

# INTERNATIONAL TROPICAL TIMBER ORGANIZATION

## ITTO

### PROJECT DOCUMENT

TITLE	IMPLEMENTATION OF THE SUSTAINABLE FOREST MANAGEMENT PROGRAMME OF THE IWOKRAMA INTERNATIONAL CENTRE
SERIAL NUMBER	PD 297/04 Rev.2 (F)
COMMITTEE	REFORESTATION AND FOREST MANAGEMENT
SUBMITTED BY	GOVERNMENT OF GUYANA
ORIGINAL LANGUAGE	ENGLISH

#### SUMMARY

The development objective of this project is to address the lack of knowledge and general misunderstanding about the sustainable nature of forest activities and the profitability of forest utilization. The Project is one of the main components of a strategic action developed by the Iwokrama International Center with a view to sustainable forest development.

The Project specific objectives are 1) 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; and 2) to demonstrate, through effective monitoring, how the approach adopted is delivering lasting ecological, economic and social benefits to local, national and international communities.

The Iwokrama International Centre will implement the Project with the support of international experts and the participation of local communities. Demonstration, research and on-the-job training in improved practices will be integrated into these model commercial operations.

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

EXECUTING AGENCY IWOKRAMA INTERNATIONAL CENTER

COOPERATING GOVERNMENTS ---

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## **PART I: CONTEXT**

### **1. ORIGIN**

The origin of this proposal derives from the Project PD 10/97 Rev.1(F) "A Sustainable Management Model in the Iwokrama Rain Forest", which was completed on April 30, 2004. Two important outputs of this 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 main objective of this project is to complement and support the implementation of this plan. Appendix I contains the Executive Summary of the Environmental and Forestry Management Plan, which embodies both the SFMP and the Environmental Plan. This document describes the overall focus and components of the FMP to be implemented.

This project proposal is one of the main components of a strategic action developed by Iwokrama with a view to sustainable forest development. Prior to the execution of this project proposal, Iwokrama will create a tri-partite relationship (Iwokrama Timber Products) between an existing private sector company, the local communities of the Rupununi, as represented by the NRDDDB and Iwokrama itself. This new partnership will manage timber operations within the Iwokrama Forest while the Iwokrama Centre undertakes monitoring and the provision of forest management services to the new company. The project, here proposed, will 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.

The Iwokrama International Center has already started a plan to become an efficient and financially self-sufficient institution. Many steps have already been taken.

During the execution of the project PD 10/97, the Iwokrama International Centre has undergone substantial change from a static research based organization to a dynamic business oriented institute. Iwokrama has a new and dynamic board of trustees, management with a strong business perspective, and is implementing performance driven management systems. The Centre reduced its annual operating budget from US\$ 2 million in 2002 to US\$ 1 million for the 2003 financial year; annual core operational costs are now about US\$ 600 000.

### **2. SECTORAL 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 an arrest the erosion of soils and the degradation of forests, grazing and reforestation; and protect the forest against fire, pests and other hazards.

### 3. PROGRAMMES AND OPERATIONAL ACTIVITIES

Over the past 15 years, the Guyana Forestry Commission has, with assistance from a number of donors, undergone a remarkable 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 recently established 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 is involved in supporting this activity. Through the Natural Resources and Environmental Advisory Committee, the GFC is working with other natural resources 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 GFC has withdrawn from influencing the trade in timber products. This is in keeping with Government Policy to encourage the forces of supply and demand to evolve the policing mechanisms in the market place.

The Forestry Commission has successfully introduced improved systems to ensure better collection of forest revenue and in 1996 the Government 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 forest management (FM) 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. One senior staff member of Iwokrama has 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 are now moving towards a MOU to improve collaboration as both agencies strive to improve (local) forest practices.

## **PART II: THE PROJECT**

### **1. PROJECT OBJECTIVES**

#### **1.1 *Development Objective***

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

#### **1.2 *Specific Objectives***

##### Specific Objective 1

The first specific objective is 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.

##### Specific Objective 2

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

### **2. JUSTIFICATION**

#### **2.1 *Problems to be addressed***

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 371,000 ha of rainforest (figure 1), established the Iwokrama Centre for Rainforest Conservation and Development, and placed the management of the Iwokrama Programme Site under the Centre. The Act also stipulates that approximately half of the area shall be maintained as a Wilderness Preserve and half shall be allocated to sustainable utilization of the multiple resources of the forest.

So far, Iwokrama has worked to support the building of community and national institutions and forged the basis for collaborative management. Iwokrama has developed substantial built infrastructure within the Iwokrama Forest including a field station, canopy walkway, ranger stations and satellite camps. These facilities are now managed by rangers and other staff who have been trained through Iwokrama's own programmes. Iwokrama has also begun developing incipient businesses with tourism, aquarium fish, Crabwood oil, honey, natural products, training, and information.

The Iwokrama Forest has been zoned into Sustainable Use Areas (SUA) and Wilderness Preserve Areas (WP), each containing about 185 000 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 serve to maintain biodiversity and to serve as control for the sustainable management of the SUA.

With support from the International Tropical Timber Organization, the SUA planning process has been developed for the management of the Iwokrama Forest. The Project PD 10/97 Rev.1 "A Sustainable Management Model in the Iwokrama Rain Forest" completed the Sustainable Forest Management Plan. The process has included the development of plans to attract business

partners and bring appropriate financial capital for developing forest based business both within the area and in neighboring community lands and the kind of business partnership needed.

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.

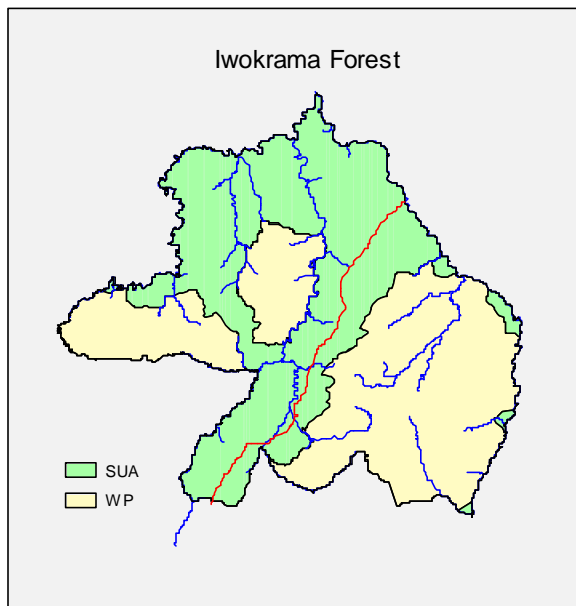
The main problem that the project has to address is the lack of knowledge and general misinformation about the sustainable nature of forest activities and the profitability of forest utilization. Some stakeholders are ignoring the real potential of Iwokrama's Forest resources and their potential to generate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

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

Figure 1. Location of Iwokrama Forest



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

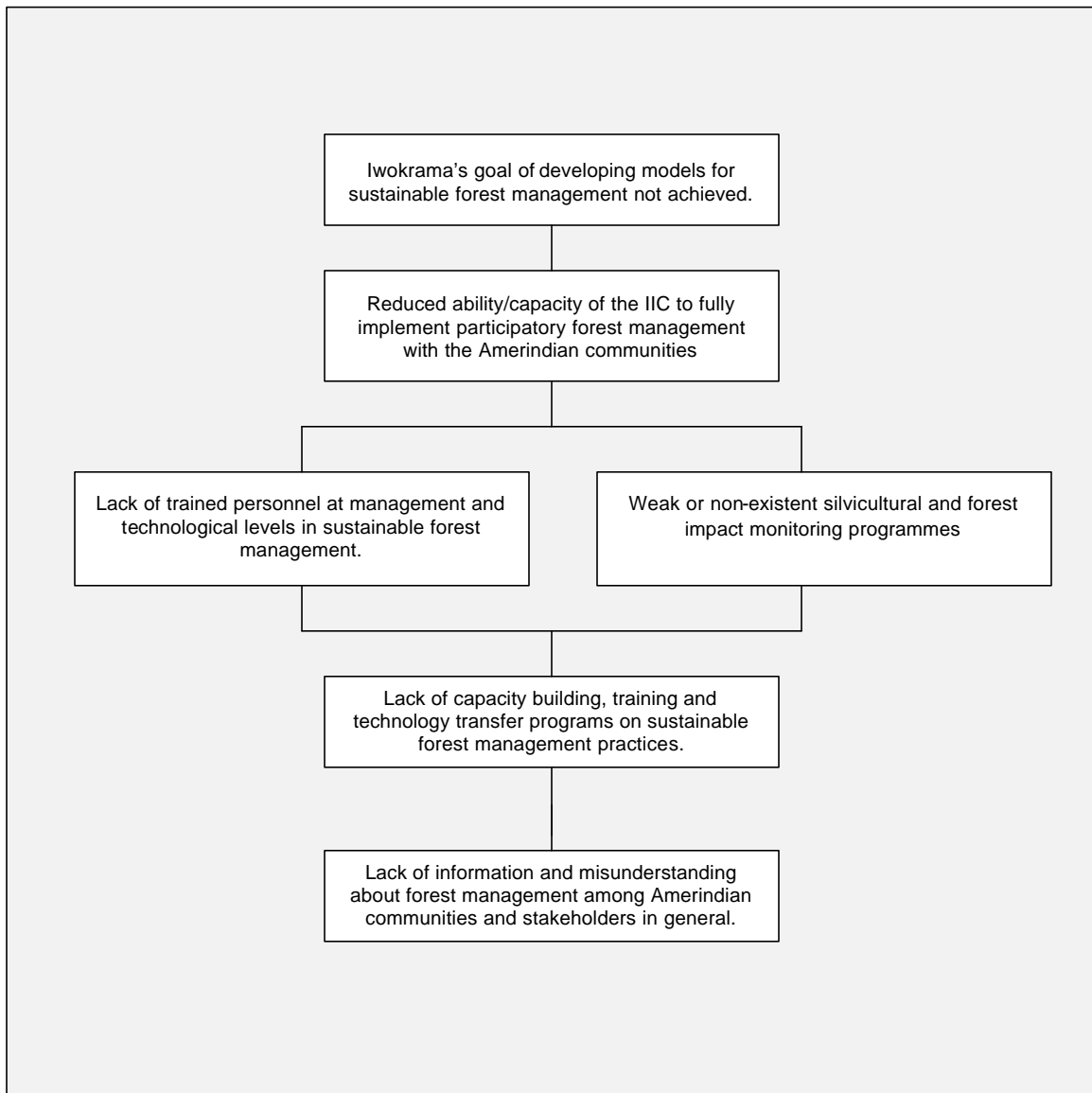


Furthermore, most of the stakeholders are unaware of the results obtained through the implementation of forest management projects and do not have any knowledge of the potential of the growth dynamics of our forests, which have allowed forest professionals to design silvicultural techniques that will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

In view of this situation, the project considers that it is 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 need 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 considers it important to implement a comprehensive monitoring system that will evaluate the impact of the activities within the Sustainable Use Area (SUA). Results of the monitoring program will be used to assess current activities and to take corrective measures, if necessary. Iwokrama stakeholders will be informed of the monitoring results through periodic reports.

### PROBLEM – TREE



## **2.2 Intended situation after Project completion**

With the completion of this project, it is expected that Iwokrama will be sustainably developing the timber and non-timber resources of the forest in accordance with the management plan. Iwokrama will have set new regional benchmarks for the value of forest goods and services. Iwokrama will provide research, monitoring and evaluation to ensure maximum dissemination of lessons learned and immediate feedback into improved forest management practices.

Through on-the-job training as well as formal short-courses, people from local communities, private sector, the GFC, the University of Guyana and Iwokrama will have been trained in a range of forest management practices. Opportunities for sharing this experience with other countries and institutions interested in tropical rain forest conservation and management will be developed through Iwokrama's reporting to the ITTO and its well established and growing collaboration with research and training institutions outside Guyana.

Field studies and research to gradually provide information on growth and yield, regeneration and monitoring the impact of management practices will have been designed and installed, as well as economic studies to monitor costs and yields of forest operations. These studies will provide information for improvements in efficiency.

In addition, the process will have led to a sustainable production of tropical timber for both national and international markets. It is estimated that a maximum annual yield of about 20 000 m<sup>3</sup>/year will be able to be maintained under a best practice sustainable management regime.

## **2.3 Project Strategy**

The sustainable management of natural tropical forests requires a population with sufficient knowledge about organization and planning of forest production, including silviculture techniques, to ensure sustainability.

Iwokrama aims to implement the sustainable forest management plan through the development of human resources. However, it is recognized that in general, people from local communities are individuals with an empirical knowledge on the activities they implement, who really want to improve their knowledge base but not through formal studies. In view of this, the project will help to satisfy this need for knowledge and information through on-the-job training.

Iwokrama will be in the process of implementing the harvesting component of the management plan through their joint venture partnership – Iwokrama Timber Products. Therefore the intent of the present project is 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.

For monitoring biological and socio-economical impacts of forest use the project will design and implement a variety of impact monitoring programs.

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

## **2.4 Target beneficiaries**

People from local Amerindian communities, private sector, the GFC, the University of Guyana and Iwokrama Center itself will benefit from the results of the project. All trained people will 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, other countries and institutions interested in tropical rain forest conservation and management will benefit from the results of this project.

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

Stakeholders will become aware of the importance of protecting the environment to ensure quality of life of present and future generations and will 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 has been designed in consultation with the GFC, which will be one of the most direct beneficiaries through application of practices developed and through training provided. Iwokrama will continue to facilitate consultation with both its national and international stakeholders. During implementation, workshops and other forms of consultation specific to the project are 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 is being facilitated by the creation of an international information and communication resource unit. Target audiences include local Amerindian communities, Iwokrama staff, the Guyanese public, and fellow researchers in the international community. This component also includes a geographic information system and database for ease of information management.

## **2.5 Technical and scientific aspects**

The technical forestry aspects that have a greater impact on the project include the dynamics of tropical rain forests and the main species that make up these forests, their response to silvicultural treatments, reduced impact logging (RIL), optimization of harvesting yields, product trading and marketing, monitoring and forestry information systems.

The project will undertake some technical and scientific work as part of the implementation of the sustainable forest management plan. Capacity building and training in the development and implementation of silvicultural programmes will be provided. Key silvicultural programmes considered are: volume and decay studies, PSPs for growth and yield assessments, reforestation programmes and forest certification. A database will be established to show and monitor the progress made toward sustainable forest management.

