SUMMARY AND OBJECTIVES

The project is a direct continuation of the project named ITTO-ENB Balsa Industry Strengthening Project – Phase I (Project number: PD 4/94 Rev. 3 (F)), which is conducted in the Gazelle Peninsular of the East New Britain Province. It will continue to provide assistance to the province and may also be extended into the New Ireland Province, as required. The Project area is currently facing a shortage of resources due to lack of extension activities between 1992 and 1996 further exacerbated by the volcanic eruption in Rabaul in September 1994, as well as severe drought in 1997 caused by the El Nino Effect. Furthermore, the expansion of the industry from one to three mills since 1996 has also increased the demand for Balsa wood significantly. Supplies will mainly depend on resources established by the landowner farmers. Estimated future planting establishment is expected to escalate from 100 to 200 hectares per annum. Industry and infrastructure still remains under-resourced and Balsa management requires further strong improvement. Serious losses to breeding stock calls for additional inputs into seed tree selection, seed production and genetic resource conservation.

The objectives of the project are to continue the work of Phase I in order to improve the institutional and organisational effectiveness of the expanding industry, and to improve local farmers’ incomes through balsa plantations. Objectives also include continued genetic improvement of stock, seed tree selection, conservation and seed orchard establishment and development to ensure self long-term sufficiency in improved seed supplies to the province and the Nation.

Project outputs of Phase II will be increased farmer extension and training, continued industry staff training, development of an organizational structure for the co-ordination of industry activities, tree improvement and seed orchard establishment and development.

EXECUTING AGENCY:

Papua New Guinea Forest Authority

DURATION:

24 months

APPROXIMATE STARTING DATE:

Upon approval, preferably June 1999

BUDGET AND PROPOSED SOURCES OF FINANCE:

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PART I: CONTEXT

A. RELEVANCE TO ITTO

1. Compliance with ITTO Objectives

The ITTO-East New Britain Balsa Industry Strengthening Project - Phase I (PD 4/94 Rev. 3 (F)) has re-established and improved Balsa extension services in East New Britain. The nursery production system has been redeveloped and staff trained to commercial production level. Seed collection, processing and handling techniques have been introduced, and tree improvement activities as well as seed orchard establishment have been reactivated by the project.

However, industry development practices continue to be very ad-hoc, with the quality and accessibility of many Balsa stands far from satisfactory. The industry continues to be market led. Confidence in the future of the Balsa industry has led to three East New Britain agricultural industry companies: Coconut Products Ltd (CPL), PNG Balsa Company and Mantua Balsa Company to invest in Balsa plantings. Only these three mills are operating in Papua New Guinea at present. Expansion is eagerly sought but is currently hindered by a shortage of harvestable resource due to a lack of adequate replanting between 1992 and 1996.

All Balsa companies are trying to acquire land to establish nucleus Balsa plantations but these plantations are of limited size and permanent tenure after acquisition is not guaranteed. The local farmer/landowners will continue to play a major role in the production of Balsa wood for the industry. Consequently, they will require intensive training in plantation management to help them improve their incomes from their plantings, in terms of better silviculture management aimed at increasing production, yields and quality from their plantings. There continues to be considerable scope for greater processing of the product than currently occurs.

This Project is in accordance with Article 1 of the International Tropical Timber Agreement (1994), in particular the objectives:
(c) To contribute to the process of sustainable development.

(f) To promote and support research and development with a view to improving forest management and efficiency of wood utilization.

(i) To promote increased and further processing of tropical timber from sustainable sources, and thereby increasing employment opportunities and export earnings.

It is also related to objective:

(j) To encourage members to support and develop industrial tropical timber reforestation and forest management activities with due regard to the interests of local communities dependent on forest resources.

2. **Compliance with ITTO Criteria/Project Activities**

With respect to Article 25 of the International Tropical Timber Agreement (1994), the project complies with all of the project activities as described therein. It is an operational activity with emphasis on afforestation, sustainable forest management and increased onshore processing of balsawood.

3. **Relationship to ITTO Action Plan and Priorities**

There is a large scope for further industry growth, both in production and processing. However, it continues to be hindered by lack of extension plantings in past years, insufficient industry cooperation and participation. Of major importance to this project is the training of Balsa growers in plantation management and education of the Balsa processing and marketing sector, as well as training of extension and research officers of the Papua New Guinea Forest Authority (PNGFA), Provincial Government and Department of Primary Industry (DPI). The project will also assist with the genetic improvement of planting stock and the establishment of permanent seed supplies. The results of the project are priorities of the Committee on Reforestation and Forest Management and are connected with the work of the Committees on Forest Industry and Economic Information and Market Intelligence.

As mentioned in the project document for Phase I of the ITTO-East New Britain Balsa Industry Strengthening Project, the development of an efficient Balsa industry in ENBP holds great potential to increase and smooth the incomes of existing smallholder farmers who have been suffering from depressed cocoa and copra prices.
Phase II of the Project continues to boost local employment and income for the rural sector in the region by increasing production (smallholder and plantation) and encouraging greater local Balsa processing.

The Project meets the goals of the ITTO Libreville Action Plan (1998) perfectly, particularly the strategy of the Committees on Reforestation and Forest Management and Forest Industry. Among some of the two Committees' main priorities addressed by the Project are:

**Reforestation and Forest Management:**

**Goal 1:** Support activities to secure the tropical timber resource base:

2. Establish guidelines for sustainable forest management

7. Encourage and Assist Members, as appropriate, to:
   - Identify and prevent irregular forestry activities

**Goal 3:** Enhance technical, financial and human capacities to manage the tropical timber resource base

1. Promote access to, and transfer of, technologies and encourage technical cooperation for sustainable forest management, forest restoration and reforestation

3. Design and conduct regional training events to enhance technical and human capabilities to manage the resource base

4. Facilitate exchange of information and experience on natural forest management, forest restoration and timber plantations amongst member countries, Non-Governmental Organizations and industries

6. Encourage and assist Members, as appropriate, to:
   - Intensify training of forestry personnel and other stakeholders in silviculture and resource assessment and in the management of both natural forests and timber plantation

**Forest Industry:**

**Goal 1:** Promote increased and further processing of tropical timber from sustainable sources.
1. Increase awareness of investment opportunities to encourage public and private investment

3. Assist in the promotion and transfer of new and/or improved techniques and technologies

B. Relevance to National Policies

1. **Relationship to sectoral policies affecting tropical timber.**

   Phase II will continue to directly increase small holder plantings to compensate for the resource shortage predicted by the year 2000. Hereby, it will address the need for a greater level of domestic processing with the present three mills. Phase II will also continue to directly relate to a number of sectoral policies adopted by the Government of Papua New Guinea (GOPNG). These include:

   * the bulk of employment generation coming from the rural sector;
   * development of competitive export production;
   * encouragement of viable downstream processing of forestry production; and
   * addressing law and order problems by ensuring opportunities for the entire community to participate in the development process.

2. **Relationship to subsectoral aims and programmes**

   * Balsa has been adopted by local cocoa/coconut growers as a fast growing forest cash crop to diversify their sources of income. However, there is a lack of Balsa plantation management. Consequently, maximum returns have not been realized from each plantation unit. The major Balsa growers are village farmers and copra and cocoa plantation owners, who have been hard hit by low agricultural commodity prices.

The project is consistent with the policy package outlined in the National Forestry Development Guidelines (1993). This includes;
Projects to establish plantation forests should be justified on the basis of clearly defined primary objectives. These will usually be commercial but “clearly stated non-commercial objectives such as livelihood support may be sufficient justification for village and community based afforestation”,

Afforestation projects and forest industrial development shall be owned by the private sector; and

Increasingly, timber and other forest produce will be processed, and wood products manufactured, within PNG through forest industrial development which is internationally competitive and not reliant on subsidisation.

