INTERNATIONAL TROPICAL TIMBER ORGANIZATION

ITTO

PROJECT PROPOSAL

TITLE	A SUSTAINABLE MANAGEMENT MODEL IN THE IWOKRAMA RAIN FOREST
SERIAL NUMBER	PD 10/97 Rev.1 (F)
PERMANENT COMMITTEE	REFORESTATION AND FOREST MANAGEMENT
SUBMITTED BY	GOVERNMENT OF GUYANA
ORIGINAL LANGUAGE	ENGLISH

SUMMARY

The Parliament of Guyana has recently passed legislation to create the Iwokrama International Centre for Rain Forest Conservation and Development as an autonomous institution and has set aside 360,000 ha of pristine forest to be managed by Iwokrama. The Iwokrama Act requires that half of this area be set aside as a wilderness preserve. This project addresses the other half which is destined for sustainable and equitable utilization. The objective of the project is to design, plan and initiate model commercial management of the Iwokrama Forest, in order to improve practices in Guyana and elsewhere. The project will help Iwokrama produce a state-of-the-art forest management plan for multiple products and services, and feasibility studies for management and harvest based on this plan. It will assist in finding appropriate business partners and negotiating contracts that will assure adherence to principles of sustainable forest management. Demonstration, research and training in improved practices will be integrated into these model commercial operations.

EXECUTING AGENCY	IWOKRAMA INTERNATIONAL CENTRE FOR RAIN FOREST CONSERVATION AND DEVELOPMENT
COOPERATING GOVERNMENTS	---
DURATION	THREE YEARS
APPROXIMATE STARTING DATE	TO BE DETERMINED

BUDGET AND PROPOSED SOURCES OF FINANCE

Source	Contribution in US$	Local Currency Equivalent
ITTO	**780,626**	
Gov't of Guyana	Allocation of 360,000 ha forest	
Iwokrama (EA)	433,000	
TOTAL	**1,213,626**	

PART 1 : CONTEXT

1.1 RELEVANCE TO ITTO

1.1.1 COMPLIANCE WITH ITTO OBJECTIVES

This project proposal responds to the following two of the eight ITTO objectives, as set out in the International Tropical Timber Agreement:

c. To help research and development which will improve forest management and wood use.

f. To encourage tropical timber [reforestation and] management.

1.1.2 COMPLIANCE WITH ITTO CRITERIA

The project complies with each of the five ITTO criteria, as set out in Article 23.6 of the Agreement:

- It relates to the production and use of industrial tropical timber by creating a commercial model of sustainable management for multiple products and using that model to spread better practices throughout industry.
- It yields benefits to the tropical timber economy as a whole because the improved management practices can be applied throughout a wide range of producing countries. People trained through this project are not limited to Guyana and will help to spread these practices widely. Consumer countries will benefit through sustained and reliable supplies of ecologically certified timber.
- It relates to maintaining and expanding the international trade in tropical timber by developing improved management practices which assure higher sustainable yields.
- It offers good prospects for positive economic returns in relation to costs because of the high potential of the Iwokrama Forest for the production of both timber and non timber products and services.
- It makes maximum use of the existing research institutions and avoids duplication by complementing and collaborating closely with relevant institutions.

1.1.3 RELATIONSHIP TO ITTO ACTION PLAN AND PRIORITIES

This proposal fits perfectly within the Action Plan, specifically the strategy of the Committee on Reforestation and Forest Management. Among the Committee's main priorities addressed by this proposal are demonstration, creation of the scientific foundations, management for multiple benefits, development of skills and formulation of guidelines.

1.2 RELEVANCE TO NATIONAL POLICIES

1.2.1 RELATIONSHIP TO SECTORAL POLICIES AFFECTING TROPICAL TIMBER

The project is in accord with the National Forest Action Plan (1989) and the National Environmental Action Plan (1994) which set out the general policies. Forest policy and legislation is currently under review.

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

1.2.2 RELATIONSHIP TO POLICIES DEALING WITH FOREST MANAGEMENT

Commercial logging in Guyana has remained selective and relatively non-destructive, though locally the commercial value of the forest has been reduced with the removal of the most valued species. Logging is carried out on state forest land by private companies. Recently foreign companies (Demerara Timbers Ltd., Barama Co. Ltd. and Unamco) have made large investments and are applying more intensive forest harvesting techniques, but with weak management plans and knowledge of the reaction of the forest to harvest.

An FAO/UNDP reconnaissance survey covering 80% of the forested area was completed in 1970 and still provides the best estimate of the nature and extent of the forest types.

Over the years, the Guyana Forestry Commission (GFC) had built up substantial understanding of the natural forests and harvesting systems. However, in recent years the capacity of the GFC has declined drastically due to limiting human and financial resources. At present, there are only five qualified foresters living in Guyana with the GFC only supported by three. The only existing forest management plans are those prepared by concession holders. Plans are seldom informed by knowledge of the

resource. With the assistance of the Overseas Development Administration (ODA), the GFC has recently prepared a Code of Practice for forest operations which includes a recommended structure for forest management plans. Currently a working group of GFC and industry representatives is expanding this structure into detailed guidelines which all concession holders will be required to follow. However, for the present, the supervision and enforcement capacity of the GFC remains weak and there are no working models of sustainable forests management in the country that fully conform with ITTO Guidelines on sustainable tropical forest management.

Several initiatives are addressing the institutional strengthening needs of the GFC and national needs for better local information to guide management practices. The Overseas Development Administration (ODA) funded GFC Support Project will compile existing resource information available within the country and use this to update knowledge about forest types. This project will also carry out a comprehensive review of inventory systems.

Tropenbos-Guyana research at Mabura Hill (Demerara concession, largely on very fragile, infertile white sands) indicates that operations must be of low intensity with a return cycle much longer than the 25 years commonly specified in current concession agreements. Small gap size is critical and felling operations must be carefully planned and controlled. Skidding is a major cause of soil degradation.

A third initiative is carried out by the Edinburgh Centre for Tropical Forestry which has been contracted by Barama, the largest concessionaire in Guyana, to do forest management research and to monitor Barama's forest operations. To date research has concentrated on the establishment of permanent sample plots, measured before and after logging.

Iwokrama will use the limited information from these early national research efforts and experience from other tropical producing countries to develop a commercial scale model of operational best practice in sustainable tropical forest management. This model will integrate the conservation of biodiversity with the sustainable production of both timber and non-timber forest goods and services. It will be implemented with the backing of a comprehensive internationally supported operational research program that will allow for an action research based adaptive management approach to developing and refining sustainable forest management practice. Iwokrama will be well placed to test and apply outputs at the operational level and provide demonstrations, research and training of value to forest management agencies and concessionaires in Guyana and other tropical rain forest countries.

1.2.3 INSTITUTIONAL AND LEGAL FRAMEWORK

The Iwokrama International Centre for Rain Forest Conservation and Development is responsible for the management, conservation and sustainable development of 360,000 hectares of tropical rain forest, which the Government of Guyana dedicated to the international community to demonstrate that tropical forest can provide economic benefits without destroying its biodiversity. Iwokrama has accepted this challenge by adopting the following mission which has subsequently been expanded into the principal objectives for the Iwokrama Centre that are now enshrined in law -see Section 1.2.1.

> ***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 to the world in general, by undertaking research, training, and the development and dissemination of technologies.***

Guyana's offer of these forest resources at Iwokrama to the international community was first made at the 1989 Commonwealth Heads of Government meeting in Kuala Lumpur, Malaysia. The Iwokrama Centre was legally established in Guyana in 1996 as an autonomous institution governed by an international Board of Trustees under the Chairmanship of Dr. M.S Swaminathan. The 15 Member Board includes representation from a broad range of national and international stakeholders, four of whom are nominated directly by the Government of Guyana. It also has specific provision for representation of Amerindian interests through the membership by the Minister for Amerindian Affairs in Guyana, himself an Amerindian. The Executive Director of the ITTO, Dr. B.C.Y Freezailah, is also a member of the Board. The management of Iwokrama will also be supported with a National Stakeholders Advisory Committee, an International Scientific and Technical Advisory Network and an Advisory Panel on Sustainable Human Development. Iwokrama is also currently negotiating a Memorandum of Understanding with the Centre for International Forestry Research (CIFOR) to guide cooperation between the two Institutions and will seek to build similar cooperative relationships with other national and international training and research centres interested in the conservation and sustainable management of tropical forests.

In accord with sound conservation principles such as those outlined in the ITTO Guidelines for the Conservation of Biological Diversity in Tropical Production Forests, approximately half of the Iwokrama Forest will be maintained in its current pristine state as a functioning rain forest Wilderness Preserve, to provide a reference standard of ecological processes and interactions and biological diversity. Traditional uses by the sparse indigenous Amerindian communities will be permitted, together with non-destructive observational research. The other half of the Iwokrama Forest forms the Sustainable

Utilisation Area. This area will be managed for commercial harvesting of products and services, and for experimental research and non-consumptive uses such as nature tourism. Commercial operations will be an integral part of Iwokrama's operation and the Centre has recently developed a business plan which contains a strategy to achieve substantial self-financing for all core activities within ten years from the beginning of full operations in 1998. Wherever possible, these operations will be undertaken in partnership with the private sector.

Iwokrama makes a special effort to learn and document the traditional knowledge and management practices of the forest goods and services by the Amerindian communities which traditionally use the Iwokrama Forest. Iwokrama is committed to assisting these communities to achieve their sustainable development and to safeguarding their intellectual property rights. Training opportunities for employment and the sale of locally produced foodstuffs and forest products, are provided to these communities, chiefly through the Iwokrama field station.

Iwokrama's work is organised into three thematic programmes (sustainable management of the tropical rain forest; conservation and utilization of biodiversity; sustainable human development) and two cross-cutting programmes (forestry research; information and communication). The specific outputs expected from these programmes are detailed in the Centre's Operational Plan 1998-2002.

In Guyana as a whole, the GFC has lead responsibility for developing and implementing national forest policy. The GFC is currently being supported by a five-year UK ODA institutional strengthening project which will update forest policy and associated legislation, as well as improve management and technical capabilities. Iwokrama and GFC are negotiating a Memorandum of Understanding which covers collaboration in research, information exchange and training, and ensures that Iwokrama's findings will be readily available to inform national policy, planning and field practice.

A Natural Resources Management Project funded by the GTZ will provide information for making decisions about natural resource management by establishing databases, land use planning procedures, developing policy guidelines and legislation, and strengthening institutional capacity.

The World Bank is about to fund a National Protected Areas System Project through its role as an implementing agency for the Global Environment Facility (GEF). This project will help establish a Protected Areas Commission which will identify and manage large areas of unique environmental value.

After joint planning with the Government of Guyana and the World Bank, the Inter-American Development Bank has recently approved a project to establish an Environmental Protection Agency which will have overall responsibility for the planning and regulation of the environment including assessment of the environmental impact of development proposals.

PART 2 : THE PROJECT

2.1 ORIGIN

This proposal has its origin in the recent legislation which created the Iwokrama International Centre for Rain Forest Conservation and Development as an autonomous entity based in Guyana. It builds upon the strategy and the operational plan of this new Centre. The Iwokrama Act requires that about half of the Iwokrama Forest be set aside as a Wilderness Preserve. This project addresses the other half which is destined for sustainable and equitable utilization.

2.2 PROJECT OBJECTIVES

2.2.1 DEVELOPMENT OBJECTIVE

To optimize the sustainable supply of economic and environmental goods and services from Guyana's forests for the benefit of present and future generations and contribute to the international communities understanding of the ecological, economic, social and institutional requirements for the sustainable management of tropical rain forest communities.

2.2.2 SPECIFIC OBJECTIVE

To develop a demonstration model of sustainable, commercial-scale management in the Iwokrama Forest to deliver multiple products and services through adaptive management which fully integrates action- research, training and education activities at all stages.

2.3 PROJECT JUSTIFICATION

2.3.1 PROBLEM TO BE ADDRESSED

The problem addressed by this proposal can be viewed from two perspectives. First, the more narrow perspective focuses on how to sustainably utilize the Iwokrama Forest for commercial-scale production in a manner consistent with the purposes of conservation, demonstration, research and training for which the Iwokrama Centre was created. Annex 1 summarizes the relevant problem tree.

It was precisely in response to the multiple problems facing the forestry sector of Guyana and other tropical developing countries, that Government first launched the idea in 1989 and has helped turn it into action. At the highest level, Government identified the need for an integrated effort of demonstration, research and training in order to help improve the environmental, economic and social sustainability of forest practices. Subsequently,

numerous studies and consultancies were carried out to help to better define the resources of the Iwokrama Forest and develop the Iwokrama work programme. The results of several other national efforts which undertook similar problem analyses which were incorporated into Iwokrama's planning process (National Tropical Forest Action Plan, design of an ODA-funded project to support the GFC, design of the Tropenbos-Guyana programme). Over the last year, a detailed and highly participatory effort has resulted in two planning documents, first a general strategic statement for Iwokrama *(Iwokrama: Meeting the Challenge of Sustainable Management of Forests and Biodiversity)*, and second the operational plan *(Iwokrama 2000: Operational Plan 1996-2000)*. These documents describe the problems to which the Iwokrama Programme as a **whole** responds.

2.3.2 CHARACTERISTICS OF THE AREA WHERE THE PROJECT WILL BE LOCATED

The Iwokrama Forest lies 350 km south of Georgetown (see map, Annex 6). In accordance with its governing legislation and international best practice for sustainable forest management, the Iwokrama Forest has been tentatively zoned for two management categories: a wilderness preserve and a utilization zone (see Annexes 7, 8, 9). Broadscale resource assessments have been undertaken with flora, fauna and land systems surveys and these data have been incorporated into an operational GIS system for the program area. More detailed forest resource inventories are currently being undertaken in the northern utilization area to provide the base data for management planning. Industrial utilization will begin in the northern part, because its proximity to processing plants and export facilities, among other reasons. The southern part could eventually be managed in conjunction with the neighboring communities and with a view to export to Brazil. However, all management options will need to be carefully analyzed during the management planning process and during the tendering process for utilization rights.

Kurupukari and Surama are the only two villages within or adjoining the site, each with about 20 households. Another ten communities are located in the wider area of influence of Iwokrama, in the savannah more than 20 km south of the southern boundary. These 12 villages total 3000 inhabitants. The Iwokrama Program has sponsored several socio-economic studies to characterize these communities (Williams *et al.* 1993, Forte and Pierre 1994, Forte *et al.* 1996,). In addition, the local communities have organized themselves into a community association so as to facilitate interaction with Iwokrama.

Access will be provided by the public road leading from Georgetown to the border with Brazil. From Georgetown to Mabura Hill, location of the Demerara sawmill, the road is in excellent condition. The stretch southward from Mabura Hill to Kurupukari on the northern limit of Iwokrama, has recently been improved so that the drive can now be made from Georgetown in about 9 hours. The new all-weather Kurupukari - Brazil road bisects the Iwokrama Forest for 75 km. The World Bank-financed environmental impact assessment recommends improving the Mabura Hill - Kurupukari stretch of the road, thereby facilitating access to southwestern Guyana and Brazil for general traffic and trade. The cost of utilization of forest products from Iwokrama will obviously be influenced by the

upon upgrading of this road link. It will then be about a 85 km haul from the area foreseen for harvesting to Mabura Hill, the nearest site where logs are currently being processed. Other access to the Iwokrama Forest is restricted to the river network and a few cut transect lines. However, concessions in the area adjacent to Iwokrama on the opposite side of the Essequibo River have recently been purchased by an international consortium and this should improve the general accessibility of the forest by land transport.