Field studies and research to gradually provide information on growth and yield, regeneration and mortality, and monitoring the impact of management practices will have been designed and installed, as well as economic studies to monitor costs and yields of a forest operation. These studies will provide information for improvements and efficiency.

The project will record fieldwork information into electronic data recorders and transfer it into well-designed and documented databases. This information will be available to any stakeholders and public in general upon request for further research.

Iwokrama has documented the diversity and natural history of wildlife and other resources in the Iwokrama Forest. This research has been based on local knowledge and scientific studies. In this context, Iwokrama has worked with the North Rupununi District Development Board (NRDDDB) to both recognize and apply traditional ecological knowledge; including recognizing copyright vested in indigenous products knowledge. The Centre also recognizes local expertise in traditional skills and incorporates this into its Ranger Training Programme. The social, economic, cultural, archaeological, geographical, and biological information about the Iwokrama Ecosystem has been integrated within a Geographical Information System (GIS).

The information gathered has been used in participatory resource management planning processes. The Centre has developed a strategic decision-support system, IWOPLAN, to assist in identifying the best opportunities for timber and non-timber forest products (NTFP) harvesting in the Iwokrama Forest. The system integrates GIS, commercial timber and NTFP growth models and operational cost models to evaluate the best areas for harvesting, the likely costs, and estimated returns for each harvest unit.

Guyana has a long history of botanical and ecological study, vegetation analysis, inventory and tree volume work. Fanshawe (1952) wrote a study of the vegetation types and forest structure. The British colonial administration produced extensive base maps, forest type maps and archived collections of aerial photographs. FAO in the late 1960's undertook an inventory which produced stand tables, vegetation maps and volume tables. CIDA, in the early 1990's, completed additional inventory, mapping and volume sample work.

Tropenbos Foundation of the Netherlands has been active in Guyanese forest research since the late 1980's and has undertaken extensive botanical and vegetation studies. Various useful papers and books have been published on botanical and ecological aspects including Polak (1992), ter Steege (1990), ter Steege, et al (2000). Growth modeling studies have been undertaken by Zagt (1997) and Denis Alder (2001). Growth modeling software has been developed by Denis Alder for GFC (2001) and for Iwokrama (2002). Logging impacts and silviculture have been researched by van der Hout (1999).

The Barama Company Limited, Guyana's largest timber company, has undertaken extensive PSP work since 1993 and has employed the Edinburgh Centre for Tropical Forestry (ECTF) as its consultants for this purpose. Some unpublished reports from this work are available, including growth-modeling studies by Zagt (ECFT, 1999).

The UK Department for International Development (DFID) has been supporting the rehabilitation and strengthening of the Guyana Forestry Commission (GFC) since 1995. The Forestry Training Centre Inc. (FTCI) has developed a training program on Reduced Impact Logging (RIL) techniques for Guyanese forest operatives with technical guidance from the Tropical Forest Foundation. Together with the Guyana Forestry Commission and the FTCI, the Iwokrama Center for Rain Forest Conservation and Development plans to establish models for continued demonstration and research on forest management and reduced impact logging.

The project will develop a growth and yield PSP programme to improve on the growth models developed for other regions in Guyana. The development will include PSP design, data collection specifications, re-measurement parameters, data entry, compilation, data analysis and mapping.

For the harvesting plans, the project will utilize the GEMFORM program to calculate the annual allowable cut (AAC), and the IWOPLAN program for the 5-year harvesting plans. Both programs were developed by Denis Alder for the GFC and Iwokrama respectively.

The GEMFORM Program will calculate different AAC scenarios with user-defined variables such as cutting cycle, minimum dbh, species groups and risk class. These scenarios will be reviewed with Iwokrama's Directors and the GFC to determine the optimum AAC for Iwokrama's management goals.

The IWOPLAN Program will define the optimum harvesting plan for the Net Operable Area (NOA), divided into 5-year harvesting areas, with user defined variables such as cutting cycle and AAC, as well as primary road network, and species groups. It will also provide stand and stock tables, for each 5-year period, based on the management inventory data.

Policy and management decisions are highly dependent on the quality and quantity of the available information and science. The foundation for a sustainable approach to management requires not only sound science, but the right science – knowledge and understanding of how major ecosystems function, how they can support and tolerate human use, and how policies and management decisions affect resource use, environmental impacts, and recovery. Improvements in the scientific knowledge that informs decision-making can often greatly improve the development, implementation, and assessment of policies and programs. Decision-makers must turn to science with greater frequency to provide scientifically credible technical guidelines to resolve management and policy problems and issues. In addition, an increasingly involved and informed public is challenging the scientific and technical credibility of management plans and decisions. Information is the common thread for decision-making and it is critical that the most scientifically sound information is available to all stakeholders.

## **2.6 *Economic aspects***

Local Amerindian communities and the Iwokrama Centre itself will be the most immediate beneficiaries. The implementation of the sustainable forest management plan will provide major benefits to communities in terms of employment and on-the-job training. The Iwokrama Center will benefit from a more intensive and sustainable management of the Iwokrama Forest, which will increase their revenue taking it closer to being a financially self-sufficient institution.

## **2.7 *Environmental aspects***

The project aims to complement and support the implementation of a sustainable forest management plan through the development of human resources. As such, it will involve forest harvesting and other silvicultural operations that will affect forest stands in which these activities are conducted. Nevertheless, a central goal of sustainable forestry is to obtain non-declining timber volumes without compromising forest quality or composition over time.

Although any harvest will alter the forest to some extent, it is clear that minimizing physical impacts is an important first step in the goal of sustainable production. Reduced impact logging provides standards for mitigating the forest management activities that cause the greatest ecological impact.

The training conducted during this project will be integrated into actual forest management and forest harvesting and monitoring activities. In all operations and in all training activities, the field crew will adhere to environmental protection regulations. In addition, the project will conduct a comprehensive monitoring system that will evaluate the impact of the activities within the Sustainable Use Area (SUA). Results of the monitoring program will be used as a feedback to assess current activities and to take any corrective measures which may be required.



## **2.8 Social aspects**

The successful management of the Iwokrama Forest will depend on the contribution of local people. The commitment of local people to Iwokrama is already apparent in the research and management work already completed. To date 80% of the staff working in the Iwokrama Forest has been recruited from local communities.

Employment opportunities are few around the Iwokrama Forest and many young people travel to Brazil to find work and training. Opportunities in the area are restricted to teaching, community health work, peanut farming, working for Iwokrama, working for local tourism operators, providing transportation services or selling farm products. The development of local employment and training opportunities for young people is therefore seen as a major concern for local communities. Employment is a major tangible benefit to local communities that will arise from Iwokrama.

The implementation of the sustainable forest management plan is seen as providing major benefits to communities in terms of employment and on-the-job training. Iwokrama already employs a number of people from some communities; however there is a general feeling among communities that original job expectations from the Iwokrama Forest have not yet been met.

Iwokrama will ensure that the implementation of the sustainable forest management plan will be carried out with the participation of local communities. Iwokrama will also ensure that local employment is a mandatory requirement for the private sector partner. Also, wherever practicable, value added work for timber products will be carried out locally with local employees.

## **2.9 Risks**

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

Nevertheless, Iwokrama is confident that the proposed operating company will be in place prior to project start-up. In the unlikely event that a delay occurs, the other outputs of the project will not be affected. The time and resources programmed for the activities of these particular outputs would be channeled to the other activities of the project.

### **3. OUTPUTS**

#### **3.1 *Specific Objective 1***

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.

##### **Output 1.1**

Training and technology transfer in the development and implementation of silvicultural programmes provided.

##### **Output 1.2**

Fire management plan prepared and training in implementation practices provided.

##### **Output 1.3**

Training and technology transfer in operational practices related to forest management provided.

##### **Output 1.4**

Forest management and silviculture counterparts trained.

#### **3.2 *Specific Objective 2***

To demonstrate, through effective monitoring, how the approach adopted is delivering lasting ecological, economic and social benefits to local, national and international communities.

##### **Output 2.1**

Monitoring programmes developed and implemented to evaluate the social and economic impact of the forest management activities on the local Amerindian communities.

##### **Output 2.2**

Additional monitoring programmes developed to evaluate the biological impacts of forest use on wildlife populations.

## 4. ACTIVITIES

### 4.1 *Output 1.1 – Training and technology transfer in the development and implementation of silvicultural programmes provided*

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

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

As Iwokrama's Timber Company will include partnership with a representative body of the Amerindian communities, these communities will benefit directly from this output as they will 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 will 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 will include species and site selection, measurement methodology, data entry, compilation and data analysis.

A growth and yield PSP programme will be developed for Iwokrama in order to improve on the growth models developed for other regions in Guyana. The development will 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 will be involved in this design and development stage.

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

Professional oversight and supervision will be provided for the implementation of the volume and decay study. Personnel from the Amerindian communities will be employed and trained to carry out the fieldwork, which is 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 will be compiled and analyzed for the development of new forest inventory risk class guidelines. The revised guidelines will be incorporated into the volume compilation programmes.

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

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

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

There are two management planning software packages presently available to Iwokrama. One is GEMFORM, which was developed originally for the GFC, and which now includes the Compiler Program developed for Iwokrama under ITTO Project PD 10/97 Rev.1 (F). The GEMFORM upgrade involves revising the method by which the program handles sub-plot data. At present, the program does not take into account the smaller sub-plot size. The Compiler part of GEMFORM requires adapting to handle other types of forest inventory.

The other is IWOPLAN, which was developed specifically for Iwokrama for harvesting planning. The IWOPLAN upgrade involves revising the forest type mapping to include only the commercial forest types within the net operable area and making the necessary adjustments to the management units to fit the revised type map. It would also require revising the 5-year harvest planning model so that it will harvest the entire operable area in the given cycle period.

It is proposed to use electronic data recorders for the volume and decay study as well as for the PSPs, therefore, the data recorder programming will need to be developed as part of the design process. Data recorder programs will also be designed for the 100% operational inventories.

GIS mapping procedures will be developed for handling the operational inventory tree location map data.

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

Professional oversight and supervision will 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 will be involved in all phases of this activity.

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

Iwokrama will need to obtain certification of its forest management, harvesting and processing activities. A forest certification programme will be designed through a consultation and review process with the principal certification agencies. Certification procedures will 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 will apply ITTO Criteria and Indicators at both the onset and end of project implementation, in a manner such that it will allow an assessment of the progress achieved towards sustainable forest management during the project's timeframe.

### **4.2 Output 1.2 – Fire Management Plan Prepared and training in Implementation Practices Provided**

The Iwokrama Forest covers 3,700 square kilometers and is bordered on the south by the Rupununi Savannah, putting the southern reaches of the forest at extreme risk to wildfires. A fire management plan that includes training, public awareness, monitoring, prevention, communication, coordination and suppression must be designed and implemented for Iwokrama. Training and technology transfer in planning and implementation will be carried out as part of this output.

#### **Activity 1.2.1 – Prepare a Fire Management Plan**

A fire management plan, specific to Iwokrama's situation will be professionally prepared. An integral part of this process will be through consultations and workshops with the local Amerindian communities. This plan will include detailed descriptions of the requirements for training, public awareness, monitoring, prevention, communication, coordination and suppression. This detailed plan will include training manuals as well as guidelines for implementation procedures.

#### **Activity 1.2.2 – Implement a Fire Management Plan**

The project will provide the training and the professional oversight and supervision for the implementation of the fire management plan. This will include the development of fire risk indicators and the provision of technical specifications and advice for the procurement of fire suppression equipment and tools, as well as for the construction of fire watch towers.

### **4.3 Output 1.3 – Training and technology transfer in operational practices related to forest management provided**

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 are proposed.

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

#### **Activity 1.3.1 – Volume and Decay, Forest Inventory and PSP Training**

Personnel that were trained in forest inventory procedures during the original ITTO Project will be invited back for additional basic training, as well as training in the execution of other types of forest inventory (resource inventories, operational inventories), Volume and Decay studies and PSP establishment.

#### **Activity 1.3.2 – Reduced Impact Logging (RIL) Training**

Personnel from the local Amerindian communities will be employed in many of the harvesting activities and, as such, will receive training in RIL procedures. This will 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 will 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.

#### **Activity 1.3.3 – Log Scaling Training**

The harvesting operation will require trained log scalers. It is proposed to provide training to three or four persons from the local communities in this discipline.

#### **Activity 1.3.4 – Lumber Grading Training**

The processing operation will require trained lumber graders. It is proposed to provide training to three or four persons from the local communities in this discipline.

### **4.4 Output 1.4 – Forest management and silviculture counterparts trained**

Iwokrama will 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 1.4.1 – Forest Management Counterpart Training**

The forest manager will train one (1) Guyanese national over a 22 month period so that, at the end of this period, the counterpart may assume full responsibility for this position.

#### **Activity 1.4.2 – Silviculture Counterpart Training**

The silvicultural forester will train one (1) Guyanese national over a 22 month period so that, at the end of this period, the counterpart may assume full responsibility for this position.

### **4.5 *Output 2.1 – Monitoring programmes developed and implemented to evaluate the impact of the forest management activities on the local Amerindian communities***

This output is designed to permit the qualitative and quantitative evaluation of the social and economic benefits to be accrued by 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 will be developed and implemented over the life of the project.

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

A forest impacts monitoring database will 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 will provide data entry and compilation inputs.

### **4.6 *Output 2.2 – Additional monitoring programmes developed to evaluate the biological impacts of forest use on wildlife populations***

Another part of the objective to demonstrate the sustainability of sound forest management for the multiple use of a tropical rainforest is the implementation of programmes for the patrolling, monitoring and evaluation of the biological impacts of forest use.

Iwokrama will provide professional oversight and supervision for these programmes. Iwokrama Field Station staff (Rangers) will carry out the patrolling and monitoring duties. Head-office staff will provide data entry, compilation and mapping inputs.

A Forest Impact Monitoring Report was prepared for Iwokrama by international consultant – Andrew Grieser Johns, Biodiversity Conservation Specialist, in 2002. This report contains draft proposals and methodologies for a variety of impact monitoring programmes, which Iwokrama proposes to implement.

#### **Activity 2.2.1 – Monitoring Impact of Forest Use at the Site Level**

Iwokrama will set-up four (4) target species monitoring sites in the SUA to evaluate the impacts of ecotourism. Two sites have been selected: the cock-of-the-rock nesting site in Corkwood Swamp

and the spider monkey habitat at Turtle Mountain. The other two sites will be selected as part of this activity.