3. **Institutional and Legal Framework**

The PNG Forest Authority will have primary responsibility for coordinating the project. Close co-operation will continue with the Department of Primary Industry, (principally with the National Agricultural Research Institute (NARI) at Keravat), the East New Britain Provincial Government, the Forest Research Institute and the private milling companies. The coordinating function of the project will be conducted on a contract consultancy basis.
1. **Origin**

1.1 **Background and Problems Encountered**

Balsa or *Ochroma lagopus* (family Bombacaceae) is a fast growing hardwood originating from Central and South America. Although technically a hardwood it is one of the lightest and strongest woods used commercially. The species is used for modelling boats and aircraft toys and industrial uses range from insulation to aircraft construction, as well as water craft hulls.

The amazing lightness of dry Balsa makes it of particular value where unusual strength is required without much extra weight. This is accomplished by laminating Balsa with other woods or veneering them on a Balsa base. In airplane construction Balsa boards or beams are half as heavy as spruce and will support fifty per cent more weight. Similarly, in ship construction, partitions built of veneered Balsa not only provide insulation where needed but save hundreds of tons in a ship’s gross weight. Because of Balsa’s cellular constitution, it provides excellent insulation. Balsa absorbs vibration and is often placed under heavy machinery to keep buildings from shaking. Balsa walls and ceilings absorb sound waves that otherwise be a local nuisance.

The project (referred here to as “Phase II”) is an extension of the existing project, the “ITTO-East New Britain Balsa Industry Strengthening Project” - referred to here as “Phase I”. This project stems from an original project proposal presented in late 1993, by the East New Britain Provincial Government, to the ITTO for a smallholder Balsa afforestation project comprising of approximately one hundred smallholder Balsa blocks. The aim was to allow existing farmers to diversify their production from cocoa and copra which had been experiencing low prices. The PNG Forest Authority was requested by the ITTO in January 1994 to undertake a quick reformat of the original proposal. The basic principles of the reformatted proposal were accepted during the Seventh Expert Panel for Technical Appraisal of Project Proposals, conducted by ITTO during February 1994; after a number of required alterations had been made.

Phase I started behind schedule in October 1996. This was largely due to the September 1994 eruption in Rabaul which affected a significant portion of the Gazelle Peninsula, including most of the Balsa growing areas.
Progress in extension and training suffered a set back in 1997 due to the drought caused by the El Nino Effect, fire and cyclone as well as the lack of a suitable counterpart.

In spite of the problems encountered the project implementation is progressing well. However, because of the delays caused by the volcanic eruption, drought and the late arrival of the project counterpart, there is a strong need to request for an extension of Phase I. This extension would also enable the Project to provide assistance to New Ireland Province where expansion of Balsa growing and processing is anticipated.

Currently, Phase I has been granted an extension without additional funds in order to complete the activities of the Project until June 1999. The Papua New Guinea Forest Authority has been advised that since additional funding is required, a new project: the “ITTO-East New Britain Balsa Industry Strengthening Project - Phase II” would need to be formulated and follow normal approval procedures of the ITTO. This present proposal for Phase II of the Project is based on those recommendations, and reflects the strong interest of the Papua New Guinea Forest Authority and the Balsa industry for an extension of the Project.

1.2 Achievements and Lessons Learnt
(Output mentioned below refer to Project Proposal – Phase I: Project number: PD 4/94 Rev.3 (F))

Output 1.1 Industry Structure and Organization Establishment

Activity 1.1.1 Establish Industry Working Committee

Achievements:

1. Working Committee is established and to date 21 meetings have been held.

2. Committee represents Local Growers, Processors, National Agriculture Research Institute, Private Companies, the PNG Forest Authority, ITTO and PNG Growers Association.

3. The Working Committee has successfully addressed a number of issues – non-payments for balsa from growers, late issues of export permits, need for a balsa industry code of practice and registration of balsa growers.
4. The committee assisted in the development of a balsa Purchasing Agreement and Log Tally sheet format now in use by the industry.

5. The committee provided assistance in holding the first field day by ITTO Balsa Project.

Lessons Learnt:

1. Farmer participation will continue to be limited because of distance and transport, and ancillary meetings will be required with village committees.

2. Full participation by all processors on the Gazelle Peninsula of ENB is unlikely to eventuate due to deep scated animosities and any effort to resolve this problem would adversely influence members participation. For the present the situation remains static.

3. To maintain momentum, and ensure the committee remains functional, the committee would be best to form a growers association, the main constraint at present is the fear of liabilities.

Activity 1.1.2 Develop Industry Programmes

Achievements:

1. Nursery administration system and nursery techniques improved.

2. Annual nursery seedling programme has been established with previous annual target set at 100,000 seedlings. Just over 111,000 were produced in 1998, a vast improvement over previous years.

3. Nursery seedling production system has been improved shortening stand out time in the nurseries by 8 weeks.

4. Nursery facilities and equipment up-graded.

5. Accountability has been established.

6. Nursery now operates on a commercial basis.
7. Information systems established comprised of the publication of a balsa newsletter, circulars and field information sheets.

8. Extension services to industry re-established.

9. Monitoring system initiated.


11. Growth and Yield plot establishment and assessment has been initiated.

Lessons Learnt:

1. Problems and low production in the balsa nursery at Kerevat were largely due to lack of organization supervision, poor nursery production system, accountability and lack of purpose.

2. Seedling production targets achieved with increased staff and set production rates. Labour strength required would be 5-6 men.

3. Nursery production improved with better supervision and with set objectives in all activities in nursery.

4. Nursery activities will require monitoring for at least 12 months more to ensure the systems will continue.

Output 1.2  PNGFA, DAL & ENB PNG staff training

Activity 1.21  Silviculture & Extension Training

Achievements:

1. Counterpart officer and field support now acquainted with balsa silviculture and management practices and now gaining necessary experience in field situations.

2. Training in extension work initiated and systems put into practice.

3. Growth and Yield plot establishment and assessment methods now implemented by staff.
Lessons Learnt:

1. Silviculture and management as prescribed in 1977 not implemented up until 1998. Assumptions that Forest College and University training have prepared officers in silviculture practices are not necessarily correct.

2. The lack of young plantations for training purposes was not indicated in the original proposal, making it necessary to establish plantings for training and demonstration.

3. Silvicultural management requires a period of six years to train staff how to use the management schedule. Six years is the rotational period for balsa and several levels of thinning are required.

Activity 1.2.2 Other Staff Training

1. Nursery labourers trained in new nursery techniques, procedures and field assessments.

2. National Agricultural Research Institute field staff assisted in balsa spacing and thinning trials designs and assessments.

3. The project has started training the East New Britain National Forest Authority (ENB-NFA) royalty section in handling and documenting balsa harvesting information for monitoring purposes.

Lessons Learnt:

1. ENB-NFA Royalty section requires more training input then previously estimated.

2. Training in monitoring requires more input since it has become obvious there are some undesirable practises by some companies which may adversely affect local business interests.

Activity 1.2.3 Market Familiarization

Achievements:

1. Apart from learning which countries are importing PNG Balsa, and assessing price trends for processed balsa, very little else has been achieved except to ensure buying prices are adjusted with currency depreciation.

Lessons Learnt:

1. Companies cannot be relied upon to provide information.

Output 2.1.1 Conduct and Supervise Extension Work

Achievements:

1. Balsa extension service has been re-activated by the project and it has provided stock for establishment of over 79 ha of plantation and services to 85 growers.

2. Advisory and training services are now available and these are being provided to farmers and staff of companies engaged in planting balsa.

3. An information system has been established (ref. activity 1.1.2, No. 1) to communicate balsa information to the farmers.

4. On site training of farmers in plantation management is active and an ongoing activity.

5. A data base system to register farmers, balsa blocks and seedling seed sources, has been established and is in use.

Lessons Learnt:

1. For farmer training to yield results demonstration areas are required for on site training and experience.

2. Training in plantation management over 24 months of this project’s life is insufficient for a crop rotation of six years.

3. Balsa farming communities are very receptive to information provided by newsletters and circulars in Pidgin and English and should be continued.

4. Farmers are reluctant to apply thinning schedules as they regard all trees in their balsa plots as an investment and clearly need to have demonstrations in the value of thinning to waste at an early age of plantations.
5. Over 60% of farmers require training in methods used to measure their harvested crop.

