

A volume and decay study would be designed for Iwokrama's key species in order to improve on current risk class and log grade assessment used in forest inventories. Design work would include species and site selection, measurement methodology, data entry, compilation and data analysis.

A growth and yield PSP programme would be developed for Iwokrama in order to improve on the growth models developed for other regions in Guyana. The development would include PSP design, data collection specifications, re-measurement parameters, data entry, compilation, data analysis and mapping.

As part of Iwokrama's goal to build capacity in the Amerindian communities, representatives of these communities would be involved in this design and development stage.

### **Activity 1.1.2** – Volume and Decay Study

Professional oversight and supervision would be provided for the implementation of the volume and decay study. Personnel from the Amerindian communities would be employed and trained to carry out the fieldwork, which was expected to take about three months.

### **Activity 1.1.3** – Volume and Decay Data Compilation and Analysis

The data from the volume and decay study would be compiled and analyzed for

the development of new forest inventory risk class guidelines. The revised guidelines would be incorporated into the volume compilation programmes.

#### **Activity 1.1.4 – PSPs for Growth and Yield Assessment**

Professional oversight and supervision would be provided for the establishment, initial measurement and the first annual control of the PSPs. PSP databases would be designed and set-up. Personnel from the Amerindian communities would be employed and trained to carry out the fieldwork and data entry, which was expected to take six months in year one and six months in year two of the project.

#### **Activity 1.1.5 – Compilation and Mapping**

It was proposed to use electronic data recorders for the volume and decay study as well as for the PSPs, therefore, the data recorder programming would need to be developed as part of the design process. Data recorder programs would also be designed for the pre-harvest inventories.

GIS mapping procedures would be developed for handling the pre-harvest inventory tree location map data.

#### **Activity 1.1.6 – Reforestation Programme Development**

Professional oversight and supervision would be provided for the development of a reforestation/enrichment planting programme utilizing native tree species. This activity would include seed collection, nursery establishment and species trials. Personnel from the Amerindian communities would be involved in all phases of this activity.

#### **Activity 1.1.7 – Forest Certification**

Iwokrama would need to obtain certification of its forest management, harvesting and processing activities. A forest certification programme would be selected through a consultation and review process with the principal certification agencies. Certification procedures would be implemented with the view of obtaining full certification in the shortest possible time. Personnel from the Amerindian communities will be involved in all phases of this activity.

#### **Activity 1.1.8 – Application of ITTO C&I**

Iwokrama would apply ITTO Criteria and Indicators at both the onset and end of project implementation, in a manner such that it would allow an assessment of the progress achieved towards sustainable forest management during the project's timeframe.

### **Output 1.2 - Training and technology transfer in operational practices related to forest management**

One of the essential goals of Iwokrama is to provide capacity building, training and technology transfer to the local Amerindian communities. To this end, a variety of training programmes in operational practices related to forest management, harvesting and processing were proposed.

The majority of the training programmes would be carried out as on-the-job training and therefore would be implemented as the various key activities came on stream.

**Activity 1.2.1 – Volume and Decay, Forest Inventory and PSP Training**

Personnel that were trained in forest inventory procedures during the original ITTO Project would be invited back for additional basic training, as well as training in the execution of pre-harvest forest inventory, volume and decay studies and PSP establishment.

**Activity 1.2.2 – Reduced Impact Logging (RIL) Training**

Personnel from the local Amerindian communities would be employed in many of the harvesting activities and, as such, would receive training in RIL procedures. This would include cut-block layout and line cutting, pre-harvest inventory, tree marking and vine-cutting, skid trail layout, directional felling techniques and post-harvest assessment. Persons with experience in the operation of heavy machinery would receive RIL training in road construction and skidding. It is proposed to provide training to approximately 24 persons from the local communities in RIL techniques.

**Output 1.3 - Forest management and silviculture counterparts trained**

Iwokrama would provide counterparts to the forest manager and the silvicultural forester for on-the-job training. These counterparts must have appropriate levels of education and experience in order to take full advantage of the counterpart training.

**Activity 1.3.1 – Forest Management Counterpart Training**

The forest manager would train one (1) Guyanese national over a 16 month period so that, at the end of this period, the counterpart may assume full responsibility for this position.

**Activity 1.3.2 – Silviculture Counterpart Training**

The silvicultural forester would train one (1) Guyanese national over a 16 month period so that, at the end of this period, the counterpart may assume full responsibility for this position.

**Output 2.1 – Socio-economic monitoring programme developed**

This output was designed to permit the qualitative and quantitative evaluation of the social and economical impacts on the local Amerindian communities as a direct result of



the forest management activities.

#### **Activity 2.1.1 – Monitoring Impact of Forest Use in Communities**

The monitoring of socio-economic impacts of forest use on native communities would involve participatory monitoring and evaluation in three villages: Fairview, Surama and Wowetta. Monitoring protocols would be developed and implemented over the life of the project.