The specific tasks to be included in this activity are:

- Site description and mapping
- Site development
- Site maintenance
- Site monitoring

#### **Activity 2.2.2 – Monitoring Impact of Forest Harvesting on Large Wide-Ranging Mammals**

This monitoring activity will focus on large, easily recognizable target species and will rely on controlled observations for source data. For the purposes of collecting comparative information suited to fulfilling the monitoring requirements, it will be sufficient to use existing human resources. A means of collection of minimal information on these species has been developed. Iwokrama will implement monitoring protocols for ranger patrols, drivers, tourists and tour guides.

#### **Activity 2.2.3 – Monitoring Impact of Forest Harvesting on Obligate Frugivores**

Spider monkeys and cotingids have been selected for monitoring primarily because of known adverse reactions to selective timber harvesting. Monitoring protocols have been developed which focus on these animals as a requirement for demonstration of SFM, but which will also provide incidental information on similar species (other primates, other large frugivorous birds) which may be useful for more general monitoring purposes.

#### **Activity 2.2.4 – Monitoring Impact of Forest Harvesting on Bat Fauna**

Understory bats have been selected for monitoring because of their known adverse reactions to selective timber harvesting. The monitoring programme will test whether RIL techniques will succeed in reducing incidental damage to the understory habitat, or that the bat fauna is resilient enough to recover to its former state subsequent to logging.

#### **Activity 2.2.5 – Monitoring Impact of Forest Harvesting on Bird Fauna**

Research is required to investigate the utility of monitoring selected groups of understory birds. The objective of this activity would be to pilot a monitoring approach for two groups of understory birds (piprids and ant followers) to determine the cost-effectiveness of monitoring the selected groups as indicators of forest impacts.

#### **Activity 2.2.6 – Design and Implement Monitoring Database and Mapping**

A forest impacts and biodiversity monitoring database will 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. It would also include the setting-up of site mapping protocols. Head-office staff will provide data entry, compilation and mapping inputs.

## 5. LOGICAL FRAMEWORK WORKSHEETS

Project Elements	Indicators	Means of Verification	Assumptions
<p><b>Development Objective</b> To address the lack of knowledge and general misunderstanding about the sustainable nature of forest activities and the profitability of forest utilization.</p>	<p>Local Amerindian communities involved in participatory management of the Iwokrama Forest.</p> <p>Iwokrama is producing 4,000 m<sup>3</sup>/year of <u>Certified</u>, export quality lumber by 2007.</p>	<p>NRDDB in partnership with Iwokrama Timber Products. Community members actively employed in forest management and harvesting operations. GFC forest production records; Iwokrama's financial statements.</p>	<p>Iwokrama arranges tri-partite relationship (Iwokrama Timber Products) between the private sector, the local communities of the Rupununi and Iwokrama itself</p>
<p><b>Specific Objectives</b></p> <p>1. 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 to the local Amerindian communities.</p> <p>2. To demonstrate, through effective monitoring, how the approach adopted is delivering lasting ecological, economic and social benefits to local, national and international communities.</p>	<p>1. Qualified forest management team in place; personnel from Amerindian communities trained and employed in FM activities; forest harvesting and processing under way;</p> <p>2. Monitoring and evaluation programmes developed and implemented.</p>	<p>1. Reports, planning documents, maps and data bases; Equipment on-site and operational; On-site audits.</p> <p>Application of ITTO C&amp;I at the start and end of the project.</p> <p>2. Reports, maps and data bases;</p>	<p>1. No relevant assumption</p> <p>2. No relevant assumption</p>
<p><b>Output 1</b></p> <p>1.1 Training and technology transfer in the development and implementation of silvicultural programmes provided.</p> <p>1.2 Fire management plan prepared and training in implementation practices provided.</p> <p>1.3 Training and technology transfer in operational practices related to forest management provided.</p> <p>1.4 Forest management and silviculture counterparts trained.</p>	<p>1.1 PSP, G&amp;Y, V&amp;D programmes carried out. Management planning software in place. Certification achieved. ITTO C&amp;I applied.</p> <p>1.2 Fire management plan implemented and operational.</p> <p>1.3 Community personnel trained and integrated into Iwokrama's work force.</p> <p>1.4 Forest management and silviculture counterparts trained and integrated into Iwokrama's management team.</p>	<p>1.1 On-site verification. ITTO C&amp;I. Reports, maps, data bases.</p> <p>1.2 List of course participants; independent auditor's report.</p> <p>1.3 List of course participants; community personnel performing assigned tasks independently.</p> <p>1.4 Forest management and Silviculture counterparts performing tasks independently.</p>	<p>No relevant assumptions</p>



Project Elements	Indicators	Means of Verification	Assumptions
<b>Output 2</b> 2.1 Monitoring programmes developed and implemented to evaluate the impact of the forest management activities on the local Amerindian communities. 2.2. Additional monitoring programmes developed to evaluate the biological impacts of forest use on wildlife populations.	2.1 Monitoring and evaluation of the socio-economical impacts of forest use on local communities completed. 2.2 Patrolling, monitoring and evaluation of the biological impacts of forest use under way.	2.1 Report, data base. 2.2 Reports, maps, data bases.	No relevant assumptions

Activities	Inputs	Input Categories	Assumptions
<b>Output 1.1</b> 1.1.1 Design V&D / G&Y programmes 1.1.2 Volume and decay study 1.1.3 V&D data compilation and analysis 1.1.4 PSPs for growth and yield assessment 1.1.5 Compilation and mapping 1.1.6 Reforestation program development 1.1.7 Forest certification 1.1.8 Application of ITTO C&I	1. Forest Manager / Silviculture Forester / NRDDDB reps 2. International database consultant (1) 3. Local GIS/database specialist (1) 4. PSP/G&Y field personnel (10) 5. International airfares 6. Daily subsistence allowances 7. Vehicles (2) 8. Inventory equipment 9. Power saws (2) 10. Inventory and office supplies; fuel	10. Project Personnel 30. Duty Travel 40. Capital Items 50. Consumable Items	N/A
<b>Output 1.2</b> 1.2.1 Prepare a fire management plan 1.2.2 Implement a fire management plan	1. Forest Manager / NRDDDB reps 2. International fire management consultant (1) 3. Iwokrama Rangers (12) 4. International airfares 5. Daily subsistence allowances 6. Communications equipment 7. Office supplies	10. Project Personnel 30. Duty Travel 40. Capital Items 50. Consumable Items	N/A
<b>Output 1.3</b> 1.3.1 V&D, forest inventory and PSP training 1.3.2 RIL training 1.3.3 Log scaling training 1.3.4 Lumber grading training	1. Forest Manager / Silviculture Forester / NRDDDB reps 2. Field personnel (31) 3. RIL training personnel 4. Local log grading consultant 5. International lumber grading consult. 6. International airfares 7. Daily subsistence allowances 8. Scaling/grading instruments 9. Office supplies	10. Project Personnel 20. Sub-contracts 30. Duty Travel 40. Capital Items 50. Consumable Items	N/A

Activities	Inputs	Input Categories	Assumptions
<b>Output 1.4</b> 1.4.1 Forest management counterpart training 1.4.2 Silviculture counterpart training	1. Forest Manager / Silviculture Forester 2. Local forestry counterparts (2)	10. Project Personnel	N/A
<b>Output 2.1</b> 2.1.1 Monitoring impact of forest use in communities 2.1.2 Design and implement monitoring database	1. Director of Resource Mgmt & Training / Forest Manager 2. International database consultant (1) 3. Local database specialist (1) 4. Iwokrama Rangers (4) 5. International airfares 6. Daily subsistence allowances 7. Office supplies	10. Project Personnel 30. Duty Travel 50. Consumable Items	N/A
<b>Output 2.2</b> 2.2.1 Monitoring impact of forest use at site level 2.2.2 Monitoring impact of forest harvesting on mammals 2.2.3 Monitoring impact of forest harvesting on frugivores 2.2.4 Monitoring impact of forest harvesting on bat fauna 2.2.5 Monitoring impact of forest harvesting on bird fauna 2.2.6 Design and implement monitoring database and mapping	1. Director General / Director of Resource Mgmt and Training 2. Forest Manager / Silviculture Forester 3. International database consultant (1) 4. Local GIS/database specialist (1) 5. Iwokrama Rangers 6. Daily subsistence allowances 7. Monitoring equipment 8. Monitoring and office supplies	10. Project Personnel 30. Duty Travel 40. Capital Items 50. Consumable Items	N/A

6. WORK PLAN

Outputs/Activities	Responsible Party	Schedule (in months)																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
<b>Output 1.1</b> - Training in development of silvicultural programmes provided	FM, SF																								
<b>Activities:</b>																									
1.1.1 - Design V&D / G&Y programmes	SF, FM, DC		■																						
1.1.2 - Volume and decay study	SF, field crews			■	■	■																			
1.1.3 - V&D compilation and analysis	DC, FM											■	■												
1.1.4 - PSPs for growth and yield	SF, field crews						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1.1.5 - Compilation and mapping	DC, FM, GIS											■	■												
1.1.6 - Reforestation programme	SF, FM																								
1.1.7 - Forest Certification	SF, FM																								
1.1.8 – Application of ITTO C&I	SF, FM																								
<b>Output 1.2</b> - Fire management plan prepared and training in implementation practices provided	FM, FC																								
<b>Activities:</b>																									
1.2.1 - Prepare a fire mgmt plan	FC						■	■																	
1.2.2 - Implement a fire mgmt plan	FC, FM								■																
<b>Output 1.3</b> - Training and technology transfer in operational practices	FM, SF																								
<b>Activities:</b>																									
1.3.1 - V&D, inventory and PSP training	SF, field crews			■	■	■																			
1.3.2 – RIL training	FTCI		■	■																					
1.3.3 - Log scaling training	LSC		■																						
1.3.4 - Lumber grading training	LGC			■																					
<b>Output 1.4</b> - Forestry counterparts trained	FM, SF																								
<b>Activities:</b>																									
1.4.1 - Management counterpart training	FM																								
1.4.2 - Silviculture counterpart training	SF																								

Outputs/Activities	Responsible Party	Schedule (in months)																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
<b>Output 2.1</b> – Monitoring programmes developed and implemented to evaluate the impact of management activities on the local Amerindian communities	DG, FM, SF																								
<b>Activities:</b>																									
2.1.1 - Monitoring impact of forest use in communities	DG, IR																								
2.1.2 – Design and implement monitoring database	DG, DC																								
<b>Output 2.2</b> - Additional monitoring programmes developed to evaluate the biological impacts of forest use on wildlife populations	DG, FM, SF																								
<b>Activities:</b>																									
2.2.1 - Monitoring impact of forest use at site level	DG, SF, IR																								
2.2.2 - Monitoring impact of forest harvesting on mammals	DG, SF, IR																								
2.2.3 - Monitoring impact of forest harvesting on obligate frugivores	DG, SF, IR																								
2.2.4 - Monitoring impact of forest harvesting on bat fauna	DG, SF, IR																								
2.2.5 - Monitoring impact of forest harvesting on bird fauna	DG, SF, IR																								
2.2.6 – Design and implement monitoring database and mapping	DG, DC, GIS																								

DG = Director General  
 FM = Forestry Manager  
 GIS = Iwokrama GIS Dep't.

SF = Silvicultural Forester  
 DC = Database Consultant  
 FTCI = Forestry Training Centre Inc.

FC = Fire Management Consultant  
 LGC = Lumber Grading Consultant

LSC = Log scaling Consultant  
 IR = Iwokrama Rangers

**7. BUDGET**

**7.1 Overall Project Budget by Activity**

OUTPUTS/ACTIVITIES + Non-Activity Based Expenses	10. Project Personnel		20. Sub- Contracts (E)	30. Duty Travel		40. Capital Items (I)	50. Consumable Items		60. Miscell- aneous (E)	70. EA Mgmt Cost (E)	80. ITTO Adm Mon&Eval	GRAND TOTAL	Quarter Year
	(I)	(E)		(I)	(E)		(I)	(E)					
<b>Output 1.1 - Training in development of silvicultural programmes provided</b>													
<b>Activities:</b>													
1.1.1 - Design V&D / G&Y programmes	\$5,200	\$600		\$2,117	\$175							\$8,092	Q-1/Y-1
1.1.2 - Volume and decay study	\$12,000	\$3,600		\$917	\$1,050	\$4,900	\$500					\$22,967	Q-1,2/Y-1
1.1.3 - V&D compilation and analysis	\$11,000	\$600		\$4,408	\$175							\$16,183	Q-4/Y-1 Q-1/Y-2
1.1.4 - PSPs for growth and yield	\$43,800	\$5,400		\$5,067	\$1,575	\$10,800						\$66,642	Q-2,3,4/Y-1 Q-3,4/Y-2
1.1.5 - Compilation and mapping	\$13,200	\$2,900		\$5,600	\$525							\$22,225	Q-1,4/Y-1 Q-1/Y-2
1.1.6 - Reforestation program development	\$37,700	\$3,000		\$11,469	\$875							\$53,044	Y-1&2
1.1.7 - Forest certification	\$22,500	\$4,200		\$6,792	\$1,225							\$34,717	Y-1&2
1.1.8 - Application of ITTO C&I	\$3,000	\$600		\$900	\$175							\$4,675	Q-1/Y-1 Q-4/Y-2
<b>subtotal 1.1</b>	<b>\$148,400</b>	<b>\$20,900</b>	<b>\$0</b>	<b>\$37,269</b>	<b>\$5,775</b>	<b>\$15,700</b>	<b>\$500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$228,544</b>	
<b>Output 1.2 - Fire management plan prepared and implementation training provided</b>													
<b>Activities:</b>													
1.2.1 - Prepare fire management plan	\$24,000	\$6,000		\$10,200	\$1,750							\$41,950	Q-2,3/Y-1
1.2.2 - Implement fire management plan	\$12,000	\$3,000		\$2,100	\$875	\$5,000						\$22,975	Q-3/Y-1
<b>subtotal 1.2</b>	<b>\$36,000</b>	<b>\$9,000</b>	<b>\$0</b>	<b>\$12,300</b>	<b>\$2,625</b>	<b>\$5,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$64,925</b>	
<b>Output 1.3 - Training and technology transfer in operational practices provided</b>													
<b>Activities:</b>													
1.3.1 - V&D, Inventory and PSP training	\$3,000	\$5,400		\$917	\$1,575	\$3,600						\$14,492	Q-1,2/Y-1
1.3.2 - RIL Training		\$6,000	\$5,000		\$1,750							\$12,750	Q-1/Y-1
1.3.3 - Log scaling training	\$2,000	\$600		\$500	\$175	\$300						\$3,575	Q-1/Y-1
1.3.4 - Lumber grading training	\$8,400	\$1,200		\$3,250	\$350	\$300						\$13,500	Q-1/Y-1
<b>subtotal 1.3</b>	<b>\$13,400</b>	<b>\$13,200</b>	<b>\$5,000</b>	<b>\$4,667</b>	<b>\$3,850</b>	<b>\$4,200</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$44,317</b>	
<b>Output 1.4 - Forestry counterparts trained</b>													
<b>Activities:</b>													
1.4.1 - Management counterpart training	\$96,200	\$22,200		\$15,225	\$6,475							\$140,100	Y-1&2
1.4.2 - Silviculture counterpart training	\$94,300			\$15,369								\$109,669	Y-1&2
<b>subtotal 1.4</b>	<b>\$190,500</b>	<b>\$22,200</b>	<b>\$0</b>	<b>\$30,594</b>	<b>\$6,475</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$249,769</b>	