**Output 2.2 Seed tree selection, seed orchard establishment and seed production**

**Activity 2.2.1 Collect seed and develop procedures**
**Activity 2.2.2 Establishment of Seed Orchards**

**Achievements:**

1. Seed collection and processing procedures established.
2. Organized seed collection is now an annual event.
3. Seed batch numbering system established including a seed register.
4. Two seedling seed orchards have been established by the project in addition to the first established in 1992.
5. Survival survey of seed trees has been completed.
6. Staff training in seed tree selection is in progress.
7. Replacement of destroyed seed trees has lifted the number from 18 to 64 trees. Most of these have yet to be tested.
8. Project is self sufficient in seed supplies for the present.
9. Seed orchard seed now available to the project.

**Lessons Learnt:**

1. Balsa seedling seed orchards cannot be surveyed for seed trees properly until at least 24 months as vigour may alter over this period.
2. Genetic differences between balsa families are evident and the selection system is on the right track.
3. Seed tree selection must continue in view of the severe losses experienced and possible erosion of the PNG gene pool.
4. A national seed tree register is required and should become part of Forest Policy.

5. The impending loss of seedling seed orchard No.1 is an indication of the need to ensure there are self-sufficient seed production areas as back ups and that ancillary orchards on private company and local land may be the future way to combat losses and to ensure the industry will be self sufficient.

6. Seed collecting activities should be carried out over eight to nine months period instead of 4 months as indicated by the projects original work plan.

2. Project Objectives

2.1. Development Objectives

Phase II will continue to increase rural employment and incomes, particularly in the Gazelle Peninsular area of ENBP, but also in New Ireland Province, as required. It will help to reduce the level of business risk faced by existing farmers. Phase II will also contribute to the national objective of increasing domestic processing of forest products, and it will provide a significant contribution to the economic development of the Gazelle Peninsula after the 1994 volcanic eruption.

The development objectives are in accordance with the objectives set out in the National Forestry Development Guidelines passed by GOPNG in December 1993.

Elements of the Guidelines were subsequently embodied in amendments to the Forest Act and contribute to the fourth goal of the PNG Constitution.

2.2. Specific Objectives

In order to meet the development objectives, Phase II will continue to have the following specific objectives:

(i) To continue to improve the institutional and organisational effectiveness of the Balsa industry in the Gazelle Peninsular area of ENBP as well as New Ireland.
(ii) To improve silvicultural management, as follows:

- Volume prediction data is non-existent and growth and yield data are to be collected.
- Establishment of growth and yield plots over a wider range of sites to continue.
- Maintaining thinning schedule treatments in the above and measure volume recovery on site and after processing.
- Investigate fertilizer requirements in short term trials.
- Balsa Manual to be completed including volume prediction data.
- Schedule for the management of Balsa natural regeneration to be developed and implemented.

(iii) To continue to improve smallholder incomes through Balsa development with emphasis on extension and training, as well as genetic improvement.

3. Project Justification

3.1. Problem to be addressed/Basic Reasons for the Extension of the Project (A reference is also made to the project document of Phase I)

* Balsa Plantation Production life is for 6 years and not 2 years. Phase I could not cover farmer Silvicultural Management Training in 2 years.
* Phase I started approximately 2 years behind schedule during which time no effective Balsa extension work was carried out on the Gazelle Peninsula.
* Due to lack of sufficient extension work, between 1992 to 1996 Balsa resources will be in very short supply by year 2000. In two years Phase I will not make sufficient impact even with increased extension production to counter this. The volcanic eruption also had a negative impact on Balsa extension and
seriously affected the agricultural sector in the Gazelle Peninsula as well.

* The Industry is expanding with three mills and possibly two more coming into existence. Factory utilisation requirements will increase from approximately 20 ha per annum to 100 ha per annum with a large impact potential on local PNG economy (export) and jobs. This will mean that 300 ha of Balsa will have to be established to strengthen the industry. Phase II will contribute significantly to the Gazelle restoration through continued economic development.

* The El Nino drought of 1997 set back the nursery seedling production extension programme, seed orchard/seed production programmes.

It also set back silvicultural research and establishment of plantations. Fires in this period destroyed plantings and seed trees, which now have to be replaced.

* Farmer/landowner’s confidence in the Balsa industry has been adversely affected due to non-payment for their Balsa in some areas. Restoring this confidence is underway, but will not be fully restored in the remaining life of Phase I. The situation is still fragile and this presents some problems to extension work.

* The Phase I has been without a seconded officer for training for over 12 months. This has impacted adversely on the training and extension programme. This officer is now in place. However, it is unlikely that he will receive all the necessary training and experience by the time Phase I finishes in June 1999.

* Greater emphasis for training local farmers in silvicultural management methods is required.

* The Project has yet to form a new Balsa Extension Unit and to train this Unit’s Staff.

* The Working Committee has yet to convert to a PNG Balsa Growers Association.
3.2 Characteristics of the region where the project will be located

The Gazelle Peninsular of East New Britain Province is recovering from the 1994 volcanic eruption. Despite of this the area is still suited for an expansion of the Balsa industry. New Ireland, which is the adjacent province, also has some areas suitable for Balsa growing, but has shallower soils compared to East New Britain, which has rich deep volcanic soils. Both provinces have an adequate rainfall, and are well serviced by good roading and the Port of Rabaul.

A well organised, though somewhat depressed, agricultural industry already exists in the area and the local people are generally receptive to new ideas. A number of other new crops to PNG have had their beginnings in this area (e.g. vanilla and nutmeg). There are three balsa mills currently operating in the Gazelle Peninsular, with the two largest at least keen to expand production. A fourth Balsa mill is anticipated in New Ireland Province.

Balsa has been readily accepted by local smallholders into their existing farming systems and both the DPI and the PNGFA have substantial experience with the crop.

3.3 Other relevant aspects of the “pre project situation”

Because Balsa growing has proved to be a good source of income to the landowers, the establishment of Balsa plantations will continue. Smallholders have been maintaining their cocoa and copra plantings and have been planting Balsa on adjoining scrub and bush land. The opportunity cost of planting the Balsa is probably close to zero since it is doubtful that this land would be used for any alternative productive use apart from subsistence gardens.

Until recently, the PNGFA owned and managed a 900 hectare plantation of different tree species among which were most of the high quality Balsa seed trees in Papua New Guinea. However, due to a court ruling the PNGFA lost tenure of the land. It is therefore important that seeds from the best seed trees continue to be collected, as during Phase I, and another seed orchard established to retain these genetic resource.
3.4. **Intend situation after project completion**

The main aim of Phase II is to provide further support for the orderly and structured development of the industry. This will be achieved largely through the functions of co-ordination and training of the industry’s human resources.

Following the completion of Phase II it is expected that the all sectors of the Balsa industry will be in a more mature phase and that sufficient structures and systems will be emplaced for the industry to be properly run by the local personnel. To ensure the continuity of the benefits produced by Phase II the responsibilities of each industry participant (in particular the smallholder farmers), Government and private companies, must be clearly defined. This will involve considerable interdepartmental politics on the part of the Project Manager/Consultant. It continues to be one of the responsibilities of the Project Manager/Consultant to consult and negotiate an organisational structure suitable to all parties involved in the industry and especially, the smallholder farmers.

3.5. **Target Beneficiaries**

The principal beneficiaries of the project will be the village and smallholder farmers and their families in the Gazelle Peninsular of ENBP and New Ireland Province, who are vulnerable to fluctuating agricultural commodity prices. Increased plantings, improved yields and better average prices for Balsa continues to directly increase employment and incomes in the area. There will also continue to be downstream benefits to the total community as the Balsa mills increase their employment capacity and local businesses increase their turnovers.

3.6. **Project Strategy**

3.6.1. **Reasons for Selection**

Although considerable industry infrastructure and resources exist, they still remain to be poorly managed, and are fragmented and uncoordinated. This has resulted in a lower quality of Balsa seed stocks and poor silviculture practices by most smallholder farmers.
The format of Phase II has been selected in order to co-ordinate and maximise the utilisation of the already existing resources.