#### **Activity 2.1.2 – Design and Implement Monitoring Database**

A forest impacts monitoring database would be required to handle the input and analysis of data from a variety of monitoring sources. This activity would include the design of data collection forms or the programming of electronic data recorders, as well as designing data processing and analysis systems. Iwokrama staff would provide data entry and compilation inputs.

#### **Output 2.2 – Bio-physical monitoring programme developed**

Part of the objective to demonstrate the sustainability of sound forest management for the multiple uses of a tropical rainforest is the implementation of programmes for the patrolling, monitoring and evaluation of the bio-physical impacts of forest use.

The original project activities were revised to comply with and to be mainstreamed into the “Integrated Monitoring Protocol” that was being developed for the Iwokrama Programme Site. Four key bio-physical monitoring protocols were selected: flora, fauna, water and soil resources.

#### **Activity 2.2.1 – Monitoring Impact of harvesting on flora**

Iwokrama would establish a system of Permanent Sample Plots (PSP) to assess the impact of harvesting on growth dynamics. Post-harvest inventory procedures would be developed to assess the impact of harvesting on the residual stand.

#### **Activity 2.2.2 – Monitoring Impact of harvesting on fauna**

The impact of harvesting on key indicator fauna populations would be carried out through routine observations during road and river patrols, as well as in established plots in both logged and unlogged forests.

#### **Activity 2.2.3 – Monitoring Impact of harvesting on water resources**

Water quality would be measured at defined locations on a regular schedule to assess the impact of harvesting. Key faunal indicators would also provide input on water quality.

#### **Activity 2.2.4 – Monitoring Impact of harvesting on soils**

Post-harvest inventory procedures would be developed to assess the impact of harvesting on soils.

#### **Activity 2.2.5 – Design and Implement Monitoring Database**

A forest impacts monitoring database would be required to handle the input and analysis of data from a variety of monitoring sources. This activity would include the design of data collection forms or the programming of electronic data recorders, as well as designing data processing and analysis systems. Iwokrama staff would provide data entry and compilation inputs.

### **1.12 Work Plan**

The original Project Workplan and the final Workplan Review are included in Appendix I.

### **1.13 Project Inputs**

Inputs applied are included in Appendix II.

### **1.14 ITTO Context**

This project was consistent with the objectives of the International Tropical Timber Agreement (ITTA), 1994, in particular the following:

- Objectives (c), (d) and (f): The project will contribute to the implementation of the Sustainable Forest Management Plan, including the provision of counterpart training to Iwokrama staff in key management areas, as well as technical training at the community level.
- Objective (g) and (j): The project will contribute to the dissemination of knowledge generated in the country and overseas on sustainable forest management and will apply forest management practices taking into account the interest of the local communities.
- Objective (i): The project will contribute to the implementation of national policies aimed at sustainable forest utilization maintaining the ecological balance and the conservation of genetic resources in the Iwokrama Forest.

According to the *ITTO Yokohama Action Plan 2002-2006*, this project is related to the field of reforestation and forest management.

The project was particularly related to Goal 2, promoting sustainable management of tropical resources; Action 1 - promoting the implementation of ITTO guidelines and C&I; Action 2 - promoting the implementation of sustainable forest harvesting, including RIL; Action 6 - monitoring and assessing the social and environmental costs and benefits of sustainable management of natural resources; Action 9 - implementing procedures to obtain full certification in the shortest possible time to enhance market acceptance of tropical timber; and Action 10 - since the following activities are contemplated in this project:

- Implement forest inventories and determine the sustainable yield capacity of each forest management unit through the application of appropriate resource assessment methods, incorporating these into forest management plans;
- Improve the formulation and implementation of plans for sustainable forest management, with particular emphasis on harvest limits;
- Implement appropriate forest harvesting, including RIL;
- Improve the productive capacity of Iwokrama Forest through intensified silvicultural practices;
- Establish and manage forests for multiple uses in close cooperation with local communities;
- Establish areas dedicated to biodiversity conservation;
- Design and establish a Permanent Sample Plot (PSP) network in the Iwokrama forest to study forest dynamics (growth and yield) in different forest types and under various management schemes;
- Strengthen the training of Iwokrama staff and intensify training of forestry personnel and other stakeholders in silviculture, RIL and resource management.

## 2. Project Context - Relevance to National Policies

### 2.1 Relationship to Sectoral Policies Affecting Tropical Timber

The project was in accord with the National Forest Action Plan (1989) and the National Environmental Action Plan (1994) which set out the general policies.

The current National Forest Policy recognizes the vital role of the forests in maintaining the earth's climate and ecosystems and that they are an increasingly important source of income and wealth for national development. Forest laws are being reviewed and updated to support the implementation of the new policy.

