I T T O

INTERNATIONAL TROPICAL TIMBER ORGANIZATION

DRAFT PROJECT DOCUMENT

Title	INTEGRATED FOREST-BASED DEVELOPMENT IN THE WESTERN AMAZON - PHASE II - TECHNOLOGY FOR SUSTAINABLE UTILIZATION OF FOREST RAW MATERIALS
Serial Number	PD 94/90 Rev.3 (I)
Original	SPANISH

Prepared by	STATE OF ACRE TECHNOLOGY FOUNDATION (FUNTAC)
Submitted by	GOVERNMENT OF BRAZIL
Duration	36 MONTHS
Field of Activity	FOREST INDUSTRY
Co-operating Governments	
Implementing Agency	STATE OF ACRE TECHNOLOGY FOUNDATION (FUNTAC)
Estimated Starting Date	AUGUST 1991
Estimated Project Cost	US$ 3,425,000
Financing Sources and Amount	
- ITTO Contribution	US$ 1,875,000
- Government of Brazil	US$ 1,550,000

Signed

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On behalf of ITTO Date

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On behalf of Government of Brazil Date

PART I LEGAL CONTEXT

1. This project is submitted by the Government of Brazil in accordance with Chapter VII, Article 23, Paragraph 1 of the ITTA which states that:

"All project proposals shall be submitted tot eh Organization by members and shall be examined by the relevant Committee"

2. This research and development project to be carried out in Brazil, relates to the following areas mentioned in Article 23, Paragraph 5 of the ITTA:

(a) Wood utilization, including the utilization of lesser known species and lesser used species;
(b) Natural forest development;
(c) Harvesting, logging infrastructure, training of technical personnel;
(d) Institutional framework, national planning".

3. This research and development project is consistent with the following criteria as established by ITTA, Article 23, Paragraph 6 (a), (b), (c), (d) and (e). The paragraph states that the project should:

"(a) ... be related to the production and utilization of industrial tropical timber;
(b) ... yield benefits to the tropical timber economy and be relevant to producing as well as consuming members;
(c) ... be related to the maintenance and expansion of the international tropical timber trade;
relation to costs and reasonable prospects for positive economic returns in
(e) ... make maximum use of existing research institutions and, to the greatest extent possible, avoid duplication of efforts".

PART II. THE PROJECT

1. OBJECTIVES

1.1 General Objectives

The main long-term objective of this project is to encourage and promote forest-based development in the Western Amazon as a part of an integrated land-use policy within the region, using the State of Acre as a model. This development is based on the management of forest resources for sustainable production in order to raise the standard of living of the rural population, the economic prosperity of the State of Acre and the wealth of the region in ways which are environmentally and economically sound.

This objective is in line with the general strategies outlined by the Federal and State Governments, and they include:

(a) To increase the sustainable production of timber and the many other natural resources of the forest, to contribute to a totally integrated land-use model that complies with social and economic objectives;

(b) To maximise economic benefits by increasing investments in the forest sector and trade opportunities, by providing more employment opportunities and by the diversification of the local economy;

(c) To guarantee the intelligent use of the forest and the preservation of its diversity.

1.2 Specific Objectives

The specific objectives of the project are:

(a) To develop and implement techniques for the sustained management of the different forests in the Antimari State Forest;

(b) To study ways of implementing these techniques more extensively in the State of Acre, by extrapolating the results in the project area and in the State.

(c) To evaluate the feasibility of incorporating integrated forest industries into the sustained management of the forest resources by studying the potential outputs, wood properties and the marketing and industrialization possibilities;

(d) To establish a follow-up and evaluation system so as to verify the effectiveness of the management techniques in the forest and the land-use trends, including the deforestation in the State;

(e) To contribute to the development of a state land-use policy, with special emphasis on the conservation and utilization of forest resources;

(f) Development of personnel and institutions in the State, Brazil and neighbouring countries.

1.3 Immediate Objectives of Phase II

The proposed objectives for Phase II are:

(a) To develop integrated production methods based on the forest resources of the Antimari State Forest (ASF).

(b) To research and make maximum use of the local and regional ASF timber, and timber products markets.

(c) To carry out research on regeneration and productivity in the exploited areas so as to verify the effects of logging activities on the forest and the production of non-timber products.

(d) To develop appropriate management systems for the forests in the Project area and for the social, economic and environmental milieus where they will be implemented.

(e) To develop harvesting methods that are appropriate for the forests of the area and that minimize harmful effects in the harvesting of timber and non-timber products and in the environment.

(f) To establish consultation and information exchange mechanisms to ensure the participation of the local inhabitants and institutions in the planning and implementation of the utilization activities and to achieve a just and equitable distribution of the economic benefits generated by the operations.