It also aims to assist the industry to re-establish its own goals and objectives. A major advantage of Phase II is that it should be relatively easy to sustain and expand the benefits achieved under Phase I in order to ensure continuity in quantity and quality of Balsa production at all levels. The design of Phase II ensures maximum training of Balsa growers, as well as provision of information in Balsa silviculture not previously available to Balsa growers. A major concern of Phase II is also the conservation and maximum utilisation of the existing genetic Balsa resources to ensure continuity of quality Balsa seed.

3.6.2. Socio-Economic Aspects

The major socio-economic effects of Phase II will include:

- increased employment;

- greater local income due to increased plantings, improved management resulting in higher yields and better quality logs; and

- significant contribution to the restoration of the Gazelle Peninsular in terms of re-establishing a healthy rural economy, including infrastructure.

Phase II will be introducing new silviculture and management systems not previously employed by the Balsa industry in Papua New Guinea. This in combination with extension training of all stakeholders in the Balsa sector will contribute significantly to the development of a healthy and strong Balsa industry in Papua New Guinea.

3.6.3. Environmental Aspects

Since the project will be one of institutional organisation and strengthening, it will not involve any direct environmental impacts. Of the two areas of environmental concerns previously outlined in the project proposal of Phase I, there is only one area that will be a continued concern, as follows:
The potential loss of nutrient status of soils upon which Balsa is grown. As Balsa grows very fast and develops into a large tree, it removes a great deal of nutrients from the soil.

There is obviously a limit to the number of successive plantings that can be carried out on the same piece of ground.

Part of the scope of Phase II will be to ensure that the research organisations of PNGFA and/or Department of Primary Industry (DPI) adequately address these problems and find solutions to them.

3.6.4. Managerial Aspects

The overall project will still be managed by the PNGFA, with the actual co-ordination and control of the project being conducted by the Project Manager/Consultant on a contract basis. This organisation format should be continued because it is obvious that the industry still needs to be regulated.

A code of practice (the “Balsa Industry Code of Practice”) needs to be developed including standards and guidelines to maintain sustainability, and to improve productivity and economic gains at all levels through proper management and monitoring of the Balsa industry. Because of existing inter-organisational politics, it would be very difficult for someone from within one of the Government bodies to undertake this effectively.

3.7. Reasons for ITTO Support

3.7.1. ITTO Aspects

ITTO, through its funding of Phase I, has been instrumental in developing the Balsa industry in PNG. Also, Phase II remains to be consistent with ITTO’s policy of undertaking further domestic processing of forest products in producer countries. Consequently, the ITTO is considered to the most appropriate donor for this project which is a natural continuation and expansion of Phase I of the ITTO-East New Britain Balsa Industry Strengthening Project.
3.7.2. **Risks**

The risk directly associated with Phase II remains very low. Besides from the very little continued risk of a significant volcanic eruption in the Gazelle Peninsular, and forest fires, it is fair to say that at worst, Phase II will fail to get any cooperation with some of the Balsa processors. At best, significant productivity and output gains can be achieved and substantial impact on the restoration of the Gazelle Peninsular will be a reality.

However, Phase II has every chance of success. All of the industry personnel continue to express support to improving and expanding the industry, and are generally receptive to co-operating together and coordinating activities. The key impediment in the past appears to be that no one group, or person has had the time or commitment to actually solve the problems.

Overall, Phase II will reduce many of the risks present in the industry, especially for smallholders. The development of proper seed tree selection procedures, seed handling and processing procedures, as well as the development of seed orchards accompanied by improved extension activities will reduce the risk of low volume and low quality yields. Production and market monitoring will help to reduce price risk and the training and co-ordination functions will help to ensure the effectiveness of the industry in the future.

4. **Outputs**

4.1. **Outputs supporting specific objective (i)**

(1) Continuation of support for the formal establishment of a structure for coordinating industry activities, especially research, extension and industry monitoring. Further support for the Balsa Industry Working Committee with a view of converting this Committee to a Balsa Growers Association or integrating it with the PNG Growers Association.
Effective channels of communication established between key industry groups (especially PNGFA, DPI, ENB Provincial Government, smallholder groups and processing/milling companies).

(2) As a result or an output of Phase II agency staff will be thoroughly trained and drilled in relevant and practical aspects of the industry, especially in Balsa silviculture, smallholder extension and industry monitoring.

4.2. Outputs supporting specific objective (ii)

(1) Silvicultural management is improved, as follows:

- Growth and Yield plots established over a wide range of representative sites

- Schedule for management of Balsa Natural Regeneration and planted Balsa developed and implemented

- Thinning schedule treatments maintained in the above and volume recovery recorded on site and at processing

- Volume prediction data obtained and growth and yield data collected

- Fertilizer requirements in short term trials established

- Balsa manual completed including volume prediction tables and management schedules

4.3. Outputs supporting specific objective (iii)

(1) Farmers will have a thorough understanding of all areas of Balsa silviculture, and they will have a better understanding of the nature of markets and the importance of timing. Subsequently, farmers should be able to produce more quantity and quality Balsa wood, which will attract better market prices.

(2) Proper seed selection procedures will be developed and seed orchards established to ensure self-sufficiency and continuity of supply of improved Balsa seed.
### Activities and Inputs

#### Output 1.1

**Activity 1.1.1**

Develop the Balsa Industry Working Committee to a Balsa Growers Association with an effective Executive Committee. The objective is to jointly address industry development issues, as well as to ensure the implementation of the proposed Balsa Industry Code of Practice.

To establish effective channels of communication (including newsletters and circulars) between key industry groups.

**Activity 1.1.2**

Promote further development of joint research, extension and monitoring programmes.

#### Output 1.2

**Activity 1.2.1**

Maintain and conduct training programmes for PNGFA staff, Government bodies and Balsa companies in Balsa silviculture, research, monitoring, nursery techniques and self-management.

**Activity 1.2.2**

Familiarise agency personnel relevant aspects of Balsa processing and marketing.

#### Output 2.1

**Activity 2.1.1**

Expansion of extension activities in East New Britain and New Ireland Provinces, with emphasis placed on coordination and supervision.
### Activity 2.1.2
Expansion of Farmer Training activities in relevant silviculture, management, harvesting and marketing, at both group and individual levels, as dictated by the local situation.

<table>
<thead>
<tr>
<th>Output 2.2</th>
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<tbody>
<tr>
<td><strong>Activity 2.2.1</strong> Growth and yield plots to be established to provide quantified information of volume and yields for tables and for demonstrations and training.</td>
</tr>
<tr>
<td>Consultancy services, consumable items Mensuration equipment. Local staff.</td>
</tr>
<tr>
<td><strong>Activity 2.2.2</strong> Establish the fertilizer requirements of Balsa on depressed soils.</td>
</tr>
<tr>
<td>Consultancy services, consumable items</td>
</tr>
<tr>
<td><strong>Activity 2.2.3</strong> Develop management schedule for natural regeneration of Balsa.</td>
</tr>
<tr>
<td>Consultancy services. Local staff.</td>
</tr>
<tr>
<td><strong>Activity 2.2.4</strong> Completion and publication of Balsa manuals</td>
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<tr>
<td>Consultancy services, funding required to cover costs of publication.</td>
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</tbody>
</table>

### Output 3.0

| **Activity 3.1** Select, evaluate and document all seed trees and existing seed sources to support tree improvement, seed production and conservation of genetic resources of Balsa. |
| Consultancy services, travelling costs, consumable items. Local staff. |
| **Activity 3.2** Conduct and organise seed collections of seed from all sources, document and store for plantation development, tree improvement as well as research and development. |
| Consultancy services, travelling costs, consumable items, and seed royalty costs. Local staff. |
| **Activity 3.3** Establish seed orchards and seed stands over several sites (to be selected) in order to ensure that all seed trees are represented by their families and that PNG is self-sufficient in improved Balsa seeds. |
| Consultancy services, travelling costs, consumable items, and possible land purchase/lease costs and land establishment costs. Local staff. |
## 6. LOGICAL FRAMEWORK MATRIX