Although the road corridor through the Iwokrama Forest does pose a potential threat, the presence of Iwokrama as operational program will ensure that any negative consequences can be controlled. Population pressures are low and the soils are too poor for clearing for agriculture to be an immediate hazard. The primary dangers are likely to be poaching, timber rustling by chain sawyers and illegal gold mining. Control of the road will be assisted by a combined military, police, customs facility to be installed at the Kurupukari river crossing, where all road or river traffic must pass. In addition, Iwokrama has recently employed eight forest rangers, part of whose job will be to patrol the road. The number of field rangers will be progressively increased to 18 as research and commercial utilization activities increase.

Over the last years, the characterization of the forest has been advanced through mapping of forest types, surveys of flora and fauna, and entry of that data in a geographic information system. A field station which can accommodate 30 visitors has been constructed. A small permanent staff drawn from local Amerindian communities, is based there. Activities have been accelerating over the last years and the capacity of the institution has grown so that it is ready to take on the additional responsibilities defined in its Operational Plan.

2.3.3 Intended Situation After Project Completion

At the conclusion of the project, a model plan to manage the Iwokrama Forest for multiple uses will cover the 180,000 ha utilization zone. The process of developing this plan will have served to operationalize and refine ITTO Guidelines on Sustainable Tropical Forest Management and the local guidelines of the recently produced GFC's Code of Practice into best practice for sustainable forest management in local conditions.

Based on this plan, a feasibility study will have been completed for the commercial, management of the Iwokrama Forest for multiple products and services, an approach new to Guyana, but set in Government policy. The most promising products and services will be timber, non-timber products (i.e. rattan-like vines for the manufacture of furniture, hear-of-palm) and ecotourism. The feasibility study will have provided the basis for seeking private sector participation to sustainably develop the various timber and non-timber resources of the forest in accordance with the management plan. After extensive promotion to potential business partners an other stakeholders, Iwokrama will have tested the market for innovative combinations of all forest goods and services through an open and transparent tendering process. It will have encouraged prospective business partners to submit tenders for innovative combinations of timber and non-timber goods and services

with significant local and national involvement and equity. By allowing a freely competitive tendering process, Iwokrama will have set new regional bench marks for the value of forest goods and services.
All contracts will have stipulated arrangements between Iwokrama and participating enterprises to provide for research, monitoring and evaluation to ensure maximum dissemination of lessons learned and immediate feedback into improved forest management practices. Forest operations will be used as real-life training and research opportunities.

The business plan will call for innovative production and marketing systems to attract responsible enterprises, develop market advantage and provide a commercial rate of return. Since much of the current forest industry in Guyana claims to operate with marginal profitability even under a relaxed government regime, the enterprises contracted for Iwokrama's operation will need to aim at high value market niches and innovative combinations of forest goods and services that can be used to test a range of environmental and economic arguments.

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

Field trials to gradually provide information on yields, regeneration and the impact of promising management practices will have been designed and installed. Such information is needed by GFC, ITTO and others to refine management guidelines. Procedures will have been designed to monitor costs of forest operations. These economic studies will gradually provide information not only for improvements in efficiency, but also for negotiating with concessionaires.

The process which leads to the above results will have contributed part of the local answers to the following key questions facing tropical rain forests in many countries:

- Is it possible to develop a management plan which applies ITTO Guidelines and their national equivalents and still allows commercially viable utilization?

- What are the costs and benefits involved in such a process, and in meeting high standards of sustainability? Do these prevent commercially viable activity? Can they be turned to commercial advantage in the market?

- Can concurrent use of non-timber products and services help to improve the economic basis for sustainable forest management?

In addition, the process will have led to production of an increased amount of sustainably produced tropical timber for both national and international markets. Based on conservative resource appraisals and management experience with similar forest elsewhere in Guyana (assuming that only 60%of the Sustainable Utilization Area will prove to be effectively productive, a minimum cutting cycle of 45 years and first harvest yields of between 10-15 m^3/ha), it is estimated that an annual yield of between 27,000 and 40,000m^3 will be able to be maintained under a best practice sustainable management regime.

2.3.4 TARGET BENEFICIARIES AND OTHERS AFFECTED

The Iwokrama Centre itself will be the most immediate beneficiary because results will be applied directly on its 180,000 ha forest. However, the mission of Iwokrama is to provide benefits to a wide range of entities (see box below). Representatives of all categories have been consulted in developing the operational plan for Iwokrama. Interaction continues to intensify.

The project has been designed in consultation with 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 - see Box 1. During implementation, workshops and other forms of consultation specific to the project are foreseen with the Amerindian communities, industry, GFC, regional training institutions and others.

2.4 PROJECT STRATEGY

Numerous other institutions in the tropics are carrying out research and training on forest management. Iwokrama is unique in that it combines a research, training and commercial function of an ample scale in its own forest, thereby increasing opportunities for learning and ensuring feedback into improved management practices. It has the advantage of having a blank slate, ready to apply state-of-the-art procedures. However, because Iwokrama is a centre for operational research and development in sustainable forest management rather than just a commercial forest enterprise, it incurs additional costs. It must therefore meet some of its expenses through outside assistance, especially during its start-up phase.

The project for which ITTO support is being sought will help Iwokrama through its early institutional development phase by providing a sound basis for seeking the commercial partnerships in sustainable utilization needed to achieve substantive financial self sufficiency in accord with the Centre's business plan. ITTO support for this project will therefore make a substantial contribution to meeting the longer term aims outlined in the Centre's Operational Plan - *Iwokrama 2000: Operational plan 1996-2000*. The ITTO

supported project will specifically help to determine how to manage the forest sustainably, improve forest management planning practices which can later be applied widely, find new uses that will add value to the forest, and train individuals so that the practices will be widely disseminated. By helping to develop economically viable practices, products and services which go beyond normal commercial forest enterprises, the ITTO project will increased the probability that Iwokrama and other tropical forests will be able to continue to produce high levels of benefits in perpetuity.

2.4.1 Reasons for ITTO Support

ITTO needs to demonstrate to what extent the application of its guidelines can be operationalized in commercially forest operations in different situations. Guyana probably represents an extreme case because it has some of the least productive (volume per hectare) and most costly forests to work in, due to the current low state of infrastructural development in the interior of the country. Guyana similarly needs to demonstrate how the recently adopted GFC Codes of Practice can be economically operationalized in industry practice.

Traditionally in Guyana and elsewhere, most of the planning for forest management is left to industry, with limited effective government guidance and control. An enterprise whose main business is timber is unlikely to have any direct incentive to develop other products and services from the forest, or invest in the long-term health of the forest, reducing the contribution of tropical forest to sustainable development in producer countries. In contrast, Iwokrama intends to make a greater investment in planning forest management than is customary and will provide opportunities for both action research and training. This will allow Iwokrama to have greater control over the resource, stimulate greater innovation and permit greater competition for use of the resource. But this emphasis on up-front planning, innovation, experimentation and training also implies greater costs than for a traditional commercial operations that do not meet contemporary standards of resource sustainability. It is partly because of these higher costs related to the shared objectives of Iwokrama and the ITTO, that assistance is being requested from ITTO.

If Iwokrama were preparing for timber harvest in the traditional fashion, then a commercial bank loan might be appropriate. However, because the emphasis here goes beyond business-as-usual to operational research and training, a commercial loan is not an option at this stage. Nor is it possible during this initial phase to separate these innovative measures from the strictly commercial aspects. It is generally accepted that such research, developmental and training costs be borne by external sources.

BOX 1

IWOKRAMA'S STAKEHOLDERS: APPROACHES TO INFORMATION AND COMMUNICATION

- **Amerindians in and around the Iwokrama Forest** *Approach: Participation in decisions related to programme activities, identification of potential economic benefits, training opportunities and potential impact.*

- **The Guyanese public**
  Approach: Information on the conservation and sustainable management of tropical rain forests, Iwokrama's programmes and their potential economic, educational and environmental benefits.

- **Political groups and government agencies in Guyana**
  Approach: Ongoing information on status and potential benefits of the programme. Sharing of research-based information and best practice lessons that have relevance for the development of national forest policy and practice.

- **Local and international NGOs**
  Approach: To be kept abreast of the activities and results of the programme and explore opportunities for collaboration.

- **International development institutions**
  Approach: Information on objectives of Iwokrama's programmes and the opportunities to contribute to their success. Sharing research-based information and operational best practice lessons.

- **The international scientific community**
  Approach: Information on potential research and development opportunities, institutional capacity building in Guyana, and opportunities for collaboration Developing research outcomes with collaborating researchers and institutions.

- **Forestry based industries, both local and international**
  Approach: Awareness of future and planned developments that might benefit their area of expertise. Sharing research-based information and best practice lessons that have relevance for forest policy and practice, market innovation and product development.

- **Iwokrama's staff**
  Approach: To develop a sense of ownership and commitment to the programme.

2.5 Outputs

Output 1: A forest management plan to guide the operational management of the 180,000ha Sustainable Utilization Area in the Iwokrama Forest and be used by the GFC and others as a model and training tool.

In contrast to most current management plans in Guyana and elsewhere, this plan will aim to optimize the sustainable benefits to be derived from the entire forest resource, not only from timber. Innovative approaches with high income potential will receive emphasis and the plan will be developed with the active involvement of local Amerindian community groups to maximize the opportunities for their involvement in the long-term management of the forest. Potential is also seen for blending ecotourism with environmental education to generate income, for example by hosting groups of bird watchers, popular level courses in tropical biology and student groups seeking a wilderness experience.

The process of preparing this forest management plan will reach beyond Iwokrama. Much of the effort and expense associated with this output will contribute toward refining methodologies for preparation of management plans in Guyana and elsewhere, as well as developing the capacity to do so. The plan will be based on global best practice in sustainable forest management and will take full account of the experience of some of the more progressive concessionaires in Guyana to ascertain the constraints they have faced in meeting high standards of sustainable forest management. The plan will integrate ITTO guidelines in all forest operations at Iwokrama and serve as a model for others. Preparation of the plan will maximize training opportunities.

(Note that the forest inventory and the ecotourism study which will be part of the foundations of the forest management plan, will be carried out by Iwokrama during 1997, independent of this proposal.)

Output 2: A feasibility study and business strategy for utilization of the Iwokrama Forest in accordance with ITTO guidelines and GFC Codes of Practice.

Iwokrama will use the forest management plan as a basis for contracting a feasibility study and business strategy for timber management, and selected non-timber products and services. Having this information about the resource as well as realistic plans will create a stronger negotiating position for Iwokrama in approaching potential business partners, than is traditionally the case.

Output 3: Commercial arrangements in place for sustainable utilization and management of the Iwokrama Forest as a demonstration.

Iwokrama will use the information of Outputs 1 and 2 to identify suitable business partners, by an internationally advertised, open and competitive tendering process , and negotiate contracts with successful tenderers for management and utilization of the forest. This step will require innovative business management expertise to design the contractual arrangements for sustainable forest management and harvesting within the context of a cooperative the relationship between the enterprises, Iwokrama and the GFC. There are likely to be different enterprises involved for different products and services and some of the contracts might be with local Amerindian groups either directly or in equity ventures with outside companies with appropriate management and marketing skills. All tenders will be encouraged to include arrangements for local and national equity to increase local benefits and local interest and ownership of sustainable forest management concepts. Iwokrama expects to attract enterprises interested in producing timber in an environmentally friendly manner and will encourage participation in "green" certification schemes that can enhance access to high value specialty markets. Preference will be given to firms amenable to experimentation, transparency and monitoring; and committed to sound environmental principles. The contracts will provide for cost-sharing compensation to the firms for experimentation and training done at Iwokrama's request.

Output 4: Increased availability of sustainably produced tropical timber and other forest products and services for both the national and international markets.

As described previously in Section 2.3.3, full commercial operation will see a conservatively estimated production of between 27,000 and 40,000 m^3/yr of sustainably produced tropical timber. Increasing use of currently lesser known species could lift the level of sustainable production to some 55,000m^3/yr. The earnings from this sustainable tropical timber production will be enhanced from earnings from other commercial forests enterprises focused on production of non-timber products such as rattan-like vines canes and heat of palm for which there are existing markets within Guarana. Education and adventure oriented ecotourism and the sale of carbon sequestration opportunities will also be aggressively marketed. Parallel programs will systematically undertake bioprospecting of Iwokrama's flora and micro-organisms for pharmaceuticals and other phytochemical products.

Output 5: Women and men trained in sustainable forest management and planning for multiple products.

Iwokrama will use the planning process to train Guyanese and individuals from other countries in the different facets of planning for sustainable forest management, with special emphasis on operationalization of ITTO guidelines in differing local circumstances. They will also receive training in improved management practices for multiple products, in response to requests from GFC, individual concessionaires, training institutions and forest-dependent communities.

Output 6: Trials established and studies in place to gradually supply the information needed for adaptive management to refine national and regional guidelines for more sustainable management and harvesting regimes.

In consultation with GFC, local private forest enterprises and collaborating research institutes, Iwokrama will design and install several operational scale experiments to compare the effect of different harvesting intensities and techniques on development of the residual stand, test post-harvest treatments and determine the regeneration of selected non-timber products. The actual application of treatments for some of these experiments might have to await the initiation of timber harvest operations. Until detailed cost data is available for various forest operations, especially for harvest, the Government of Guyana or any other forest owner, will always be in a weak negotiating position with respect to industry. Therefore, Iwokrama will adapt and design cost monitoring systems and negotiate implementation of these systems with the business partners.

2.6 Activities and Inputs

See Work Plan (Section 2.8) for list of activities and Annex 10 for activities, inputs and budget details.

2.7 Logical framework Worksheets

See Annex 2.

2.8 Work Plan

See following bar chart.

2.9 Institutional Arrangements for Execution and Operation

2.9.1 Management Structure

The project will be executed and operated by the Iwokrama International Centre for Rain Forest Conservation and Development, which has juridical personality in Guyana and is governed by a 15-member International Board of Trustees. The Director General is the Chief Executive Officer of the Iwokrama Centre. He is fully accountable to the Board for all management, administrative and financial aspects. Once the Centre is fu staffed, the Director General will be supported by three programme Directors, each of whom will be responsible for a Division and will report directly to the Director General (see Annex 3) for transition from current interim arrangements.)