The overall objective of Guyana's National Forestry Policy is: *The conservation, protection, management and utilization of the nation's forest resources, while ensuring that the productive capacity of the forests for both goods and services is maintained or enhanced.*

Specific objectives are to:

- Promote sustainable and efficient forest activities which utilize the broad range of forest resources and contribute to national development while allowing fair returns to local and foreign entrepreneurs.
- Achieve improved sustainable forest resource yields while ensuring the conservation of ecosystems, biodiversity, and the environment.
- Ensure watershed protection and rehabilitation: prevent and arrest the erosion of soils and the degradation of forests, grazing and reforestation; and protect the forest against fire, pests and other hazards.

The most specific policy statement to which this project responds is the Iwokrama International Rain Forest Conservation and Development Act (1996), passed with bipartisan support by the Parliament of Guyana in March 1996. This is “*an Act to provide for the sustainable management and utilization of approximately 360,000 hectares of Guyana’s tropical rainforest dedicated by the Government of Guyana ... for the purposes of research by the Iwokrama International Centre to develop, demonstrate and make available to Guyana and the international community systems, methods and techniques for the sustainable management and utilization of the multiple resources of the tropical forest and the conservation of biological diversity ...*”

## **2.2 Relationship to Forest Management Policies**

Over the past 15 years, the Guyana Forestry Commission has, with assistance from a number of donors, undergone considerable transformation, developing a new Forest Policy and completely redrafted legislation together with a national Code of Practice. Institutional structure and procedures have been revised, infrastructure rehabilitated and personnel trained. Certificate, diploma and degree courses have been updated and the institution has a new and positive *persona*. Guyana was also the beneficiary of almost 20 years of support in forest ecology research, largely from Tropenbos. The forest resource side has therefore been quite well addressed.

The Overseas Development Administration (ODA) of the British Government has been providing technical assistance since 1994 to the Guyana Forestry Commission under a project for the "Institutional Capacity Strengthening of the GFC." Activities included are the organizational restructuring of the GFC; new wages and salary structure to attract and retain trained staff; the completion of the National Forest Policy; a review of revenue systems; law revision; and education and training support programmes for staff to improve administrative, management and forest monitoring capabilities.

Guyana has already benefited from ITTO support for training in Reduced Impact Logging and has also hosted a number of regional training courses.

The Guyana Forestry Commission is currently collaborating with the Environmental Protection Agency to implement and maintain strict environmental management and monitoring programmes of the forest resources of Guyana. To this end the GFC established an Environmental Unit in 1995 to perform these functions. The Inter-American Development Bank was involved in supporting this activity. Through the Natural Resources and Environmental Advisory Committee, the GFC is working with other natural resource agencies to better co-ordinate all planning functions and strategies at a national level.

According to statistics from the Food and Agriculture Organization, the annual rate of deforestation in Guyana is negligible at less than 1%. The GFC has stepped up its programme to monitor deforestation and other activities in the state forests while examining measures to combat unacceptable practices. Natural regeneration of the species composition is currently encouraged. Local forests still supply all the domestic demands for timber, and there is no evidence of any scarcity.

The Forestry Commission has successfully introduced improved systems to ensure

better collection of forest revenue and the Government has recently approved increases in Royalty and Acreage Fees for logging and sawmilling operations.

The GFC has created buffer zones around Amerindian villages and has streamlined logging activities to prevent encroachment on these communities. Currently the Commission is collaborating with the Ministry of Amerindian Affairs to demarcate Amerindian land boundaries.

The Forestry Training Centre Inc. (FTCI) has developed a training program on Reduced Impact Logging (RIL) techniques for Guyanese forest operatives (including students and NGOs) with technical guidance from the Tropical Forest Foundation. FTCI is a direct result of collaboration between ITTO, TFF, GFC and FPA, with additional support from WWF-Guianas.

Together with the Guyana Forestry Commission and the FTCI, the Iwokrama Center for Rain Forest Conservation and Development plans to establish models for continued training, demonstration and research on sustainable forest management and reduced impact logging at its field site. While FTCI's present goal is to contribute to a higher level of sustainable forest management for Guyana's forests in general by providing RIL training to forestry sector operators, Iwokrama's immediate goal is to undertake capacity building in a wider range of integrated forest management practices for its own staff or contractors and the Amerindian communities in and around the Iwokrama Forest. A number of senior staff member of Iwokrama have participated in FTCI's decision makers' course and reviewed FTCI's training practices; and FTCI and Iwokrama intend to improve collaboration through the exchange of training manuals, the exchange of resource personnel and some measure of integration and standardization of their RIL training activities.

Both FTCI and Iwokrama envisage their long-term goal to be an eventual merger which would provide FTCI with a permanent demonstration area for RIL and associated forest management training activities within Iwokrama's actual harvesting area. Such a merger will ensure that in the long term RIL practices are fully integrated with other forest management practices in an established model forest operation. This idea will be discussed further with the respective stakeholders of both institutions.

FTCI and Iwokrama have signed a Memorandum of Understanding to improve collaboration as both agencies strive to improve local forest practices.