OUTPUTS/ACTIVITIES + Non-Activity Based Expenses	10. Project Personnel		20. Sub- Contracts (E)	30. Duty Travel		40. Capital Items ( I )	50. Consumable Items		60. Miscell- aneous (E)	70. EA Mgmt Cost (E)	80. ITTO Adm Mon&Eval	GRAND TOTAL	Quarter Year
	( I )	(E)		( I )	(E)		( I )	(E)					
<b>Output 2.1 - Socio-economic monitoring programmes developed and implemented</b>													
<b>Activities:</b>													
2.1.1 - Monitoring impact of forest use in communities	\$9,900	\$7,800		\$3,000	\$525	\$650						\$21,875	Q-1,2,4/Y-1 Q-1,2,4/Y-2
2.1.2 - Design and implement monitoring database	\$10,700	\$1,200		\$4,325	\$350							\$16,575	Q-1/Y-1
<b>subtotal 2.1</b>	<b>\$20,600</b>	<b>\$9,000</b>	<b>\$0</b>	<b>\$7,325</b>	<b>\$875</b>	<b>\$650</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$38,450</b>	
<b>Output 2.2 - Biological monitoring programmes developed</b>													
<b>Activities:</b>													
2.2.1 - Forest use at site level	\$1,000	\$1,600		\$306	\$175	\$670						\$3,751	Q-1/Y-1
2.2.2 - Forest harvesting on mammals	\$1,000	\$1,600		\$306	\$175	\$670						\$3,751	Q-2/Y-1
2.2.3 - Forest harvesting on frugivores	\$1,000	\$1,600		\$306	\$175	\$670						\$3,751	Q-2/Y-1
2.2.4 - Forest harvesting on bat fauna	\$1,000	\$1,600		\$306	\$175	\$670						\$3,751	Q-3/Y-1
2.2.5 - Forest harvesting on bird fauna	\$1,000	\$1,600		\$306	\$175	\$670						\$3,751	Q-3/Y-1
2.2.6 - Design database and mapping	\$20,500	\$2,900		\$8,367	\$525							\$32,292	Q-1,4/Y-1 Q-1/Y-2
<b>subtotal 2.2</b>	<b>\$25,500</b>	<b>\$10,900</b>	<b>\$0</b>	<b>\$9,894</b>	<b>\$1,400</b>	<b>\$3,350</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$51,044</b>	
<b>3.0 NON-ACTIVITY BASED EXPENSES</b>													
3.1 Miscellaneous Travel					\$4,800							\$4,800	Y-1&2
3.2 Vehicle Purchase						\$40,000						\$40,000	Y-1
3.3 Vehicle spare parts							\$4,000					\$4,000	Y-2
3.4 Fuel							\$4,800					\$4,800	Y-1&2
3.5 Office Supplies								\$3,600				\$3,600	Y-1&2
3.6 E.A. Management Cost									\$89,960			\$89,960	Y-1&2
3.7 Auditing									\$1,750			\$1,750	Y-1&2
3.8 ITTO Admin., Monitoring & Evaluation											\$76,172	\$76,172	Y-1&2
<b>subtotal 3.0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$4,800</b>	<b>\$40,000</b>	<b>\$8,800</b>	<b>\$3,600</b>	<b>\$1,750</b>	<b>\$89,960</b>	<b>\$76,172</b>	<b>\$225,082</b>	
<b>Subtotal ITTO</b>	<b>\$434,400</b>			<b>\$102,050</b>		<b>\$68,900</b>	<b>\$9,300</b>				<b>\$76,172</b>	<b>\$690,822</b>	
<b>Subtotal EA</b>		<b>\$85,200</b>	<b>\$5,000</b>		<b>\$25,800</b>			<b>\$3,600</b>	<b>\$1,750</b>	<b>\$89,960</b>		<b>\$211,310</b>	
<b>Grand Total</b>	<b>\$434,400</b>	<b>\$85,200</b>	<b>\$5,000</b>	<b>\$102,050</b>	<b>\$25,800</b>	<b>\$68,900</b>	<b>\$9,300</b>	<b>\$3,600</b>	<b>\$1,750</b>	<b>\$89,960</b>	<b>\$76,172</b>	<b>\$902,132</b>	

( I ) Contribution of ITTO

( E ) Contribution of the Executing Agency (Iwokrama)

## 7.2 Yearly Project Budgets by Source

The tables below show the project budget by year and by source:

**Yearly Project Budget By Source in US\$ - ITTO**

Budget Component	Annual Disbursement	TOTAL	Year 1	Year 2
10. Project Personnel		<b>\$434 400</b>	\$221 400	\$213 000
20. Sub-contracts		<b>\$0</b>	\$0	\$0
30. Duty Travel		<b>\$102 050</b>	\$54 550	\$47 500
40. Capital Items		<b>\$68 900</b>	\$68 900	\$0
50. Consumable Items		<b>\$9 300</b>	\$2 900	\$6 400
60. Miscellaneous		<b>\$0</b>	\$0	\$0
	<b>Subtotal 1</b>	<b>\$614 650</b>	<b>\$347 750</b>	<b>\$266 900</b>
80. ITTO Monitoring, Evaluation and Administration				
81. Monitoring and Review Costs		<b>\$20 000</b>		
82. Ex-post Evaluation Costs		<b>\$15 000</b>		
	<b>Subtotal 2</b>	<b>\$649 650</b>		
83. Programme Support Costs (8% of subtotal 2)		<b>\$51 972</b>		
<b>ITTO Total</b>		<b>\$701 622</b>		

**Yearly Project Budget By Source in US\$ - IWOKRAMA**

Budget Component	Annual Disbursement	TOTAL	Year 1	Year 2
10. Project Personnel		\$143 200	\$106 650	\$36 550
20. Sub-contracts		\$5 000	\$5 000	\$0
30. Duty Travel		\$25 800	\$23 400	\$2 400
40. Capital Items		\$0	\$0	\$0
50. Consumable Items		\$3 600	\$1 800	\$1 800
60. Miscellaneous		\$1 750	\$875	\$875
70. EA Management Cost (13%)		\$127 680	\$63 840	\$63 840
<b>Iwokrama Total</b>		<b>\$307 030</b>	<b>\$201 565</b>	<b>\$105 465</b>

### 7.3 Consolidated Total and Yearly Project Budget

The table below shows the consolidated yearly project budget by components:

Budget Components		TOTAL	Year 1	Year 2
10.	<b>Project Personnel</b>			
	12. National Consultants	\$2 000	\$2 000	\$0
	13. Other Labour	\$195 200	\$101 650	\$93 550
	15. International Experts	\$288 000	\$144 000	\$144 000
	16. International Consultants	\$92 400	\$80 400	\$12 000
	<b>19. Component Total</b>	<b>\$577 600</b>	<b>\$328 050</b>	<b>\$249 550</b>
20.	<b>Sub-contracts</b>			
	21. Sub-contract-A (RIL Training)	\$5 000	\$5 000	\$0
	<b>29. Component Total</b>	<b>\$5 000</b>	<b>\$5 000</b>	<b>\$0</b>
30.	<b>Duty Travel</b>			
	31. Daily Subsistence Allowance	\$30 450	\$25 950	\$4 500
	32. International Travel	\$20 600	\$13 600	\$7 000
	33. Transport Costs	\$4 800	\$2 400	\$2 400
	34. Overseas Living Allowance	\$72 000	\$36 000	\$36 000
	<b>39. Component Total</b>	<b>\$127 850</b>	<b>\$77 950</b>	<b>\$49 900</b>
40.	<b>Capital Items</b>			
	43. Vehicles	\$40 000	\$40 000	\$0
	44. Capital equipment	\$28 900	\$28 900	\$0
	<b>49. Component Total</b>	<b>\$68 900</b>	<b>\$68 900</b>	<b>\$0</b>
50.	<b>Consumable Items</b>			
	52. Spares	\$4 500	\$500	\$4 000
	53. Fuel and Utilities	\$4 800	\$2 400	\$2 400
	54. Office Supplies	\$3 600	\$1 800	\$1 800
	<b>59. Component Total</b>	<b>\$12 900</b>	<b>\$4 700</b>	<b>\$8 200</b>
60.	<b>Miscellaneous</b>			
	62. Auditing	\$1 750	\$875	\$875
	<b>69. Component Total</b>	<b>\$1 750</b>	<b>\$875</b>	<b>\$875</b>
70.	<b>EA Management Cost</b>			
	71. Management cost	\$127 680	\$63 840	\$63 840
	<b>79. Component Total</b>	<b>\$127 680</b>	<b>\$63 840</b>	<b>\$63 840</b>
<b>SUBTOTAL</b>		<b>\$921 680</b>	<b>\$549 315</b>	<b>\$372 365</b>
80.	<b>ITTO Admin., Monitoring &amp; Evaluation</b>			
	81. Monitoring and Evaluation	\$20 000		
	82. Ex-post evaluation	\$15 000		
	83. Program Support Costs (8% ITTO portion)	\$51 972		
	<b>89. ITTO Administration Total</b>	<b>\$86 972</b>		
100.	<b>Grand Total</b>	<b>\$1 008 652</b>		



**7.4 Detailed Budget Table, Including Unit Costs - ITTO**

Comp. #	Budget Component	Position Description	# Positions	Units	No Units	Unit Cost	Totals ITTO
<b>10</b>	<b>Project Personnel</b>						
12	National Consultants	12.1 Log scaling specialist	1	Days	10	\$200	\$2,000
13	Other Labour	13.1 Counterpart trainees	2	Months	22	\$2,000	\$88,000
		13.3 PSP / V&D crews	1	Months	12	\$3,000	\$36,000
15	International Experts	15.1 Project Manager/Forest Manager	1	Months	24	\$6,000	\$72,000
		15.2 Silviculture Forester	1	Months	24	\$6,000	\$144,000
16	International Consultants	16.1 Database consultant	1	Days	120	\$400	\$48,000
		16.2 Fire consultant	1	Days	90	\$400	\$36,000
		16.3 Lumber Grading Consultant	1	Days	21	\$400	\$8,400
<b>19</b>	<b>Component Total</b>						<b>\$434,400</b>
<b>30</b>	<b>Duty Travel</b>						
31	DSA	31.1 Database consultant (GT)	1	Days	120	\$150	\$18,000
		31.2 Fire consultant (GT)	1	Days	60	\$150	\$9,000
		31.2 Fire consultant (FS)	1	Days	30	\$50	\$1,500
		31.3 Lumber Grading Consultant (GT)	1	Days	4	\$150	\$600
		31.3 Lumber Grading Consultant (FS)	1	Days	17	\$50	\$850
		31.4 Log scaling specialist (FS)	1	Days	10	\$50	\$500
32	International Travel	32.1 Proj. Mgr./Forest Mgr	1	Rnd. Trips	4	\$1,500	\$3,000
		32.2 Silviculture Forester	1	Rnd. Trips	4	\$2,000	\$8,000
		32.3 Database consultant	1	Rnd. Trips	2	\$1,500	\$3,000
		32.4 Fire Consultant	1	Rnd. Trips	1	\$1,800	\$1,800
		32.5 Lumber Grading Consultant	1	Rnd. Trips	1	\$1,800	\$1,800
34	Housing Allowance	34.1 Proj. Mgr./Forest Mgr	1	Months	24	\$1,500	\$18,000
		34.2 Silviculture Forester	1	Months	24	\$1,500	\$36,000
<b>39</b>	<b>Component Total</b>						<b>\$102,050</b>
<b>40</b>	<b>Capital Items</b>						
43	Vehicles	43.1 4x4 Toyota Hilux Pickups	-	Vehicles	2	\$20,000	\$40,000
44	Capital equipment	44.1 Electronic data recorders	-	Units	4	\$4,000	\$16,000
		44.2 Other inventory equip.	-	Sets	4	\$500	\$2,000
		44.3 Scaling/grading equip.	-	Sets	4	\$150	\$600
		44.4 Powersaws for V&D	-	Saws	2	\$650	\$1,300
		44.5 Monitoring equipment	-	Misc.	-	\$4,000	\$4,000
		44.6 Communications equipment	-	Misc.	-	\$5,000	\$5,000
<b>49</b>	<b>Component Total</b>						<b>\$68,900</b>
<b>50</b>	<b>Consumable Items</b>						
52	Spares	52.1 Vehicles	-	Misc.	-	-	\$4,000
		52.2 Powersaws	-	Misc.	-	-	\$500
53	Fuel and Utilities	53.1 Fuel	2	Months	24	\$100	\$4,800
<b>59</b>	<b>Component Total</b>						<b>\$9,300</b>
	<b>Subtotal 1</b>	(Project Costs)					<b>\$614,650</b>
<b>80</b>	<b>ITTO Mon &amp; Evaluation</b>						
81	Monitoring and Review		1	Years	2	\$10,000	\$20,000
82	Ex-Post Evaluation		1	Reports	1	\$15,000	\$15,000
	<b>Subtotal 2</b>	(Project Costs + Comp. 81 and 82)					<b>\$649,650</b>
83	Programme Support	(8% of Subtotal 2)					\$51,972
<b>89</b>	<b>Component Total</b>						<b>\$86,972</b>
<b>100</b>	<b>Grand Total</b>						<b>\$701,622</b>