(g) To promote the use and conservation of the ASF forest resources so that it can serve as a model for similar projects that may be implemented in other areas of the State of Acre and in the Amazon region in general.

(h) To review the methods and results obtained in the project, in national and international workshops.

2. BACKGROUND AND JUSTIFICATION

2.1 Background

Brazil has approximately one third of the world's tropical forests and there are also extensive forest areas in the neighbouring countries. Together they constitute the largest existing reserve of tropical timber in the world. However, despite the enormous potential to supply timber to the international market, the exports from the region have been of a relatively small-scale when compared, for example, to those from South East Asia and Western Africa.

As a result, a great part of the forest cover remains intact.

The development models which have been tried in the Amazon forest areas have so far been mainly based on the conversion of forest to agricultural land, pasture and tree crops. These have been successful under suitable conditions, but in many circumstances it is doubtful whether they will prove to be sustainable.

Soils over large areas of the Amazon basin are marginal for agriculture and there are strong environmental reasons for maintaining forest cover. However, a development model based on the management of a large area of forest for the sustainable production of timber and other forest products has not been attempted to date.

In fact, there are not many areas of managed forests in Latin America as a whole.

Indeed, there have been only a few experiments in the management of natural forests in the Brazilian Amazonia. The first was one established by FAO in the 50's at Curua-una, which was then taken over by Sudam (Amazonian Development Superintendency)

A second project began in the 70's at the Tapajos National Forest in an area of 160,000 ha. The project was conducted by IBDF (now IBAMA) assisted by FAO. These experiments proved that sustainable management, with all the necessary environmental safeguards, was possible and could support an economically feasible forest enterprise. A third experiment has recently been started by the Rio Doce Company at Buriticupo, in Maranhao, to provide fuel wood and timber on a sustainable basis.

As a whole, these experiments in forest management cover a very small area in relation to the extent of the available forest and are mainly concentrated within the States of Para, Amazonas and Maranhao.

In the meantime, the processes of deforestation and forest degradation continue at alarming rates. As a result, a new Federal Forestry Law (No. 7511 of the 7 July 1986) has been enacted, which stipulates that all new developments must be approved by the IBDF and that permits will only be issued if there is a satisfactory management plan in place.

The State of Acre covers 152,000 km^2 and approximately 95 per cent of this area covered by forests which are mostly privately owned. These forests are quite different to the other forests found in the Amazon basin, and are very rich in Brazil Nut (Bertholletia excelsa) and Rubber (Hevea brasiliensis).

The trees from both of these species are protected by law and the rubber and nuts are extensively harvested by the population of the State (56% of the total population live in these forests). There is a lot of local pressure to establish extractive reserves for these products.

At present, State population is relatively low (approximately 400,000 inhabitants) and only small areas have been developed. This situation is changing rapidly since the migration movement is shifting from the neighbouring State of Rondonia to Acre. In order to establish a different development model to that used in the neighbouring State of Rondonia, the State of Acre has taken a series of initiatives, some of which include national and international organizations in search of sustainable development alternatives based on the State's natural resources.

One of the initiatives in progress is the Project "Integration of Forest-based Development in the Western Amazon". Phase I of this project (administration) is being conducted by FUNTAC with financial support from ITTO and the State Government. This first phase, which is currently in progress, will be completed by the middle of 1991.

The programme for Phase I is comprised of the following field activities:

- Detailed Forest Inventory (RTF-3)
- Socio-economic Survey (RTPa-2)
- Forest Industry Survey
- Study of Ecosystems (RTPa-4)
- Soil Study (RTF-4)
- Ethno-botanical Study (RTPa-5)
- Watersheds Study (RTPa-10)
- Fauna Study (RTPa-8)
- Management Plan Guidelines (RTPa-3)
- Economic Botany Study (RTPa-9)
- Native Bamboo Study (RTPa-7)
- Native Rubber Study (RTPa-9)

These reports are available for revision by the Forest Management Committee of the ITTO.

The results of these activities will be made available to the public and debated in an international workshop planned for June 1991.

Following, is a summary of the results obtained from the main activities developed during Phase I in the Antimari State Forest (ASF):

a. Socio-economic survey of the ASF:

Interviews were held with 80 families of "seringueiros" (rubber and chestnut gatherers), 53 families from the ASF and 27 from the surrounding areas. Field questionnaires were used to record information on family composition, age, sex, economic activity, food consumption patterns, education, migrations, etc.