### TABLE 1

<table>
<thead>
<tr>
<th>PROJECT ELEMENT</th>
<th>VERIFIABLE INDICATORS</th>
<th>MEANS OF VERIFICATION</th>
<th>IMPORTANT ASSUMPTIONS</th>
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</thead>
<tbody>
<tr>
<td><strong>Development Objective:</strong></td>
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<tr>
<td>To continue to increase rural employment and incomes.</td>
<td>Increased Balsa plantings and processing.</td>
<td>Monitor industry outputs, employment and prices.</td>
<td>Balsa diversification in addition to other commodity production.</td>
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<td><strong>Specific Objectives:</strong></td>
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<tr>
<td>1. Continue to improve Balsa industry in East New Britain and New Ireland Provinces.</td>
<td>Improved plantings management and yields. Increased production, better quality logs, higher average prices.</td>
<td>Field inspections, industry monitoring. Expanded extension programme.</td>
<td>Monitoring and inspection will be done as part of project and also incorporated as part of normal PNGFA function.</td>
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<tr>
<td>2. To improve silvicultural management.</td>
<td>Increased volume production per Balsa unit area. Better recovery of Balsa wood per unit area.</td>
<td>Production monitoring.</td>
<td>Farmers will implement the recommended silvicultural schedules and will use improved planting stock.</td>
</tr>
<tr>
<td>3. Continue to increase and smooth smallholder incomes.</td>
<td>Increased production, better quality logs, higher average prices.</td>
<td>Production and price monitoring.</td>
<td>As above.</td>
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<tr>
<td><strong>Outputs:</strong></td>
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<tr>
<td>1.1 Industry structure and organisation established.</td>
<td>Balsa Growers Association established, co-operation evident between industry groups. Development of industry programmes.</td>
<td>The PNG Balsa Growers Association registered as an association and/or affiliated with PNG Growers Association. Increased participation in meetings.</td>
<td>That members are willing to accept responsibility for the active support of the Association, and indeed commit themselves to the objectives of the Association.</td>
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<tr>
<td>1.2 Training of PNGFA staff, Government bodies and Balsa companies.</td>
<td>Improved knowledge, skills and motivation in all aspects of Balsa silviculture and extension.</td>
<td>Field inspections and staff reviews of performance and productivity to be conducted on a quarterly basis.</td>
<td>Participants willing to cooperate and learn.</td>
</tr>
<tr>
<td>2.1 Expansion of farmer extension and training.</td>
<td>Better maintained Balsa Blocks and higher quality logs.</td>
<td>Field inspections and scrutiny of records.</td>
<td>Farmers will to listen and prepared to cooperate and willing to apply management and harvesting schedules.</td>
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<tr>
<td>2.2 Upgrading of Balsa silviculture.</td>
<td>Growth and yield plots established. Fertilizer requirements known and applied. Natural regeneration management schedules for Balsa developed and used. Balsa manuals completed and ready for publication.</td>
<td>Field inspections. A minimum of 12 growth and yield plots established. Trial results of fertilizer programme established and qualified by measurement and photos.</td>
<td>Land and test material made available to the project for trial.</td>
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<tr>
<td>3.0 Tree improvement, orchards and seed production expansion.</td>
<td>A minimum of 100 high quality seed trees selected and registered and conserved. A minimum of 10 kg of Balsa seed collected per annum.</td>
<td>Seed tree registration. Annual seed records.</td>
<td>Government and local land can be obtained for the establishment of SSOs. Sufficient seed produced from a representative number of seed trees. Seed orchards can be established, managed and protected.</td>
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</table>
### 7. WORKPLAN

**SCHEDULE MONTHS - as from June 1999.**

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<tr>
<th>OUTPUTS/ACTIVITIES</th>
<th>Responsibilities</th>
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<td>1.1.1. Establish Balsa Growers Association</td>
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<td>1.1.2. Develop industry programmes</td>
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<td><strong>Output 1.2:</strong> Training of PNGFA staff, Government bodies and Balsa companies</td>
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<td>1.2.1 Maintain and conduct silviculture and extension training of institutions and companies</td>
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<td>1.2.2 Carry out marketing familiarisation</td>
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<td><strong>Output 2.1</strong> Expansion of farmer extension and training</td>
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<td><strong>Output 2.2</strong> Upgrading of Balsa silviculture</td>
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<td>2.2.2 Investigate fertiliser requirements</td>
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<td>2.2.4 Complete Balsa manuals</td>
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<tr>
<td><strong>Output 3.0</strong> Tree improvement, orchards and seed production expansion</td>
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<td>3.3 Establish and manage seed orchards</td>
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## 7. WORKPLAN – Continued

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<tr>
<td>Output 1.1:</td>
<td>Industry structure and organisation established</td>
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<td>1.1.1.</td>
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<td>Develop Industry Programmes</td>
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<td>Output 1.2:</td>
<td>Training of PNGFA staff, Government bodies and Balsa companies</td>
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<td>1.2.1.</td>
<td>Maintain and conduct silviculture and extension training of institutions and companies</td>
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<td>Carry out marketing familiarisation</td>
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<td>Expansion of farmer extension and training</td>
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<td>Increased farmer training</td>
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<td>Output 2.2:</td>
<td>Upgrading of Balsa silviculture</td>
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<td>Establish growth and yield plots</td>
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<td>2.2.2.</td>
<td>Investigate fertiliser requirements</td>
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<td>Develop natural regeneration management for Balsa</td>
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<td>2.2.4.</td>
<td>Complete Balsa manuals</td>
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<td>Output 3.0:</td>
<td>Tree improvement, orchards and seed production expansion</td>
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<td>Seed tree selection and conservation continued</td>
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<td>Seed collecting continued</td>
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<tr>
<td>3.3.</td>
<td>Establishment and manage seed orchards</td>
<td>Consultant/GOPNG</td>
<td></td>
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</tr>
</tbody>
</table>
8. **Institutional Arrangements for the Execution of Project**

8.1. **Management Structure**

The project consultant will co-ordinate all aspects of the project and will be answerable directly to the Managing Director of the PNGFA. However, the consultant will also be required to liaise with, and to co-ordinate activities between Department of Primary Industry, ENBPG and PNGFA.

The aim is for Phase II to be as flexible and as independent as possible so that the activities of the various industry support agency groups are strengthened and coordinated as much as possible.

9. **Prior Obligations and Prerequisites**

There are none. All industry groups will be advised of Phase II of the Project and their continued co-operation sought.

10. **Possible Future Assistance**

It is most unlikely that further assistance would be required after completion of the Second Phase, which complements the first Phase of the ITTO-East New Britain Industry Strengthening Project. After its completion it is expected that all development objectives have been meet, and Balsa productivity improved. It is also expected that increased economic gains at all levels are indeed achieved through proper management and monitoring in the Balsa Industry and that the Industry is capable of maintaining itself.
PART III  SCHEDULE OF MONITORING EVALUATION AND REPORTS.

The logical framework sheets (in Part II.6) and the workplan (in Part II.7) will be the basis for project monitoring, evaluation and report.

1. Monitoring Reviews (as in Phase I)

The project will be subject to periodic technical monitoring in accordance with the policies and procedures of the ITTO, other funding governments, and the GOPNG. Quarterly reviews are required by GOPNG.

2. Evaluations (as in Phase I)

The project will be subject to evaluation in accordance with the policies and procedures of ITTO (see Table 1 for the Logical Framework Matrix), other funding Governments and the GOPNG. Apart from the GOPNG requirements for such reviews to be quarterly, specific reviews are proposed following the next industry workshop and on an annual basis.

3. Reports

Progress reports will be provided to ITTO quarterly by the GOPNG in the format suggested by ITTO. A project completion report will be within three months of acceptance of the final report.
PART IV - BUDGET

The indicative project budget per output/activity and the contributions of the main funding entities is presented in table 3. The total value of the project is US$373,000 with contributions by ITTO and GOPNG of US$327,000 and US$46,000 respectively.