- Director of Programme Support
- Director of Programme Implementation (directly responsible for this project)
- Director of Information and Communication

Output No.	Activity	Responsible	WORK PLAN Year 1: 1 2 3 4 5 6 7 8 9 10 11 12	Year 2: 1 2 3 4 5 6 7 8 9 10 11 12	Year 3: 1 2 3 4 5 6 7 8 9 10 11 12
Output No.	**Activity**	**Responsible**	**WORK PLAN** Year 1: 1 2 3 4 5 6 7 8 9 10 11 12	Year 2: 1 2 3 4 5 6 7 8 9 10 11 12	Year 3: 1 2 3 4 5 6 7 8 9 10 11 12
Output 1: A forest mangement plan to be used by the Guyana Forestry Commission and others as a model and training tool					
1.1	Identify and contract consulting services to help prepare management plan	DG	▯▯ ▯▯ ▯▯		
1.2	Use forest inventory results to revise forest type map (note that inventory will be done in1997 outside scope of this proposal)	Iwo Forester	▯▯ ▯▯ ▯▯ ▯▯ ▯▯ ▯▯ ▯▯		
1.3	Produce revised forest type map and other thematic maps using GIS	Iwo GIS Spec.	▯▯ ▯▯ ▯▯		
1.4	Build on GFC assessment of forest operations of concessionaires, and identify constraints to implementation of ITTO guidelines and lessons applicable to Iwokrama & others	Iwo Forester	▯▯ ▯▯ ▯▯		
1.5	Compile best available information and use it to determine species groupings, cutting cycle, allowable annual cut, area to be harvested annually and related parameters.	Iwo Forester	▯▯ ▯▯ ▯▯		

Output No.	Activity	Responsible	WORK PLAN — Year 1: 1 2 3 4 5 6 7 8 9 10 11 12	Year 2: 1 2 3 4 5 6 7 8 9 10 11 12	Year 3: 1 2 3 4 5 6 7 8 9 10 11 12
1.6	Assess market for 3 selected NTFP	NTFP Special.			
1.7	Prepare maps of the first five annual harvest areas	Iwo Forester			
1.8	Estimate annual flow of timber by species groups and diameter classes, and of NTFPs	Iwo Forester			
1.9	Draft mangement plan & first year op plan for multiple uses (integrating studies on ecotourism & NTFP which will be done outside the scope of this project)	Iwo Forester			
1.10	Hold workshops to consult the plan with GFC, industry, Amerindian reps and others	Iwo Forester			
1.11	Prepare final management plan	Iwo Forester			
Output 1: Subtotal					

Output No.	Activity	Responsible	WORK PLAN — Year 1: 1 2 3 4 5 6 7 8 9 10 11 12	Year 2: 1 2 3 4 5 6 7 8 9 10 11 12	Year 3: 1 2 3 4 5 6 7 8 9 10 11 12
Output 2: A feasibility study for utilization of the Iwokrama Forest in accordance with ITTO guidelines and GFC Codes of Practice					
2.1	Compile market information for timber in Guyana and abroad	Commercial Dev.Mgr.			
2.2	Discuss potential processing, marketing and investment arrangements with enterprises in Guyana and abroad	Commercial Dev.Mgr.			
2.3	Use information obtained and forest management plan to draft feasibility study	Commercial Dev.Mgr.			
2.4	Obtain and discuss feedback on draft	Com.Dev.Mgr.			
2.5	Finalize feasibility study	Com.Dev.Mgr.			
Output 2: Subtotal					
Output 3: Commercial arrangements in place for sustainable management and harvest of the Iwokrama Forest as a demonstration.					
3.1	Repackage results of Outputs 1 & 2 in format appropriate for attracting business partners and prepare request for bids	Commercial Dev.Mgr.			
3.2	Identify and establish contacts with potential business partners	Com.Dev.Mgr.			

Output No.	Activity	Responsible	WORK PLAN Year 1 1	2	3	4	5	6	7	8	9	10	11	12	Year 2 1	2	3	4	5	6	7	8	9	10	11	12	Year 3 1	2	3	4	5	6	7	8	9	10	11	12
3.3	Undertake trips and sponsor visits to explore arrangements with potential partners	Com.Dev.Mgr.																																				
3.4	Carry out bidding process for timber, NTFP and ecotourism	Com.Dev.Mgr.																																				
3.5	Negotiate contracts with enterprises selected through bidding and possibly with local communities	DG																																				
3.6	Prepare a business plan which integrates all commercial operations of the Iwokrama Forest	DG																																				
Output 3: Subtotal																																						
Output 4: Increased availability of sustainably produced tropical timber and other forest products and services.																																						
4.1	Between 27,000 and 40,000m3 of sustainably produced timber each year																																					
4.2	Sustainable production of other forest goods and services																																					

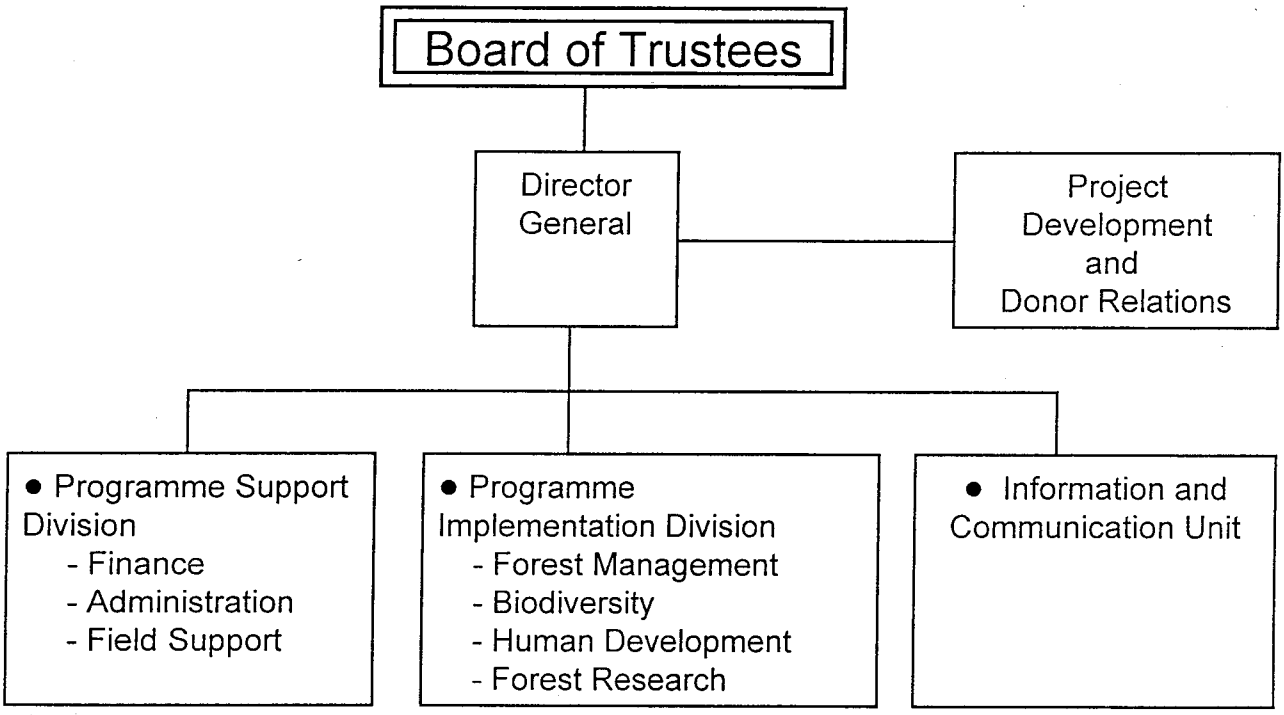
WORK PLAN

Output No.	Activity	Responsible	Year 1												Year 2												Year 3											
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Output 5: Women and men trained in sustainable management for multiple products																																						
5.1	Provide on-the-job training in preparation of management plans for multiple products for 5 individuals from Iwokrama, GFC and industry	Iwo Forester				▯▯	▯▯	▯▯	▯▯	▯▯	▯▯	▯▯	▯▯	▯▯																								
5.2	Provide on-the-job training in preparation of request for bids on concessions and evaluation of bids, for two GFC and one Iwo staff	Iwo Forester																					▯▯	▯▯	▯▯	▯▯	▯▯	▯▯										
5.3	Hold two workshops with local community leaders to plan their participation in forest management	Iwo Forester																				▯▯	▯▯															
5.4	Hold two short courses in ecotourism planning and management for local operators and communities	Human Development Specialist																		▯▯					▯▯													
5.5	Hold two short courses on management and processing of those NTFP selected for harvest	Human Development Specialist																				▯▯								▯▯							
5.6	Hold one short course on monitoring costs of forest management, using system designed under Output 5, for participants from industry and GFC	Human Development Specialist																													▯▯						
5.7	Identify training events abroad related to the focus of this project and Guyana's needs	Human Development Specialist									▯▯			▯▯			▯▯			▯▯			▯▯			▯▯			▯▯			▯▯			▯▯		

Output No.	Activity	Responsible	WORK PLAN Year 1 1	2	3	4	5	6	7	8	9	10	11	12	Year 2 1	2	3	4	5	6	7	8	9	10	11	12	Year 3 1	2	3	4	5	6	7	8	9	10	11	12
5.8	Select participants for training abroad and arrange their participation	Human Dev. Specialist										▯▯			▯▯			▯▯			▯▯			▯▯			▯▯			▯▯							
5.9	Hold concluding workshop with local stakeholders and 6 leading practicioners from ITTO Producer Regions																																		▯▯		
Output 5: Subtotal																																					
Output 6: Trials established and studies in place to gradually supply the information needed to refine GFC guidelines for management and harvesting regimes																																					
6.1	Using the result of 1.5, assess the current state of knowledge and the information needs related to the effects of harvesting and to regeneration, for timber and for those NTFP selected for harvest	Researcher-Timber												▯▯	▯▯	▯▯																						
6.2	Draft research proposals based on assessment	Researcher-Timber													▯▯	▯▯	▯▯																					
6.3	Consult proposals with GFC, industry and possible collaborators	Researcher-Timber															▯▯	▯▯	▯▯																			
6.4	Prepare final research proposals	Researcher-Timber																		▯▯																		
6.5	Identify sites for field trials and lay out experimental plots	Researcher-Timber																				▯▯	▯▯	▯▯	▯▯	▯▯	▯▯										

Output No.	Activity	Responsible	WORK PLAN																																		
			Year 1													Year 2												Year 3										
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
6.6	Apply treatments to plots where status of forest operations permits	Researcher-Timber																																			
6.7	Design practical system for monitoring costs of forest management	Iwo Forester																																			
Output 6: Subtotal																																					
TOTAL																																					
	Contingency&infla.																																				
	ITTO Monitor.&Eval.																																				
	ITTO Admin. cost																																				
GRAND TOTAL																																					

ORGANIZATION CHART OF IWOKRAMA



Iwokrama collaborates closely with GFC, which sees Iwokrama as a partner in carrying out the R&D needed to improve policies and practices. Iwokrama has a growing network of other collaborators both inside Guyana and abroad. It is expected that one of the spin-offs of this project will be that Iwokrama attracts other complementary projects externally funded by some of these collaborators.

2.9.2. Future Operation and Maintenance

Legislation signed in May 1996 established the Iwokrama Centre as a permanent institution. At present, most operating costs for the Centre are derived from a GEF/UNDP project. However, in partnership with its primary partners, Iwokrama is carrying out an intensive fund raising strategy to secure its long term financial sustainability. The outline of its business plan foresees Iwokrama requiring external funding during the institutional development phase over the next five years with decreasing dependence on external funding thereafter as substantial financial self-sufficiency is achieved. Income from the forest and other sources is expected to cover most of the core requirements by year ten. It is precisely the aim of generating income from the forest and investing it in the work programme of the Centre that has given impetus to this proposal to ITTO.

2.9.3 Key Staff

Dr. Henry Tschinkel acted as the Interim Director General for the Iwokrama during its initial phase leading up to its creation as a legal entity. The Board recently appointed Mr. David Cassells as the inaugural Director General of the new International Centre. Mr. Cassells is an experienced tropical forest manager and researcher currently employed as a Senior Environmental Specialist with special responsibility for forest resources with the Environment Department of the World Bank. He formerly held the position of Assistant Director for Reforestation and Forest management with the ITTO. Other key staff who will be most directly related to this project include:

- Director of Programme Implementation (To be recruited 1997)
- Forester (James Singh)
- Commercial Development Manager (To be recruited 1998)
- Researcher Timber Programme (To be recruited 1998)
- Researcher NTFP Programme (J. Denys Bourque)
- GIS Specialist (Vijay Datadin)

2.10 Prior obligations and prerequisites

In order to accelerate the initiation of forest management, the inventory which is essential for the preparation of the forest management plan and the ecotourism plan will be completed in 1997, before this ITTO project is to begin.

Although Iwokrama became an autonomous international centre in May 1996, many of the administrative, personnel and financial procedures are not yet in place, so that Iwokrama continues to operate in a project mode as it has for several years. However, the draft manuals covering these procedures were approved by the Board of Trustees at its last meeting in January 1997. This approval will clear the way for Iwokrama to carry out its operations as an independent international centre.

2.4 POSSIBLE FUTURE ACTIONS

With the completion of this project, it is expected that Iwokrama will manage its commercial forest operations in partnerships with private enterprises, so that the need for additional ITTO assistance with operational forest management or planning is not expected. However, because part of the mission of Iwokrama is to explore innovative measure to operationalize sustainable forest management, there may be opportunities for mutual beneficial collaboration between the Centre and the ITTO in areas such as targeted problem-solving research, capacity building , value added production and marketing and information dissemination. There might also be particular opportunities for collaborative research on the production and marketing of lesser known species form the region.

PART 3 : MONITORING, REPORTING AND EVALUATION

3.1 ARRANGEMENTS FOR REPORTING

A Project Progress Report will be submitted to ITTO every six months after project start-up and at such other times as ITTO may require, and an audited financial statement at the end of every calendar year. Interim reports will be presented at least four weeks before each ITTO monitoring visit. Reports will use the model format in annex A of ITTO's manual for project monitoring, review and evaluation (November 1992).

A Project Completion Report will be prepared and submitted to ITTO within three months of the end of the project. This final report will use the model format in Annex B of ITTO's manual.

3.2 ARRANGEMENTS FOR ITTO MONITORING AND REVIEW

ITTO monitoring and evaluation missions will be undertaken each year and coordinated with the activities of the Iwokrama Board and the various management advisory committees outlined in Section 1.2.3 to maximize transparency and learning from the operational experience gained from the project. A concluding workshop will be held towards the end of the project with local stakeholders, a representative of the ITTO Secretariat and six leading practitioners from other ITTO Producer Regions. The aim of this workshop will be to maximize learning and information dissemination and sharing.

3.3 EVALUATION

It is anticipated that the processes for developing the project outputs will be of broad interest to the members of the ITTC, forest sector stakeholders in the Guianas and research and training institutes throughout the world who are concerned with the conservation and sustainable management of tropical rain forests. It is suggested that a formal ex-post evaluation of process and impact should be undertaken one year after the end of the project. Aspects of particular interest should be:

- the involvement of the Amerindian communities in both planning and execution of commercial forest management activities, and

- the procedures for attracting and contracting commercial enterprises to operate the Iwokrama Forest under the ITTO guidelines and relatively stringent rules of good forest stewardship.

PART 4 : PROJECT BUDGET

The following budget tables follow below:

- Overall project budget (1 page)
- Overall project budget by activity
  - Total (7 pages)
  - Iwokrama (7 pages)
  - ITTO (7 pages)
- Consolidated yearly project budget (1 page)

IWOKRAMA INTERNATIONAL CENTRE
OVERALL PROJECT BUDGET

10-PROJECT PERSONNEL	
National Experts	130,500
Administrative Personnel	0
Consultants	271,000
Other Labour	28,800
Fellowships and Training	24,000
International Experts	265,000
COMPONENT TOTAL	**719,300**
20-SUB-CONTRACT	
Sub Contract - NFTP	75,000
Sub Contract - Feasibil.	50,000
Sub Contract - Design/Repr.	5,000
COMPONENT TOTAL	**130,000**
30-DUTY TRAVEL	
Daily Subsistence Allowance	90,900
Transport Cost	71,400
COMPONENT TOTAL	**162,300**
40-CAPITAL ITEMS	
Premises	0
Land	0
Capital Equipment	51,000
COMPONENT TOTAL	**51,000**
50-CONSUMABLE ITEMS	
Raw Materials	0
Spares	0
Utilities	0
Office Supplies	8,500
COMPONENT TOTAL	**8,500**
60-MISCELLANEOUS	
Sundry	61,830
Refund of Pre - Project Costs	0
COMPONENT TOTAL	**61,830**
70-ITTO MONITORING, EVALUATION AND ADMIN.	
Monitoring and Evaluation	40,000
Administrative Costs	40,696
COMPONENT TOTAL	**80,696**
GRAND TOTAL	**1,213,626**

		OVERALL PROJECT BUDGET BY ACTIVITY - Total (US$)							
Output		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	Activity	10	20	30	40	50	60	70	TOTAL
Output 1: A forest mangement plan to be used by the Guyana Forestry Commission and others as a model and training tool									
1.1	Identify and contract consulting services to help prepare management plan	4000							4000
1.2	Use forest inventory results to revise forest type map (note that inventory will be done in1997 outside scope of this proposal)	11000		2600					13600
1.3	Produce revised forest type map and other thematic maps using GIS	9000			6000	3000			18000
1.4	Build on GFC assessment forest operations of concessionaires, and identify constraints to implementation of ITTO guidelines and lessons applicable to Iwokrama & others	9000		2800					11800
1.5	Compile best available information and use it to determine species groupings, cutting cycle, allowable annual cut, area to be harvested annually and related parameters.	9000							9000

		OVERALL PROJECT BUDGET BY ACTIVITY - Total (US$)							
Output		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	Activity	10	20	30	40	50	60	70	TOTAL
1.6	Assess market for 3 selected NTFP	12000	75000						87000
1.7	Prepare maps of the first five annual harvest areas	6500				1500			8000
1.8	Estimate annual flow of timber by species groups and diameter classes, and of NTFPs	11500							11500
1.9	Draft mangement plan & first year op plan for multiple uses (integrating studies on ecotourism & NTFP which will be done outside the scope of this project)	19000							19000
1.10	Hold workshops to consult the plan with GFC, industry, Amerindian reps and others	5000					500		5500
1.11	Prepare final management plan	9000							9000
Output 1: Subtotal		105000	75000	5400	6000	4500	500		196400

		OVERALL PROJECT BUDGET BY ACTIVITY - Total (US$)							
Output		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	Activity	10	20	30	40	50	60	70	TOTAL
Output 2: A feasibility study for utilization of the Iwokrama Forest in accordance with ITTO guidelines and GFC Codes of Practice									
2.1	Compile market information for timber in Guyana and abroad	12000	50000	5100					67100
2.2	Discuss potential processing, marketing and investment arrangements with enterprises in Guyana and abroad	12000		4500					16500
2.3	Use information obtained and forest management plan to draft feasibility study	3000							3000
2.4	Obtain and discuss feedback on draft	3000							3000
2.5	Finalize feasibility study	3000							3000
Output 2: Subtotal		33000	50000	9600					92600

		OVERALL PROJECT BUDGET BY ACTIVITY - Total (US$)							
Output		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	Activity	10	20	30	40	50	60	70	TOTAL
Output 3: Commercial arrangements in place for sustainable management and harvest of the Iwokrama Forest as a demonstration.									
3.1	Repackage results of Outputs 1 & 2 in format appropriate for attracting business partners and prepare request for bids	9500	5000						14500
3.2	Identify and establish contacts with potential business partners	40000							40000
3.3	Undertake trips and sponsor visits to explore arrangements with potential partners	40000		14500					54500
3.4	Carry out bidding process for timber, NTFP and ecotourism	36000							36000
3.5	Negotiate contracts with enterprises selected through bidding and possibly with local communities	57000							57000
3.6	Prepare a business plan which integrates all commercial operations of the Iwokrama Forest	32000							32000
Output 3: Subtotal		214500	5000	14500					234000

		OVERALL PROJECT BUDGET BY ACTIVITY - Total (US$)							
Output		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	Activity	10	20	30	40	50	60	70	TOTAL
Output 4: Increased availability of sustainably produced tropical timber and other forest goods and services									
4.1	Between 27,000 and 40,000 m3 of sustainably produced timber each year								
4.2	Sustainable production of other forest goods and services								
Output 5: Women and men trained in sustainable management for multiple products									
5.1	Provide on-the-job training in preparation of management plans for multiple products for 5 individuals from Iwokrama, GFC and industry	4500		7500					12000
5.2	Provide on-the-job training in preparation of request for bids on concessions and evaluation of bids, for two GFC and one Iwo staff	4500							4500
5.3	Hold two workshops with local community leaders to plan their participation in forest management	4500		4200		500			9200

		OVERALL PROJECT BUDGET BY ACTIVITY - Total (US$)							
Output		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	Activity	10	20	30	40	50	60	70	TOTAL
5.4	Hold two short courses in ecotourism planning and management for local operators and communities	23000		20000		1000	1000		45000
5.5	Hold two short courses on management and processing of those NTFP selected for harvest	27000		29600		2000			58600
5.6	Hold one short course on monitoring costs of forest management, using system designed under Output 5, for participants from industry and GFC	9000		2000		500	2000		13500
5.7	Identify training events abroad related to the focus of this project and Guyana's needs	2000							2000
5.8	Select participants for training abroad and arrange their participation	25000		25500					50500
5.9	Hold concluding review workshop with local stakeholders and 6 leading practicioners from ITTO Producer Regions			34000					
Output 5: Subtotal		99500		122800		4000	3000		229300

		OVERALL PROJECT BUDGET BY ACTIVITY - Total (US$)							
Output		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	Activity	10	20	30	40	50	60	70	TOTAL
Output 6: Trials established and studies in place to gradually supply the information needed to refine GFC guidelines for management and harvesting regimes									
6.1	Using the result of 1.5, assess the current state of knowledge and the information needs related to the effects of harvesting and to regeneration, for timber and for those NTFP selected for harvest	30000					2000		32000
6.2	Draft research proposals based on assessment	38000							38000
6.3	Consult proposals with GFC, industry and possible collaborators	9500							9500
6.4	Prepare final research proposals	6000							6000
6.5	Identify sites for field trials and lay out experimental plots	103000			3000		2000		108000
6.6	Apply treatments to plots where status of forest operations permits	58800		10000	33000		2000		103800
6.7	Design practical system for monitoring costs of forest management	22000			9000				31000
Output 6: Subtotal		267300		10000	45000		6000		328300

		OVERALL PROJECT BUDGET BY ACTIVITY - Total (US$)							
Output		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	Activity	10	20	30	40	50	60	70	TOTAL
TOTAL		719300	130000	162300	51000	8500	9500		1080600
	Contingency&infla.						52330		52330
	ITTO Monitor.&Eval.							40000	40000
	ITTO Admin. cost							40696	40696
GRAND TOTAL		719300	130000	162300	51000	8500	61830	80696	1213626

OUTPUT No.	ACTIVITY	OVERALL PROJECT BUDGET BY ACTIVITY-Iwokrama (US$) Personnel 10	Sub-contr 20	Duty trave 30	Capital ite 40	Consuma 50	Misc. 60	ITTO adm 70	GRAND TOTAL
OUTPUT No.	ACTIVITY	OVERALL PROJECT BUDGET BY ACTIVITY-Iwokrama (US$) Personnel 10	Sub-contr 20	Duty trave 30	Capital ite 40	Consuma 50	Misc. 60	ITTO adm 70	GRAND TOTAL
Output 1: A forest mangement plan to be used by the Guyana Forestry Commission and others as a model and training tool									
1.1	Identify and contract consulting services to prepare management plan	4000							4000
1.2	Use forest inventory results to revise forest type map (note that inventory will be done 1997 outside scope of this proposal)	4000		2000					6000
1.3	Produce revised forest type map and other thematic maps using GIS	2000							2000
1.4	Build on GFC assessment of forest operations of concessionaires, and identify constraints to implementation of ITTO guidelines and lessons applicable to Iwokrama & others	2000		1000					3000

		OVERALL PROJECT BUDGET BY ACTIVITY-Iwokrama (US$)							
OUTPUT		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	ACTIVITY	10	20	30	40	50	60	70	TOTAL
1.5	Compile best available information and use it to compute cutting cycle, allowable annual cut, area to be harvested annually and related parameters.	2000							2000
1.6	Assess market for 3 selected NTFP	12000							12000
1.7	Prepare maps of the first five annual harvest areas	3000							3000
1.8	Estimate annual flow of timber by species groups and diameter classes, and of NTFPs	8000							8000
1.9	Draft mangement plan for multiple uses (integrating studies on ecotourism which will be done outside the scope of this project)	5000							5000
1.10	Hold workshops to review draft plan with GFC, industry, Amerindian reps and others	1500					500		2000
1.11	Prepare final management plan	2000							2000
Output 1: Subtotal		45500		3000			500		49000

		OVERALL PROJECT BUDGET BY ACTIVITY-Iwokrama (US$)							
OUTPUT		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	ACTIVITY	10	20	30	40	50	60	70	TOTAL
Output 2: A feasibility study for utilization of the Iwokrama Forest in accordance with ITTO guidelines									
2.1	Compile market information for timber in Guyana and abroad	12000							12000
2.2	Discuss potential processing, marketing and investment arrangements with enterprises in Guyana and abroad	12000							12000
2.3	Use information obtained and forest management plan to draft feasibility study	3000							3000
2.4	Obtain and discuss feedback on draft	3000							3000
2.5	Finalize feasibility study	3000							3000
Output 2: Subtotal		33000							33000

OVERALL PROJECT BUDGET BY ACTIVITY-Iwokrama (US$)

OUTPUT No.	ACTIVITY	Personnel 10	Sub-contr 20	Duty trave 30	Capital ite 40	Consuma 50	Misc. 60	ITTO adm 70	GRAND TOTAL
Output 3: Commercial arrangements in place for sustainable management and harvest of the Iwokrama Forest as a demonstration.									
3.1	Repackage results of Outputs 1 & 2 in format appropriate for attracting business partners and prepare request for bids	6000							6000
3.2	Identify and establish contacts with potential business partners	12000							12000
3.3	Undertake trips and sponsor visits to explore arrangements with potential partners	12000		5000					17000
3.4	Carry out bidding process for timber, NTFP and ecotourism	12000							12000
3.5	Negotiate contracts with enterprises selected through bidding and possibly with local communities	18000							18000
3.6	Prepare a business plan which integrates all commercial operations of the Iwokrama Forest	18000							18000
Output 3: Subtotal		78000		5000					83000

		OVERALL PROJECT BUDGET BY ACTIVITY-Iwokrama (US$)							
OUTPUT		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	ACTIVITY	10	20	30	40	50	60	70	TOTAL
Output 4: Increased availability of sustainably produced tropical timber and other forest products and services									
4.1	Between 27,000 and 40,000 m3 of sustainably produced timber each year								
4.	Sustainable production of other forest goods and services								
Output 5: Women and men trained in sustainable management for multiple products									
5.1	Provide on-the-job training in preparation of management plans for multiple products for 5 individuals from Iwokrama, GFC and industry	1000		6000					7000
5.2	Provide on-the-job training in preparation of request for bids and evaluation of bids, for two GFC and one Iwo staff	1000							1000
5.3	Hold two workshops with local community leaders to explain the plan, assess their interest and plan their participation in forest management	1000							1000

		OVERALL PROJECT BUDGET BY ACTIVITY-Iwokrama (US$)							
OUTPUT		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	ACTIVITY	10	20	30	40	50	60	70	TOTAL
5.4	Hold two short courses in ecotourism planning and management for local operators and communities	16000					1000		17000
5.5	Hold two short courses on management and processing of those NTFP selected for harvest	20000							20000
5.6	Hold one short course on monitoring costs of forest management, using system designed under Output 5, for participants from industry and GFC	2000							2000
5.7	Identify training events abroad related to the focus of this project and Guyana's needs	2000							2000
5.8	Select participants for training events abroad and arrange their participation	1000							1000
5.9	Hold concluding review workshop with local stakeholders and 6 leading practicioners from ITTO Producer Regions			10000					
Output 5: Subtotal		44000		16000			1000		61000

		OVERALL PROJECT BUDGET BY ACTIVITY-Iwokrama (US$)							
OUTPUT		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	ACTIVITY	10	20	30	40	50	60	70	TOTAL
Output 6: Trials established and studies in place to gradually supply the information needed to refine GFC guidelines for management and harvesting regimes									
6.1	Assess the current state of knowledge and the information needs related to the effects of harvesting and to regeneration, for timber and for those NTFP selected for harvest	30000							30000
6.2	Draft research proposals based on assessment	24000							24000
6.3	Consult proposals with GFC, industry and possible collaborators	6000							6000
6.4	Prepare final research proposals	6000							6000
6.5	Identify sites for field trials and lay out experimental plots	85000							85000
6.6	Apply treatments to plots where status of forest operations permits	48000							48000
6.7	Design practical system for monitoring costs of forest management	8000							8000
Output 6: Subtotal		207000							207000

OVERALL PROJECT BUDGET BY ACTIVITY-Iwokrama (US$)

OUTPUT No.	ACTIVITY	Personnel 10	Sub-contr 20	Duty trave 30	Capital ite 40	Consuma 50	Misc. 60	ITTO adm 70	GRAND TOTAL
TOTAL		407500		24000			1500		433000
GRAND TOTAL		407500		24000			1500		433000

		OVERALL PROJECT BUDGET BY ACTIVITY - ITTO (US$)							
OUTPUT		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	ACTIVITY	10	20	30	40	50	60	70	TOTAL
		OVERALL PROJECT BUDGET BY ACTIVITY - ITTO (US$)							
OUTPUT		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	ACTIVITY	10	20	30	40	50	60	70	TOTAL
Output 1: A forest mangement plan to be used by the Guyana Forestry Commission and others as a model and training tool									
1.1	Identify and contract consulting services to prepare management plan								
1.2	Use forest inventory results to revise forest type map (note that inventory will be done 1997 outside scope of this proposal)	7000		600					7600
1.3	Produce revised forest type map and other thematic maps using GIS	7000			6000	3000			16000
1.4	Build on GFC assessment of forest operations of concessionaires, and identify constraints to implementation of ITTO guidelines and lessons applicable to Iwokrama & others	7000		1800					8800

		OVERALL PROJECT BUDGET BY ACTIVITY - ITTO (US$)							
OUTPUT		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	ACTIVITY	10	20	30	40	50	60	70	TOTAL
1.5	Compile best available information and use it to compute cutting cycle, allowable annual cut, area to be harvested annually and related parameters.	7000							7000
1.6	Assess market for 3 selected NTFP		75000						75000
1.7	Prepare maps of the first five annual harvest areas	3500				1500			5000
1.8	Estimate annual flow of timber by species groups and diameter classes, and of NTFPs	3500							3500
1.9	Draft mangement plan for multiple uses (integrating studies on ecotourism which will be done outside the scope of this project)	14000							14000
1.0	Hold workshops to review draft plan with GFC, industry, Amerindian reps and others	3500							3500
1.11	Prepare final management plan	7000							7000
Output 1: Subtotal		59500	75000	2400	6000	4500			147400

		OVERALL PROJECT BUDGET BY ACTIVITY - ITTO (US$)							
OUTPUT		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	ACTIVITY	10	20	30	40	50	60	70	TOTAL
Output 2: A feasibility study for utilization of the Iwokrama Forest in accordance with ITTO guidelines									
2.1	Compile market information for timber in Guyana and abroad		50000	5100					55100
2.2	Discuss potential processing, marketing and investment arrangements with enterprises in Guyana and abroad			4500					4500
2.3	Use information obtained and forest management plan to draft feasibility study								
2.4	Obtain and discuss feedback on draft								
2.5	Finalize feasibility study								
Output 2: Subtotal			50000	9600					59600

		OVERALL PROJECT BUDGET BY ACTIVITY - ITTO (US$)							
OUTPUT		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	ACTIVITY	10	20	30	40	50	60	70	TOTAL
Output 3: Commercial arrangements in place for sustainable management and harvest of the Iwokrama Forest as a demonstration.									
3.1	Repackage results of Outputs 1 & 2 in format appropriate for attracting business partners and prepare request for bids	3500	5000						8500
3.2	Identify and establish contacts with potential business partners	28000							28000
3.3	Undertake trips and sponsor visits to explore arrangements with potential partners	28000		9500					37500
3.4	Carry out bidding process for timber, NTFP and ecotourism	24000							24000
3.5	Negotiate contracts with enterprises selected through bidding and possibly with local communities	39000							39000
3.6	Prepare a business plan which integrates all commercial operations of the Iwokrama Forest	14000							14000
Output 3: Subtotal		136500	5000	9500					151000

		OVERALL PROJECT BUDGET BY ACTIVITY - ITTO (US$)							
OUTPUT		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	ACTIVITY	10	20	30	40	50	60	70	TOTAL
Output 4: Increased availability of sustainably produced tropical timber and other forest products and services									
4.1	Between 27,000 and 40,000m3 of sustainably produced timber each year								
4.2	Sustainable production of other forest goods and services								
Output 5: Women and men trained in sustainable management for multiple products									
5.1	Provide on-the-job training in preparation of management plans for multiple products for 5 individuals from Iwokrama, GFC and industry	3500		1500					5000
5.2	Provide on-the-job training in preparation of request for bids and evaluation of bids, for two GFC and one Iwo staff	3500							3500
5.3	Hold two workshops with local community leaders to explain the plan, assess their interest and plan their participation in forest management	3500		4200		500			8200

		OVERALL PROJECT BUDGET BY ACTIVITY - ITTO (US$)							
OUTPUT		Personnel	Sub-contr	Duty trave	Capital ite	Consuma	Misc.	ITTO adm	GRAND
No.	ACTIVITY	10	20	30	40	50	60	70	TOTAL
5.4	Hold two short courses in ecotourism planning and management for local operators and communities	7000		20000		1000			28000
5.5	Hold two short courses on management and processing of those NTFP selected for harvest	7000		29600		2000			38600
5.6	Hold one short course on monitoring costs of forest management, using system designed under Output 5, for participants from industry and GFC	7000		2000		500	2000		11500
5.7	Identify training events abroad related to the focus of this project and Guyana's needs								
5.8	Select participants for training events abroad and arrange their participation	24000		25500					49500
5.9	Hold concluding workshop with local stakeholders and 6 leading practicioners from ITTO Producer Regions			24000					
Output 5: Subtotal		55500		106800		4000	2000		168300

OVERALL PROJECT BUDGET BY ACTIVITY - ITTO (US$)

OUTPUT No.	ACTIVITY	Personnel 10	Sub-contr 20	Duty trave 30	Capital ite 40	Consuma 50	Misc. 60	ITTO adm 70	GRAND TOTAL
Output 6: Trials established and studies in place to gradually supply the information needed to refine GFC guidelines for management and harvesting regimes									
6.1	Assess the current state of knowledge and the information needs related to the effects of harvesting and to regeneration, for timber and for those NTFP selected for harvest						2000		2000
6.2	Draft research proposals based on assessment	14000							14000
6.3	Consult proposals with GFC, industry and possible collaborators	3500							3500
6.4	Prepare final research proposals								
6.5	Identify sites for field trials and lay out experimental plots	18000			3000		2000		23000
6.6	Apply treatments to plots where status of forest operations permits	10800		10000	33000		2000		55800
6.7	Design practical system for monitoring costs of forest management	14000			9000				23000
Output 6: Subtotal		60300		10000	45000		6000		121300

OVERALL PROJECT BUDGET BY ACTIVITY - ITTO (US$)

OUTPUT No.	ACTIVITY	Personnel 10	Sub-contr 20	Duty trave 30	Capital ite 40	Consuma 50	Misc. 60	ITTO adm 70	GRAND TOTAL
TOTAL		311800	130000	138300	51000	8500	8000		647600
	Contingency&infla.						52330		52330
	ITTO Monitor.&Eval.							40000	40000
	ITTO Admin. cost							40696	40696
GRAND TOTAL		311800	130000	138300	51000	8500	60330	80696	780626

CONSOLIDATED YEARLY PROJECT BUDGET (US$1000) (TOTAL)

		TOTAL	YR 1	YR 2	YR 3
10	PROJECT PERSONNEL	720	120	389	211
20	SUB-CONTRACT	130	95	35	0
30	DUTY TRAVEL	162	36	65	61
40	CAPITAL ITEMS	51	6	12	33
50	CONSUMABLE ITEMS	9	5	2	2
60	MISCELLANEOUS	62	13	31	18
70	ITTO MONITORING, EVALUATION AND ADMIN.	80	50	10	20
99	GRAND TOTAL	1,214	325	544	345

CONSOLIDATED YEARLY PROJECT BUDGET (US$1000) (ITTO CONTRIBUTION)

		TOTAL	YR 1	YR 2	YR 3
10	PROJECT PERSONNEL	312	68	219	25
20	SUB-CONTRACT	130	95	35	0
30	DUTY TRAVEL	138	27	60	51
40	CAPTIAL ITEMS	51	6	12	33
50	CONSUMABLE ITEMS	9	5	2	2
60	MISCELLANEOUS	60	13	29	18
70	ITTO MONITOR	80	50	10	20
	GRAND TOTAL	780	264	367	149

PART 5 ANNEXES

1. Iwokrama Problem Tree

2. Logical Framework Matrix

3. Iwokrama staffing and institutional transition

4. Curricula Vitae or terms of reference of key staff

5. Map of location and communities

6. Table of forest types

7. Map of forest types

8. Provisional map of utilization zones

9. Total budget - details

The following documentation can be supplied upon request or consulted at the ITTO Secretariat.

- Iwokrama International Centre for Rain Forest Conservation and Development Act 1996

- Iwokrama Information Folder

- Iwokrama: Meeting the Challenge of Sustainable Management of Forests and Biodiversity

- Iwokrama video

ANNEX 1

PROBLEM	CAUSES - Level 1	CAUSES - Level 2	OPTIONS FOR SOLUTIONS
PROBLEM: Unrealized potential use of the forest to achieve the demonstration, research and training aims of the Iwokrama Programme			
	Lack of forest management plan		
		Insufficient information about the quality and quantity of the forest resource	
			Do forest inventory
		Inadequate information on regeneration and growth after harvest	
			Do trials on response to harvest
			Extrapolate from similar conditions elsewhere
		Inadequate guidelines for management plans under local conditions	
			Revise existing guidelines, based on experience from elsewhere
			Carry out trials on response to harvest, to revise plan in the future
		Scarcity of qualified staff	
			Train staff
			Improve salaries
			Contract staff & consultants from abroad
	Narrow range of commercial timber species		
		Limited market demands	
			Identify specialty market niches
		Inadequate trial and promotion of new species	
			Business arrangements with more progressive enterprises
			Disseminate information on species and their potential

PROBLEM	CAUSES - Level 1	CAUSES - Level 2	OPTIONS FOR SOLUTIONS
		Few incentives to industry for better utilization	
			Attract more progressive industry to serve as demonstration
	Insufficient commercial contribution of non- timber products and services		
		Inadequate knowledge of non timber products & services and their potential	
			Improve access to known information
			Carry out trials and research on potential non-timber products
			Develop ecotourism
	Insufficent investment capital		
		Lack of clarity on commercial aims	
			Develop business plan based on sound understanding of forest resource and its potential
		Inadequate economic information base for investment	
			Do feasibility study
			Carry out studies on cost of forest operations
		Lack of progressive business partner	
			Assemble feasibility study and other information needed by investors
			Actively search out business partners

PROBLEM	CAUSES - Level 1	CAUSES - Level 2	OPTIONS FOR SOLUTIONS
	Insufficient understanding of the ecology and dynamics of the forest, and its response to intervention		
		Inadequate transfer of existing knowledge	
			Improve access to known information
			Training
		Insufficient local research	
			Carry out research on response of forest to harvest
			Monitor response of forest
	High cost of extraction and transport		
		Difficult access	
			Government to finish upgrading road to Georgetown
			Plan and construct internal access
		Inefficient forest operations	
			Introduce improved practices
			Train woods workers and staff
		Inadequate machinery	
			Business arrangements with more progressive enterprises

ANNEX 2

PROJECT ELEMENTS	OBJECTIVELY VERIFYABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Development Objective: Optimize the supply of economic and environmental goods and services from Guyana's forests for the benefit of present and future generations.			
Specific Objective:	**Situation that will indicate that the Specific Objective has been achieved**	**Sources of data**	**Assumptions for achieving the Specific Objective**
Develop a demonstration model of sustainable, commercial management of part of the Iwokrama Forest to deliver multiple products and services which fully integrates research, training and education activities at all stages.	1.1 Contracts signed with enterprises for the sustainable and innovative utilization of the Iwokrama Forest in accordance with an appropriate forest management plan. 1.2 The contracts make provision for the integration of specific research, training and demonstration activities as part of commercial operations. 1.3 Independent certification that operations meet internationally accepted standards of sustainability	1.1 Technical reports, financial analyses, feasibility studies, scientific files, contracts. 1.2 Field inspections and reports from independent evaluation of field operations.	1.1 The economic and business climate of Guyana continues to improve. 1.2 Willingness of the private sector to participate.
Outputs:	**Magnitude and timing of outputs**	**Sources of data**	**Assumptions for achieving outputs**
1. A forest mangement plan to be used by the Guyana Forestry Commission and others as a model and training tool.	1.1 One forest management plan prepared in close collaboration with GFC 1.2. Refined GFC guidelines for preparation of management plans. 1.3 Ten GFC, private sector and Iwokrama staff trained in preparation of management plans for multiple products & services.	1.1 Analysis of documents produced. 1.2 Records of workshops and training courses. 1.3 Iwokrama files	1.1Support for and strengthening of GFC continues. 1.2 Monitoring and control functions of GFC continue to improve. 1.3 Private sector cooperates.

PROJECT ELEMENTS	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATIONS	IMPORTANT ASSUMPTIONS
2. A feasibility study and business strategy for utilization of the Iwokrama Forest in accordance with ITTO guidelines and GFC Code of Practice.	2.1. One feasibility study and one business strategy document completed at month 21.	2.1. Analysis of documents produced.	2.1. Favourable markets for timber and non-timber products and services. 2.2. Forest inventory shows adequate concentration of commercial timber.
3. Commercial arrangements in place for sustainable management and harvest of the Iwokrama Forest as a demonstration.	3.1. One or more contracts signed for management and harvest according to management plan. 3.2. In addition to timber, the contracts cover utilization of at least one non-timber forest product or service.	3.1. Analysis of contracts.	3.1 Road linking Iwokrama - Mabura is upgraded. 3.2. Iwokrama Centre obtains sufficient core funding to operate.
4. Increased availability of sustainably produced tropical timber and other forest products and services for both the national and international markets.	4.1. Between 27,000 and 40,000 m^3 of sustainably produced timber each year. 4.2. Sustainable outputs of other forest goods and services.	4.1. Monitoring of volume of timber and other forest products. 4.2. Receipts from income flow from sale of timber and other forest goods and services.	4.1 Logistical constraints overcome and market access developed.
5. Women and men trained in sustainable management for multiple products.	5.1. Sixty person-months of professional level training on forest management completed.	51. Records of courses, workshops and in-service training. 5.2. Interviews with selected trainees and their supervisors. 5.3. Feedbacks from employers.	5.1. Sufficient motivation on the part of private and public entities to release participants for training.

PROJECT ELEMENTS	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERICIATIONS	IMPORTANT ASSUMPTIONS
6. Trials established and studies in place to gradually supply the information needed to refine GFC guidelines for management and harvesting regimes.	6.1. Statistically correct experiments in place to determine response of forest and regeneration of selected non-timber forest products, to different harvest/management regimes. 6.2 Economic studies designed to determine cost structure of forest operations.	6.1. Experimental files. 6.2. Field inspections. 6.3. Technical reports.	

ANNEX 3

Iwokrama staffing and institutional transition

Because the Iwokrama International Centre was only recently created through legislation that became effective in May 1996, it is at present still making the transition from operating as a GEF/UNDP project to functioning as an autonomous international centre. It is expected that this transition will be completed by the end of 1997. Until March 1997, the Centre was managed by an Interim Director-General. The first Permanent Director-General will take up his position on 01 July 1997. Commitments have also been received from ODA to finance the position of Director of Programme Implementation and this position will be filled before initiation of the project in January 1998. The project will be the direct responsibility of this individual. Table 1 shows core staff presently working with Iwokrama and foreseen. In addition to this core personnel, a presently indeterminate number of individuals will be employed from funds provided from various projects, as these become available.

TABLE 1. STAFF AVAILABLE AND PLANNED FOR THE CORE PROGRAMME OF IWOKRAMA.

POSITION	No. Posts 96 *	Person-months			
		97	98	99	0
OFFICE OF THE DIRECTOR GENERAL					
Director General	1	12	12	12	12
Project Development & Donor Relations		4	12	12	12
Executive Secretary	1	12	12	12	12
PROGRAM SUPPORT DIVISION					
Director of Programme Support (Management)			12	12	12
Administrator	1	12	12	12	12
Personnel Officer			6	12	12
Contracting and Procurement Officer			12	12	12
Storekeeper			12	12	12
Drivers/messengers	2	24	24	36	36
Financial Manager			12	12	12
Accountant	1	12	12	12	12
Accounts Clerks	2	24	24	24	24
Secretaries	1	24	36	36	36
Field Support Manager	1	12	12	12	12
Forest Assistant	1	12	12	12	12
Field Station Administrator	1	12	12	12	12
Storekeeper/Timekeeper	1	12	12	12	12
Mechanic/equipment maintenance			12	12	12
Medex	1	12	12	12	12
Drivers	2	24	36	36	36
Boatmen	1	12	36	48	48
Rangers	8	96	144	192	192
Cook	1	12	12	12	12
Kitchen assistant			12	12	12
Carpenter			6	12	12
Workers -- permanent	2	24	48	60	120

POSITION	No. Posts 96 *	Person-months			
		97	98	99	0
PROGRAMME IMPLEMENTATION DIVISION					
Director of Programme Implementation		9	12	12	12
Forester/Forest Production Manager	1	12	12	12	12
Commercial Development Manager			9	12	12
Human Development Specialist			9	12	12
Training Coordinator			6	12	12
Researcher--Amerindian Programme			3	12	
Researcher--NTFP Programme	1	12	12	12	12
Researcher--Timber Programme			6	12	12
Specialist Biodiversity Prospecting				6	12
Junior researchers			12	24	24
Research assistants			24	36	60
Data analyst			12	24	36
Secretaries			12	24	24
INFORMATION & COMMUNICATIONS UNIT					
Director, Information and Communications			12	12	12
GIS Specialist	1	12	12	12	12
GIS Data Analyst		9	12	12	12
Information Specialist	1	12	12	12	12
Administrative/Research Assistant			12	12	24
Communications Specialist	1	12	12	12	12
Secretaries		12	12	24	24

* Column 2 indicates the number of positions occupied or being recruited in early 1997.

ANNEX 4

CURRICULUM VITAE

Name: David Sydney Cassells

Date of Birth: 31 May, 1952

Position: Director General
Iwokrama International Center for Rain Forest
Conservation and Development

KEY SKILLS AND APTITUDES

- Demonstrated leadership record in sustainable forestry and environmental management;
- Well developed conceptual, analytical and policy development skills;
- Well developed oral and written communication skills;
- Wide experience and thorough understanding of intra and inter governmental relations at all levels from the local to the international;
- Commitment to community consultation processes and the fostering open democratic rather than bureaucratic approaches to environmental management and planning;
- Experienced university level teacher and research supervisor.

QUALIFICATIONS AND TRAINING

1974 B.Sc (forestry), Australian National university
1984 M.Sc (by research thesis), James Cook University of North Queensland Topic: "Recreational use of Tinaroo dam : Some Resource Management Implications for the Danbulla State Forest".

Numerous short courses in protected area management, land use planning, economics, management, organizational development, statistics and research design.

EXPERIENCE

Mr. Cassells has wide experience in tropical forest management, tropical forest research, environmental planning, university teaching and development forestry. He has previously held the positions of Forester and Senior Scientist with the Queensland Department of Forestry; Lecturer with the Department of Ecosystem Management at the University of New England; Director of Parks, Recreation and Environmental Planning, Townsville City Council; Assistant Director for Reforestation and Forest Management with the Secretariat of the International Tropical Timber Organization, Yokohama, Japan; Regional Plannign Officer with special responsibility for Aboriginal Land Interests, Northern Region, Queensland Department of Lands; and Senior Environmental Specialist for Forest Resources, Environment Department, The World Bank, Washington, DC. He has authored or jointly authored over scientific papers and consultancy reports.

Full Name:	BOURQUE, J. Denys
Date and Place of Birth:	05 November 1949, Van Buren, Maine, U.S.A.
Citizenship:	Canadian
University Degrees:	B. Sc. F. (Forest Resources Management) University of New Brunswick, Canada 1973 B. A. (Physics) Université de Moncton, Canada 1969

Relevant Work Experience:

Since 1980, 80 % of Mr. Bourque's work has related to tropical forestry, either as chief of party, technical advisor or mission team leader. He has completed assignments in 14 countries in Africa and the Americas, including long-term postings to Zaïre, Sénégal and Guyana. In June 1996, he joined the Iwokrama International Centre for Rain Forest Conservation and Development, Georgetown, Guyana as Non-timber Forest Products (NTFPs) Specialist.

Mr. Bourque's principle area of professional strength is forest resources planning and management, but during his 23-year career he has acquired significant background in several other technical areas working at increasing levels of accountability and in various employment conditions, including remote and/or difficult-of-access areas. He has very strong experience in monitoring and evaluation.

Among other assignments as a free-lance consultant between September 1988 and June 1996, he developed a forest management strategy for the Kuundu pilot watershed within the scope of the USAID-financed Guinea Natural Resources Management Project (NRMP), Guinea (1994); produced a forestry sector profile and recommended a forestry strategy for the Comores within the scope of the country's Environmental Action Plan (PNUD/UNESCO/UICN/COI/91/006) (1993); completed a feasibility study and redefinition of the forestry element of the CIDA-financed Mutara Valley Colonisation Scheme, Rwanda (1991); led the IUCN Environmental Impact Assessment of the Forestry and Fisheries Management Project (FFMP) financed by the World Bank and KfW, Guinea (1990); and produced a country forestry sector study for Rwanda within the scope of the Canadian International Development Agency (CIDA)'s third Country Programme Review (1989).

Between November 1984 and August 1988 he was Technical Advisor - Forestry to CIDA, Dakar, Sénégal. From July 1983 through November 1984, he was Silviculture Forester, New Brunswick Department of Natural Resources, Edmundston (New Brunswick), Canada. From May 1973 through January 1979, he was Forest Management Engineer then Forest Management Superintendent, Fraser Inc., also based in Edmundston (New Brunswick), Canada.

CURRICULUM VITAE

Name: Vijay K Datadin

Date of Birth: 29th July, 1968.

Place of Birth: Georgetown, Guyana.

Nationality: Guyanese.

Field and Institution of graduation:

Field	Institution	Date of Graduation
Computer Science	Univ of Guyana	1995
Chemistry; mathematics minor	Univ of Guyana	1991

Relevant experience during last three years:

Aug 1995 - current *Geographical Information System Specialist, Iwokrama Int'l Centre for Rain Forest Conservation & Development.* I am responsible for all GIS/ Remote Sensing/ GPS matters. This includes the entire gamut of GIS activity such as acquiring source maps, Global Positioning System, and other data; digitizing; and GIS analysis and production of thematic maps to guide the management and conservation of the Iwokrama Forest.

During the period Aug 1995 to date, Iwokrama's GIS was installed and is now in production. Coverages based on existing data about the relief, drainage, forest types, land systems, archaelogy and proposed zoning are currently completed/ near completion. Support in the form of maps and statistics have been provided to survey activities at the site. Preparations are being made for the building or refining of coverages based on new data, (from flora survey, fauna survey and forest inventory), and to explore models based on the entire information set. In addition efforts are being made to expand our use of GPS technology, and explore the use of Remote Sensing data.

Jan - June 1995. Consultant to the Office of the President Environmental Unit; production of a database to support the National Biodiversity Strategy.

August 1993 (Co-authored) Datadin, V.K and Balram, S.; Resource Management in Guyana: Data Gathering & Information Management Strategies; in Land Use, Land Degradation and Land Management in Guyana, edited by: P. Williams, J.T. Parry and M.J. Eden. In Press.

CURRICULUM VITAE

Name:	Singh, James Nirmal
Date of birth:	62-09-06
Place of birth and nationality:	Georgetown, Guyana. Guyanese.
Education:	University of Guyana, Guyana. 1981-86. B. Sc. Natural Sciences (Biology major, Chemistry minor). Universidad de Los Andes, Venezuela. 1989-91. M.Sc. For. (Forest Products Technology).
Work undertaken in last 3 years:	1. Iwokrama International Rain Forest Programme. Feb. 1996-present. a) Coordinator of the First Training course for Forest Rangers, Park and Game Wardens. Eighteen students graduated from this six week course. b) Preparation of the Forest Inventory plan for the Iwokrama forest. 2. University of Guyana. i) 1991-96. Lecturer. Teaching of the following Forestry courses at the undergraduate level: Forest Inventory; Forest Engineering and Harvesting; Forest Utilization; Forest Protection; Field Project. ii) 1992-Feb. 1996. Coordinator, Forestry unit. Coordination of all activities of the unit, including student counselling and curriculum development. 3. Consultancies. Member of a team involved in: *A)* Environmental impact assessment of the Mazaruni river. Work done for EXALL consulting company. 1993. *B)* Environmental impact assessment for the Montgomery bauxite mines, Linmine. Work done for RESCAN consulting company and the World Bank. 1994. *C)* Environmental impact assessment of the Omai No. 2 Tailings pond and proposed clearwater lake. Work done for RESCAN consulting company. 1995. *D)* Documentation of the biodiversity and the establishment of permanent sampling plots in four selected forest types in Guyana. Work being done under the Treaty of Amazonian Cooperation (in progress).

JOB DESCRIPTION

POSITION TITLE : **DIRECTOR OF PROGRAM IMPLEMENTATION**

REPORTS TO: Director General

DATE OF REVISION: April 1996

1. BROAD FUNCTIONS

Under the general direction of the Director General, the Director of Program Implementation is responsible for the planning and operation of the programme areas of:

- Sustainable management of the forest
- Conservation and utilization of biodiversity
- Sustainable human development
- Forestry research

He/she assures that work in these areas is carried out in a well coordinated, efficient and timely manner in accordance with the annual work plan of Iwokrama.

The Director of Program Implementation is a member of the management team and provides input into the decision making processes of his colleagues in the team.

2. PRINCIPAL RESPONSIBILITIES

2.1 SUSTAINABLE MANAGEMENT OF THE IWOKRAMA FOREST

2.1.1 Plans, coordinates and monitors the various socio-economic characterizations and the natural resource surveys carried out in or near the Iwokrama Forest.

2.1.2 Supervises the zoning of the Iwokrama forest and the preparation of forest management plans.

2.1.3 Oversees all utilization activities within the Iwokrama Forest.

2.1.4 Identifies, establishes contact and evaluates enterprises and institutions with a potential for collaborating with Iwokrama in the sustainable utilization of the timber and non-timber resources of the forest, as well in the development of ecotourism.

2.1.5 Ensures that adequate access is planned, constructed and maintained for operations in the Iwokrama Forest.

2.1.6 Ensures that forest operations are monitored for purposes of control and to maximise the learning experience.

2.2 CONSERVATION AND UTILIZATION OF BIODIVERSITY

2.2.1 Coordinates work related to the inventory of biodiversity and biodiversity prospecting in the Iwokrama Forest.

2.2.2 Plans management and protection of the Wilderness Preserve.

2.3 SUSTAINABLE HUMAN DEVELOPMENT

2.3.1 Helps plan Iwokrama's activities in such a way as to maximize positive and equitable impact on the development of women and men associated with the Programme.

2.3.2 Maintains an ongoing training program for individuals in Guyana and from abroad.

2.3.4 Ensures that factual, relevant information is provided for environmental education of the public.

2.4 FORESTRY RESEARCH

2.4.1 Advises on the formulation of research policies.

2.4.2 Coordinates and oversees the research activities of Iwokrama.

3. PRINCIPAL RELATIONSHIPS

3.1 CONTACTS

Outside:
- Counterparts in national organizations
- Counterparts in government departments to seek or provide advice
- Staff of consulting organizations
- Representatives and technical staff of private sector corporations
- Staff of educational institutions

Inside:
- Heads of all Divisions
- Director General
- Board of Trustees and its Committees

The success achieved by the incumbent in interpreting and assimilating, on

behalf of Iwokrama, the results of his contacts largely determine the extent to which the Centre's social and technical practices are capable of advancing its programs and to which Iwokrama can radiate useful information to others.

3.2 SUPERVISION

Direct supervision of the Forest Production Manager, Commercial Development Manager, Human Development Specialist and Heads of Research Programmes

Indirect supervision of personnel of the Programme Implementation Division

QUALIFICATIONS

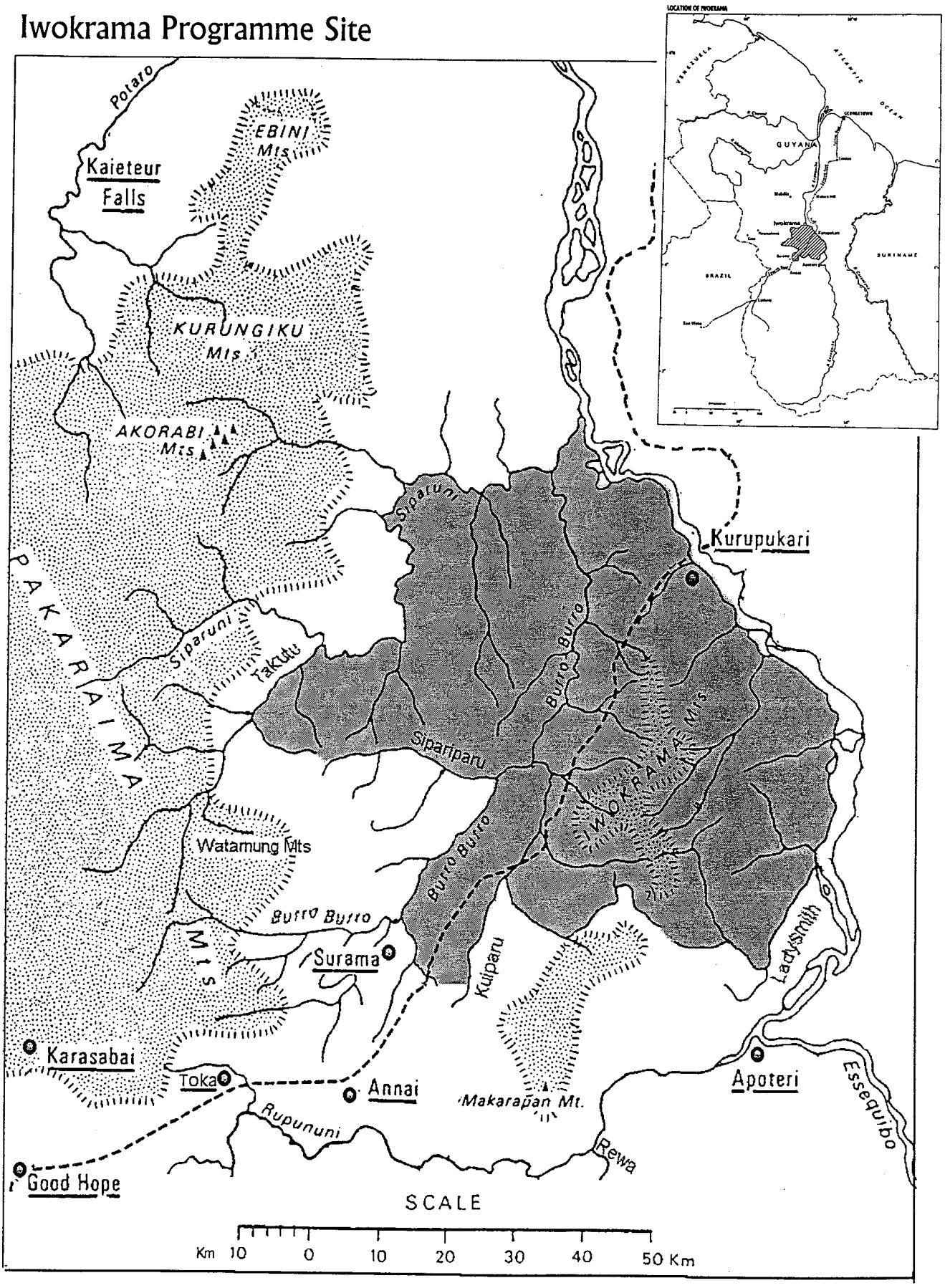
The work requires an unusually broad and thorough knowledge of forest management, biodiversity, human development and forestry research. Qualifications for this position will include practical experience in overseeing forest operations in the tropics. In addition the incumbent must have skills and practical experience in management.

Skill and experience, complemented by the above knowledge in dealing with national and international institutions, in the supervision of staff and in project planning, coordination and scheduling is essential, as is experience in dealing with and maintaining confidence of senior management.

This knowledge and skill is normally acquired through post graduate university degree in a natural resource field and 10-15 years of progressively responsible experience in a variety of field operations in the developing world.

ANNEX 5

Iwokrama Programme Site



ANNEX 6

IWOKRAMA FOREST TYPES (GROSS ESTIMATES)

	Type	Area of Forest Type		Area of Forest Type outside Wilderness Preserve		Volume/ hectare (m^3/ha)	Total Volume (m^3)	Description of Forest Type
		% [1]	hectares (ha)	%	hectares (ha)			
Mixed Forest	1	**46**	169,573	**66**	111,659			on undulating or hilly terrain
	1b	**1**	5,044	**100**	5,037			on flat terrain along main river
	1d	**0**	1,727	**62**	1,079			liane forest
	1e	**11**	40,701	**54**	21,905			small crowned, on flat to gently undulating terrain, sandy soil
	1h	**24**	89,256	**29**	25,944			on high hills
Sub Total		**83**	306,301	**54**	165,624	0	0	
Wallaba Forest	2a	**2**	7,019	**94**	6,581			on flat white sand ridges
	2c	**1**	3,505	**90**	3,155			poor Wallaba-Dakama forest on flat white sand ridges

	Type	Area of Forest Type		Area of Forest Type outside Wilderness Preserve		Volume/ hectare (m^3/ha)	Total Volume (m^3)	Description of Forest Type
		% [1]	hectares (ha)	%	hectares (ha)			
	2d	**2**	7,411	**66**	4,928			low open Dakama-Muri scrub on flat white sand
Sub Total		**5**	17,935	**82**	14,664	0	0	
Swamp Forest	3	**1**	2,860	**52**	1,474			low swamp forest
	3b	**3**	12,900	**54**	6,910			Mora forest
	3c	**3**	11,828	**72**	8,499			marsh swamp forest
Sub Total		7	27,588	**61**	16,883	0	0	
Wallaba/ Swamp	2c/3c	**5**	16,910	**0**	0			2c/ 3c
Clearing	c	**0**	43	**100**	43			clearing
Total Area		**100**	368,777	**53**	197,214	0	0	

Calculations reflect Iwokrama Forest Type Map.