This information was tabulated and evaluated so as to identify the socio-economic level of the survey area (Doc. nº RTPa-2-ANTIMARI)

b. Forest inventory:

An inventory was taken of 55,714 ha at an intensity of 0.12%, on 204 sample units with a reliability factor of 95%. The Antimari State Forest shows an average of 114.5 trees per hectare, with a basal area of 15.23 m^2/ha and a barked volume of 128.22 m^3/ha. The total volume was estimated at 8.4 million m^3 (20 cm. dbh).

Approximately 28 commercial forest species represent a volume of about 20 m^3/ha of commercial timber for a dbh of more than 40 cm.

At present, there is no available data to estimate the post-harvesting regeneration or the volume increments per hectare.

However, the inventory registered abundant regeneration and young trees in a good state of development in undisturbed forests. This leads to the assumption that regeneration and renewal would occur without difficulty after exploitation.

The lack of increments data requires caution in the setting of logging intensity levels so as to ensure sustained production. This situation also requires an intensification of research activities with respect to the development of utilization lots.

The report on the Basic Management Plan (RTPa-3) recommends a 25 year felling cycle (1) for a logging volume of 20 m^3/ha, which means a remission rate of 0.8 m^3/ha/year, a volume that is generally acceptable for sustained production in tropical forests. Based on these estimates of cycles and logging rates, the potential exploitation would be 52,000 m^3/annually.

The logging intensity and the felling cycle could be adjusted according to the data obtained from the research activities.

A total of 6,600 chestnut trees were observed, of which 75% were live trees with healthy crowns.

Detailed data on the findings of the forest inventory can be found in document RTF3-ANTIMARI.

c. Diagnosis of the Sawmilling Industries in RIO BRANCO

A survey was carried out of the sawmilling industries using a special questionnaire. Information was compiled on the number of cutting operations, time taken for the activity, equipment used, human resources, raw materials (origin and species), method of acquisition and prices, products, processes, technical efficiency, costs and profitability, market, marketing systems and economic measurements.

The survey showed that there were 134 sawmills in the whole state, 64 of which were located in RIO BRANCO.

(1) Higuchi et all (1990)

An important aspect is that in the past four years the number of sawmills has grown at a rate of 40% per year.

The consumption of raw materials has also increased every year from 50,115 m^3 in 1988 to 74,530 m^3 in 1990.

Detailed information of these aspects appears in a document that will soon be submitted to the ITTO. (DIAGNOSTICO DAS INDUSTRIAS DE SERRARIA DE RIO BRANCO).

d. Satellite Images Survey of the ANTIMARI State Forest:

In 1989 five (5) forest strata were identified from the interpretation of images from the LANDSET 5 satellite.

A detailed table of these strata appears on the following page.

	DESCRIPTION	AREA
1.	Umbriferous Open Forest + Umbriferous Dense Alluvial Forest with Even canopy	14,269.82 ha (21%)
2.	Umbriferous Lowland Open Forest with Bamboo dominance	10,478.26 ha (16 %)
3.	Umbriferous Lowland Open Forest with Bamboo + Umbriferous Lowland Dense Forest with emergent Canopy	20,040.12 ha (30%)
4.	Umbriferous Lowland Dense Forest with emergent Canopy + Umbriferous Open Forest with Bamboo dominance	7,995.95 ha (12%)
5.	Umbriferous Lowland Dense Forest with emergent Canopy	12,929.67 ha (20%)
	SUB-TOTAL	65,713.82 ha (99%)
	Area: ANTROPICA	458.18 ha (1%)
	TOTAL	66,168 ha (100%)

This survey was used for the planning and implementation of all the activities related to forest typology.

e. Ethno-botanical Study of the ASF:

Through the design of field questionnaires to survey the "seringueiros", information was obtained on 14 end uses (food for human consumption, food for game, civil construction, timber for boats, hunting and fishing tools, implements, basketry and rope-making with bark,medicines, dyes, ornaments, pest repellents, perfumes, fuelwood and others) for six different life forms (herbs, shrubs, vines, palm trees, bamboo and trees).

This research was carried out in 4 typological strata, and it should be completed in the 5 strata by the end of May.

The survey showed that 50% of the species sampled have an end use.

The medicinal plants registered the highest utilization levels, followed by vines for ornamental use.

Amongst the life forms, the palm trees showed the highest utilization level (housing construction, food and medicines).

Detailed information can be found in document RTPa-5 and the summary in Table 1 of the Annex.

f. Economic Botany Study:

The market studies were carried out through field visits and technical interviews with producers, merchants and end consumers, including industries that use these products as inputs. These activities were based on the preliminary survey carried out in the Ethno-Botanical study, so the research was able to concentrate on predetermined markets, to wit:

- Medicinal or related products (perfumes, remedies, dyes).
- Handicraft products.
- Latex and derivatives market.
- Market for Brazil chestnuts and other food products.
- Timber merchants.

Some important conclusions arising out of this study were:

- The market penetration period for medicinal products is relatively long (2 - 3 years).
- The current handicraft production only uses one type of vine, a situation which is unfavourable for the diversification of commercial exploitation.

- The marketing of latex and derivatives in Sao Paulo, the largest national consumer center, at profitable levels is highly viable.

- The fruits of the Acaí, Patuá and Abacaba palm trees in particular, have very good market potential at the regional level, and even the national level if the problems of storage and preservation can be overcome.

Preliminary detailed information about this study, is contained in document RTPa-6 and market development information can be found in Table 2 of the Annex.

g. Native Bamboo Study:

These studies ended in December, 1990 and are included in document RTPa 7.

The research concentrated on taxonomical studies, adjustments to volume/weight equations, physical and mechanical properties, production and marketing of charcoal, potential for pulp and furniture production.

Some of the important results were:

a) Botanic identification of existing species (Guadua weberbaueri, Pliger).

b) Determination of volume per ha: 13.49 m^3/ha.

c) Determination of green weight per ha: 6,020.80 kg/ha.

d) The following physical and mechanical properties were determined: basic density, humidity content, parallel compression, shearing, and modulus of rupture.

The analysis of physical and mechanical properties show that this bamboo can be recommended for use in construction, furniture, handicrafts and charcoal. The tests to determine its paper production potential will be finalised in March 1991.

h. Fauna Study:

The main conclusions of the surveys and research carried out on the fauna were as follows:

- Game and fish are an important part of the "sanguineros" diet.

- The procurement of these resources consumes a substantial amount of the family group's time.

- Several game and fish species are being depleted and becoming scarce, which indicates an urgent need for the implementation of sustainable management practices.

- The sustained management of the forest aimed at timber production and which includes the selective logging of commercial species, can establish a negative synergism with game species, compromising the survival rates of some animal species and the development of the related ecosystems.

- The results obtained in the sub-project will be extremely useful in detecting possible negative impacts and can also provide alternatives for both commercially oriented management and fauna utilization.

i) Evaluation of the Forest Ecosystem:

The results obtained to date from this evaluation, which will be finalised in June 1991, confirm the existence of 5 differentiated typological strata.

The results indicate that in all areas the roots are superficial and the composition of the litter is different in each area.

The field activities definitively conclude that each stratum should be under a specific management plan. Possibly, one of the ecosystems classified as "Umbriferous Open Alluvial Forest with Palm trees and Umbriferous Dense Alluvial Forest with emergent Canopy" could be fragile and would merit special attention.

The relevant document will be submitted in June 1991.

j) Study of the Hevea Natural Forests:

The native ASF seringales are grouped in 62 "colocaciones" (the basic logging unit, with one or more families working). The sample was taken on the basis of three indicators: "colocaciones", "estradas" (logging roads) and trees in each "estrada". An evaluation was made of 16 of the 62 "colocaciones" and sampling was carried out on 10% of the "estradas" (24 of the 242). - 47 of the 62 "colocaciones" were active and average production was 753 Kg/colocacion.

Another important result from this study is that only 13.6% of the available trees are being used in the area, so there is great potential to increase logging.

The reasons for the low logging rates are being analyzed, but the lack of manpower could be one of the major reasons.

The study of the native "seringales" appears in document RTPa-9-ANTIMARI.

k. Watersheds Study:

A climatological classification was made of the ASF, based on the Keoppen classification, and it was defined as a forest in transition between the tropical forest (Ami) and the tropical savannah (Awi) with a dry period of 5 to 6 months.

In September 1990 a meterological station was set up to determine the volume and intensity of the rainfall, evapotranspiration, mean, maximum and minimum temperatures and relative humidity of the air.

To date, 48 watershed areas have been identified, 19 of these being of order 4, 5, and 6, 17 of order 3 and 12 of order 2.

Several watershed areas have been selected to carry out the experiments on integrated forest management and they will be used as models for the hydrological management of all the area.

The preliminary report on these watersheds studies appears in document RTPa-10-ANTIMARI.

l. Preparation of Basic Management Plan:

A document was prepared which outlined the basic principles and methodology that will be applied in the management of the ASF.

Conceptually, this Plan is based on multiple use under a system of sustained and profitable yield of the available natural resources, and takes into consideration social aspects and above all environmental aspects.

The basis for the Management Plan appears in document RTPa-3-ANTIMARI.

m. Soil Study:

This study was carried out by a joint working group of FUNTAC technicians and researchers from the EMBRAPA unit (Brazilian Agricultural Research Company) of Belem, and it included : soil surveys, identification and description of the soils in the ASF. To compliment these research activities, physical and chemical analyses of the existing soils in the forests were carried out by the units.

The soil studies have been completed and the results appear in document RTPa-4-ANTIMARI.

2.2 Justification

It is obvious that tropical regions require a new development model of sustained production, that must take into account the specific aspects of each region from the very beginning of the management planning process.

Acre is a typical forest area of Western Amazonia whose original forest cover has virtually remained undisturbed.

This makes it possible to develop a different model there, which can be applied not only in the Amazon region of Brazil, but also in neighbouring countries, especially Bolivia and Peru. These aspects have been thoroughly discussed from the inception of the project to the its presentation to the ITTO. It includes the following important points:

(a) There is a lot of pressure at both the State and Federal levels for economic development;

(b) A significant area of the State is covered by forests (95%);

(c) A high percentage of the population lives in the forests and depends on it for their livelihood;

(d) New commercial opportunities would potentially become available with the availability of alternate access modes;

(e) The State Government is determined in adopting a new development model based on sustainable forest production, integrating land-use and socio-economic considerations.

Therefore, the justification of the project is based on its relevance to ITTO objectives, its importance to the social and economic development of the State of Acre and of Brazil, and to the possibility that the results obtained be extrapolated and more widely applied in neighbouring countries.

The project is clearly relevant to the ITTO as evidenced by the approval and financing of phase I, which is now approaching its final stage.

Finally, the studies undertaken in Phase I of the Project indicate that , if a sustained development of the ASF is desired for the benefit of the populations that are directly or indirectly involved in the area, all efforts should concentrate in the following areas:

1) Improvement of the socio-economic environment.

2) Planned utilization and conservation of the resources in the area.

3) Active participation of the local populations in the planning and implementation of activities.

4) Research of the activities in the area being studied, with other areas of the State of Acre and the country in general.

5) Monitoring the environmental and social effects of the activities involving the utilization of natural resources.

During the first Phase of the Project, the Government of the State of Acre strongly supported socio-economic improvement activities. Immunization campaigns were carried out, schools and a medical clinic were established, teachers were trained and a literacy campaign was run for both children and adults. It is envisaged that these activities will continue and will be developed during the second Phase of the Project.

All of the aforementioned action areas will be implemented in Phase II of the Project.

3. OUTPUTS

The following results are expected in Phase II of the Project:

(i) An integrated Management Plan for the Antimari State Forest (ASF).

(ii) A system for the participation of the local community, and other communities that have a direct interest in the utilization of the ASF, in the planning and implementation of the activities.

(iii) Access roads to the ASF.

(iv) Market strategies for timber and non timber products from the ASF.

(v) Establishment of cooperatives for the production and marketing of timber products, chestnuts and natural rubber.

(vi) Integrated logging, primary and secondary timber processing operations and the production of components for timber houses.

(vii) Local processing units for latex and Brazil chestnuts.

(viii) A monitoring system for ASF products.

(ix) A series of permanent plots to monitor the effects of forest utilization on productivity and the natural environment.

(x) Improvement of the social services for the populations that live and work in the ASF, including primary and secondary education services and health and communication services.

(xi) Two workshops, the first with local participants and the second with international participants, for the presentation and evaluation of project results.

4. ACTIVITIES

Project activities are detailed below:

		Estimated dates for: Starting	Finishing
	For output (i)		
a)	Consolidation in the management plan of the research data, market information, economic and environmental data.	Jul 91	cont.
	For output (ii)		
a)	Selection and recruitment of management consultant	Jul 91	Sep 91
b)	Organization of a consultative group for the revision of plans and the management and utilization of forest resources	Sep 91	Dec 91
c)	Work of the consultative group	Dec 91	cont.
	For output (iii)		
a)	Selection and recruitment of road construction expert	Jul 91	Sep 91
b)	Planning hauling tracks and roads	Oct 91	Mar 92
c)	Purchase and hiring road construction equipment	Dec 91	Mar 92
d)	Construction of tracks and roads	Mar 91	Dec 92
e)	Road maintenance	Sep 92	cont.
	For output (iv)		
a)	Selection and recruitment of marketing expert	Jul 91	Sep 91

b)	Survey of local and national markets for timber, natural rubber, Brazil chestnuts, bamboo and medicinal plants	Sep 91	cont.
c)	Survey of potential export markets for timber and Brazil chestnuts	Jan 92	cont.
d)	Compilation and updating of market strategy	Jan 92	cont.
	For output (v)		
a)	Selection and recruitment of experts for the establishment of cooperatives	Jan 92	cont.
b)	Preparation of terms of reference and statutes for the cooperatives	Mar 92	Aug 92
c)	Establishment of cooperatives	Jun 92	Oct 92
d)	Training cooperative officers	Jun 92	Dec 92
e)	Operating cooperatives	Jul 92	cont.
	For output (vi)		
a)	Selection and recruitment of experts in logging and transport	Oct 91	Jan 92
b)	Development of logging plan	Jan 92	Jun 92
c)	Operative inventories	Apr 92	Aug 92
d)	Operations plan	Jul 92	Oct 92
e)	Purchase of logging equipment	Sep 92	Oct 92
f)	Training of logging personnel	Mar 92	Dec 92
g)	Negotiation of joint operations between logging, sawmilling and handicrafts cooperatives	Jul 92	Nov 92
h)	Training of technical industrial personnel	Sep 92	Dec 92
i)	Construction of hauling tracks	Nov 92	cont.
j)	Logging and transport	Jan 93	cont.

k)	Timber industrialization including construction of prototype timber house	Mar 93	cont.
l)	Marketing of timber products	Jan 93	

(Initially logging activities will be of low intensity, until the silvicultural, ecological impact and marketing techniques and knowledge are improved. For the first year of operations it is estimated that 4,000 m^3 will be logged)

For output (vii)

a)	Purchase of equipment for the processing of latex and chestnuts	Sep 91	Nov 91
b)	Construction of infrastructure and installation of equipment for latex and chestnuts	Oct 91	Dec 91
c)	Production and implementation	Jan 92	cont.

For output (viii)

a)	Selection and recruitment of market research expert	Jul 91	Sep 91
b)	Establishing sources of information	Jul 92	Dec 92
c)	Updating market information and feedback to management and operations	Sep 92	cont.

For output (ix)

a)	Selection and recruitment of expert on ecology	Jul 91	Sep 91
b)	Selection of plots to evaluate the impact of logging activities on the ecology and productivity of the area	Oct 91	Dec 91
c)	Monitoring of plots and feedback to the management plan	Jun 93	cont.

For output (x)

a)	To improve primary and secondary education	Jul 91	cont.

b)	To improve the education of adults	Jul 91	cont.
c)	Organization of special courses for quality control and classification	Jan 92	cont.
d)	Continuation of medical care	Jul 91	cont.
e)	Construction and improvement of medical facilities in the area	Jul 91	cont.
f)	Establishment of transport time-tables and itinerary for passengers, goods and services	Jan 92	Jul 92
g)	Installation of communications and emergency facilities	Jan 92	Jul 92

For output (xi)

a)	Workshop for local participants and government officers	Jan 92	Jun 92
b)	Preparation and running of workshop for international participants	Jan 93	Jun 93

5. INPUTS

Only details of inputs considered as technical assistance or expenses required for the implementation or development of an activity are included.

The inputs required to cover logging costs and latex and chestnut processing costs are not included.

The project requirements are as follows:

HEADING	DATE OF LOCALIZA.	DURATION MONTHS	COST	SOURCE
For the Project:				
a) Main Technical Advisor	Sep 91	24	10/mm	ITTO
b) Fellowships	Jan 92		120	ITTO
For outputs (i) and (ii):				
a) Management expert	Sep 91	12	2/mm	ITTO
b) Project director (salary supplement)	Jul 91	36	1/mm	ITTO
c) Project director	Jul 91	36	2/mm	GOB
d) Management technicians	Jul 91	108	2/mm	GOB

For output (iii):

a) Road construction expert	Sep 91	18	2/mm	ITTO
b) Roads contract	Mar 92	10	450	GOB
c) Road maintenance	Sep 92	cont.	3/m	GOB

For output (iv):

a) Market research expert				
national	Sep 92	16	2/mm	ITTO
internat.	Jan 93	4	10/mm	ITTO

For output (v):

a) Expert in cooperatives	Mar 92	12	10/mm	ITTO

For output (vi)

a) Logging expert				
national	Jan 92	10	2/mm	ITTO
internat.	Jan 92	6	10/mm	ITTO
b) Logging equipment	Oct 92		400*	ITTO
c) Sawmilling machinery	Jan 93		20	GOB
d) Timber marketing	Jan 92	(contract)	20/y	ITTO

For output (vii):

a) Processing facilities				
latex	Nov 91		30	ITTO
Brazil chestnuts	Nov 91		15	ITTO
b) Construction of buildings	Dec 91		10	GOB

For output (viii):

a) Market research experts				
national	Sep 92	16	2/mm	ITTO
internat.	Jan 93	4	10/mm	ITTO
b) Travel			20	ITTO

For output (ix):

a) Ecologist	Sep 91	18	2/mm	ITTO
b) Field assistant	Dec 91	30	1/mm	GOB

For output (x):

a) Teachers	cont.	180	2/mm	GOB
b) Support material	cont.		15	GOB
c) Specialized instructors	at intervals			
d) Doctor (part time)	cont.		3/mm	GOB
e) Nurse	cont.	36	2/mm	GOB
f) Transport service (initial costs)	Dec 92		10	GOB
g) Radio telephone	Sep 92		12	GOB

For output (xi):

a) Work materials	Apr 92	10	GOB
b) Travel for national workers	May 92	20	GOB
c) Work materials	Apr 93	10	GOB
d) Translation and interpretation	Jul 93	25	ITTO
e) International travel (25)	Jul 93	75	ITTO

* An initial sum of US$ 400,000 will be required for specialized logging equipment which is not available in Brazil.

PART III IMPLEMENTATION, MONITORING, EVALUATION AND REPORTS

1. IMPLEMENTATION

The project will be implemented by FUNTAC under the direct supervision of the President Director of the Foundation. The technical project activities will be directed by a Steering Committee where both the ITTO and specialized Government Agencies will be represented.

A consultative committee shall be set up to assist FUNTAC in the planning and implementation of activities, especially to coordinate the operations of the local populations and other persons or institutions with an interest in the development of the ASF.

This Consultative Committee shall be made up of national and international (WWF) NGO's and will be represented in the Steering Committee.

The project will be coordinated by a Director who will be selected by FUNTAC, ITAMARATI and the ITTO.

2. MONITORING

The project will be subject to technical monitoring in accordance with the procedures established by ITTO A preliminary technical review shall be carried out after six months of the starting date. Subsequent reviews shall be carried out every twelve months.

3. EVALUATION

The project will be evaluated in accordance with ITTO's established policies and procedures.

4. REPORTS

The implementing agency will submit progress reports on the implementation of the project in April and October of each year. A final report, that will include a project impact evaluation and recommendations for the continuation of activities in progress, will be submitted to the ITTO by the implementing agency within three months of the end of the project.

Technical reports will be prepared whenever requested by the Steering Committee.

All project documents shall be subscribed by the President of FUNTAC and the Project Director.

PART IV

Detailed costs are specified in Part II, Section 5, Inputs. The following table is a summary of those costs.

BUDGET

1.- ITTO CONTRIBUTION (US$ 1,000)

ITEM	1991	1992	1993	1994	TOTAL
Technicians	6	12	12	6	36
Consultants	64	376	184	-	624
Contracts	--	20	20	10	50
Exploitation (1)	110	650	--	-	760
Training	--	60	60	-	120
Travel	--	--	95	-	95
Other	--	--	25	-	25
Monitoring (ITTO)	--	8	8	15	31
Contingencies	12	24	24	14	74
Sub-total	192	1,150	428	45	1,185

(1) Equipment + Inventory

2.- CONTRIBUTION OF THE GOVERNMENT OF BRAZIL (US$ 1,000)

ITEM	1991	1992	1993	1994	TOTAL
Technicians (forestry)	50	120	100	48	318
Technicians (soc.prog.)	84	167	167	83	501
Contracts	--	472	36	18	526
Exploitation	--	12	30	--	42
Constructions	10	--	--	--	10
Travel	--	20	--	--	20
Miscellaneous	--	10	10	--	20
Contingencies	25	31	31	26	113
Sub-total	169	832	374	[illegible]	1,550
TOTAL PROJECT COST	361	1,982	802	220	3,365

ANNEXES

TABLE No. 1 POTENTIAL USE OF SPECIES FOUND IN THE ANTIMARI STATE FOREST
(BY NUMBER OF SPECIES)

	(LIFE FORM)					
POTENTIAL USE	Herbs	Shrubs	Vines	Palms	Bamboo	Trees
Human consumption	--	2	3	15	--	36
Household consump.	2	5	5	19	--	54
Civil Construction	--	--	--	11	--	64
Timber for boats	--	--	--	--	--	04
Materials for hunting and fishing	--	--	--	--	--	01
Tools	1	--	11	--	01	10
Wine	--	01	--	--	--	05
Medicines	11	09	08	02	--	03
Dyes	--	02	--	--	--	--
Ornamental	--	--	01	--	--	--
Insect repellents	--	--	--	--	--	01
Perfumes	--	--	--	--	--	--
Firewood	--	--	--	--	--	34
Other	03	04	18	03	01	28

Source: FUNTAC - Ethno-botanical survey (RTPa-5)

TABLE No. 2 MARKET DEVELOPMENT FOR FOREST PRODUCTS IN RIO BRANCO AND SAO PAULO

(US$ 1,000)

Sector	Annual consump.	Total income	ASF use/year-period 1991-2	1992-3	1993-4
Food (fruit)	605 Kg	17.6	1.41	2.64	3.52
Food (chestnuts)	14,920 t	2,457.7	15.10	21.10	30.20
Timber (sawn)	64,914 m^3	5,803.6	357.60	670.50	894.00
Timber (energy)	40,000 m^3	119.0	7.90	14.80	19.80
Handicrafts	27 t	12.5	1.00	1.90	2.50
Unprocessed rubber	2,940 t	1,729.4	47.40	29.40	---
Pre-processed* rubber	4,800 t	8,036.2	53.60	150.70	267.90
Natural** Pharmaceutical Products	13,424 Un	6.1	0.50	0.90	1.20
Total			484.21	891.94	1,219.12

Source: FUNTAC - Economic-botanical Study (RTPa-6)

(*) CIF Sao Paulo
(**) Estimated value

Amendments to PD 94/90 Rev. 2 (I)

INTEGRATED FOREST-BASED DEVELOPMENT IN THE WESTERN AMAZON - PHASE II - TECHNOLOGY FOR THE SUSTAINABLE UTILIZATION OF FOREST RAW MATERIALS

Page 2

PART II

1.2 - Specific Objectives

(a) To develop and implement techniques for the sustained management of the different forests in the Antimari State Forest according to the ITTO Guidelines.

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PART II

1. Preparation of the Basic Management Plan:

A National Seminar and Workshop was carried out as part of the outputs of Phase I. It had the participation of the national scientific community, the NGOs represented in the Consultative Committee, representatives of the Antimari State Forest community and the technical staff of FUNTAC. As a result, a document was prepared which outlined the basic principles and methodologies that will be applied in the management plan.
"...Timber production was defined as one of the levels of the management plan for the Antimari State Forest. Two other levels (subsistence cultures and economic extractivism) are also included in this plan.
The indexes and parameters previously mentioned for timber production (page 6) are based on studies conducted by the National Amazon Research Institute - INPA and by the Technology Foundation of the State of Acre - FUNTAC. These studies indicate the minimum volumes acceptable for sustainable production in those types of tropical forests.
However, during the implementation of the management plan these indexes, volumes and parameters will be revised by the Steering Committee, the Consultative Committee and the local community, according to the new data obtained from the research activities..."
"...The improvement of the health, education, roads and transportation conditions, and the increase in the technological level of the local community in the activities required for the subsistence cultures and economic extractivism will result in reduced labor demand. This excedent man-power will be used in the development of other activities which include the utilization of other forest raw materials (production of timber, oils, medicinal plants and tropical fruit crops).
"...The road and transportation infrastructure required for the implementation of the activities of Phase II of this project will be projected and executed considering the environmental restrictions (watersheds, soils, topography and fauna), the flow of forest products, the localization of the rubbertappers homesteads in the area and the existence of native rubber and Brazil nut trees or other species with economic, social or environmental value..."
"...The possible migratory impacts due to the construction of roads in the area will be monitored by the Steering Committee and the Consultative Committee through the concession of land use titles (similar to those given to the

rubbertappers of the extractive reserves in the State of Acre).
It is important to point out that the area of the Antimari State Forest will remain as government property under the supervision of FUNTAC through the Steering Committee of the project..."

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PART II

3. OUTPUTS

"...(ix) A series of permanent plots to monitor the effects of forest utilization on productivity and on the natural environment.
This monitoring will be conducted through the continuity of the Ecosystem Study (RTF - 10), Watershed Study (RTF - 11) and Fauna Study (RTF - 9) already initiated in Phase I. Other parameters of forest dynamics such as natural regeneration and cycling of nutrients will be used in the evaluation of the environmental impacts in the short, medium and long term (see page 16 for output ix a, b and c)..."

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PART III

1 - IMPLEMENTATION

"... The Consultative Committee will be recognized as a member of the Steering Committee through its president or a representative.
The Steering Committee, in agreement with the local community and the Technology Foundation of the State of Acre - FUNTAC, will define the resources and the intensity of harvesting of the forest resources based on environmental, social and economic aspects.
The Steering Committee, the Consultative Committee and the NGOs that represent the local community will act together to press the Federal Government to accelerate the process of regularization of the areas of the Antimari State Forest (see Document FAX INCRA of June 4, 1991 in appendix)..."

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PART IV

BUDGET

ITTO CONTRIBUTION

US$ 1,000

ITEM	1991	1992	1993	1994	TOTAL
Consultative Committee	15	15	15	15	60
SUB- TOTAL	207	1,165	443	60	1,875