The budget is based on the activities, inputs and the workplan set out in Sections 4 to 7. The Project Manager/Consultant is costed at $8,000 per month.

The indicative payment schedule for budget disbursements is:

- project start-up 25%
- end of month 6 20%
- end of month 12 15%
- end of month 18 20%
- final report 20%

A Financial Statement of Phase II has also been prepared (table 2).
<table>
<thead>
<tr>
<th>Component (in US$)</th>
<th>ITTO</th>
<th>GOVERNMENT OF PNG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10. Project Personnel</strong></td>
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<tr>
<td>11. National Counterpart</td>
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<td>12. Administrative Personnel</td>
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<td>13. Other Labour</td>
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<td>22. Airfares</td>
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<td>32. Vehicles</td>
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<td>39. Component Total</td>
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<td><strong>40. Consumable Items</strong></td>
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<td>41. Fertilizer and soil</td>
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<td>42. Seed purchase</td>
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<td>43. Polybags and tools</td>
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<td>44. Office Supplies</td>
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<td>45. Balsa Manuals</td>
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<td>49. Component Total</td>
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<td><strong>50. Miscellaneous</strong></td>
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<td>51. Contingencies</td>
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<td><strong>60. ITTO Monitoring &amp; Administration</strong></td>
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<tr>
<td><strong>99. GRAND TOTAL:</strong></td>
<td>325,468</td>
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</table>
### TABLE 3: OVERALL PROJECT BUDGET BY ACTIVITY

**OUTPUTS/ACTIVITIES. COSTS IN US$. 1 PNG KINA = 0.45 US$ AS OF 28 OCTOBER 1998.**

<table>
<thead>
<tr>
<th>Output 1.1</th>
<th>Industry Structure and Organisation Established</th>
<th>Consultant</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
<th>ITTO Monitoring</th>
<th>ITTO Total</th>
<th>Personal &amp; Labour</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
<th>GOPNG Total</th>
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<td>17,300</td>
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**Activities**

1.1.1 Est Balsa Growers Association

1.1.2 Develop Industry Programme.

<table>
<thead>
<tr>
<th>Output 1.2</th>
<th>Staff Training</th>
<th>Consultant</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
<th>ITTO Monitoring</th>
<th>ITTO Total</th>
<th>Personal &amp; Labour</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
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<td></td>
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<td>49,000</td>
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</table>

**Activities**

1.2.1 Silviculture & Extension Training

1.2.2 Marketing Familiarisation

<table>
<thead>
<tr>
<th>Output 2.1</th>
<th>Expansion Farmer Extension &amp; Training</th>
<th>Consultant</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
<th>ITTO Monitoring</th>
<th>ITTO Total</th>
<th>Personal &amp; Labour</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
<th>GOPNG Total</th>
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<td></td>
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</table>

**Activities**

2.1.1 Conduct & Supervise Extension Work

2.1.2 Increased Farmer Training

<table>
<thead>
<tr>
<th>Output 2.2</th>
<th>Upgrading of Balsa Silviculture</th>
<th>Consultant</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
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<th>ITTO Total</th>
<th>Personal &amp; Labour</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
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</tbody>
</table>

**Activities**

2.2.1 Establish Growth and Yield Plots

2.2.2 Investigate Fertilizer Requirements

2.2.3 Develop Natural Regeneration Management

2.2.4 Complete B. Manuals

<table>
<thead>
<tr>
<th>Output 3.0</th>
<th>Tree Improvement, Orchards and Seeds</th>
<th>Consultant</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
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<th>ITTO Total</th>
<th>Personal &amp; Labour</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
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</table>

**Activities**

3.1 Seed tree Select Cont.

3.2 Seed Coll. Cont.

3.3 Estab. & Management Seed Orchards

<table>
<thead>
<tr>
<th>ITTO Administration &amp; Support (5.5%)</th>
<th>Consultant</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
<th>ITTO Monitoring</th>
<th>ITTO Total</th>
<th>Personal &amp; Labour</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
<th>GOPNG Total</th>
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<tr>
<td></td>
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<td>16,968</td>
<td>16,968</td>
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<th>Consumable &amp; Miscellaneous</th>
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<th>ITTO Total</th>
<th>Personal &amp; Labour</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
<th>GOPNG Total</th>
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<table>
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<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
<th>ITTO Monitoring</th>
<th>ITTO Total</th>
<th>Personal &amp; Labour</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
<th>GOPNG Total</th>
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</thead>
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</table>

<table>
<thead>
<tr>
<th>GRAND TOTALS</th>
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<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
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<th>ITTO Total</th>
<th>Personal &amp; Labour</th>
<th>Travel</th>
<th>Capital</th>
<th>Consumable &amp; Miscellaneous</th>
<th>GOPNG Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>9,800</td>
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<td>27,300</td>
<td>8,700</td>
<td>51,000</td>
<td>50,000</td>
</tr>
</tbody>
</table>
ANNEX 1

TERMS OF REFERENCE FOR BALSA INDUSTRY SPECIALIST

The consultant will continue to be responsible to the Managing Director of the Papua New Guinea Forest Authority. The consultant's principal role will still be that of a coordinator and motivator, with the primary responsibility of mobilising the existing industry resources in an efficient and orderly manner. Specific functions that the consultant will be required to undertake include:

* Initiate and develop an effective Balsa Growers Association comprising representatives of the PNGFA, Departement of Primary Industry, ENBPG, processors, plantation owners and smallholders. The consultant will still be required to liaise between the various industry parties and to assist in the delineation of areas of responsibility and cooperation for aspects of the industry development.

* In consultation with officers of the various industry bodies, to continue to identify priority Balsa research requirements and assist in the development of a coordinated and structured research programme.

* Provide training to a PNGFA officers who will ultimately be responsible for industry coordination and development on completion of Phase II.

* Organise relevant training and support for extension and research officers of PNGFA, Department of Primary Industry and ENBPG regarding Balsa production, management and marketing.

* Develop a multi-organisational and on-going extension programme for Balsa growers and, assist in the organisation and implementation of extension activities.

* Supervise the establishment and management of Balsa Seedling Seed Orchards (SSOs) and other seed production areas, including the identification, evaluation and registration of superior parent trees and the supervision and documentation of seed collections.

* Produce Balsa Manual.

* Conduct other activities and staff training as appropriate (e.g. with respect to industry monitoring).
ANNEX II

Framework for Farmer Extension and Training (as in Phase I)

A major reason for the sub-standard nature of much of the Balsa produced in ENBP stems from farmer ignorance. The areas of concern include:

* Incorrect planting procedures.
* Sub-optimal spacing of trees.
* Planting in inappropriate locations.
* Lack of early thinning to remove ineffective trees.
* Reluctance to implement recommended thinning schedules.
* Lack of farmer knowledge of Balsa market grading requirements and price differentials.
* Lack of farmer (and extension officer) understanding of fundamental economic principles concerning such factors as volume per hectare versus trees per hectare, quality versus quantity, etc.

Given that the financial resources of the extension agencies are severely constrained, the extension and training activities will be based around field days and training courses conducted at existing central facilities. Experiences with the development of a vanilla industry in the same area showed that smallholder farmers are extremely keen to learn, especially if they think that there is money to be made, and field days conducted for that industry were extremely well attended.

Components of the Balsa training and extension programme should include:

* Joint training of PNGFA, ENBP and New Ireland Provincial extension officers regarding Balsa market requirements, production and management. This should be very much an industry-based approach concentrating on the reasons for recommended practices.

* Specialised farmer training courses conducted on existing balsa blocks to teach particular management techniques to growers.

* Field days conducted at Department of Primary Industry experimental research station (National Agricultural Research Institute – NARI), ENB Balsa processing facilities and selected Balsa blocks and plantations to demonstrate and explain various aspects of Balsa production and marketing and its importance to the rural sector. These will include presentations by both professionals and practitioners.