### **3. Project Design and Organization**

#### **3.1 Identification Phase of the Project**

During the project identification phase, Iwokrama adequately identified and defined the problems to be faced. Project objectives and outputs were clearly stated and unambiguous. Iwokrama's understanding of the objectives was sound, based on the following statements from the original project proposal:

*"The challenge for the Iwokrama Centre is to implement the Sustainable*

*Forest Management Plan and manage the area to maximize net revenue from sustainable production of forest goods and services, and demonstrate, through effective monitoring, how the approach adopted is delivering lasting ecological, economic and social benefits to local, national and international communities.”*

*“The main problem that the project has to address is the lack of knowledge and general misinformation about the sustainable nature of forest activities and the profitability of forest utilization. Some stakeholders are ignoring the real potential of Iwokrama’s Forest resources and their potential to generate sustainable wealth.”*

*“Furthermore, most of the stakeholders are unaware of the results obtained through the implementation of forest management projects and do not have any knowledge of the potential of the growth dynamics of our forests, which have allowed forest professionals to design silvicultural techniques that will ensure sustainability in forest utilization practices.”*

Iwokrama's choice of ITTO as the most appropriate agency to fund the implementation of a sustainable forest management model in a tropical rainforest was a well-conceived and logical management decision.

### **3.2 Conceptual Foundation of the Project**

Project rationale was sound and, for the most part, it correctly recognized the problems to be addressed, as well as the required outputs to achieve the stated objectives. Planned activities were logical and their implementation was correctly sequenced.

However, although the concept of and rationale for the socio-economic and bio-physical monitoring components of the project were sound at the time the project proposal was prepared, these components underwent a major revision prior to project start-up and during project execution, as explained in the following excerpt from the Detailed Work Plan:

*“Since the project was formulated, Iwokrama has commissioned the establishment of an Integrated Monitoring Protocol for the entire Iwokrama Operation. The monitoring programme that will be supported by this project will therefore be mainstreamed into this overall protocol. Therefore the Indicators and Assumptions with regard to Output 2 must be adjusted to include the mainstreaming of the project monitoring programme into the Integrated Monitoring Protocol.”*

Potential external influences were adequately perceived and measures were put in place to maximize their positive, or minimize their negative, impacts. Two such external influences that were recognized and dealt with in a timely manner were:

- The necessity of forming a joint venture timber company prior to project start-up in order to maximize the value of project outputs;
- The necessity of entering into a Collaborative Management Agreement with Fair View Village that had just received title to land within the project area;

The latter is explained in the following statement from the Detailed Work Plan:

*“Since this project was first formulated, the Amerindian village of Fair View, which is located within the Iwokrama Programme site, has received title to 21,950 ha within the Iwokrama Forest. Therefore, the Indicators and Assumptions with regard to the Development and Specific Objectives must be readjusted to include the finalization of the “Collaborative Management Agreement” and the “Timber Harvesting Agreement” with the Fair View Village Council. These agreements will include specific details with regard to the participation of the Village in the joint sustainable management of the forest resources and the benefits that will accrue to the Village in recognition of their title.”*

### **3.3 Adequacy of Resources for Project Formulation**

This project underwent three revisions and took two years from project formulation to final approval and funding. Fortunately the cost associated with this extensive effort was borne by donor funding from the Commonwealth Secretariat.

### **3.4 Understanding of Roles and Responsibilities**

The Iwokrama Centre understood their role as Executing Agency of this project, as well as their legal responsibility for the management, conservation and sustainable development of the Iwokrama Forest.

The role of ITTO as the funding agency and their responsibility for project monitoring and evaluation was also clearly understood.

The role of the Government of Guyana, through the Guyana Forestry Commission (GFC), as a key member of the PSC and as guide and mentor for a number of project activities, was also clearly understood and fulfilled.

### **3.5 Beneficiary Involvement**

The project design clearly considered the involvement of key beneficiary groups (aside from Iwokrama and the GFC), such as Amerindian communities that were directly involved in project activities through collaborative management agreements. Local and international NGOs, local forest industries and the Guyanese public in general were also involved. This involvement was most apparent during the FSC certification process through public consultations, workshops and presentations of Iwokrama’s public summary of SFM processes.

## **4. Project Implementation**

### **4.1 Critical Differences between Planned and Actual Implementation**

The overall project budget was maintained, although there were differences in some of the components and budget line items, specifically Component 10 – Project Personnel

and Component 30 – Duty Travel. This was due to a decision made at the March 2008 Steering Committee Meeting to request the reallocation of funds from under-spent budget line items to accommodate additional time and one additional visit by the GIS/database international consultant.

The overall project schedule was maintained and most critical project activities were completed by the official project completion date of August 31, 2008. However, a number of final reports and manuals were still outstanding and were not completed until December of that year. This work was completed by Iwokrama staff so that no additional budget was required and no time extension was requested.