**7.5 Detailed Budget Table, Including Unit Costs - Iwokrama**

Comp. #	Budget Component	Position Description	# Positions	Units	No Units	Unit Cost	Totals EA
<b>10</b>	<b>Project Personnel</b>						
13	Other Labour	13.4 Rangers	6	Months	23	\$500	\$69,000
		13.5 GIS support	1	Months	4	\$550	\$2,200
15	International Experts	15.1 Project Manager/Forest Manager	1	Months	24	\$6,000	\$72,000
<b>19</b>	<b>Component Total</b>						<b>\$143,200</b>
<b>20</b>	<b>Sub-contracts</b>						
21	Sub-contract A	21.1 RIL Training	1	Subcontract	1	\$5,000	\$5,000
<b>29</b>	<b>Component Total</b>						<b>\$5,000</b>
<b>30</b>	<b>Duty Travel</b>						
32	International Travel	32.1 Proj. Mgr./Forest Mgr	1	Rnd. Trips	4	\$1,500	\$3,000
33	Transport Costs	33.1 Miscellaneous travel	1	Months	24	\$200	\$4,800
34	Housing Allowance	34.1 Proj. Mgr./Forest Mgr	1	Months	24	\$1,500	\$18,000
<b>39</b>	<b>Component Total</b>						<b>\$25,800</b>
<b>50</b>	<b>Consumable Items</b>						
54	Office Supplies	54.1 Head Office	1	Months	24	\$150	\$3,600
<b>59</b>	<b>Component Total</b>						<b>\$3,600</b>
<b>60</b>	<b>Miscellaneous</b>						
62	Auditing		1	Year	2	\$875	\$1,750
<b>69</b>	<b>Component Total</b>						<b>\$1,750</b>
<b>70</b>	<b>EA Management Cost</b>						
71	Management cost	71.1 General management	1	Months	24	\$2,400	\$57,600
72	Iwokrama Directors	72.1 Director General (Act. 2.1, 2.2)	1	Days	48	\$380	\$18,240
		72.2 Director of Operations (all Acts.)	1	Days	48	\$270	\$12,960
		72.3 D. Resource Mgmt & Training (all Acts.)	1	Days	144	\$270	\$38,880
<b>79</b>	<b>Component Total</b>						<b>\$127,680</b>
<b>100</b>	<b>Grand Total</b>						<b>\$307,030</b>

## **PART III. OPERATIONAL ARRANGEMENTS**

### **1. MANAGEMENT STRUCTURE**

Iwokrama will be the only institution to carry out the Project and activities will be implemented in the Iwokrama Forest. The Field Station office located at the Iwokrama Forest will be the Project Headquarters and will be run by the Project Manager. The central administration office will be in Georgetown at the Iwokrama premises, and it will provide administrative, accounting, logistical and legal support services. Both offices are adequately equipped for ongoing communication via radio and Internet.

Local consultative committees will provide an element of support for the project. These committees will be made up of all relevant project stakeholders: the Project Manager; representatives of Iwokrama; representatives of native communities and representative of the Forestry Commission of Guyana (GFC).

In accordance with ITTO regulations, a Steering Committee will be established. This Committee will be made up of the following members: the Director General of Iwokrama, an ITTO representative and a representative of the GFC.

### **2. MONITORING, REPORTING AND EVALUATION**

Project monitoring, reporting and evaluation will be carried out in accordance with ITTO procedures.

#### **a) Monitoring**

The project will be subject to monitoring and review visits by ITTO representatives at the end of the first half of the project and upon project completion. The dates of these visits will be jointly agreed.

#### **b) Reports**

The reports will follow the format suggested by ITTO in the *ITTO Manual for Project Monitoring, Review and Evaluation*.

Seven trimester progress reports (financial and operational) will be submitted within a month of completion of each project trimester. The Project Completion Report will be submitted upon project completion. These reports will include information on the work plan, specific objective indicators and outputs obtained.

Project Technical Reports will be prepared using the information developed in the project activities. These reports will be presented to Iwokrama's directors and the GFC for review, discussion and approval. These reports will be used internally by the Project and will be submitted to ITTO before or within three months of Project completion.

The following Project Technical Reports will be submitted to ITTO:

- Volume and Decay Study
- Permanent Sample Plots Establishment and Measurement
- Annual and 5-year Silviculture Prescription Plan
- Fire Management Plan
- Field Data Collection User's Guide and Technical Manual
- Data Processing User's Guide and Technical Manual
- Forest Impact Monitoring Implementation Report
- Report on the socio-economic impact of forest activities on the Amerindian communities

#### **c) Evaluation**

The project will be subject to any evaluation required by ITTO. The date of the project evaluation will be agreed between ITTO and the project management.

### **3. FUTURE OPERATION AND MAINTENANCE**

Upon project completion, it is expected that Iwokrama will have achieved or will be close to achieving its goal of developing models for sustainable forest management, as well as financial self-sufficiency through its sustainable forestry operations, in partnership with private enterprise. Therefore, additional ITTO assistance with operational forest management and planning should not be required. However, as the duration of this project is only 24 months, and considering the time required for a commercial operation to become profitable, one should not rule out the possible necessity for a short-term follow-up project to ensure continuity until project goals are fully realized.

In addition, there may be opportunities for mutually beneficial collaboration between the Centre and ITTO in areas such as targeted problem-solving research and capacity building. There might also be opportunities for collaborative research on the production and marketing of lesser known species from the region.

## **PART IV. THE TROPICAL TIMBER FRAMEWORK**

### **1. COMPLIANCE WITH ITTA 1994 OBJECTIVES**

This project is 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): This 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.

### **2. COMPLIANCE WITH ITTO ACTION PLAN**

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

This project is 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 cost 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 use in close cooperation with local communities.
- Establish areas dedicated to biodiversity conservation.
- Design and establish a Permanent Sample Plot (PSP) network in Iwokrama forest to study forest dynamics (growth and yield) in different forest types and under various management schemes;
- Strengthen training of Iwokrama and intensify training of forestry personnel and other stakeholders in silviculture, RIL and resource management.

## **ANNEX A - PROFILE OF THE EXECUTING AGENCY**

### **1. The Expertise of Iwokrama**

Iwokrama's Mission statement is: "To promote the conservation and the sustainable and equitable use of tropical rain forests in a manner that will lead to lasting ecological, economic and social benefits to the people of Guyana and the to the world in general, by undertaking research, training and the development and dissemination of technologies."

Iwokrama is an autonomous not-for-profit research and development institution established by Guyana and the Commonwealth to demonstrate how tropical forest biodiversity may be conserved and sustainably utilized for ecological, social and economic benefits.

Iwokrama manages and conserves 3,700 square kilometers of pristine Guiana Shield Frontier Forest, dedicated as a protected area by the people of Guyana. It is the flagship conservation effort of the Commonwealth and is a United Nations Agenda 21 success story.

In addition to its wealth of biological diversity, Iwokrama faces an encouraging set of factors for success. These are:

- Low population pressure
- Stable and unanimous political support
- A now known basis of participatory approaches and collaboration, which has created effective working links at the local, national and international levels.

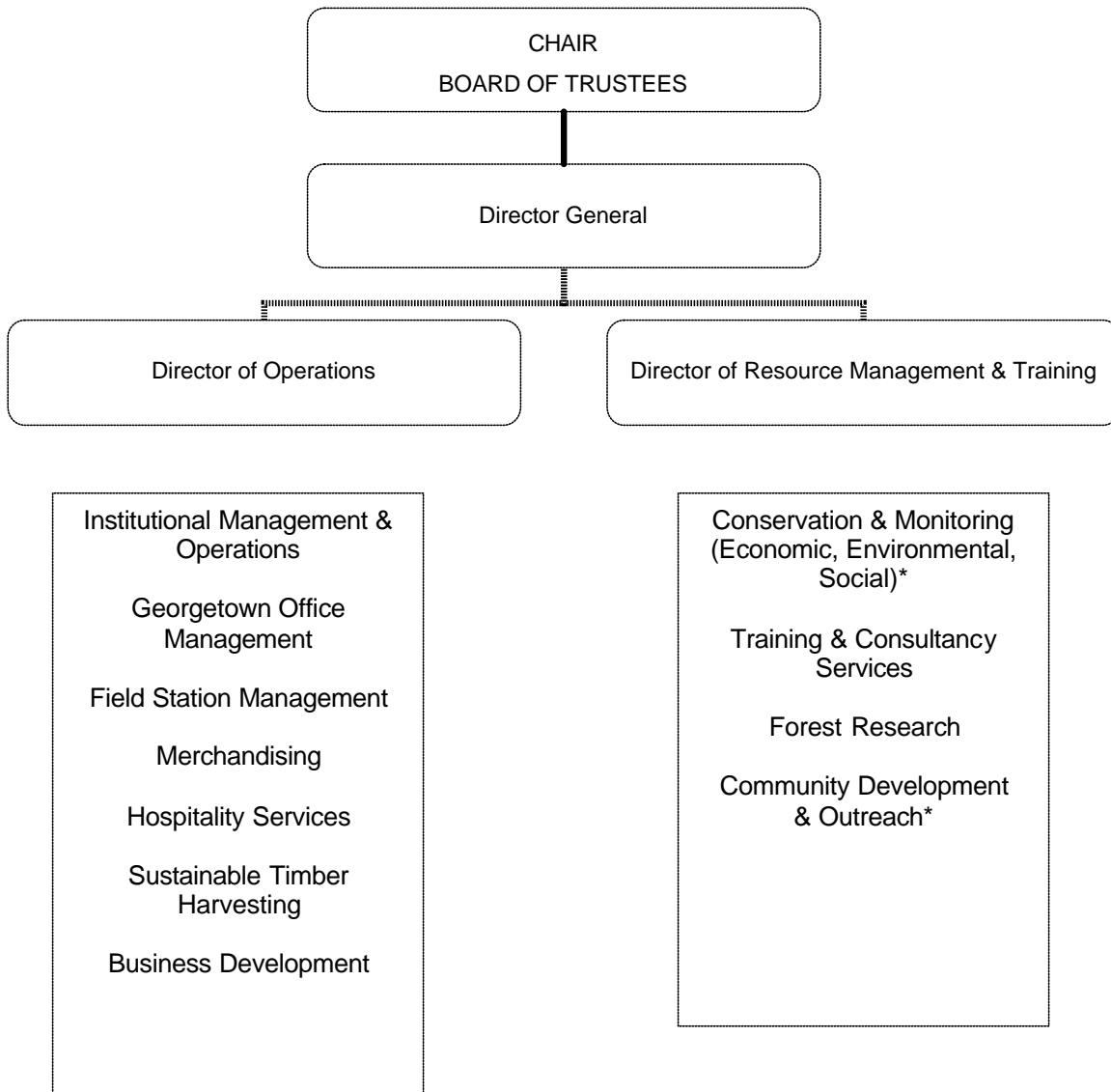
Iwokrama's new business plan focuses on income generating activities while maintaining the equity and conservation ideals of the Centre and a focus on increased cost efficiency and accountability through objective driven management.

There are seven core programmes of activity:

- Sustainable Timber Harvesting
- Sustainable Tourism
- Training & Consulting Services
- Merchandising and Value Adding
- Conservation and Monitoring
- Community Development
- Forest Research

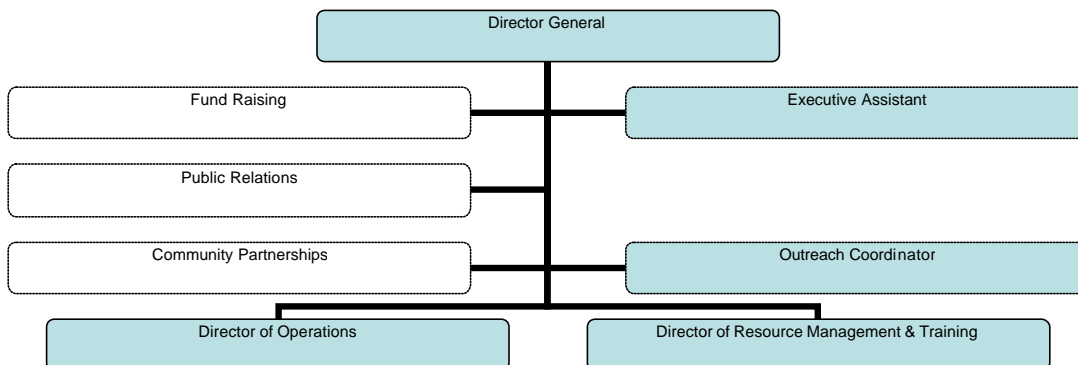
These core Programmes will be supported functionally through three support programmes -Institutional Management and Operations, Fundraising, and Marketing & Public Relations.