* Ongoing but more emphasis placed on individual extension support for farmers, and in association with other general extension visits and activities.
ANNEX III

Mechanisms to Sustain Seedling Seed Orchard (as in Phase I)

In order to ensure that the benefits of the seedling seed orchards are maintained for the long term the following procedures will be established.

* Seed tree selections in all provinces with Balsa plantings will be continued on a regular basis. This will be a function of Phase II.

* Seeds will be collected from the above trees under supervision to ensure that the correct seeds are collected.

* The collected seeds will be used to establish and maintain at least 4 seedling seed orchards in different locations selected by the Project Manager/Consultant of Phase II. The use of at least 4 orchards is to ensure that stocks are maintained in the event of any disease problems or natural disasters (eg the Rabaul volcano) in a particular location. Orchard sites have been identified at;

- DAL’s Kerevat Research Station in ENBP - operated by Department of Primary Industry.

- An area to be selected in New Ireland Province close to Kavieng.

- PNGFA East New Britain Forest Plantation
  Vunapalading

- One other area to be selected in East New Britain possibly on privately owned ground close to Keravat.

* Ongoing selective thinning to favour the retention of the best trees for seed production.

* The establishment of a register for seed trees and seed orchards.
Attachment 1: Reply to the Recommendations of the Seventeenth Panel:
(As mentioned in letter from ITTO Ref. No. L.99-0085 dated 4 March 1999)

Recommendation 1: Include more detailed background information on the achievements, the successes and the lessons learned during Phase I.

Please note that the following text (in bold) has been inserted in the Project Proposal as a separate chapter 1.2: Achievements and Lessons Learnt:

Achievements and Lessons Learnt:
(Outputs mentioned below refer to Project Proposal – Phase I: Project number: PD 4/94 Rev.3 (F))

Output 1.1 Industry Structure and Organization Establishment

Activity 1.1.1 Establish Industry Working Committee

Achievements:

1. Working Committee is established and to date 21 meetings have been held.

2. Committee represents Local Growers, Processors, National Agriculture Research Institute, Private Companies, the PNG Forest Authority, ITTO and PNG Growers Association.

3. The Working Committee has successfully addressed a number of issues – non-payments for balsa from growers, late issues of export permits, need for a balsa industry code of practice and registration of balsa growers.

4. The committee assisted in the development of a balsa Purchasing Agreement and Log Tally sheet format now in use by the industry.

5. The committee provided assistance in holding the first field day by ITTO Balsa Project.

Lessons Learnt:

1. Farmer participation will continue to be limited because of distance and transport, and ancillary meetings will be required with village committees.

2. Full participation by all processors on the Gazelle Peninsula of ENB is unlikely to eventuate due to deep scated animosities and any effort to resolve this problem would adversely influence members participation. For the present the situation remains static.

3. To maintain momentum, and ensure the committee remains functional, the committee would be best to form a growers association, the main constraint at present is the fear of liabilities.
Activity 1.1.2 Develop Industry Programmes

Achievements:

1. Nursery administration system and nursery techniques improved.

2. Annual nursery seedling programme has been established with previous annual target set at 100,000 seedlings. Just over 111,000 were produced in 1998, a vast improvement over previous years.

3. Nursery seedling production system has been improved shortening stand out time in the nurseries by 8 weeks.

4. Nursery facilities and equipment up-graded.

5. Accountability has been established.

6. Nursery now operates on a commercial basis.

7. Information systems established comprised of the publication of a balsa newsletter, circulars and field information sheets.

8. Extension services to industry re-established.

9. Monitoring system initiated.


11. Growth and Yield plot establishment and assessment has been initiated.

Lessons Learnt:

1. Problems and low production in the balsa nursery at Kerevat were largely due to lack of organization supervision, poor nursery production system, accountability and lack of purpose.

2. Seedling production targets achieved with increased staff and set production rates. Labour strength required would be 5-6 men.

3. Nursery production improved with better supervision and with set objectives in all activities in nursery.

4. Nursery activities will require monitoring for at least 12 months more to ensure the systems will continue.
Output 1.2  PNGFA, DAL & ENB PNG staff training

Activity 1.21. Silviculture & Extension Training

Achievements:

1. Counterpart officer and field support now acquainted with balsa silviculture and management practices and now gaining necessary experience in field situations.

4. Training in extension work initiated and systems put into practice.

5. Growth and Yield plot establishment and assessment methods now implemented by staff.

Lessons Learnt:

1. Silviculture and management as prescribed in 1977 not implemented up until 1998. Assumptions that Forest College and University training have prepared officers in silviculture practices are not necessarily correct.

2. The lack of young plantations for training purposes was not indicated in the original proposal, making it necessary to establish plantings for training and demonstration.

3. Silvicultural management requires a period of six years to train staff how to use the management schedule. Six years is the rotational period for balsa and several levels of thinning are required.

Activity 1.2.2  Other Staff Training

Achievements:

1. Nursery labourers trained in new nursery techniques, procedures and field assessments.

2. National Agricultural Research Institute field staff assisted in balsa spacing and thinning trials designs and assessments.

4. The project has started training the East New Britain National Forest Authority (ENB-NFA) royalty section in handling and documenting balsa harvesting information for monitoring purposes.
Lessons Learnt:

1. ENB-NFA Royalty section requires more training input then previously estimated.

2. Training in monitoring requires more input since it has become obvious there are some undesirable practices by some companies which may adversely affect local business interests.

Activity 1.2.3 Market Familiarization

Achievements:

1. Apart from learning which countries are importing PNG Balsa, and assessing price trends for processed balsa, very little else has been achieved except to ensure buying prices are adjusted with currency depreciation.


Lessons Learnt:

1. Companies cannot be relied upon to provide information.

Output 2.1.1 Conduct and Supervise Extension Work

Achievements:

1. Balsa extension service has been re-activated by the project and it has provided stock for establishment of over 79 ha of plantation and services to 85 growers.

2. Advisory and training services are now available and these are being provided to farmers and staff of companies engaged in planting balsa.

3. An information system has been established (ref. activity 1.1.2, No. 1) to communicate balsa information to the farmers.

4. On site training of farmers in plantation management is active and an ongoing activity.

5. A database system to register farmers, balsa blocks and seedling seed sources, has been established and is in use.
Lessons Learnt:

1. For farmer training to yield results demonstration areas are required for on site training and experience.

2. Training in plantation management over 24 months of this project's life is insufficient for a crop rotation of six years.

3. Balsa farming communities are very receptive to information provided by newsletters and circulars in Pidgin and English and should be continued.

4. Farmers are reluctant to apply thinning schedules as they regard all trees in their balsa plots as an investment and clearly need to have demonstrations in the value of thinning to waste at an early age of plantations.

5. Over 60% of farmers require training in methods used to measure their harvested crop.

Output 2.2  Seed tree selection, seed orchard establishment and seed production

Activity 2.2.1 Collect seed and develop procedures
Activity 2.2.2 Establishment of Seed Orchards

Achievements:

1. Seed collection and processing procedures established.

2. Organized seed collection is now an annual event.

3. Seed batch numbering system established including a seed register.

4. Two seedling seed orchards have been established by the project in addition to the first established in 1992.

5. Survival survey of seed trees has been completed.

6. Staff training in seed tree selection is in progress.

7. Replacement of destroyed seed trees has lifted the number from 18 to 64 trees. Most of these have yet to be tested.

8. Project is self sufficient in seed supplies for the present.

9. Seed orchard seed now available to the project.
Lessons Learnt:

1. Balsa seedling seed orchards cannot be surveyed for seed trees properly until at least 24 months as vigour may alter over this period.

2. Genetic differences between balsa families are evident and the selection system is on the right track.

3. Seed tree selection must continue in view of the severe losses experienced and possible erosion of the PNG gene pool.

4. A national seed tree register is required and should become part of Forest Policy.

5. The impending loss of seedling seed orchard No.1 is an indication of the need to ensure there are self-sufficient seed production areas as back ups and that ancillary orchards on private company and local land may be the future way to combat losses and to ensure the industry will be self sufficient.

6. Seed collecting activities should be carried out over eight to nine months period instead of 4 months as indicated by the projects original work plan.

Recommendation 2: In section A. Relevance to ITTO, refer to the relevant Goals and Actions of the ITTO Libreville Action Plan.

At the end of Section A we have now (in bold) included references to the relevant Goals and Actions of the ITTO Libreville Action Plan (1998) in the Pre-Project Proposal.

The relevant Goals and Actions are:

Reforestation and Forest Management:

Goal 1: Action 2, Action 7, 2nd part.
Goal 3: Action 1, Action 3, Action 4, Action 6, 4th part

Forest Industry:

Goal 1: Action 1, Action 3.
Recommendation 3: Clarify the linkages between the Specific Objective, the Outputs and Activities and number them logically.

We have made the following change to Section 4.2 Outputs supporting specific objective ii. This section has been replaced with the following which is a logical sequence:

(1) - Silvicultural Management is improved, as follows:
  - Growth and Yield plots established over a wide range of representative sites
  - Schedule for management of Balsa Natural Regeneration and planted balsa developed and implemented
  - Thinning schedule treatments maintained in the above and volume recovery recorded on site and at processing
  - Volume prediction data obtained and growth and yield data collected
  - Fertilizer requirements in short term trials established
  - Balsa manual completed including volume prediction tables and management schedules

Recommendation 4: Provide additional unit costs for the budget and justify the need for a vehicle and upgrade of the premises as well as the items under capital equipment.

Following (see next page) additional unit cost relate to the project financial statement Table 2 and the budget in Table 3. Costs in US$. Please note that the consultant is costed at US$8000 per month. This means, for example, that under Output 1 in Table 3: “Industry Structure and Organization Established”, the number of months of consultancy required to produce this output would be 5, and so forth.

<table>
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<tr>
<th></th>
<th>Duty Travel</th>
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<th>GOPNG</th>
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<tr>
<td>20</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>21</td>
<td>Accommodation</td>
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</tr>
<tr>
<td>22</td>
<td>Airfares:</td>
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<tr>
<td></td>
<td>Rabaul/Port Moresby return x 3 trips</td>
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<tr>
<td></td>
<td>New Ireland x 4 trips</td>
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<tr>
<td></td>
<td>Pomio x 4 trips, Kimbe x 2 trips</td>
<td></td>
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<tr>
<td>23</td>
<td>Surface Travel</td>
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</table>

Component Total 9,800 3,800
### Capital Items

#### Premises
(a) Renovation of Extra Officers Houses x 2*  
20,000  
15,000

#### Vehicles
(a) Purchase of New Vehicle  
25,000  
10,000**

#### Capital Equipment
(a) Air conditioner  
2,200
(b) Partitioning  
4,500
(c) Photocoper  
5,500
Total  
12,200

** Component Total **

<table>
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<td>27,300</td>
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</table>

* Agreed on at steering committee meeting on the assumption that 2 additional officers be attached to the project. Also includes air conditioning of consultant’s house.

** Maintenance Costs etc covering new vehicle plus old vehicle.

### Consumable Items

#### Fertilizer for Trials
(a)  
500
(b)  
500

#### Nursery soil
500

#### Purchase of seed
1,500
@ US$ 30/kg

#### Polybags
333,333 Polybags @ K90  
per 10,000
3,000
Tools (spades etc)  
500

#### Office Supplies
2,500
Photocopy paper  
Pads, Pencils, Toner  
Computer discs etc
500

#### Balsa Manual
11,000
x 550 copies @ K20 ea

** Component Total **

<table>
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<td>19,000</td>
<td>1,000</td>
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</table>
50 Miscellaneous

51 Contingencies
   Casual labour
   Measure tapes
   Height sticks
   Paints, lumber,
   Freight costs
Total
Component Total

Justification for the need for a vehicle:

At the start of the project (Phase I) the project was supplied with a vehicle – Toyota Landcruiser which was probably registered new in 1994. It was extensively damaged around September 1994 but repaired. Due to the accident, further problems occurred requiring more funds, for repairs and replacements, than budgetted for. Up until December 1997, the vehicle proved adequate for the project’s needs.

During 1998 the vehicle was used by the project manager and his counterpart, but both officers found that field work activities often overlapped, and that had an additional vehicle been available, it would have been possible to cover a wider area of extension work and other activities.

This vehicle was replaced just after December 1998 with one of the PNGFA’s old vehicles from Pomio. The replacement vehicle was also registered in 1994, and it was one of several old vehicles which the PNGFA had to keep as serious cuts in the 1998 and 1999 recurrent budget have prevented the PNGFA from buying any new vehicles. The estimated life of this vehicle is 1.5 years as from January 1999. A number of mechanical problems are developing already.

The acquisition of a new vehicle will provide the project with more mobility for the manager, counterpart officer as well as additional extension workers, both to operate independently where required and to achieve more work. It is also beneficial for the future of the project (after Phase II) that transportation exists, as the procurement of a new vehicle at that time may take time (or may even be impossible because of budgetary cuts).
The present vehicle is employed at work as follows:-

(i) Banking, supplies & equipment, etc – Kokopo/Rabaul
(iii) Transport of seedlings to farmers – all areas up to 50 kilometers one way: average 75 kilometers per day.
(iv) Transportation of labourers and farmers to plantations to plant, tend, thin and establish trials and measure trees.
(v) Transportation for field days.
(vi) Monitoring and field assessments of plantings and harvesting operation by companies.
(vii) Attend to requests for assistance and advice on balsa plantings.

The above are the main uses of the vehicle. In terms of work load sharing, one vehicle on its own is not insufficient.

However, it has been proposed and accepted in principle that the project take on 2 additional extension officers. When this happens then the sharing of one vehicle and achieving targets at work would become even more difficult.

*Justification for upgrade of the premises:*

It should be noted that the following was discussed and agreed at the steering committee meeting held before the proposal for Phase II was submitted to ITTO:

(i) Renovation of two houses for two extra extension officers – may not happen under present staffing conditions
(ii) National officers office requires repairs and book shelves, magazine display as well as sub-compartmenting.
(iii) Toilet water supply needs reconnecting.
(iv) Office for the Project Manager/Consultant requires a wall table for secretary and some book shelves are also required.
(v) It is necessary to install an air condition unit in the house of the consultant (as temperatures inside are above 30 C because of the metal roof).
(vi) One vacant building used by SGS (Swiss company surveying log exports in PNG) before to be converted into a meeting room. Table and chairs and repairs to louvres and fly wire required.
Attachment II: Follow-up on the Discussions during the Twenty Sixth Session of the ITTC and Associated Committees, Chaing Mai, Thailand, 28 May – 3 June 1999
(As mentioned in letter from ITTO Ref. No. F.99-0976 dated 9 July 1999)

Recommendation 1: “During the discussion about the Project, a question was raised regarding the cost in the ITTO budget for the final audit, and it was suggested that this cost be moved to the Government of PNG under item 50: 52. Final Audit 5,000 – making this component total of US$6,000”.

Reply: The Papua New Guinea Forest Authority (PNGFA) has agreed to this. Consequently, Table 2 and 3 pages 31 and 32 in the Project Document have been changed accordingly (indicated in bold in the Tables).

Recommendation 2: “The cost under ITTO budget 50: Miscellaneous was felt insufficient and was raised from US$3,000 to US$8,000. The cost for ITTO programme support cost is unchanged from earlier years at 5.5% of the other costs requested from ITTO, and not 6% as anticipated during preparation of the Project”.

“The amount to be disbursed to the Implementing Agency is then

ITTO monitoring and evaluation cost: 298,500.-

Subtotal: 308,500.-

ITTO Programme Support cost 5.5% of US$308,500.-: 16,968.-

Total: 325,468.-

Contribution from the Government of PNG: 51,000.-“

Reply: The PNGFA has no objection to these recommendations. Consequently, the changes have been made in the Project Document in Table 2 and 3 pages 31 and 32 respectively (indicated in bold in the Tables).