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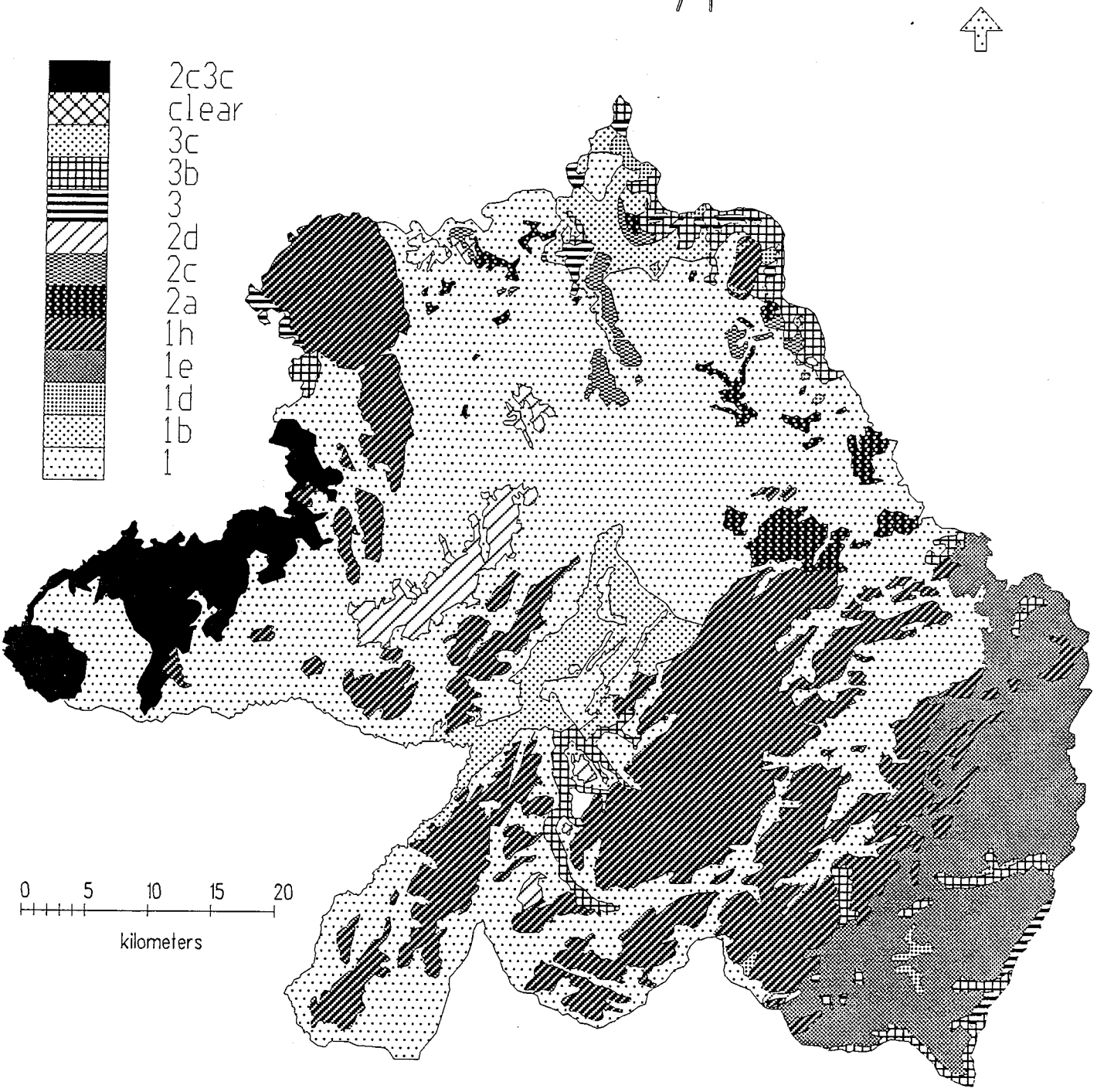
[1] Percentage calculations rounded to zero decimal places. Zero (0) percent is to be interpreted as less-than-one-percent (<1).

ANNEX 7

Iwokrama Forest Types



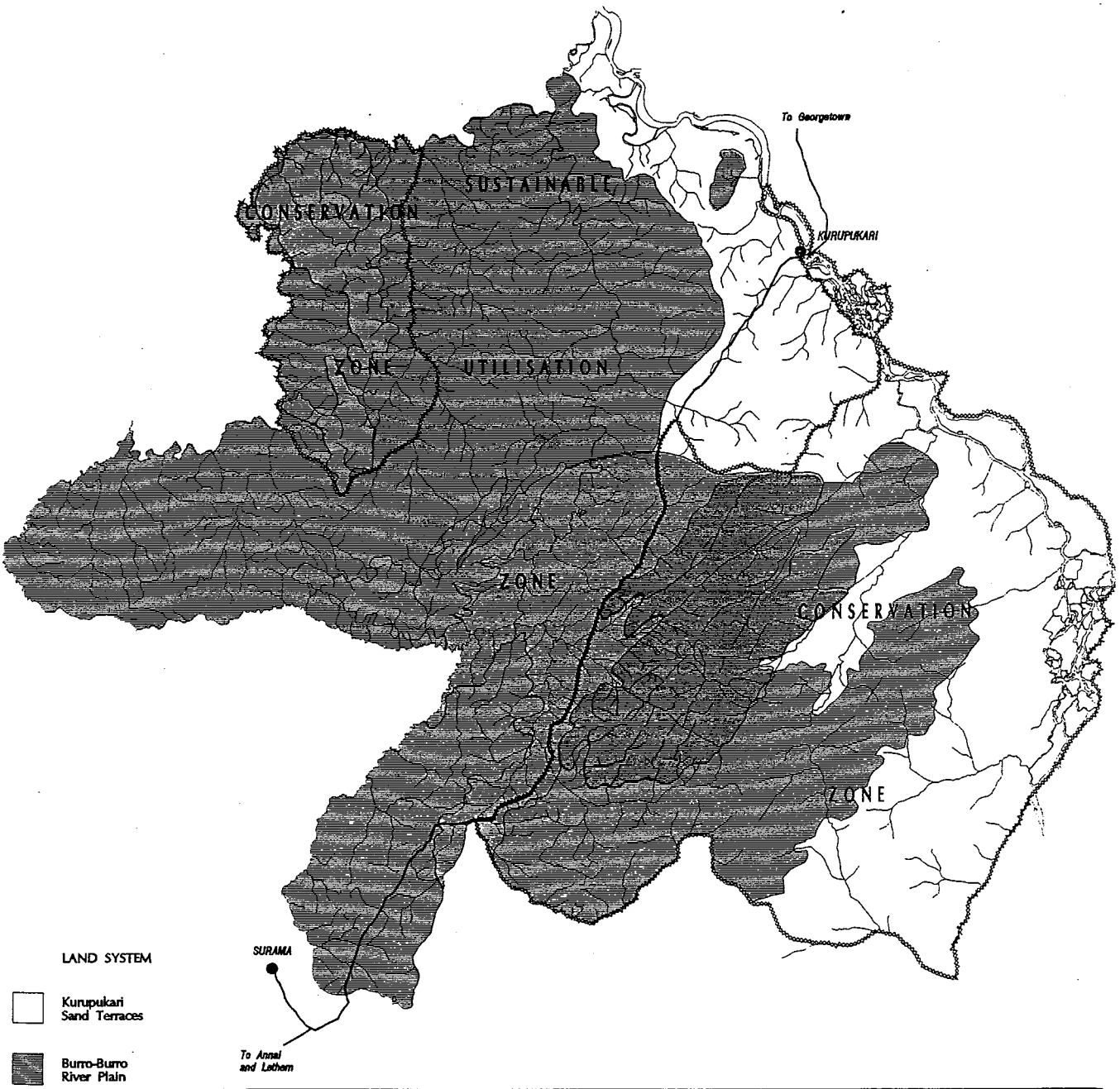
Produced by Iwokrama GIS
Jan 1996

ANNEX 8

Iwokrama Protected Area
Provisional Zones
NRI Reconnaissance Survey Report 1993
(Approx. 49% Wilderness Preserve/ 51% Sustainable Utlization Area)

SCALE 1:500,000

0 5 1,0 1,5 2,0 km



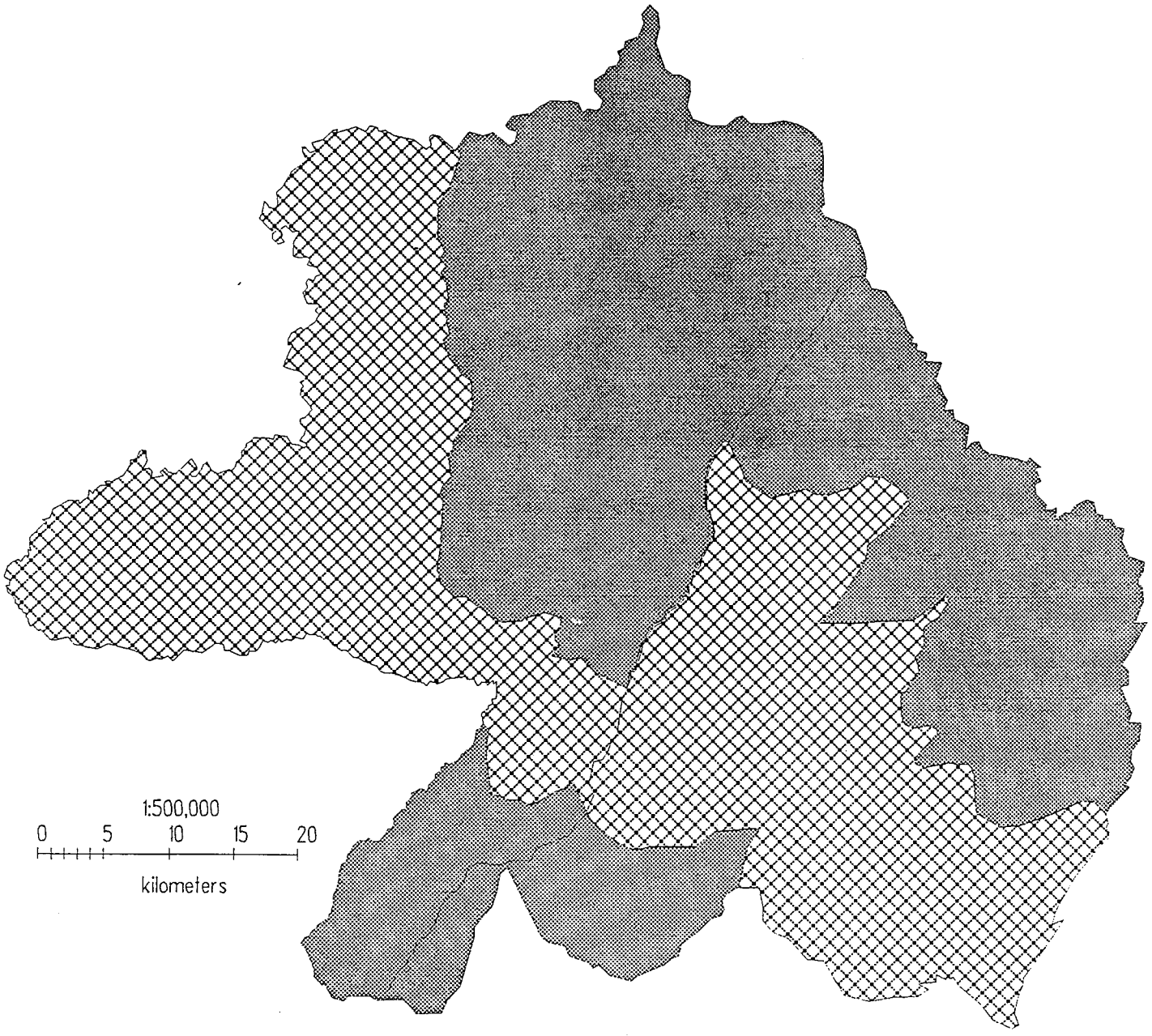
LAND SYSTEM

- Kurupukari Sand Terraces
- Burro-Burro River Plain
- Moco Moco Undulating Plain
- Iwokrama Mountains
- Iwokrama Hills and Valleys
- Pakutau Hills
- Zone boundary

AREA STATEMENT (km.sq)			
LAND SYSTEM	ZONE		TOTAL
	SUST. UTILISATION	CONSERVATION	
Ks	332	741	1.073
Bp	1.051	160	1.211
Mo	233	69	302
Im	0	311	311
Ih	342	488	830
Pb	9	143	152
TOTAL	1.967	1.912	3.879

Iwokrama Protected Area

Provisional Zones



..... Kurupukari–Lethem Road

Wilderness Preserve
approx. 169,700 ha 46%

Resource Reserve
approx. 198,000 ha 54%

Produced by Iwokrama GIS
Jan 1996

ANNEX 9

Output No.	Activity	Responsible	S	Input	No.Uni	Units	Unit cos	Total	No.Uni	Yr1 Cost	No.Uni	Yr2 Cost	No.Uni	Yr3 Cost	Cod
Output No.	Activity	Responsible	S	Input	No.Uni	Units	Unit cos	Total	No.Uni	Yr1 Cost	No.Uni	Yr2 Cost	No.Uni	Yr3 Cost	Cod
Output 1: A forest mangement plan to be used by the Guyana Forestry Commission and others as a model and training tool															
1.1	Identify and contract consulting services to help prepare management plan	DG													
			1	DG	0.25	pm	12000	3000	0.25	3000					16
			1	Administrator	0.5	pm	2000	1000	0.5	1000					11
1.2	Use forest inventory results to revise forest type map (note that inventory will be done in1997 outside scope of this proposal)	Iwo Forester													
			1	Iwo Forester	1	pm	2000	2000	1	2000					11
			1	Iwo GIS Spec.	1	pm	2000	2000	1	2000					11
			2	Consultant For.Mgt	0.5	pm	14000	7000	0.5	7000					13
			2	Trips to Iwo	3	trips	200	600	3	600					32
			1	DSA for Iwo staff	40	day	50	2000	40	2000					31
1.3	Produce revised forest type map and other thematic maps using GIS	Iwo GIS Spec.													
			1	Iwo GIS Spec	1	pm	2000	2000	1	2000					11
			2	Consultant For.Mgt	0.5	pm	14000	7000	0.5	7000					13
			2	Plotter	1	each	6000	6000	1	6000					43
			2	Softwr,photos,sup				3000		3000					54
1.4	Build on GFC assessment of forest operations of concessionaires, and identify constraints to implementation of ITTO guidelines and lessons applicable to Iwokrama & others	Iwo Forester													