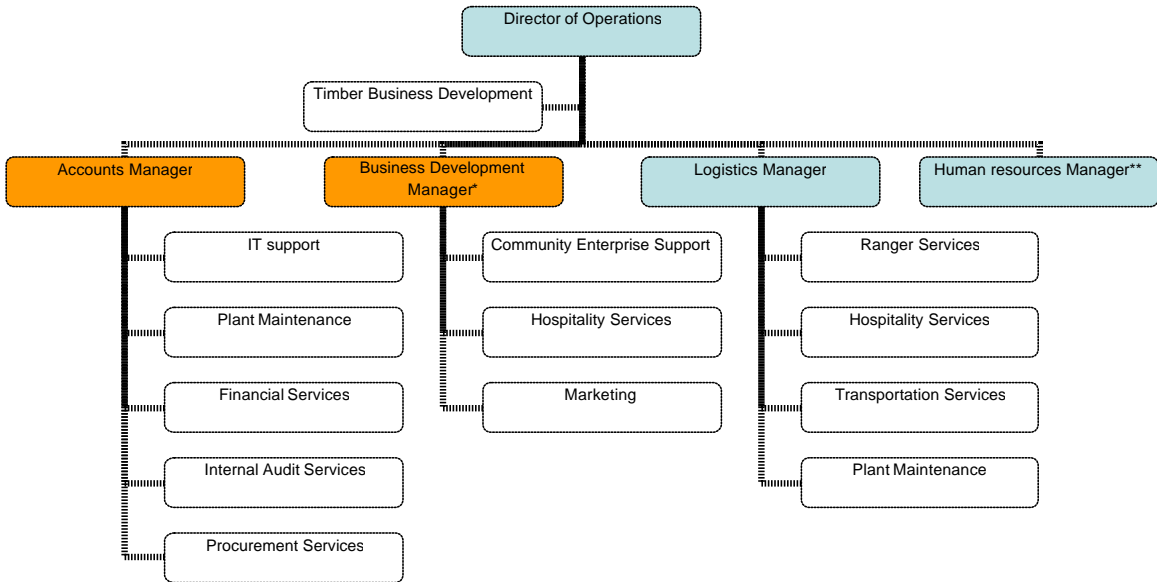
### Organizational Chart



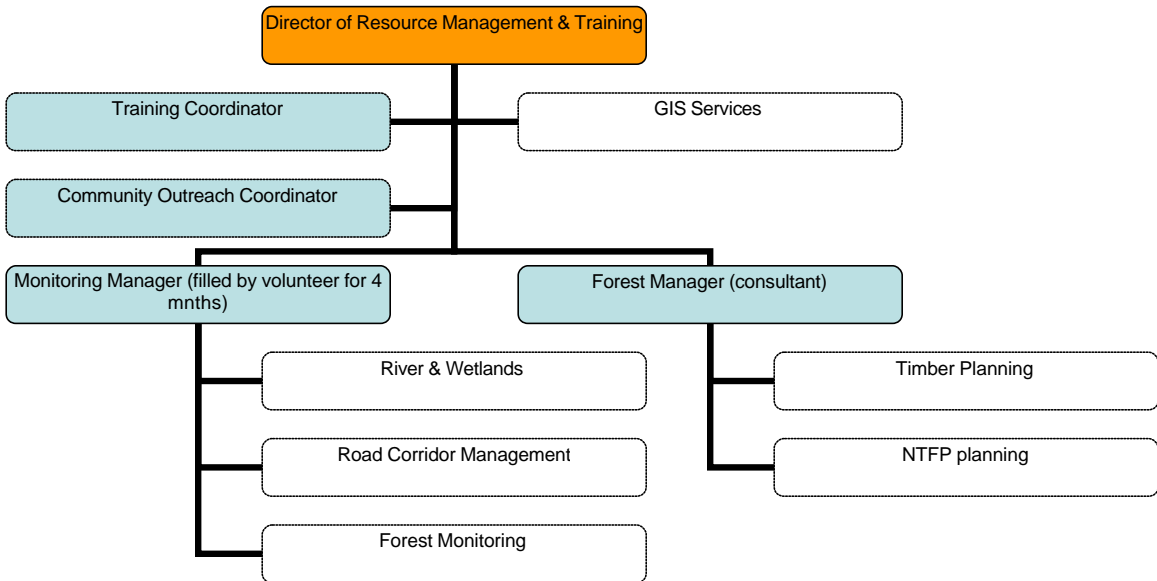
### Functions & Reporting Structure

(Orange colored positions are vacant, and need to be filled, unshaded boxes represent functions)





- \* New Position, replaces Director of Business Development
- \*\* Present position is classified as Human resources Coordinator. Status will be reviewed and decision on upgrade will be made in the fourth quarter of the year.



The main projects conducted by Iwokrama in the last 3 years are shown in the following table.

Project	Donor Agency	Status	Amount
Senior Staff Support	DFID	Ended March 2002	250 000 UK Sterling
Sustainable Human Development	DFID	Ended March 2003	3 000 000 UK Sterling
Conservation and Utilization of Biodiversity	EU	Ended March 2003	1 460 088 Euro
Administration and Ecotourism	CIDA	Ended June 2004	1 750 000 Canadian \$
PD 10/97 Rev (1) Sustainable Management *	ITTO	Ended April 2004	780 266 US\$

\* PD 10/97 Rev(1) is the only project submitted by Iwokrama to ITTO



## 2. The Infrastructure of the Executing Agency

The Field Station at the Iwokrama Forest is on the left bank of Guyana's largest river, the Essequibo, some 345 km by road from the capital city, Georgetown. The Field Station is a permanent base for operations in the Iwokrama Forest. It has a full time staff of approximately 40, including experienced drivers, boatmen, 12 forest rangers, cook, medic and Field Station Administrative Officer. The Field Station is in contact with the Headquarters in Georgetown via radio-telephone and email.

The Learning/Recreational Centre is a million dollar, multi-purpose facility providing for catering, learning, research and administration. The octagonal design allows for views on the upper floor at many angles to the surrounding forest, a deep view up the Essequibo River, and around the Field Station. The upper flat is entirely wooden with a thatch roof and a central cone for natural lighting and the collecting of rainwater. The multi-purpose, balcony-type halls, and the cooking and catering facilities are located on this floor. The lower flat is of concrete and houses the computer lab, wet and dry laboratories, sanitary facilities, storerooms, and radio and administrative offices. All rooms are insect meshed and have lightly tinted glass windows.

The Iwokrama Field Station Computer Lab consists of a peer-to-peer mini network allowing for the sharing of documents, simultaneous printing, and computer training. It has also been used for audio-visual presentations and meetings with groups of up to twenty persons. Computers are IBM compatible and the network has one zip drive, apart from individual CD ROM drives on computers.

The classroom halls are portions of the octagonal balcony floor on the top floor of the Centre. They are open, bright, breezy, and allow a great deal of flexibility in use and physical arrangement. This classroom area has a combined capacity of seventy or more persons. The furniture is sturdy and made from local non-timber forest products.

## 3. Budget

The last three years budgets of the Executing Agency for ITTO Project PD 10/97 Rev.1 (F) are summarized in the following table.

	<b>Total Budget</b>	<b>Period 1 Jul 1999 to Dec, 00</b>	<b>Period 2 Jan to Dec, 01</b>	<b>Period 3 Jan to Dec, 02</b>	<b>Period 4 Jan to Dec , 03</b>	<b>Period 5 Jan to Mar , 04</b>	<b>Accumulated Total</b>
Contributions	699,930	100,000	150,000	449,920	0	0	699,920
Total Revenue	<b>699,930</b>	<b>100,000</b>	<b>150,000</b>	<b>449,920</b>	<b>0</b>	<b>0</b>	<b>699,920</b>
Project Personnel	311,800	3,092	54,480	117,350	254,443	0	429,365
Sub- Contracts	130,000	-	83,551	38,466	0	0	122,017
Duty Travel	138,300	7,807	4,059	3,363	39,186	0	54,415
Capital Items	51,000	33,113	2,271	8,959	2,413	0	46,756
Consumable Items	8,500	1,115	848	1,061	5,990	0	9,014
Miscellaneous	60,330	116	5,921	28,213	764	0	35,014
<b>Total Expenses</b>	<b>699,930</b>	<b>45,243</b>	<b>151,130</b>	<b>197,412</b>	<b>302,796</b>	<b>-</b>	<b>696,581</b>
Balances	<b>0</b>	<b>54,757</b>	<b>(1,130)</b>	<b>252,508</b>	<b>(302,796)</b>	<b>0</b>	<b>3,339</b>
<b>Use of Surplus Funds</b>							
Project Personnel							2,896
Audit Fees							553
							<b>3,449</b>
<b>Balance</b>							<b>-110</b>



## 4. Personnel

The Field Station has a full time staff of approximately 40, including experienced drivers, boatmen, 12 forest rangers, cook, medic and Field Station Administrative Officer. In addition, the Iwokrama headquarters office, in Georgetown, has an IT, database and GIS technicians.

**ANNEX B - CURRICULA VITAE OF THE KEY STAFF**

The Curricula Vitae and Terms of Reference for project key staff are given in this section.

Experts	SCHEDULE (in months)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Director General (N)																								
Director of Finance and Operations (N)																								
Director of Resource Mgmt / Training (N)																								
Project Manager/Forestry Manager (I)																								
Silvicultural Forester (I)																								
Counterpart trainees - (2) (N)																								
Rangers - (6) (N)																								
GIS support - (1) (N)																								
Database Consultant (I)																								
Fire Management Consultant (I)																								
Log Scaling Specialist (N)																								
Lumber Grading Consultant (I)																								

Intermittent input   
 Full-time input 

**DAVID J. SINGH**  
**(Director General - Ag)**

Date of Birth: July 29, 1965  
Place of Birth: Guyana  
Nationality: Guyana

### Areas of Expertise

Project Management; Environmental Practices; Environmental Projects Planning and Development

### Synopsis

Development expert experienced in building organisational capacity, policy analysis, quality control systems, and establishing environmental regulatory standards. Especially skilled at conceptualising and initiating strategic interventions to create organisational change, mentoring, motivating and challenging staff to set and achieve goals. Interested in opportunities to foster improved governance within developmental agenda.

### Summary of Experience

2001 - : Guyana Environmental Protection Agency (EPA). Director, Environmental Management Division. Supervise authorization, response to environmental complaints and incidents, and development of instruments for integration of environmental practices into planning and development. Develop and supervise projects in environmental management

1999-2002 : Guyana National Bureau of Standards (GNBS). Chairman, National Standards Council. Oversaw restructuring and rationalizing of activities of the GNBS, and development of 3-year strategic plan. Chairman of technical committees for laboratory management, environment, and forestry management.

2000-2001: Ministry of Fisheries, Crops & Livestock. Supervisor for project to register Guyana as a third party to export fish and fishery products to the European Union

1998-2001: Guyana Environmental Protection Agency (EPA). Chairman, Environmental Assessment Board. Reviewed environmental impact assessments (EIAs) for EPA.

1997-2001: Institute of Applied Science & Technology (IAST). National Coordinator, Science & Technology. Member Natural Resources & Environment Advisory Committee (NREAC). Head of Technical Services, IAST. Country representative at international meetings in science, technology and environment. Liaison officer between Science & technology agencies and organizations in Guyana and Caribbean. Assistant to the Presidential Adviser on Science, Technology & Environment

1997: Reviewer, Guyana National Bureau of Standards (GNBS), Code of Safety for Mercury.

1997: Member, Technical Working Group of National Standards Council Environmental Technical Committee, for establishment of National Standard for Automobile Exhaust Emissions.

1997: Consultant, Guyana Electricity Corporation (GEC), Environmental Study: Belladrum Beach. Study to determine origin of oil contamination on beach.

1997: Consultant, Guyana Geology & Mines Commission (GGMC), Environmental Assessment of Mahdia. Study focused on development of environmental management plan for small scale gold mining in project area.

1996 Member, Environmental Review Board for EIS Addendum for Tailings Pond #2 for Omai Gold Mines Ltd.

1996: Consultant, Environmental Impact Assessment, proposed Paper Recycling Plant, Seals & Packaging Industries Ltd. East Bank Demerara, Guyana.

1996: Consultant, United Nations Development Programme (UNDP). Assistant Coordinator, Brown Environmental Issues, Environmental Protection Agency, Guyana.

1995 Member, Prime Ministerial Committee for the evaluation of proposal from Omai Gold Mines Ltd. for discharge of tailings effluent into Essequibo River. Proposal from largest open pit gold mine in South America to discharge cyanide-bearing tailings water into river.

### Academic and Professional Qualifications

Ph.D., Inorganic Chemistry, Dept. Of Chemistry, Temple University, Philadelphia, PA, USA, 1992  
B.Sc., Applied Chemistry (Distinction) University of Guyana, Turkeyen, Georgetown, Guyana, 1987  
*President's medal, Best Graduating Student*

**DANE GOBIN**  
**(Director of Finance and Operations)**

Date of Birth: Jan. 24, 1966  
Place of Birth: Guyana  
Nationality: Guyana – Canada

**Areas of Expertise**

Business Development; Project Management; International Business; International Finance

**Summary of Experience**

2002 – : Programme Support Director (ag) – Iwokrama International Centre.

- Provided administrative support for the entire programme including the Field Station.
- Designed and managed inventory systems, management systems and budgets for programme activities.
- Assisted in the redesign of accounting systems for the efficient production of management accounts and donor reports.
- Managed donor relations and reporting for the various donors including EU, DFiD, ITTO and CIDA.
- Organized the Ninth Iwokrama Foundation Day Lecture presented by Ms. Francis Cairncross, Management Editor, of the Economist Magazine.
- Organized the first Foundation Day Dinner.
- Organized the 9<sup>th</sup> International Board of Trustees meeting.
- Implemented strict cost cutting and efficiency initiatives for the Iwokrama programme.

2002 – : Business Development Consultant - Iwokrama International Centre

- Developed forest based resources for commercialization within guidelines of conservation and sustainable development.
- Introduced a business focus to the Iwokrama Programme through training and business sensitivity programs.
- Formulated business plans for Iwokrama Programme units.
- Identified and developed income generating ideas for the Iwokrama Programme.
- Developed economic, social and environmental guidelines for businesses operating within the forest.

- Developed business partnerships between Iwokrama and International, Local Community and National businesses.
- Provided business support services such as marketing administration, finance and accounting and research & development for both commercial and local community based businesses.

2001 – : Part owner and Director Of *Buffalo Food Products*, importers and distributors of Food Products in Guyana. Responsibilities include charting the strategic direction of the company and setting up the required supporting administrative systems including sales & marketing, purchasing, importation, international product sourcing (China, Thailand, Trinidad, Canada, United States, Mexico, Sri Lanka, England, Belgium and Ireland), human resource administration, accounting & finance and inventory control.

2000 – : Final year Management Lecturer and Coordinator of the Banking and Finance Programme at the University of Guyana. Courses taught include, Project Management, International Business, Training & Development, Personnel Administration, Consumer Behaviour, Business Policy & Strategy, International Finance and Organization Behaviour.

1990 – : Director of *Gobin's Limited* (a forty year old family business)– with responsibilities for the Agricultural Machinery Division (the company is an authorized dealer for Massey Ferguson Tractors of the UK), Financial and Management Consulting/ Project preparation Division (Numerous management/financial consultancies ranging from US\$20,000 – US\$500,000) and the Cosmetics Division (Distributors of Caramia Cosmetics from Trinidad). Responsibilities include charting the strategic direction of the company and all supporting administrative duties.

**Academic and Professional Qualifications**

M.B.A Finance. Saint John's University, Jamaica Queens New York, 1990.

B.Sc. Management. Saint John's University, Jamaica Queens New York, 1988.