The proposed schedule for monitoring activities was critically delayed due to the need (as stated in 3.2 above) to await completion of Iwokrama's Integrated Monitoring Protocol for the Iwokrama Forest. The draft protocols were completed in November 2008 and the final documents were completed in May and June 2009. However, a great deal of baseline data was collected during the course of the project and indicators for tracking impacts were developed.

As stated in the Project's final Progress Report: *“The delay in finalizing Iwokrama's Socio-economic and Bio-physical Monitoring Protocols has somewhat affected the implementation of Outputs 2.1 and 2.2 within the project's time-frame; however, as these monitoring activities are part of Iwokrama's mandate to provide a model of SFM and, as monitoring is a requirement of FSC certification, the objectives of these project activities will be achieved.”*

## **4.2 Actions to Avoid Variations**

As stated above (4.1), the only critical variation involved the implementation of the Monitoring activities. This was due to a management decision to subcontract the preparation of the Integrated Monitoring Protocol for the entire Iwokrama operation to an outside consultant. It was also a management decision to “mainstream” this project's monitoring programme into this overall protocol. It was therefore beyond the capacity of the manager of this Project to carry out any action to avoid this delay.

## **4.3 Appropriateness of Assumptions and Identification of Risks**

The assumption that a monitoring programme, based on a report prepared by a biodiversity consultant for Iwokrama in 2002, would be suitable for this project was proved to be incorrect. That programme was too research-oriented and would have been inappropriate for a model of SFM that is intended to be replicated by other operators. For this reason, Iwokrama Management opted to subcontract the preparation of a more appropriate Integrated Monitoring Protocol for the entire Iwokrama operation to an outside consultant, resulting in the unavoidable delays discussed in previous sections of this report.

The risk of delay to project implementation resulting from that management decision was not adequately identified. However, it was an absolutely necessary requirement for Iwokrama's FSC certification process and, in the end, enhanced the final outputs of this project.



#### **4.4 Project Sustainability due to Implementation Conditions**

The principal prevailing condition during project implementation, which ensured project sustainability after completion, was the fact that the Iwokrama Centre was established, by legislation, as a permanent institution with the mandate to sustainably manage the Iwokrama Forest. At the time of completion of this project, Iwokrama was sustainably managing its commercial forest operations in partnership with private enterprise and local communities; therefore, the need for additional ITTO assistance with operational forest management and planning would not be required.

Another important prevailing condition during project implementation, which ensured project sustainability after completion, was the high degree of cooperation and support from the major stakeholders, in particular, the Amerindian communities in and around the project site.

#### **4.5 Appropriateness of Project Inputs**

The financial resources available to this project, from both ITTO and the PEA, were adequate for its successful completion. The human resources, both from Iwokrama staff and project consultants were also adequate to carry out the project activities.

The only difficulty was in the hiring of adequately trained and motivated junior foresters as counterparts for the forest manager and the silviculture forester. This difficulty was eventually resolved towards the end of the project.

### **5. Project Results**

#### **5.1 Situation at Project Completion**

Prior to the implementation of this project, Iwokrama had just entered into a tripartite agreement with a private sector company and with the local communities for sustainable timber harvesting. Initial management and harvesting planning had been completed but the basic principles of SFM had not yet been tested in a production operation. There was still a high level of misunderstanding and apprehension amongst the various stakeholders as to the sustainability of such an operation.

At project completion, Iwokrama had successfully completed two years of sustainable forest management with their partners, although the economic viability was still weak due to high start-up costs and relatively low production. However production projections showed a constant increase to the expected AAC which would result in economic viability within the next two years. Also, by project completion, Iwokrama's SFM programme and harvesting operation had achieved FSC certification.

Finally, the project's planned programmes of information dissemination, training and technology transfer had successfully dispelled the misunderstanding and apprehension with regard to SFM.

## 5.2 Achievement of the Project's Specific Objectives

The specific objectives of the project were to:

1. Manage the area in order to maximize net revenue from sustainable production of forest goods and services, while developing local employment and training opportunities and providing capacity building and technology transfer programmes for the Amerindian communities; and
2. Demonstrate, through effective monitoring, how the approach adopted is delivering lasting ecological, economic and social benefits to local, national and international communities.

The specific objectives were achieved in the following ways:

- Timber production increased from 3,320 m<sup>3</sup> in 2007 to 8,442 m<sup>3</sup> in 2008; the projected production for 2009 is 16,000 m<sup>3</sup> and by 2010 onward, the operation is expected to achieve its allowable cut of 20,000 m<sup>3</sup> per year;
- FSC certification was achieved in January 2008;
- Exports of FSC certified sawnwood are expected to exceed the target of 4,000 m<sup>3</sup> in 2009;
- Local Amerindian employees of the harvesting and milling operations make up 65% of the workforce;
- The majority of the workers have received RIL training in one or more of the following:
  - harvest planning;
  - pre-harvest inventory;
  - directional felling;
  - skidding;
  - preventative maintenance;
  - forest road construction;
- Socio-economic and bio-physical monitoring protocols have been developed and implemented;
- Results of the monitoring programme are used to inform the annual reviews and revisions of Iwokrama's forest management plan.

## 5.3 Impact of Project Results

The impact of this project on other forestry sector programmes in Guyana is difficult to measure and may take more time to be seen than the two and one half years since project start-up. However, the fact that Iwokrama has achieved and maintained FSC certification and the continued success of the operation even in difficult economic times will have a positive impact on the sector.

The project has contributed to the national system of forestry research with additional PSPs as well as with a comprehensive volume and decay study of 23 different commercial and potentially commercial species.

Iwokrama's management systems, particularly with regard to mapping, data processing and reporting are being considered by the Guyana Forestry Commission as a model for

national implementation.

Monitoring activities undertaken to date indicate that the impact of the operation on the physical environment is almost negligible. Post-harvest inventories indicate that residual stocks of key commercial species are still extremely viable. Several independent researchers, carrying out studies on the impact of harvesting on wildlife populations, report that many indicator species have actually increased in numbers in harvested areas.

The impact on the social environment is appreciable. The local indigenous communities, as well as the public in general, now possess an increased awareness of the potential of the Iwokrama Forest for the production of forest goods and services, as well as for training, employment and as a client for support services.

Communities are represented at the highest levels in Iwokrama's timber business and have a director on the board of ITI. This representation gives community delegates the exposure to high level decision-making and governance issues, improving the scope of their knowledge and their understanding of financial statements, as well as their capacity to bargain.

The impact of the project on target beneficiaries is also appreciable. The most obvious is the Iwokrama Centre and its staff who have developed a sense of ownership and commitment to the programme. The experience of carrying out a project of this scope has taught them a great deal about the nature of forest management planning and provided them with skills in project execution. The GFC has benefited from the improved production reporting provided by ITI. Members of the Amerindian communities have received RIL training as well as training to carry out patrolling and monitoring functions and as ecotourism guides.

#### **5.4 Project Sustainability**

As indicated in previous sections of this report, the conceptual foundation of the project was sound and, although there were incorrect assumptions and poor identification of risks, these problems had been overcome by project completion.

In spite of those problems, Iwokrama is sustainably managing its commercial forest operations in partnership with private enterprise and local communities; therefore, the need for additional ITTO assistance with operational forest management and planning will not be required.

The recent initiatives on the part of the Government of Guyana with regard to the sustainable management of the country's forest reserves as a solution to climate change and global warming, as well as their new "Low Carbon Development Strategy" bode well for the continued existence and success of Iwokrama.

The present global economic downturn has resulted in lower export prices for tropical hardwoods and has eliminated nearly all potential price premiums for certified forest products. It is critical, in light of these facts, that Iwokrama's timber operation successfully promotes niche markets for currently marketable species as well as lesser known species found in the Iwokrama Forest.

## 6. Synthesis of the Analysis

<b>6 (a)</b>	Specific Objectives Achievement -	Realized
<b>6 (b)</b>	Outputs -	Realized
<b>6 (c)</b>	Schedule -	Delayed, not seriously
<b>6 (d)</b>	Actual Expenditures -	As Planned
<b>6 (e)</b>	Potential for Replication -	Significant Potential
<b>6 (f)</b>	Potential for Scaling-up -	Significant Potential

## **Part III: Conclusions and Recommendations**

### **1. Development Lessons**

- The Project Executing Agency must carry out pragmatic research and planning prior to project formulation to ensure that project objectives are realistic and attainable;
- The PEA must also be fully cognizant of the material and human resources required to carry out the project successfully;
- Essential groundwork was laid, prior to project start-up, through the signing of collaborative management agreements with the local Amerindian communities and with Tigerwood Guyana Inc. to form the joint-venture timber operation;
- The firm commitment to the project of all major stakeholders (Iwokrama, ISTI, Government of Guyana and the Amerindian communities) contributed greatly to its success;

### **2. Operational Lessons**

- The project was managed by ITI's forest manager, which allowed the close linkage and over-lapping of project activities with day-to day SFM activities to ensure compatibility;
- Community participation was maintained, throughout the duration of the project, in order to ensure their understanding and acceptance of SFM practices;
- Monitoring and evaluation of project implementation was an on-going process; early warning signs were heeded and there was sufficient flexibility in the programme to permit changes in scope and/or budget allocation if deemed necessary for the successful achievement of project outputs;
- Iwokrama maintained sole responsibility for project implementation; other institutions and community leaders participated in Steering Committee Meetings, providing advisory input at those times.

### **3. Recommendations for Future Projects**

#### **3.1 Identification**

Pragmatic research and planning is required prior to project formulation. Staff must be fully cognizant of the material and human resources required to carry out the project successfully.

#### **3.2 Design**

Staff must ensure that the project goals are realistic and attainable. Care must be taken to ensure that the project does not become too ambitious in terms of the number and diversity of disciplines required. The Executing Agency must truly "buy-in" to the project's objectives and not merely accept them as a means for obtaining financing.

### **3.3 Implementation**

Larger projects, over one year in duration and with a cost greater than \$500,000, require a highly focused effort on the implementation of activities and the achievement of outputs, within project time and budget limitations.

### **3.4 Organization**

Large projects require levels of planning and organization necessary to ensure that activities are carried out in the proper sequence and that adequate specialist input is obtained in a timely manner.

### **3.5 Management**

The assignment of an experienced, full-time project manager is essential. The project manager must have project management experience as well as experience in the principal disciplines involved. The project manager would also be responsible for project documentation and maintaining the project "history" and continuity, as well as ensuring on-going liaison with other institutions involved in project implementation.

### **3.6 Monitoring and Evaluation**

Close, critical analysis of project progress must be an on-going process. This could be handled through internal bi-monthly reviews with all parties involved in project implementation. Frank assessments must be made if a project is not performing to desired expectations and measures taken to determine the root cause of delay or failure and to take immediate corrective action. A certain degree of flexibility is required to revise outputs and activities, as well as budget components, if it is determined during the course of the project that these are unrealistic or unattainable.

### **Responsible for the Report**

A handwritten signature in black ink, appearing to read "K. P. Rodney", with a long horizontal flourish underneath.

Kenneth P. Rodney  
Forest Manager

September 21, 2009

**APPENDIX I**  
**WORK PLANS**

**WORK PLAN**  
(Revised - Sept '06)

Outputs/Activities	Responsible Party	Deadline	Schedule (in months)																	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<b>Output 1.1 - Silvicultural programmes developed</b>	FM, SF																			
<b>Activities:</b>																				
1.1.1 - Design V&D / G&Y programmes	SF, FM, DC	end month 2																		
1.1.2 - Volume and decay study	SF, field crews	end month 5																		
1.1.3 - V&D compilation and analysis	DC, FM	end month 12																		
1.1.4 - PSPs for growth and yield	SF, field crews	end month 9																		
1.1.5 - Compilation and mapping	DC, FM, GIS	end month 12																		
1.1.6 - Reforestation programme	SF, FM	end month 18																		
1.1.7 - Forest certification	SF, FM	end month 18																		
1.1.8 - Application of ITTO C&I	SF, FM	end month 18																		
<b>Output 1.2 - Persons from local communities trained</b>	FM, SF																			
<b>Activities:</b>																				
1.2.1 - V&D, Inventory and PSP training	FM, SF	end month 7																		
1.2.2 - RIL Training (sub-contract)	FTCI	end month 2																		
<b>Output 1.3 - Forestry counterparts trained</b>	FM, SF																			
<b>Activities:</b>																				
1.3.1 - Forest management counterpart training	FM	end month 18																		
1.3.2 - Silviculture counterpart training	SF	end month 18																		
<b>Output 2.1 - Socio-economic monitoring developed</b>	DRM, FM																			
<b>Activities:</b>																				
2.1.1 - Monitoring impact of forest use in communities	DRM, FM, IR	end month 18																		
2.1.2 - Design and implement monitoring database	DRM, DC	end month 2																		
<b>Output 2.2 - Biological monitoring developed</b>	DRM, FM, SF																			
<b>Activities:</b>																				
2.2.1 - Monitoring impact of forest use at site level	DRM, SF, IR	end month 18																		
2.2.2 - Monitoring impact of forest harvesting on wide ranging mammals	DRM, SF, IR	end month 18																		
2.2.3 - Monitoring impact of forest harvesting on frugivores	DRM, SF, IR	end month 18																		
2.2.4 - Monitoring impact of forest harvesting on bat fauna	DRM, SF, IR	end month 18																		
2.2.5 - Monitoring impact of forest harvesting on bird fauna	DRM, SF, IR	end month 18																		
2.2.6 - Design and implement monitoring database and mapping	DRM, DC, GIS	end month 12																		

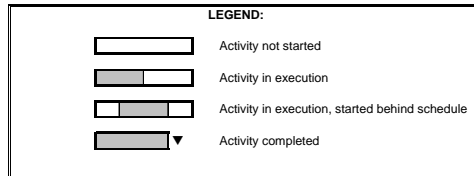
DRM = Director Resource Management; FM = Forest Manager; SF = Silviculture Forester; DC = Database Consultant; GIS = Iwokrama GIS Technician; FTCI = Forestry Training Centre Inc.; IR = Iwokrama Rangers



**WORKPLAN REVIEW - ITTO Project PD 297/04 Rev.3 (F)**  
**Period Covered: March 1, 2007 to December 31, 2008**

Outputs/Activities	Responsible Party	Original Deadline	Schedule (in months)																								Percent Executed
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
			M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D			
<b>Output 1.1 - Silvicultural programmes developed</b>	FM, SF																										
<b>Activities:</b>																											
1.1.1 - Design V&D / G&Y programmes	SF, FM, DC	end month 2	▼																								100%
1.1.2 - Volume and decay study	SF, field crews	end month 5	▼																								100%
1.1.3 - V&D compilation and analysis	DC, FM	end month 12	▼																								100%
1.1.4 - PSPs for growth and yield	SF, field crews	end month 9	▼																								100%
1.1.5 - Compilation and mapping	DC, FM, GIS	end month 18	▼																								100%
1.1.6 - Reforestation programme	SF, FM	end month 18	▼																								100%
1.1.7 - Forest certification	SF, FM	end month 18	▼																								100%
1.1.8 - Application of ITTO C&I	SF, FM	end month 18	▼																								100%
<b>Output 1.2 - Persons from local communities trained</b>	FM, SF																										
<b>Activities:</b>																											
1.2.1 - V&D, Inventory and PSP training	FM, SF	end month 7	▼																								100%
1.2.2 - RIL Training (sub-contract)	FTCI	end month 4	▼																								100%
<b>Output 1.3 - Forestry counterparts trained</b>	FM, SF																										
<b>Activities:</b>																											
1.3.1 - Forest mgmt counterpart training	FM	end month 18	▼																								100%
1.3.2 - Silviculture counterpart training	SF	end month 18	▼																								100%
Outputs/Activities	Responsible Party	Original Deadline	Schedule (in months)																								Percent Executed
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
			M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D			
<b>Output 2.1 - Socio-economic monitoring developed</b>	DRM, FM																										
<b>Activities:</b>																											
2.1.1 - Monitoring impact of forest use in communities	DRM, FM, IR	end month 18	▼																								100%
2.1.2 - Technical design and implementation of the monitoring plan	DRM, DC	end month 2	▼																								100%
<b>Output 2.2 - Bio-physical monitoring developed <sup>1</sup></b>	DRM, FM, SF																										
<b>Activities: (Revised)</b>																											
2.2.1 - Monitoring impact of harvesting on flora	DRM, SF, IR	end month 18	▼																								100%
2.2.2 - Monitoring impact of harvesting on fauna	DRM, SF, IR	end month 18	▼																								100%
2.2.3 - Monitoring impact of harvesting on water resources	DRM, SF, IR	end month 18	▼																								100%
2.2.4 - Monitoring impact of harvesting on soils	DRM, SF, IR	end month 18	▼																								100%
2.2.5 - Design and implement monitoring database and mapping	DRM, DC, GIS	end month 12	▼																								100%

**NOTES:**  
1. Output changed from Biological monitoring to Bio-physical monitoring



**APPENDIX II**  
**INPUTS APPLIED**

## Inputs Applied

### ITTO Funds – US\$

Components	Approved Total (A)	Up-to-date Committed by PEA but not spent (B)	Up-to-date spent (C)	Spent + committed in period (D) (B+C)	Remaining Values (A)-(B+C)	Explanation of Remaining Values
10. Project Personnel	\$244,621	\$0	\$244,621	\$244,621	\$0	
20. Sub-contracts	\$0	\$0	\$0	\$0	\$0	
30. Duty Travel	\$50,006	\$0	\$50,006	\$50,006	\$0	
40. Capital items	\$44,302	\$0	\$44,302	\$44,302	\$0	
50. Consumable items	\$7,771	\$0	\$7,771	\$7,771	\$0	
60. Miscellaneous	\$0	\$0	\$0	\$0	\$0	
70. PEA Management Costs	\$0	\$0	\$0	\$0	\$0	
80. ITTO Admin, Mon & Eval.	\$60,136	\$0	\$0	\$0	\$60,136	Not Applicable
100. Grand Total	\$406,836	\$0	\$346,700	\$346,700	\$60,136	

### Iwokrama Funds – US\$

Components	Approved Total (A)	Up-to-date Committed by PEA but not spent (B)	Up-to-date spent (C)	Spent + committed in period (D) (B+C)	Remaining Values (A)-(B+C)	Explanation of Remaining Values
10. Project Personnel	\$163,950		\$163,950	\$163,950	\$0	
20. Sub-contracts	\$5,000		\$5,000	\$5,000	\$0	
30. Duty Travel	\$26,600		\$26,600	\$26,600	\$0	
40. Capital items	\$0		\$0	\$0	\$0	
50. Consumable items	\$2,700		\$2,700	\$2,700	\$0	
60. Miscellaneous	\$1,750		\$1,750	\$1,750	\$0	
70. PEA Management Costs	\$95,760		\$95,760	\$95,760	\$0	
80. ITTO Admin, Mon & Eval.	\$0	\$0	\$0	\$0	\$0	
100. Grand Total	\$295,760	\$0	\$295,760	\$295,760	\$0	