Output No.	Activity	Responsible	S	Input	No.Uni	Units	Unit cos	Total		Yr1		Yr2		Yr3	Cod
									No.Uni	Cost	No.Uni	Cost	No.Uni	Cost	
			1	Iwo Forester	1		2000	2000	1	2000					11
			2	Consultant For.Mgt	0.5		14000	7000	0.5	7000					13
			2	Local travel	6	trips	300	1800	6	1800					32
			1	DSA for Iwo staff	20	day	50	1000	20	1000					31
1.5	Compile best available information and use it to determine species groupings, cutting cycle, allowable annual cut, area to be harvested annually and related parameters.	Iwo Forester													
			2	Consultant For.Mgt	0.5	pm	14000	7000	0.5	7000					13
			1	Iwo Forester	1	pm	2000	2000	1	2000					11
1.6	Assess market for 3 selected NTFP	NTFP Special.													
			1	NTFP Special.	1	pm	12000	12000	1	12000					16
			2	Subcontract NTFP				75000		75000					21
1.7	Prepare maps of the first five annual harvest areas	Iwo Forester													
			2	Consultant For.Mgt	0.25	pm	14000	3500	0.25	3500					13
			1	Iwo Forester	0.5	pm	2000	1000	0.5	1000					11
			1	Iwo GIS Spec.	1	pm	2000	2000	1	2000					11
			2	Supplies				1500		1500					54
1.8	Estimate annual flow of timber by species groups and diameter classes, and of NTFPs	Iwo Forester													
			2	Consultant For.Mgt	0.25	pm	14000	3500	0.25	3500					13
			1	Iwo Forester	1	pm	2000	2000	1	2000					11
			1	Iwo NTFP Spec.	0.5	pm	12000	6000	0.5	6000					19
1.9	Draft mangement plan & first year op plan for multiple uses (integrating studies on ecotourism & NTFP which will be done outside the scope of this project)	Iwo Forester													

Output No.	Activity	Responsible	S	Input	No.Uni	Units	Unit cos	Total	Yr1 No.Uni	Yr1 Cost	Yr2 No.Uni	Yr2 Cost	Yr3 No.Uni	Yr3 Cost	Cod
			2	Consultant For.Mgt	1	pm	14000	14000	1	14000					13
			1	Iwo GIS Spec.	1	pm	2000	2000	1	2000					11
			1	Iwo Forester	1	pm	2000	2000	1	2000					11
			1	Iwo NTFP Spec.	0.5	pm	2000	1000	0.5	1000					16
1.10	Hold workshops to consult the plan with GFC, industry, Amerindian reps and others	Iwo Forester													
	(4 workshops of 1 day each)		1	Iwo Forester	0.5	pm	2000	1000			0.5	1000			11
			2	Consultant For.Mgt	0.25	pm	14000	3500			0.25	3500			13
			1	Iwo GIS Spec.	0.25	pm	2000	500			0.25	500			11
			1	Meeting facilities				500				500			61
1.11	Prepare final management plan	Iwo Forester													
			2	Consultant For.Mgt	0.5	pm	14000	7000			0.5	7000			13
			1	Iwo Forester	1	pm	2000	2000			1	2000			11
Output 1: Subtotal								**196400**		**181900**		**14500**			
Output 2: A feasibility study for utilization of the Iwokrama Forest in accordance with ITTO guidelines and GFC Codes of Practice															
2.1	Compile market information for timber in Guyana and abroad	Commercial Dev.Mgr.													
			2	Sub-contr.Feasibil.				50000		20000		30000			22
			1	Com.Dev.Mgr.	1	pm	12000	12000	0.5	6000	0.5	6000			16
			2	Int'l trips Iwo staff	2	trips	1500	3000	1	1500	1	1500			32
			2	DSA for Iwo staff	14	days	150	2100	7	1050	7	1050			31
2.2	Discuss potential processing, marketing and investment arrangements with enterprises in Guyana and abroad	Commercial Dev.Mgr.													
			2	Sub-contr.(see 2.1		contrct.									23
			1	Com.Dev.Mgr.	1	pm	12000	12000			1	12000			16

Output No.	Activity	Responsible	S	Input	No.Uni	Units	Unit cos	Total		Yr1		Yr2		Yr3	Cod
									No.Uni	Cost	No.Uni	Cost	No.Uni	Cost	
			2	Int'l trips Iwo staff	2	trips	1500	3000			2	3000			32
			2	DSA for Iwo staff	10	days	150	1500			10	1500			31
2.3	Use information obtained and forest management plan to draft feasibility study	Commercial Dev.Mgr.													
			2	Sub-contr.(see 2.1		contrct.									22
			1	Com.Dev.Mgr.	0.25	pm	12000	3000			0.25	3000			16
2.4	Obtain and discuss feedback on draft	Com.Dev.Mgr													
			2	Sub-contr.(see 2.1											22
			1	Com.Dev.Mgr.	0.25	pm	12000	3000			0.25	3000			16
2.5	Finalize feasibility study	Com.Dev.Mgr													
			2	Sub-contr.(see 2.1											22
			1	Com.Dev.Mgr.	0.25	pm	12000	3000			0.25	3000			16
Output 2: Subtotal								**92600**		**28550**		**64050**			
Output 3: Commercial arrangements in place for sustainable management and harvest of the Iwokrama Forest as a demonstration.															
3.1	Repackage results of Outputs 1 & 2 in format appropriate for attracting business partners and prepare request for bids	Commercial Dev.Mgr.													
			1	Com.Dev.Mgr.	0.5	pm	12000	6000			0.5	6000			16
			2	Conslt.Biz Mgt	0.25	pm	14000	3500			0.25	3500			13
			2	Sub-Cont.Design/Repr.				5000				5000			23

Output No.	Activity	Responsible	S	Input	No.Uni	Units	Unit cos	Total		Yr1		Yr2		Yr3	Cod
									No.Uni	Cost	No.Uni	Cost	No.Uni	Cost	
3.2	Identify and establish contacts with potential business partners	Com.Dev.Mgr.													
			1	Com.Dev.Mgr.	1	pm	12000	12000			1	12000			16
			2	Conslt.Biz Mgt	2	pm	14000	28000			2	28000			13
3.3	Undertake trips and sponsor visits to explore arrangements with potential partners	Com.Dev.Mgr.													
			1	Com.Dev.Mgr.	1	pm	12000	12000			1	12000			16
			2	Conslt.Biz Mgt	2	pm	14000	28000			2	28000			13
			2	Int'l trips	5	trip	1500	7500			5	7500			32
			2	Local travel	10	trip	200	2000			10	2000			32
			1	DSA for Iwo staff	20	day	150	3000			20	3000			31
			1	Local DSA Iwo staf	40	day	50	2000			40	2000			31
3.4	Carry out bidding process for timber, NTFP and ecotourism	Com.Dev.Mgr.													
			1	Com.Dev.Mgr.	1	pm	12000	12000					1	12000	16
			2	Conslt.Biz Mgt	1	pm	14000	14000					1	14000	13
			2	Legal fees				10000						10000	13
3.5	Negotiate contracts with enterprises selected through bidding and possibly with local communities	DG													
			1	DG	0.5	pm	12000	6000					0.5	6000	16
			1	Com.Dev.Mgr.	1	pm	12000	12000					1	12000	16
			2	Conslt.Biz Mgt	1	pm	14000	14000					1	14000	13
			2	Legal fees				25000						25000	13
3.6	Prepare a business plan which integrates all commercial operations of the Iwokrama Forest	DG													
			1	DG	0.5	pm	12000	6000					0.5	6000	16
			1	Com.Dev.Mgr.	1	pm	12000	12000					1	12000	16
			2	Conslt.Biz Mgt	1	pm	14000	14000					1	14000	13

Output No.	Activity	Responsible	S	Input	No.Uni	Units	Unit cos	Total	No.Uni	Yr1 Cost	No.Uni	Yr2 Cost	No.Uni	Yr3 Cost	Cod
Output 3: Subtotal								**234000**				**109000**		**125000**	
Output 4: Increased availability of sustainably produced tropical timber and other forest products and services															
4.1	Between 27,000 and 40000 m3 of a sustainably produced timber each year														
4.2	Sustainable production of other forest goods and services														
Output 5: Women and men trained in sustainable management for multiple products															
5.1	Provide on-the-job training in preparation of management plans for multiple products for 5 individuals from Iwokrama, GFC and industry	Iwo Forester													
			1	Iwo Forester	0.5		2000	1000	0.5	1000					11
			2	Consultant For.Mgt	0.25		14000	3500	0.25	3500					13
			2	Local travel	10	trips	150	1500	10	1500					32
			1	Local DSA	120	day	50	6000	120	6000					31
5.2	Provide on-the-job training in preparation of request for bids on concessions and evaluation of bids, for two GFC and one Iwo staff	Iwo Forester													
			1	Iwo Forester	0.5	pm	2000	1000					0.5	1000	11
			2	Conslt.Biz Mgt	0.25	pm	14000	3500					0.25	3500	13

Output No.	Activity	Responsible	S	Input	No.Uni	Units	Unit cos	Total	No.Uni	Yr1 Cost	No.Uni	Yr2 Cost	No.Uni	Yr3 Cost	Cod
5.3	Hold two workshops with local community leaders to plan their participation in forest management	Iwo Forester													
	(Workshops at Iwo Field Station for		1	Iwo Forester	0.5	pm	2000	1000	0.5	1000					11
	15 participants/instructors; duration		2	Consultant For.Mgt	0.25	pm	14000	3500	0.25	3500					13
	2 days each)		2	Local travel	30	particip	50	1500	30	1500					32
			2	Lodging	60	par-day	25	1500	60	1500					31
			2	Board		par-day	20	1200	60	1200					31
			2	Supplies				500		500					54
5.4	Hold two short courses in ecotourism planning and management for local operators and communities	Human Development Specialist													
	(Courses in Georgetown for 20		1	NTFP Specialist	1	pm	12000	12000			1	12000			16
	participants/instructors, with field		1	Local instructors	2	pm	2000	4000			2	4000			11
	trips; duration 5 days each.)		2	Cons.Eco-tourism	0.5	pm	14000	7000			0.5	7000			13
			2	Local travel	40	partic.	200	8000			40	8000			32
			2	Lodging	100	par-day	100	10000			100	10000			31
			2	Board	100	par-day	20	2000			100	2000			31
			2	Supplies				1000				1000			54
			1	Conference room	5	day	200	1000			5	1000			61
5.5	Hold two short courses on management and processing of those NTFP selected for harvest	Human Development Specialist													
	(Courses at Iwo Field Station for 20		1	NTFP Specialist	1	pm	12000	12000			0.5	6000	0.5	6000	16
	participants/instructors; duration 12		1	Local instructors	4	pm	2000	8000			2	4000	2	4000	11
	days each)		2	Consultant NTFP	0.5	pm	14000	7000			0.25	3500	0.25	3500	13
			2	Local travel	40	partic.	200	8000			20	4000	20	4000	32
			2	Lodging	480	par-day	25	12000			240	6000	240	6000	31
			2	Board	480	par-day	20	9600			240	4800	240	4800	31
			2	Supplies				2000				1000		1000	54
5.6	Hold one short course on monitoring costs of forest management, using system designed under Output 5, for participants from industry and GFC	Human Development Specialist													
	(Course in Georgetown for 10		2	Conslt.Cost Mgt.	0.5	pm	14000	7000					0.5	7000	13

Output No.	Activity	Responsible	S	Input	No.Uni	Units	Unit cos	Total	Yr1 No.Uni	Yr1 Cost	Yr2 No.Uni	Yr2 Cost	Yr3 No.Uni	Yr3 Cost	Cod
	participants; duration 5 days)		1	Local consultants	1	pm	2000	2000					1	2000	11
			2	Lodging	25	par-day	50	1250					25	1250	31
			2	Board	25	par-day	30	750					25	750	31
			2	Conference room	5	day	200	1000					5	1000	61
			2	Supplies				500						500	54
			2	Computer rent	5	each	200	1000					5	1000	61
5.7	Identify training events abroad related to the focus of this project and Guyana's needs	Human Development Specialist													
			1	Human Dev. Spec	0.5	pm	2000	1000	0.25	500	0.25	500			11
			1	Iwo Forester	0.5	pm	2000	1000	0.25	500	0.25	500			11
5.8	Select participants for training abroad and arrange their participation	Human Dev. Specialist													
			1	Human Dev. Spec	0.5	pm	2000	1000	0.5	1000					11
			2	Travel	5	trips	1500	7500	5	7500					32
			2	DSA	120	day	150	18000	60	9000	60	9000			31
			2	Training fees	120	day	200	24000	60	12000	60	12000			15
5.9	Hold concluding review workshop with local stakeholders and 6 leading practioners from ITTO Regions														
			1	Travel and DSA	25	People	400	10,000					25	10,000	
			2	Travel and DSA	6	People	4000	24,000					6	24,000	
Output 5: Subtotal								**229,300**		**51700**		**96300**		**81300**	
Output 6: Trials established and studies in place to gradually supply the information needed to refine GFC guidelines for management and harvesting regimes															

Output No.	Activity	Responsible	S	Input	No.Uni	Units	Unit cos	Total	Yr1 No.Uni	Yr1 Cost	Yr2 No.Uni	Yr2 Cost	Yr3 No.Uni	Yr3 Cost	Cod
6.1	Using the result of 1.5, assess the current state of knowledge and the information needs related to the effects of harvesting and to regeneration, for timber and for those NTFP selected for harvest	Researcher-Timber													
			1	Researcher-Timbe	2	pm	12000	24000			2	24000			16
			1	Research Asst.	3	pm	2000	6000			3	6000			11
			2	Info sources				2000				2000			61
6.2	Draft research proposals based on assessment	Researcher-Timber													
			1	Researcher-Timbe	2	pm	12000	24000			2	24000			16
			2	Cons.Research	1	pm	14000	14000			1	14000			13
6.3	Consult proposals with GFC, industry and possible collaborators	Researcher-Timber													
			1	Researcher-Timbe	0.5	pm	12000	6000			0.5	6000			16
			2	Cons.Research	0.25	pm	14000	3500			0.25	3500			13
6.4	Prepare final research proposals	Researcher-Timber													
			1	Researcher-Timbe	0.5	pm	12000	6000			0.5	6000			16
6.5	Identify sites for field trials and lay out experimental plots	Researcher-Timber													
			1	Researcher-Timbe	3	pm	12000	36000			3	36000			16
			1	Research Asst.	24	pm	2000	48000			24	48000			11
			1	GIS Specialist	0.5	pm	2000	1000			0.5	1000			11
			2	Forest labour	60	pm	300	18000			60	18000			14
			2	Forest equipment				3000				3000			43
			2	Forest supplies				2000				2000			61
6.6	Apply treatments to plots where status of forest operations permits	Researcher-Timber													
			1	Researcher-Timbe	2	pm	12000	24000					2	24000	16
			1	Research Asst.	12	pm	2000	24000					12	24000	11
			2	Forest labour	36	pm	300	10800					36	10800	14
			2	Forest equipment				3000						3000	43
			2	Forest supplies				2000						2000	61

Output No.	Activity	Responsible	S	Input	No.Uni	Units	Unit cos	Total		Yr1		Yr2		Yr3	Cod
									No.Uni	Cost	No.Uni	Cost	No.Uni	Cost	
			2	Medium size truck	1	each	30000	30000					1	30000	43
			2	Vehicle,boat O+M	20000	km	0.5	10000					20000	10000	32
6.7	Design practical system for monitoring costs of forest management	Iwo Forester													
			1	Iwo Forester	2	pm	2000	4000			2	4000			11
			2	Conslt.Cost Mgt.	1	pm	14000	14000			1	14000			13
			1	Local consultants	2	pm	2000	4000			2	4000			11
			2	Laptop computer	3	each	3000	9000			3	9000			43
Output 6: Subtotal								**328300**				**224500**		**103800**	
TOTAL								**1080600**		**262150**		**508350**		**310100**	
			2	Contingency&infla.				52330		13108		25418		13804	61
			2	ITTO Monitor.&Ev				40,000		10000		10000		20000	71
			2	ITTO Admin. cost				40696		40000				696	72
GRAND TOTAL								**1213626**		**325258**		**543768**		**344600**	