## **Terms of Reference Forest Manager/Project Manager**

### **Background**

Iwokrama has submitted a new Project Proposal to ITTO for the Implementation of their Forest Management Plan and to build on work done to date on an integrated model for the multiple use of a tropical rainforest.

Iwokrama requires the services of key forest management personnel to provide the professional oversight and supervision, training and technology transfer needed to ensure that proposed project activities are carried out as specified and in a timely manner.

Care must be taken to ensure that all work and recommendations are fully compliant with guidelines and procedures established by ITTO and the Guyana Forestry Commission (GFC) and are within the scope of the wider concepts encompassed by Iwokrama itself.

### **Goal and Purpose**

The goal of the consultancy is to contract a senior forestry professional, experienced in sustainable forest management to provide the professional oversight and supervision, training and technology transfer needed to ensure that proposed project activities are carried out as specified and in a timely manner.

*Iwokrama's Forest Manager, who is presently under a CFTC assignment to the Centre, will take on the duties of Project Manager for this ITTO Project. The CFTC assignment will cover the first year of project activities, after which his assignment would be covered by the ITTO Project*

### **Duties**

The Forest Manager/Project Manager will:

- Provide general oversight and supervision for all phases of project execution, including budget management, consultant contracting and liaison with the NRDDDB;
- Take responsibility for all project reporting requirements;
- Work closely with the database consultant in the design and implementation of data processing and mapping requirements;
- Work closely with the fire management consultant in the design and implementation of the fire management plan;
- Work closely with the silviculture forester in the design and implementation of PSPs, as well as the implementation of the forest certification programme;
- Provide capacity building, training and technology transfer to people from the Amerindian communities as well as to a forest management counterpart.

### **General**

The period of activity shall be for a maximum of 24 months from project start-up to project completion. The scheduling of the contractor's input during the period of activity will be as set out in the attached Work Plan, which may be subject to revision as the body of work progresses.

### **Reporting**

The contractor will report to the Director General. All reports whether outlines, drafts or final documents will be submitted in hard copy form and electronically. All written and electronic deliverables in their final form will be submitted to Iwokrama on or before project completion.

**KENNETH P. RODNEY**  
**(Forest Manager)**

Date of Birth: July 14, 1946  
Place of Birth: Canada  
Nationality: Canadian

### Areas of Expertise

Project Management; Forest Inventories; Tropical Forest Management; Timberland Valuations

### Synopsis

Mr. Rodney was employed as a Forest Technologist with Olympic Resource Management (formerly Simons Reid Collins) from 1974 to 2001. Internationally, he has participated in wood supply feasibility studies, timberland valuations and industrial development projects involving construction supervision, forest inventory, wood supply assessment and equipment procurement. He was also the project manager on the Argentina National Forest Inventory Projects, financed by the World Bank. Mr. Rodney was Manager of ORM's International Division from 1994 to 2001. Mr. Rodney has been working as an independent international forestry consultant since late 2001 and is presently employed as Forest Manager at Iwokrama under assignment with the Commonwealth Secretariat.

### Summary of Experience

2002-03: Guyana. International Business Development Advisor-Forestry, to the Iwokrama International Centre for Rainforest Conservation and Development.

1998-2001: Argentina. Coordination and implementation of a two-year inventory and mapping project of Argentina's forest plantations and a three-year inventory and mapping project of Argentina's native forests.

1998: Uruguay. Plantation wood supply and demand analysis for a private port project.

1998: Argentina. Participated in technical-economical pre-feasibility study for the development of a provincial forestry investment fund.

1998: Peru. Technical advisor for a native forest privatization plan in the Peruvian Amazon.

1997: Panama. Design and supervision of a forest inventory update for a 50,000 ha native forest reserve.

1997: Venezuela. Design and supervision of a forest inventory and wood supply assessment as due diligence for the possible purchase of a 60 000 ha pine plantation estate in eastern Venezuela.

1996: Brazil. Design and supervision of a forest inventory and wood supply assessment as due diligence for the possible purchase of a 75 000 ha pine plantation estate in northern Brazil.

1995: Peru. Assessment of remaining wood resource in a Forest Concession in the Von Humboldt National Forest in Amazonian Peru supplying a sawmill in Pucallpa.

1995: Belize. Preliminary appraisal of forest operations and resource base in the Corozal District in northern Belize.

1995: Argentina. Overview assessment of 250 000 hectares of the Quebrachal forest in eastern Salta Province to provide basis for a feasibility study of a multiple-use agro-forestry development.

1994: Mexico. Assisted North American forestry company in appraisal of wood supply for industrial complex for potential investment.

1994: Chile. Preliminary appraisal of 65 000 hectares of forest land and fixed assets (wood processing facilities) in the mixed forest area surrounding Puerto Montt.

1991/92: People's Republic of China. Equipment Facilitator on CIDA-funded integrated forest management project, responsible for tendering, purchasing and delivering forestry equipment.

1990-92: St. Vincent, Caribbean. Inventory specialist on a CIDA agro-forestry and watershed protection project. Responsible for training local forest service personnel in the design and execution of forest inventories; preparation of field and office manuals.

1982-89: Peru. Participated in CIDA's Industrial Forestry Development Project.

### Academic and Professional Qualifications

Diploma of Technology in Forestry, British Columbia Institute of Technology, 1968.  
Registered Forest Technologist (RFT), Association of British Columbia Forest Professionals.

## **Terms of Reference Silvicultural Forester**

### **Background**

Iwokrama has submitted a new Project Proposal to ITTO for the Implementation of their Forest Management Plan and to build on work done to date on an integrated model for the multiple use of a tropical rainforest.

Iwokrama requires the services of key forest management personnel to provide the professional oversight and supervision, training and technology transfer needed to ensure that proposed project activities are carried out as specified and in a timely manner.

Care must be taken to ensure that all work and recommendations are fully compliant with guidelines and procedures established by ITTO and the Guyana Forestry Commission (GFC) and are within the scope of the wider concepts encompassed by Iwokrama itself.

### **Goal and Purpose**

The goal of the consultancy is to contract a senior silvicultural forester experienced in sustainable forest management to provide the professional oversight and supervision, training and technology transfer needed to ensure that proposed project activities are carried out as specified and in a timely manner.

### **Duties**

The Silvicultural Forester will:

- Design and supervise PSP establishment for monitoring growth and yield.
- Design and supervise implementation of a volume and decay study.
- Assist in design of monitoring of forest harvesting impact on local communities.
- Assist in design of monitoring of forest harvesting impact on native flora and fauna.
- Design and supervise implementation of reforestation/enrichment planting programme.
- Design and supervise implementation of Iwokrama's Forest Certification process.
- Prepare and supervise implementation of silvicultural prescriptions.
- Apply ITTO C&I at the start and of the project in order to assess progress towards SFM.
- Provide capacity building, training and technology transfer to Amerindian communities as well as to a silvicultural counterpart.

### **General**

The period of activity shall be for a maximum of 24 months from project start-up to project completion. The scheduling of the contractor's input during the period of activity will be as set out in the attached Work Plan, which may be subject to revision as the body of work progresses.

### **Reporting**

The contractor will report to the Director General. All reports whether outlines, drafts or final documents will be submitted in hard copy form and electronically. All written and electronic deliverables in their final form will be submitted to Iwokrama on or before project completion.

**JORGE O. TREVIN**

Date of Birth: October 21, 1951  
Place of Birth: Argentina  
Nationality: Canadian

### **Areas of Expertise**

Forest Management and Silviculture; Natural Resources Management; Land Use and Conservation Planning; Watershed Management.

### **Synopsis**

Mr. Trevin has an extensive experience in forest management and silviculture, natural resources management, land use and conservation planning, and watershed management. NGO building and management experience. Professional experience developed in planning, management, implementation, evaluation, extension, research, teaching, training and administrative functions.

### **Summary of Experience**

1995- : Government of Argentina, Secretariat of Agriculture, Livestock, Fisheries and Food, Buenos Aires, Argentina. Technical Secretary, Government of Argentina-IBRD Forestry Development Project.

Responsible for coordinating, facilitating, supervising and monitoring Project activities. Directly ensuring the technical quality of all Project work within the following components: Institutional Strengthening, Policy and Regulatory Development, Forestry Research and Extension, National Forest Inventory, Training, Seed Certification, Agroforestry Research and Extension, Small Farmers Support and Environmental Conservation, and Desertification Control.

Some specific responsibilities within this US\$ 26 million project included preparing norms and guidelines for research projects and extension programs, evaluating proposals, drafting terms of reference for local and foreign consultants, evaluating advance and final reports, monitoring Project activities, reporting to the World Bank and national agencies, and organizing seminars with the participation of foreign and local experts. Also, advisor to the Coordinating Office, National Forest Policy, on policy development in several areas including environmental standards and regulations, forest certification, EIA and financial mechanisms for the promotion of sustainable plantation forestry.

1999- : Asociación Civil Ambiente Sur (Environmental NGO), Buenos Aires, Argentina.

As founder Vice-president and, since 2001, President of Ambiente Sur, an Argentine environmental NGO, analyzed and elaborated proposals for land use planning in the Southern Metropolitan Region of Buenos Aires, with emphasis on the environmentally sound development and use of the coastal zone and green and non-urban areas. The region is one of the most polluted areas of Argentina. Elaborated within a participatory public process a management plan for a municipal urban reserve in Avellaneda, Province of Buenos Aires. Developed technical bases for administrative and legal actions. Responsible for press relations and press releases. National media interviews. Published information and opinion articles on environmental and land planning issues. Vice-president (1999-2001) and President (2001-present).

1990-1995: Reid, Collins and Associates, a division of H.A. Simons Ltd., Vancouver, B.C., Canada. Consultant and Silviculture Advisor.

1990-94: Canada-St. Vincent and the Grenadines Forestry Development Project, St. Vincent, West Indies.

1988-1989: Department of Indian and Northern Affairs Canada. Environment and Natural Resources Officer, Campbell River District, British Columbia.

### **Academic and Professional Qualifications**

Master of Natural Resources Management (MRM), Simon Fraser University, Canada (1987). School of Resource and Environmental Management.

B. Sc. in Forestry, National University of La Plata, Argentina (1976).



## **Terms of Reference Compilation and Database Specialist**

### **Background**

Iwokrama has submitted a new Project Proposal to ITTO for the Implementation of their Forest Management Plan and to build on work done to date on an integrated model for the multiple use of a tropical rainforest.

Iwokrama requires the services of key forest management personnel to provide the professional oversight and supervision needed to ensure that proposed project activities are carried out as specified and in a timely manner.

Care must be taken to ensure that all work and recommendations are fully compliant with guidelines and procedures established by ITTO and the Guyana Forestry Commission (GFC) and are within the scope of the wider concepts encompassed by Iwokrama itself.

### **Goal and Purpose**

The goal of the consultancy is to contract a senior compilation and database specialist with forest inventory experience to advise and assist the Forest Manager with all data compilation and analysis requirements needed to ensure that proposed project activities are carried out as specified and in a timely manner.

### **Duties**

The compilation and database specialist will:

- Carry out necessary upgrades to GEMFORM and IWOPLAN software.
- Assist with the design of the operational inventory, WP inventory and volume and decay study.
- Program electronic data recorders for use in the above and develop data downloading routines.
- Revise current Compiler Program for use with operational and WP inventories.
- Train field personnel in the use of the electronic data recorders.
- Compile and analyze volume and decay data and create revised inventory risk classes.
- Train Iwokrama's database technicians in the use and maintenance of the inventory database and processing programs.

### **General**

The period of activity shall be for a maximum of 4 months from project start-up to project completion. The scheduling of the contractor's input during the period of activity will be as set out in the attached Work Plan, which may be subject to revision as the body of work progresses.

### **Reporting**

All reports whether outlines, drafts or final documents will be submitted in hard copy form and electronically. All written and electronic deliverables in their final form will be submitted to Iwokrama on or before project completion.

**CARLOS O. PINILLOS**

Date of Birth: January 7, 1956  
Place of Birth: Peru  
Nationality: Peru - Canada

### Areas of Expertise

Forest Inventory & Data Processing; Database Programming & Design; GIS Applications; Modeling.

### Synopsis

Carlos Pinillos is currently working as Forest Information Systems Analyst, working on national and international projects with Canadian forestry consultant companies since 1996 in areas such as forest inventories, analyses and data processing, application of simulation models, programming and design of data bases and GIS. He has extensive experience, having worked as an international consultant in South America and Africa since 1987.

### Summary of Experience

2003: Guyana. Database design and forest inventory data processing to the Iwokrama International Centre for Rainforest Conservation and Development.

2003: British Columbia. Designed and developed a plot database application for use with J.S. Thrower's CRUISECOMP program. This program stores cruise data and allows the user efficient access to all plots on the land base.

2002: British Columbia. Developed a comparative cruise application that utilizes spatial plot data with GIS overlays and assigns these plots to areas that have not been cruised.

2002: Saskatchewan. Developed the program to monitoring the Saskatchewan forest cover map.

2001: Alberta. Developed the program to validate permanent sample plot data.

2000: Jamaica. Designed and programmed a forest inventory compiler for plantations and natural forests in MS Access.

1998-2001: Argentina. Part of a team that executed the National Forest Inventory for plantations and natural forests. Designed the forest inventory cruise compilation database, developed the system, field manuals and software for data collection.

1997: Panama. Developed the project proposal for strengthening the forest sector of Panama to monitor its forest resources for sustainable development.

1997: Venezuela. Participated in design and execution of a forest inventory/wood supply analysis for a possible purchase of 60 000 ha pine plantation in Venezuela. The study included satellite image processing, database development, GIS update, wood supply forecast and plantation maps production.

1996: Brazil. Part of a team, which carried out a plantation audit (area and wood volume) for possible purchase. Set up the database structure and data entry/compilation procedures; supervised all compilation work.

1996; British Columbia. Participated in the preparation of a 5-year Road Maintenance and Deactivation Plan for REPAP using ARC/INFO.

1996: British Columbia Assisted in the preparation of a 5-year Silviculture Plan for an industrial client.

1992: Equatorial Guinea. FAO. Part of team preparing a Management and Conservation Plan for Bioko Island's natural resources.

1992. Angola. FAO. Strengthening of the Forestry Development Institute: installed software; developed a simulation model for annual allowable cut calculations; carried out training.

1991: Peru. ITTO study of industrial use of new tropical tree species in Peru; followed up on processing and merchandizing commercially lesser known species; designed and created Industrial Information and Forestry Species Databases.

### Academic and Professional Qualifications

Advanced Diploma in Geographic Information Systems, BCIT, Vancouver, Canada, 1995.

Magister Scientiae (M.Sc.) in Forest Industry, National Agrarian University, La Molina, Lima, Peru, 1988.

Bachelor in Forest Science, National Agrarian University, La Molina, Lima, Peru, 1981.

## **Terms of Reference Fire Management Specialist**

### **Background**

Iwokrama has submitted a new Project Proposal to ITTO for the Implementation of their Forest Management Plan and to build on work done to date on an integrated model for the multiple use of a tropical rainforest.

Iwokrama requires the services of key forest management personnel to provide the professional input needed to ensure that proposed project activities are carried out as specified and in a timely manner.

Care must be taken to ensure that all work and recommendations are fully compliant with guidelines and procedures established by ITTO and the Guyana Forestry Commission (GFC) and are within the scope of the wider concepts encompassed by Iwokrama itself.

### **Goal and Purpose**

The goal of the consultancy is to contract a senior fire management specialist to provide the training and technology transfer services needed to ensure that specific proposed project activities are carried out as specified and in a timely manner.

### **Duties**

The fire management specialist will:

- Prepare a comprehensive fire management plan, specific to Iwokrama's needs, including detailed descriptions of training, public awareness, monitoring, prevention, communication, coordination and suppression;
- Develop local fire risk indicators;
- Prepare a fire management training manual and implementation guidelines;
- Assist in the specification and selection of fire management tools and equipment;
- Provide technical design specifications for fire watch towers;
- Provide training and technology transfer in implementation procedures.

### **General**

The period of activity shall be for a maximum of 3 months from project start-up to project completion. The scheduling of the contractor's input during the period of activity will be as set out in the attached Work Plan, which may be subject to revision as the body of work progresses.

### **Reporting**

The contractor will report to the Forest Manager. All reports whether outlines, drafts or final documents will be submitted in hard copy form and electronically. All written and electronic deliverables in their final form will be submitted to Iwokrama on or before project completion.

## **Terms of Reference Log Scaling Specialist**

### **Background**

Iwokrama has submitted a new Project Proposal to ITTO for the Implementation of their Forest Management Plan and to build on work done to date on an integrated model for the multiple use of a tropical rainforest.

Iwokrama requires the services of key personnel to provide the professional input needed to ensure that proposed project activities are carried out as specified and in a timely manner.

Care must be taken to ensure that all work and recommendations are fully compliant with guidelines and procedures established by ITTO and the Guyana Forestry Commission (GFC) and are within the scope of the wider concepts encompassed by Iwokrama itself.

### **Goal and Purpose**

The goal of the consultancy is to contract a senior local log scaling specialist to provide the training and technology transfer services needed to ensure that specific proposed project activities are carried out as specified and in a timely manner.

### **Duties**

The log scaling specialist will:

- Advise and assist in the setting up of a log scaling programme at the Iwokrama Forest.
- Provide classroom and field training and technology transfer to a select group of students (maximum 3) over a 2-week period.
- Provide the forest manager with a grading report on the students at the end of the training program.

### **General**

The period of activity shall be for a maximum of 1 month from project start-up to project completion. The scheduling of the contractor's input during the period of activity will be as set out in the attached Work Plan, which may be subject to revision as the body of work progresses.

### **Reporting**

The contractor will report to the Forest Manager. All reports whether outlines, drafts or final documents will be submitted in hard copy form and electronically. All written and electronic deliverables in their final form will be submitted to Iwokrama on or before project completion.

## **Terms of Reference Lumber Grading Specialist**

### **Background**

Iwokrama has submitted a new Project Proposal to ITTO for the Implementation of their Forest Management Plan and to build on work done to date on an integrated model for the multiple use of a tropical rainforest.

Iwokrama requires the services of key personnel to provide the professional input needed to ensure that proposed project activities are carried out as specified and in a timely manner.

Care must be taken to ensure that all work and recommendations are fully compliant with guidelines and procedures established by ITTO and the Guyana Forestry Commission (GFC) and are within the scope of the wider concepts encompassed by Iwokrama itself.

### **Goal and Purpose**

The goal of the consultancy is to contract a senior international lumber grading specialist to provide the training and technology transfer services needed to ensure that specific proposed project activities are carried out as specified and in a timely manner.

### **Duties**

The lumber grading specialist will:

- Advise and assist in the setting up of a lumber grading programme at the Iwokrama Forest.
- Provide classroom and field training and technology transfer to a select group of students (maximum 3) over a 3-week period.
- Provide the forest manager with a grading report on the students at the end of the training program.

### **General**

The period of activity shall be for a maximum of 1 month from project start-up to project completion. The scheduling of the contractor's input during the period of activity will be as set out in the attached Work Plan, which may be subject to revision as the body of work progresses.

### **Reporting**

The contractor will report to the Forest Manager. All reports whether outlines, drafts or final documents will be submitted in hard copy form and electronically. All written and electronic deliverables in their final form will be submitted to Iwokrama on or before project completion.

## ANNEX C – RECOMMENDATIONS OF THE 29<sup>TH</sup> PANEL

PD 297/04 Rev.1 (F)

**Implementation of the Sustainable Forest Management Programme of the Iwokrama International Centre (Guyana)**

### Assessment by the Twenty-ninth Panel

#### A) Overall Assessment

The Panel noted that the revised proposal was well written, clear and concise and had incorporated most of the recommendations from its consideration of the original version at the twenty-seventh meeting. However, the developed management plan needs an additional revision, particularly as regards environmental and socio-economic aspects. Moreover, while the application of ITTO C&I had been addressed in the text of the proposal, apparently an activity for its application was not included nor was it mentioned as an output and a means of verification in the logical framework.

#### B) Specific Recommendations

The proposal should be revised taking into account the overall assessment and the following:

1. Enhance the executive summary of the forest management plan annexed to the proposal, particularly as regards environmental and socio-economic aspects;
2. Include an activity for the application of the ITTO C&I at both the onset and end of project implementation, in a manner such that it will allow an assessment of the progress achieved towards sustainable forest management during the project's timeframe, and incorporate it into the logical framework;
3. Provide a much more equitable balance between the ITTO and counterpart contributions towards the overall budget, particularly as regards project personnel involved in long-term research efforts (i.e. wildlife monitoring in harvested forests, etc.);
4. Provide separate detailed budget tables by components for each of the ITTO and counterpart contributions, including unit costs, and adjust the costs for ITTO monitoring and review to US\$10,000/year; and
5. Include an Annex which shows the recommendations of the 29th Panel and the respective modifications in tabular form.

#### C) Conclusion

The Panel concluded that, with the incorporation of the amendments noted, the project proposal could be commended to the Committee for final appraisal.

**PROPOSAL MODIFICATIONS AS PER RECOMMENDATIONS OF THE 29<sup>TH</sup> PANEL**

<b>Assessment / Recommendation</b>	<b>Modification</b>
B) <u>Specific Recommendations:</u>	
1. Enhance the executive summary of the forest management plan annexed to the proposal, particularly as regards environmental and socio-economic aspects.	Excerpts from Section 3.5 (Company Policy) of the E&FMP have been added to the executive summary, which outline the socio-economic and environmental aspects of the management plan.
2. Include an activity for the application of the ITTO C&I at both the onset and end of project implementation, in a manner such that it will allow an assessment of the progress achieved towards sustainable forest management during the project's timeframe, and incorporate it into the logical framework.	Activity 1.1.8 <u>Application of ITTO C&amp;I</u> has been added to <b>Section 4 – Activities</b> , and has been incorporated into the Logical Framework. The relevant adjustments have been made to the Work Plan and Budget.
3. Provide a much more equitable balance between the ITTO and counterpart contributions towards the overall budget, particularly as regards project personnel involved in long-term research efforts (i.e. wildlife monitoring in harvested forests, etc.).	The Work Plan and Budget have been modified to reflect the full complement of Rangers who will be assigned to monitoring activities. This was omitted due to an oversight in the previous version of this proposal. Senior staff hours have also been increased for the monitoring activities.
4. Provide separate detailed budget tables by components for each of the ITTO and counterpart contributions, including unit costs, and adjust the costs for ITTO monitoring and review to US\$10,000/year.	Done. See pages 27 and 28.
5. Include an Annex which shows the recommendations of the 29th Panel and the respective modifications in tabular form	Done. See pages 48 and 49.
6. <b>Additional note:</b> Since the previous version of this proposal was submitted, Iwokrama has undergone a change in management. The previous Director General, Dr. Graham Watkins has taken a position with the Darwin Foundation in the Galapagos. Iwokrama's new DG (Ag) is Dr. David Singh, formerly Iwokrama's Director of Resource Management and Training.	See Annex A – Organizational Chart. See Annex B – CVs of key staff.

**APPENDIX I**  
**Executive Summary of Iwokrama's**  
**Environmental and Forestry Management Plan**



## **APPENDIX 1 - EXECUTIVE SUMMARY OF THE E&FMP**

On the 13th January 2004, the International Board of Trustees (IBOT) of the Iwokrama International Centre for Rain Forest Conservation and Development Centre (Iwokrama or the Centre), "*RESOLVED that the Centre's management will pursue timber operations within the Iwokrama Forest Sustainable Utilization Area to harvest not more than 15,000 cubic metres per annum in the first year through a business partnership involving local communities and private sector and using mobile band mills;*". This will be accomplished through Iwokrama Timber Products (ITP), a company in its formative stages that is intended to be a global model for timber harvesting, demonstrating environmental sustainability, social sensitivity, and economic viability. Iwokrama will retain a controlling interest in ITP. Partners will be solicited from the private sector. Business arrangements between the private sector partner and the local communities will be in accord with the Iwokrama Act. ITP will seek forest certification in order to take advantage of broadened and niche markets that require such certification.

This Environmental and Forestry Management Plan (E&FMP) prepared for ITP, applies to that portion of the Iwokrama Forest designated for timber harvesting and referred to as the Net Operable Area (NOA). The project will have wider reaching effects, influencing other parts of the Iwokrama Forest ecosystem, possibly the ecosystem of the North Rupununi wetlands, and certainly the social and cultural environments of the North Rupununi Sub-District and Regions 8 and 9.

The plan covers a period of five years although certain matters such as annual allowable cut have a much longer horizon. Future E&FMPs will be based on monitoring and feedback of biological, social and management information obtained from monitoring programmes.

A monocyclic silvicultural system (60-year rotation) that involves felling only a few of the commercial trees in an area will be employed. The annual harvesting area has been calculated to be approximately 600 ha per year for the duration of the plan. Based on a sustainable harvest volume of between 12 and 20 m<sup>3</sup>/ha, ITP will harvest between 7,000 and 12,000 m<sup>3</sup>/year over the plan period, once full production capacity has been attained. Upon completion of harvesting activities, felling blocks will be closed down and the environment directly affected will be rehabilitated to the extent that is practicable.

During the first year of this plan, ITP will clear and develop a base camp site, in an area of non-productive Dakama Forest on white sand, off the Linden-Lethem road about 8 km south of Kurupukari crossing. It will provide equipment maintenance and storage facilities, the mobile safety services, housing, offices, medical centre, communications, married and single accommodations, a community centre, a shop, and recreation facilities. Depending upon a number of business factors that will be assessed by the ITP corporate structure, the harvesting operations equipment may be located at sites remote from the base camp.

Over the five-year period, primary road development will extend 9.0 km and secondary road development 13.5 km. Only one primary road bridge will be required during this period.

There are approximately 3,500 people living in 13 villages south of the Iwokrama Forest in Region 9, about 90% of whom are Amerindian. This potential labour base is readily accessible via the north-south road connector to Lethem. Preferential employment will be given to residents of local communities. ITP will implement the most effective delivery of on-going training.

The natural ecosystem is rich in flora and fauna. ITP will implement practices and take measures that accord with the Guyana National Initiative for Forest Certification (GNIFC), National Standards for Forest Management and those of the Forest Stewardship Council (FSC), to conserve and protect the ecosystem. With this commitment, ecosystem effects are predicted to be mainly temporary and acceptable. Monitoring programmes will be in place to observe effects leading to changes in operations as required.

ITP will integrate its security plans with those of Iwokrama, which has implemented regular monitoring and patrolling routines to ensure that illegal mining, forestry, hunting, or fishing activities do not take place within the Forest.

Management plans for fire protection, control of pests and diseases and use of chemicals are being prepared. An environmental contingency plan has been outlined and response capabilities will be available.

As stated in Section 3.5 (Company Policy) of the E&FMP, the socio-economic and environmental aspects of the management plan include, but are not limited to, the following:

The policy objectives that will underpin ITP are:

#### **Business and Social**

- ITP will respect all applicable laws of Guyana and international treaties and agreements to which Guyana is a signatory, and will operate to comply with all FSC Principles and Criteria and/or those developed by the Guyana National Initiative for Forest Certification (GNIFC).
- ITP will manage its operations in such a way that all of the rights, interests, skills, and knowledge of the traditional owners are respected and integrated in all of the forest management programmes.
- ITP will be managed to capture values, goods and services that will be equitably shared among the local, national, and international community in the long term.
- The ITP project will be managed to accommodate timely input from all stakeholders.
- All contractual arrangements for the ITP project will be developed through open, competitive processes that are transparent to all stakeholders.
- ITP will develop equity partnerships with both its employees and with the local communities living in or near the ITP project.
- ITP will honour the Intellectual Property Rights and Benefit Sharing Protocols being developed by Iwokrama with its stakeholders.
- ITP management will be involved with an active programme to monitor the social, economic and ecological impacts of the project.
- To the extent feasible, ITP will support building the institutional and human resource capacities of stakeholders to participate in the ITP operation.
- ITP operations will respect local culture, involving local people in management, preferentially hiring local people and linking local development aspirations to the development of the project.

#### **Environmental**

- ITP will govern its operations to conserve the natural and cultural heritage of the Forest, to use it sustainably, and, to provide a model for sustainable forest management.
- ITP will become certified by the National and FSC Standards for Forestry Management.
- ITP operations will place a high priority on conserving biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the Forest.
- A precautionary approach will be adopted for all management decisions made regarding the ITP project.
- ITP will commit to independent evaluation and certification of their environmental performance and set high standards of environmental stewardship as part of their core business strategy.
- ITP management will include an active programme to monitor ecosystem impacts of the project.
- ITP operations will encourage the efficient use of the Forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits.