

INTERNATIONAL TROPICAL TIMBER ORGANIZATION

ITTO

PROJECT PROPOSAL

TITLE	SUSTAINABLE USE AND REFORESTATION OF AMAZON FORESTS BY INDIGENOUS COMMUNITIES
SERIAL NUMBER	PD 14/98 Rev.1 (F)
COMMITTEE	REFORESTATION AND FOREST MANAGEMENT
SUBMITTED BY	GOVERNMENT OF PERU
ORIGINAL LANGUAGE	SPANISH

SUMMARY

The project seeks to revert the current trend of intense forest logging by seven native communities of the Pichis River Valley in the Peruvian Central Forest Region, which has resulted from a process of cross-cultural influence. The project has been developed at the request of the native communities themselves, who, aware of the threat of deterioration of their forests and impoverishment of their people, requested technical assistance for resource management and reforestation. At a special meeting, these communities and EDMAR defined the project concept and objectives, including a democratic participatory implementation strategy. The implementation of land classification studies according to land use capacity is envisaged during the first year of project implementation. The results of these studies will be compared with current land uses and community expectations so as to develop a land management plan designating agricultural areas, pasture lands, forest production areas and environmental protection areas. This instrument, together with forest inventory surveys, will lead to the establishment of demonstration areas for technical forest management systems based on the resources available and the current resource status. A reforestation program with timber and medicinal species will concurrently be initiated using successful techniques developed by EDMAR and INRENA in the project area.

On the basis of this planning exercise, it is proposed that during the second and third year of project implementation, modern productive systems should be integrated with traditional indigenous practices through demonstration activities, training and technical assistance on sustainable resource use, further processing of timber and medicinal forest products, as well as product marketing by small-scale forest companies established through a participatory process to be developed during project implementation.

EXECUTING AGENCY NATIONAL INSTITUTE FOR NATURAL RESOURCES (INRENA)
THROUGH THE ECO-DEVELOPMENT, ENVIRONMENT AND
REFORESTATION CIVIL ASSOCIATION (EDMAR)

DURATION THREE (3) YEARS

APPROXIMATE STARTING DATE UPON APPROVAL

BUDGET AND PROPOSED SOURCES OF FINANCE	Source	Contribution in US\$	Equivalent in national currency
	ITTO	823,037	2,172,818
	Gov't of Peru	548,646	1,448,426
	TOTAL	1,371,683	S/. 3,621,244

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PART I: CONTEXT

A. Relevance to ITTO

1. Compliance with ITTO objectives

This Project is consistent with ITTO Objective (f) which seeks to encourage tropical timber reforestation and forest management activities, but its main impact and significance relate to Objective (h) which is to encourage the development of national policies aimed at sustainable utilisation and conservation of tropical forests and their genetic resources and at maintaining the ecological balance in the regions concerned.

It is compatible with Objective (f) because it promotes among indigenous groups the rational use of their land and establishes areas for agricultural, stock raising, forestry and protection activities. It promotes the use of land utilisation schedules for areas for agricultural and stock raising purposes where fallow periods allow for the production of fast growing timber species and species for medicinal purposes (*Croton lechleri*, *Uncaria tomentosa*). It also seeks to better manage the forest production area in order to efficiently utilise the timber, and to reforest with extracted species which have practically disappeared due to uncontrolled logging.

The Project has a significant bearing on Objective (h) because it is based on the participation of indigenous people who have gradually increased their forest activities as a result of commercial exchanges with the Western world which have a negatively affected them. The adoption of technical management systems on forests and land use, when applied on areas where the natural vegetation has been greatly degraded, as is the case in the Project area, will gradually restore the ecological balance and become models which will take national policies into account.

2. Compliance with ITTO criteria

Criterion 1. The project should be related to the production and utilisation of industrial tropical timber.

The Project area is a source of raw material of all kinds of tropical timber species. Some species such as cedar (*Cedrela odorata*), and mahogany (*Sweitenia macrophylla*) have become rare due to excessive logging and no reforestation. At present, other species such as "tomillo" (*Cedrelinga catenaeformis*), "ishpingo" (*Amburana cearensis*), "catahua" (*Hura crepitans*) and "cumala" (*Virola* spp.) are intensively harvested for sawmilling purposes. And where it is possible to take the timber to the road side, hardwoods are being extracted and transported by truck. In addition, the Project area is a source of medicinal products of high commercial value in national and international markets, such as "uña de gato" (*Uncaria tomentosa*, *U. guianensis*) and "sangre de grado" (*Croton lechleri*) the harvesting of which leave marginal benefits to the native communities and high earnings to the middlemen. There are also commercial timber species that are not being utilised such as "bolaina" (*Guazuma crinita*), "topa" (*Ochroma pyramidale*) and "ojé rosado" (*Ficus glabrata*) as well as other lesser-known species.

Besides the commercial utilisation, the forest is also used for traditional purposes of construction of dwellings and subsistence. Roofs are made of "palmicha" (a small palm which is becoming rare due to intensive use) or "yarina" (*Phytelephas macrocarpa*). Internal walls are built out of "ripa" (*Euterpe oleracea*), and for the floor "pona" (*Iriartea* spp.), two important native palms, are used. Structural supports come from hardwoods, and beams and poles are made of round wood from various species. They are fastened with the root of the "tamshi" palm (*Carludovica* sp.). Fuel used is firewood from the forest.

Bearing in mind that agricultural production is for self-consumption, it can be said that the economy of the indigenous population within the Project area is based on the use of natural forests. The present Project seeks to modernise indigenous productive systems so that native people can participate in the country's market economy using the resource in an integrated and sustainable manner.

Criterion 2 It should yield benefits to the tropical timber economy as a whole and be relevant to ITTO members.

Current indigenous production systems are linked to a process of "Westernisation" of natives and to the demands of a market they scarcely understand. They find themselves buying more and more from that market for which they must extract more forest products in order to sell more. And as this process evolves, the forest and the native people are becoming increasingly poor.

The tropical forest is fundamental to the native economy, therefore, in order to revert this trend toward deterioration of the ecosystems and impoverishment of the families, utilisation practices must be improved and brought into line with the current situation, the needs of the area and external market demands.

The present Project aims at conducting forest inventories for quantification of the resource in its various strata and ages. These will serve as the basis for the formulation of forest management and utilisation plans in terms of sustainable yield. The plans will indicate harvesting areas, extraction roads and the utilisation rates for each area. They will set out the activities and provide specifications to ensure natural regeneration (strip planting of seed trees, cutting height for coppicing, enrichment planting). The processing phase will be included up to the stage when the product is ready to be transported to market. Furthermore, they will include a training component to instruct female nursery workers, technical personnel to identify in the field those specimens that need to survive the extraction and function as seed trees, and technical personnel to supervise product quality and expected dimensions.

Criterion 3. It should be related to the maintenance and expansion of the international tropical timber trade.

The most significant aspect of the Project is the technical use of timber to supply an industry which is lacking in raw materials. With the exception of cedar and mahogany which are rare in four of the seven communities included in the Project area, there is an abundance of export timber species such as "ishpingo" (*Amburana cearensis*), "tornillo" (*Cedrelinga Catenaeformis*), "cumala" (*Virola* sp.), "copaiba" (*Copaifera* sp), "bolaina" (*Guazuma crinita*) and "topa" (*Ochroma pyramidale*), not counting other lesser-known species which the Project hopes to introduce in the national and international markets.

All the communities within the Project area live on the banks of rivers that are navigable all year round, ensuring transport of products to one of the main roads in the country (Carretera Marginal). This will guarantee higher economic returns in comparison to those obtained in other timber areas of the country.

Criterion 4. It should offer reasonable prospects for positive economic returns in relation to costs.

The current national average level of timber extraction is 5 m³ per hectare. When a forest is managed, the minimum level expected is 7.5 m³ per hectare.

At present, in the Project area, the sale of forest products generates occasional casual returns from the sale of standing timber. A maximum of 5 m³ per ha, or 1 100 board feet (bf). Each board foot is sold at US\$ 0.08 (0.20 soles), therefore, the yield obtained from an unmanaged hectare is US\$ 88.00 (S/ 220).

With the implementation of this Project the value of the production will increase. Firstly, because trees will not be sold as standing timber but as roundwood (cedar and mahogany) and sawn timber (other species). Secondly, because an extra 2.5 m³ of timber will be extracted, and thirdly because the wood will be sold as logs in the case of cedar and mahogany, and as rough sawn timber in the case of the rest of the species.

The average price that will then be obtained will be US\$ 0.38 (S/ 1.00) per board foot. The yield of the 7.5 m³ of timber under the Project will be 1 650 bf equivalent to US\$ 627.

In short, the same area of managed forest, would produce an income for the community seven times higher. The current price per kg of uña de gato bark is US\$ 0.19 (S/ 0.5). Under the Project, this price would increase to around US\$ 1.14 (S/ 3.00) as the material would undergo a process of dimensioning, cleaning and drying. After secondary processing, packaging and labelling, the price should reach US\$ 18.94 (S/ 50 00).

The gallon of sangre de grado resin is sold at US\$ 7.58 (S/ 20.00). Under the Project, it would increase to a minimum of US\$ 18.94 (S/ 50.00), as new bark tapping methods as well as strict quality control measures would be introduced.

If the investment by the ITTO of US\$ 858 000 in this Project is measured against the economic returns to be made from the sale of timber from the demonstration areas (4 200 ha), the amount is tripled, not counting income from the sale of uña de gato and sangre de grado.

Criterion 5. It should make maximum use of existing research institutions and, to the greatest extent possible, avoid duplication of efforts.

In Peru the Yanasha indigenous group gained experience in forest management for commercial purposes through a project by USAID and the National Institute for Development carried out in the 1980's. The work was interrupted due to the social violence problems which affected the country until 1992, but very positive lessons were derived which will be used in the Project being proposed.

3. Relationship to ITTO Action Plan and Priorities

3.1 Reforestation and Management

The present proposal seeks to demonstrate the viability of combining production of timber and non-timber products for industrial and commercial purposes in an area inhabited by indigenous communities.

It also proposes to apply management plans in demonstration areas that are different in terms of the use of the resource, predominant species, and level of the inter-relation achieved by each of the participating communities with the Western culture, and

consequently, in terms of their own objectives as they relate to the development of these management plans.

3.2 Forest Industries

A participatory training program covering aspects of planning, reforestation, utilisation and processing, business management and financing will be offered to the seven native communities involved.

This training program is related to the activities of the ITTO Committee on Forest Industry, as it will contain a series of workshops and seminars to encourage increased and further processing of forest products. This will require the training of personnel in the following areas: operation and maintenance of chainsaws, directional felling techniques, tree marking, skidding techniques, use of guides for the sawing of logs, dimensioning of uña de gato bark, tapping of sangre de grado, product quality control, and use of intermediate technology equipment. It will also cover the use of bandings, chips and other residues to be recycled into products for local or regional use.

The program will include the use of planers and chippers to increase the value added of "uña de gato" bark, to produce door frames and other parts and components easily sold in the national market.

All this technological knowledge that the program plans to impart, which has been planned so that the main players in the Project learn while carrying out their activities, will pay dividends when there are people qualified to manage small forest businesses. With this in mind, the Project proposes to train effective leaders in project administration and management by providing them with specialised courses to prepare them to set up small businesses with personnel from their own communities.

Another activity of the ITTO Committee on Forest Industry included in the Project design is that of promoting trial distribution volumes of new species and products and other measures to facilitate their acceptance in selected foreign markets.

In relation to resin from sangre de grado, the Project is based on the demand of the American company Shaman Pharmaceuticals Inc. Its projected annual requirement, given in units of dry bark, is as follows:

Year	Demand for dry bark	
	kg x 1 000	No. of trees
1994	30	1 000
1995	210	7 000
1996	650	21 670
1997	1 300	43 330
1998	2 600	86 670
1999	2 600	86 670
2000	2 600	86 670
2001 to 2010	2 600/year	86 670/year

Furthermore, there is the possibility of introducing the bark of uña de gato in the Australian market provided it comes from managed forests. Therefore, the first action to be taken by INRENA/EDMAR, as soon as management plans for the seven demonstration areas are completed, will be to obtain certification relating to the management of the said forests. In addition, EDMAR (Eco-Development, Environment and Reforestation) receives orders of a minimum of 10 tons per month of this bark for export to the USA. No deals have been closed involving uña de gato as a forest

inventory needs to be conducted prior to that in order to ascertain what volumes of the said product could be extracted without causing damage to the forest.

The Project will be strategically situated in the central part of the Pichis valley, an area populated by Asháninka and Yánesha communities, in order to demonstrate the economic and social viability of forest management aimed at the production of timber and non-timber products, particularly, medicinal products.

The Project envisages the management of forests by indigenous communities following management practices that suit the present situation of each of their territories. This will encourage the integrated development of sustainable forest management for industrial purposes and facilitate the establishment of demonstration areas that will reflect alternative models of forest management.

B. Relevance to National Policies

1. Relationship to sectoral policies affecting tropical timber

The objectives and strategic guidelines of the agrarian sector guide the forest policy toward the promotion and rational utilisation of forest resources, from the production of timber and other secondary products, to the management of Conservation Units and Protected Areas for specific purposes. The Project is encompassed within that policy.

Furthermore, the said policy is based on the achievement of economically sustainable activities, and this Project offers a good field of action by showing great opportunities for economic, social and ecological returns.

Finally, because the Project is situated in one of the areas with the lowest level of relative development, it is also compatible with one of the policies of highest priority within the agrarian sector, that of promoting growth, particularly in the interior of the country.

2. Relationship to sub-sectoral aims and programmes

The basic objective of the forest sub-sector in Peru is to guide and promote the growth of forest production based on a sustainable development process that can preserve the productive capacity of tropical ecosystems. The policy seeks to encourage multiple use of the forest in order to utilise in a more integrated manner the potential of tropical systems. To this end, it proposes to boost forest development through the utilisation of forests based on management plans. The policy is complemented by another which promotes the forest production of timber and other products to satisfy national demand and generate a surplus for export purposes. Both policies are embodied in the Project.

The Forest Plan, the proposal of which was published in 1996, sets goals for the year 2000, i.e. to bring under sustainable management systems 6 million hectares of forest land, 200 000 of which are in the department of Pasco where the Project is to take place. This goal represents a real challenge and implies the enactment and enforcement of a new forestry law which contemplates among other access mechanisms, tenure of the managed forest.

Consequently, the Project is closely related to the plan of the forest sub-sector because it seeks to achieve 2.5% of the goal proposed by the Government in terms of management of tropical forests in the department of Pasco, in a direct way, and 10% indirectly, as territories of beneficiary indigenous communities comprise an area of over 20 000 ha classified as forest production land.

3. Institutional and legal framework

The National Institute for Natural Resources (INRENA), an entity promoting activities related to the sound use and conservation of renewable natural resources, supports the present Project which will be executed by the Eco-Development, Environment and Reforestation Civil Association (Eco Desarrollo, Medio Ambiente y Reforestación - EDMAR), through an execution agreement with the said Institute. The General Forest Directorate of INRENA will be in charge of monitoring and supervising the Project.

The legal framework is represented by the International Technical Cooperation Act which specifies that duly registered non-government organisations (NGOs) can execute projects supported by foreign donors.

PART II: THE PROJECT

1. Origin

The Project originated from a project execution agreement signed by INRENA, EDMAR and ITTO which has enabled EDMAR to carry out reforestation work in the Pichis River Valley since 1995. The presence of EDMAR in this area since 1994 and the close links it maintains with native communities have helped to design the present proposal in a participatory manner. The proposal constitutes a higher stage in the reforestation work being carried out. In terms of quality, it means moving from the reforestation phase to the sustainable management of tropical forests to be applied by indigenous communities.

Following many consultations and coordination efforts, seven Asháninkas communities decided to organise so as to decide on ways of utilising, reforesting and conserving their forests. EDMAR facilitated and advised contacts and sponsored a participatory planning event aimed at community development where the basis for the formulation of the present proposal was laid.

In the said event, EDMAR was entrusted with the formulation of the Project, the negotiations with INRENA and the ITTO for financial support, and its execution.

2. Project objectives

2.1 Development Objective

To sustainably utilise timber species and other forest species in order to arrest and reverse the deterioration of tropical forests in territories belonging to indigenous communities in the Amazon region.

2.2 Specific Objective

To utilise forest products in accordance with pre-determined plans which guarantee the sustainability of economic activities and the reforestation of previously abundant species.

3. Project Justification

3.1 Problems to be addressed

Deforestation in Peru has mainly been caused by the agricultural frontier moving in on lands unsuited for this purpose. In the Central Forest (Selva Central), where the Project will be situated, the process has intensified due to the construction of important penetration roads, and the intensive cultivation of coca, and this is affecting the economy of traditional communities.

Native communities in this part of the Selva face the problems of colonisation by farmers without land who settle in neighbouring lands or form settlements beside roads or ports. These villages are populated by middlemen dealing in all sorts of products and services, legal or illegal. They buy timber and other forest products, fish and land animals, surplus agricultural products and domestic animals. They are part of the international drug trafficking ring. They sell products from other regions.

The trade balance for the native community has always been unfavourable and in order to compensate they must intensify their extractive activities (timber, uña de gato, sangre de grado, fish and fowl) or they must take part in the illegal activities offered by the drug trade.

The greater the need for goods and services from the Western culture, the greater the deterioration of the forests which in the long term implies the generalised impoverishment of the native population.

The current trend in the destruction of forests in the territories of native communities means that in a few years it will no longer be possible to talk about development based on their resources. It is therefore important to act now in order to create management models in which timber production is combined with the production of other non-timber products that have a high value in the international market, for example, resin from the sangre de grado (*Croton Lechleri*) and bark from uña de gato (*Uncaria tomentosa*, *U guianensis*). Consequently, the problem described is directly related to the objective of the Project, i.e. to sustainably utilise the forest in order to ensure continuity of the indigenous economy.

The Project has been designed based on the ideas of the people affected, that is, the indigenous communities. Its aim is to fight the deforestation problem which is impoverishing them.

3.2 Characteristics of region or area where project will be located

The basin of the Pichis River in the Project area has an average elevation of 260 m extending to an approximate altitude of 600 m.a.s.l. towards the slopes of the mountain surrounding the valley. Ecologically, and according to the Holdridge system, the area corresponds to the tropical moist forest life zone. The river is navigable. The native communities comprise societies of the Asháninka and Yánesha ethnic groups.

After 1980, the Government initiated a controlled colonisation of the Pichis and Palcazú valleys based on an environmental policy and detailed studies on the social and ecological effects of the planned colonisation. Many mistakes and shortages prevented significant achievements so much so that the area became one of the main producers of coca for the illicit trade of its products.

Precipitation

Within a general regimen of strong annual precipitation (3 312.9 mm), there are two distinctly marked periods in terms of intensity; the period between November and March shows the highest mean levels. There is a clear difference between monthly maximum and minimum rainfall with respect to monthly average levels. Extreme maximum average values are 771.7 and 918.6 mm (February and December), and extreme minimum levels are 21.5 mm and 14.3 mm (May and August).

Precipitation in mm recorded by Puerto Bermúdez Station at 300 m a.s.l, between 1962-1973

MONTH	MONTHLY AVERAGED TOTAL	TOTAL MONTHLY MAXIMUM	TOTAL MONTHLY MINIMUM
JANUARY	422.5	646.8	212.5
FEBRUARY	431.0	771.7	157.0
MARCH	366.8	551.1	162.9
APRIL	245.5	392.3	102.3
MAY	188.0	347.0	21.5
JUNE	141.8	272.1	28.0
JULY	143.3	321.4	49.1
AUGUST	126.4	230.9	14.3
SEPTEMBER	145.0	240.6	74.6
OCTOBER	270.8	445.7	122.3
NOVEMBER	318.6	656.7	80.1
DECEMBER	513.2	918.6	180.2

Temperature

The annual mean temperature in the Project area is 25.5 °C, as shown in the next table.

Temperature in Centigrades recorded by Puerto Bermúdez Station situated at 300 m.a.s.l., between 1962-1973.

MONTH	MONTHLY AVERAGED TOTAL	TOTAL MONTHLY MAXIMUM	TOTAL MONTHLY MINIMUM
JANUARY	25.6	31.0	19.9
FEBRUARY	25.4	30.8	19.7
MARCH	25.7	31.7	19.6
APRIL	25.7	31.6	20.4
MAY	25.7	31.9	19.0
JUNE	25.0	30.8	19.2
JULY	24.6	30.7	18.3
AUGUST	25.6	32.9	18.1
SEPTEMBER	25.9	33.2	19.4
OCTOBER	25.8	32.2	20.0
NOVEMBER	25.7	32.0	19.8
DECEMBER	25.4	31.4	19.8

Situational diagnosis of participating native communities

NATIVE COMMUNITY	LAND IN HA	POPULATION
El Milagro	3 684	375
Sargento Lores	1 029	162
Puerto Belén	14 568	123
Puerto Davis	14 000	227
Dinamarca	3 458	118
Divisoria	6 000	94
La Paz de Getarina	3 724	112
Colonos		121
TOTAL	46 463	1 332

According to the Housing and Population Census of 1993, the District of Puerto Bermúdez has a total population of 13 787. In accordance with the "Strategy to Combat Extreme Poverty" (1996-2000) of the Ministry of the State (Ministerio de la Presidencia), 6 151 persons from this district are considered to be very poor. In general, they belong to the district's indigenous communities.

With the exception of Divisoria, the other communities have primary schools. El Milagro has a secondary school. There are no medical centres in Divisoria or Puerto Belén.

All the communities still hunt "sajino" and deer (*Tayassu pecari*, *Odocoileus virginianus*). "Huangana" (*Tayassu pecari*) can only be hunted in the communities of Divisoria, Dinamarca and Puerto Belén.

Main commercial forest products:

Timber species

Tornillo (*Cedrelinga catenaeformis*)
Cedar (*Cedrela odorata*)
Mahogany (*Swietenia macrophylla*)+
Pumaquiro (*Aspidosperma macrocarpon*)
Ishpingo (*Amburana cearensis*)
Lupuna (*Ceiba pentandra*)
Copaiba (*Copaifera* spp.)
Huayruro (*Ormosia* spp.)
Catahua (*Hura crepitans*)
Cumala (*Virola* spp.)
Shihuahuaco (*Dipteryx* spp.)
Moenas

Medicinal Trees

Sangre de grado (*Croton leichleri*)
Uña de gato (*Uncaria tomentosa*, *U. Guianensis*)
Ubos (*Spondias lutea*)
Chuchuhuasi
Clavo huasca
Copaiba (*Copaifera* spp.)

Major land-use capacity

Of the 46 463 ha contained by the native community territories involved in the Project, 1 309 ha are suitable for clean crops, 9 012 ha for permanent crops, 4 196 for pasture lands and 31 946 for forestry and protection purposes. Unfortunately, these are only reference data since it is based on the very limited non-technical information available. For areas for which no data were available, figures were extrapolated.

Indigenous economy

In the Pichis River Valley, it is common to find communities living on the banks of the Pichis River and its tributaries. Few people inhabit the inland areas. They practice shifting agriculture using traditional methods. Small areas are utilised and later abandoned after one or two years to give way to the natural succession of biotic communities. These fields lay fallow before they are put through another short cultivation cycle.

Hunting and fishing are important activities accounting for the greater part of their protein intake. They hunt with bows and arrows and some use shotguns. The impact on the fauna cannot be said to be negative. Traditionally, Asháninkas have always placed much importance on preparing their children for this activity requiring long training with hunting instruments and getting to know and interpret the sounds of the different animals and reproduce them. Fishing is carried out with hooks and nets and also with barbasco (*Lonchocarpus* sp.), a harmful practice. Hunting and fishing is generally conducted by individuals in a non-organised manner.

Fowl are bred for domestic consumption. Selective harvesting of timber trees is the activity that generates the best income for natives. Trees are the property of communes.

Colonists scatter along the river and its tributaries and work their individual plots. They too use traditional methods although they have introduced crops for the regional and national markets such as annatto and grasses for a limited number of head of cattle.

Coca growing

A special crop that needs to be mentioned because of its economic and social implications is coca. Its establishment has been linked to the presence of the migrant population. Coca plantations have been a source of attraction of labour because of its profitability in relation to other activities or crops. The illegality of the crop and its value by unit weight has caused the encroachment of lands that are gradually becoming less accessible to control measures, and less suitable for cultivation, and it has accelerated the arrival of immigrants who settle near the territories of traditional communities.

Land tenure

The territories of the Asháninkas communities are demarcated by property titles (issued by the Land Reform Directorate) in the case of land suitable for agriculture, and by cession certificates (issued by the General Forest Directorate) in the case of forest and protection land.

The territories of these communities cover an average area of 6 637 ha.

Forests are for communal use (there are no individual owners or landlords) and their utilisation for commercial purposes must be authorised by general assembly agreement.

Selection of this specific area for the Project

All of the forests included in the Project area are within the territories of indigenous communities, and this is an advantage for conducting continuous work of forest management and reforestation. These forests contain a considerable number of timber and non-timber species and within this variety, there are species of high value in the international market. In addition, there is a road infrastructure that would enable their transportation to industrial centres. There are also timber species with good prospects of being exported or traded in the internal market that are not being utilised. And in all the communities there is every intention on the part of its members to define priority areas according to land capacity and select areas for the establishment of economic forests.

Coupled with these reasons which justify the selection of this area for the execution of the Project, is the fact that the levels of forest utilisation are different in each community and so are the principal products being extracted by each of them. This creates the possibility of establishing different management models within an area relatively small as well as different utilisation systems for timber and non timber products in accordance with their availability in each of the territories.

3.3 Other relevant aspects of "pre-project situation"

The Asháninka communities, where the Project will be implemented, are members of the Pichis Association of Asháninkas Nationalities (Pichis Federation of Apatyawaca Nampitsi). Because of a lack of opportunities in their own areas, these farmers migrate, and in many cases sign up to work in the illegal coca growing industry, something that can prove very dangerous for their own communities as the activity could eventually penetrate their territories.

EDMAR, which has been working since 1994 in this valley, has not come across this type of problem. On the contrary, the project it has been implementing since 1995 under an agreement entered by INRENA, EDMAR and ITTO, is the subject of study of the various alternative development programs that USAID and the Government of Peru will be encouraging as from this year.

The said project and the experiences gained from it have provided the basis for the present proposal. Prior to its initiation in 1995, there had been no other experience on forest plant production, but today in the El Milagro community there are 17 family-run forest nurseries. They had no knowledge of strip plantation and today they are able to perform this task without technical supervision. They did not apply agro-forestry practices in their land but today they combine the medicinal tree *Croton lechleri* with their crops at the time of sawing; allow their plots to lay fallow during the period in which this tree reaches its harvesting age (8 years). With all these achievements, the community is eager to manage their forests, and obtain employment and income without destroying it. Therefore, the present proposal is believed to be viable.

3.4 Intended situation after project completion

Each one of the communities involved in the Project will be provided with a land-use management/allocation map for land utilisation which will show the areas to be protected (protection land), forest areas that must be utilised under a sustainable management plan, and areas for pasture lands, permanent crops and agriculture.

The seven communities will have demonstration areas for forest management and administration which will help develop the creative participation of their members in the integrated management and utilisation of the forest resource. Each area will have its own forest inventory and its own management plan. These instruments will be prepared with the active participation of the communities involved and will be based on the communities' own objectives as well as on those activities and methods which they can carry out without external guidance after a short period of demonstration implementation and training.

Based on the above-mentioned management plans, a program for the sustainable utilisation of commercial timber species, lesser-known timber species, resin from sangre de grado and utilisation of other non-timber products will be implemented in the seven communities selected, and in three of them, the sustainable management of the medicinal species uña de gato (*uncaria tomentosa*, U. Guianensis) will be conducted.

At least seven pilot small or micro industries involved in forest production and trading will have been legally established. The said businesses will be run by community members appropriately trained by the Project.

In the seven native communities, the forest component will have been integrated into their traditional agricultural activities. This will facilitate the cultivation of fast growing forest species when the fields are in their fallow period. The species chosen for this agro-forestry development program are sangre de grado (*Croton lechleri*) for the production of resin for medicinal purposes, bolaina (*guazuma crinita*), huamanzamana (*Jacaranda copaia*), and topa (*Ochroma pyramidale*) for timber production.

In the seven communities chosen, a program for the reforestation of high value species, ie. cedar (*Cedrela odorata*), mahogany (*Sweitenia macrophylla*), ishpingo (*Amburana cearensis*), tornillo (*Cedrelinga catenaeformis*) and copaiba (*Copaifera officinalis*) will have been set in motion at an annual rate of 11 300 trees.

The annual planting rate will be 70 ha.

With regard to the problem of settlements of landless farmers near the indigenous communities, the Project will help to establish productive activities integrating the final phase of forest product production and agriculture in these territories with the phases of primary and secondary processing and marketing of these products. By establishing closer contacts with the regional, national and international markets, the indigenous communities will be closer to more formal sources of necessary products from other cultures, thus eliminating the increasing interference of new settlers in the tropical forest areas. Therefore, it is expected that upon project completion there will be more equitable terms of trade (and therefore income distribution) between the indigenous communities and the western culture.

3.5 Target beneficiaries and others affected

In December 1995, the native community of El Milagro, in a special meeting of leaders of six native communities, the leader of the host community and members of EDMAR, indigenous representatives asked for technical assistance, in particular, to achieve higher economic benefits in relation to the utilisation of timber species and uña de gato. They believed that the harvesting of these products could be intensified since many buyers came to their territories offering cash payments for their extraction, but they considered that the prices paid were of little significance when measured against the prospect of having the resource exhausted in a few years. They wanted techniques to manage their resources, and investments to process them.

In 1996, EDMAR visited the six communities, carried out surveys to gather the opinion of their members, and conducted consultations to determine values and aspirations in relation to the use and conservation of their forests. Again, in a meeting of the seven native communities and EDMAR, the bases were laid for the formulation of a sustainable forest management project and reforestation programs to prevent further impoverishment of the people.

EDMAR designed the Project and submitted it to a meeting for the planning of community forest development held from 31 March to 4 April, 1997, where the seven communities chose as their representatives the Leader, a man under 25, an adult of over 25 years of age and a woman. During this meeting, an agreement was reached to execute the Project and continue its activities even after the conclusion of the external investment phase.

Consequently, the native communities of El Milagro, Puerto Davis, Sargento Lores, Belén, Divisoria, Dinamarca and La Paz de Getarina, as well as settlers permanently settled in neighbouring areas constitute the Project's beneficiary group (see Annex).

After an analysis of the comments, recommendations and conclusions of the Fifteenth ITTO Expert Panel, convened in Yokohama on 23-27 February 1998, EDMAR informed all the participating communities about the results of the evaluation. The communities then met on 29 March 1998 in the Sargento Lores Community, where the indigenous peoples' commitment to project management and administration was reaffirmed as follows:

SUMMARY OF THE AGREEMENTS REACHED AT THE 29 MARCH MEETING:

- Assign an Indigenous Administrator as part of the permanent project staff. EDMAR was entrusted with the necessary adjustments in the project budget.

- On behalf of their respective communities, sign an agreement undertaking a commitment to project management and administration even after ITTO finance has finished;
- Establish a Democratic Facilitating Committee for the Project to analyse the difficulties encountered during project implementation and formulate recommendations with a view to achieving project objectives through the participating institutions.

3.6 Project strategy

A program that promotes the participation of indigenous communities in the modernisation of productive systems through training and the establishment of demonstration forest management areas, must be based on lateral or participatory relationships in which the communities can identify with the objectives of the program.

3.6.1 Reasons for selection

In order to attain the Project objectives, the basic strategy consists in conducting a series of workshops and community meetings in which the following will be developed and approved:

- Maps of current use of the land showing location of areas for forest production, crop cultivation, pasture lands, protection of villages and other uses.
- Maps of future use of community land or map of land-use management/allocation.
- Sustainable management plan of demonstration forest production areas.

The general population of each beneficiary community must be involved in every step of the planning and drawing of plans, maps and programs included in the forest management plan. They will carry out the work with EDMAR technical officers who will act as consultants and provide guidance during the process without intervening in decision making. Thus the native community will regard the work as its own and will undertake to put it into practice and attain a better quality of life based on its own potential and limitations.

Another important aspect of this strategy is training, through which individuals and the community will develop their capacity for decision making, direction, implementation, and evaluation of its own development. The idea will be to make the individual feel in command of the process and its results, and gain the general support of the community in the process based on previously established objectives.

The training and technical assistance program will guide the utilisation of forest products in accordance with plans that will ensure the sustainability of economic activities and the reforestation of previously abundant species. It will promote the creation of new sources of income based on the productivity of the forest and agricultural land. It will incorporate technologies into traditional productive systems in order to establish small modern industries. It will develop efficient services to enable the placement of products in regional, national and international markets.

The training provided by the Project will seek to form individuals that feel competent to establish small and micro industries in which they are the main players in the process and its results.

Therefore, the Project aims at developing a forest management plan based on sustainable yield and designed by those who will carry it out. This implies that a social and technological relationship must exist between the plan and those responsible for its implementation. It is not a Project designed by external professionals to introduce

"technological packages" through a traditional extension program of promotion and awareness building.

3.6.2 Lessons drawn from past evaluation

In the design of the Project, EDMAR's experience gained during three years of continuous work with Asháninka communities has been used. This experience has given an understanding of traditional customs and values, and how these are changing in the younger generations. The success of the Project depends on this important social aspect. Asháninka people are peaceful but extremely distrustful. It is therefore preferable to build lateral or participatory links that help the community identify with the Project objectives, that tells them that it is they, with the support of external friends, who are conducting the Project. Right from the start of the conversations held by EDMAR with the communities, all patronising employer/employee, professional/native type relationship was eliminated and replaced by friend/development promoter association.

Another lesson learned from past experience is that the main priority of native inhabitants is optimising their sources of income based on the productivity of forests and agricultural land. They know that the forest has become devalued due to the uncontrolled extraction of timber species and to the fact that they do not have agricultural products to compete with in a poorly understood market. They are aware that if logging of their timber and medicinal trees continue without management plans, and if a way is not found to increase productivity in their agricultural land, their forest will be further devalued and their people will become increasingly poor. Because the Project will be formulated using the ideas of the indigenous communities, it will have to respond to all these expectations.

With the execution of Project PD 16/94 (F), financed by ITTO, relating to reforestation activities exclusively, it has been established that a participatory strategy ensures a greater commitment on the part of the indigenous communities, therefore, the present Project was designed within this context.

Other material used in the formulation of this Project that should be mentioned here are documents and studies published by the Project "Management of the Resources of the Central Forest (Selva Central)" by USAID/Peru, through which the integrated development of the Palcazú valley (adjacent to the Pichis valley) was planned. The said project gave priority to the management of natural forests, the conservation of the upper river basin and its biodiversity, and to native populations, in this case, the Yánesha community. Evaluation of the project's outputs have also led to the conclusion that the participatory method is the most likely to offer satisfactory results in forest work with indigenous communities.

3.6.3 Technical and scientific aspects

The plans

The management plan constitutes a set of techniques for optimum utilisation of the forest resource from a social, economic and ecological stand, which takes into account the sustainable yield as its fundamental objective. A management plan cannot be separated from the designation of management systems for land use, reforestation and application of conservation policies.

The present Project will formulate 7 forest management plans for the utilisation of timber and non timber products. The plans will include:

- Land-use distribution survey
- Participatory development of a map of current land use
- Participatory development of a map of future land use and a map of land-use management/allocation
- Forest inventory survey
- Harvesting plan
- Establishment of minimum cutting diameters
- Planning of annual harvesting areas
- Reforestation program
- Prospects for industrialisation

Designation of land is one of the most important eco-development regulations existing in Peru. The results of these studies, together with those of the forest inventory, represent indispensable data for deciding on the use to be given to the forest. The land classification stage has great importance in ensuring that the area allocated for management continues being used for the purpose assigned.

The maps of current and future land use, to be developed with the participation of the community and approved in general meetings, are described under "Social aspects".

The forest inventory will provide basic information for the management and administration of the forest. Following recommendations of Project "Management of the Resources of the Central Forest", inventories will be based on stratified sampling by forest type or harvestable stand. The scale magnitude of thematic maps will be 1:10 000 (Dancé *et al*, 1982).

The utilisation plan will show the area of forest that can be utilised annually, and the period of time that must elapse before it can be used again, giving the system a sense of rotation and sustainability. The plan will be based on the available area for forest production and the number of years in the cutting cycle.

Planning of annual harvesting areas will be based on the adopted cutting cycle and on the estimation of the current total forest mass in net harvestable areas, taking into account the application of minimum cutting diameters established for the plan.

Reforestation

The reforestation program will be based on the experience gained by EDMAR in the Project area. It will be aimed at reinforcing the traditional farmer's system while integrating the forest component to their agricultural activities and in non-agricultural areas, by using the area on three different opportunities, through the combination of non-timber species with fast growing timber species and high value species. Thus, for example, uña de gato or sangre de grado can be harvested on the fifth or eighth year after planting (first opportunity of utilisation of the area); topa, bolaina and

huamanzamana, between 12 to 16 years (second opportunity), and high value timber species after 25 years (third opportunity).

Experience has shown that the best way to approach plant production is by promoting the establishment of family forest nurseries through training and extension activities. In these nurseries, the participating families can specialise in the production of specific species so as to satisfy the requirements for forest plantation establishment. Thus, users requiring seedlings will know where to obtain them according to the species they have selected. It is expected that a total of 21 family nurseries will be established by the project in the various participating communities. Average production in each nursery will be 3,000 plants per year.

This component, included in the activity relating to the introduction of agro-forestry practices, is independent from the anticipated management plans. That is, it will not be applied in the demonstration areas to be managed, but in agricultural areas that are normally situated along the Pichis and Apurucayali rivers. In general, these lands are suitable for temporary and permanent crops and therefore suitable for agro-forestry practices.

The maintenance of plantations will be the responsibility of the participating communities and will be carried out during the implementation of the Project through communal work supervised and technically assisted by EDMAR.

Forest utilisation

The current situation with regard to forest utilisation is that the native communities living in the Project area sell their standing timber to middlemen, who cash in on the needs of the farmer and extract everything within their reach. These middlemen take logs of high value timber such as cedar, mahogany, tornillo and ishpingo by river to the main road where they are transported to Pucallpa. Other timbers are sawn in the forest using chainsaws.

It is important to offer specialised courses on primary processing of forest products in order to at least triple the value of the resource for the producer. The courses must have the following aims: firstly, assist future local business or companies in the process of being established in relation to the utilisation of forests. Secondly, encourage companies to include primary processing of timber and other forest products. Thirdly, encourage them to specialise in the secondary processing of a product that could compete in the marketplace.

In the case of timber, courses will deal with timber sawing within their communities using intermediary technology equipment that can be used by participants. In accordance with their capabilities, the Project will seek to train them in the sustainable production of parts and components for the forest industries situated in the cities. This would be done through specialised courses.

In the case of resin from sangre de grado, courses will cover tapping methods with special emphasis on product quality.

Cleaning and drying of bark from uña de gato, as well as its dimensioning for the market, will receive special attention. The Project will aim at reaching the chipping stage in its processing so as to facilitate its transport and offer well paid employment to the community.

The general situation is that the communities sell the standing timber, from which they obtain extremely low prices varying from US\$ 0.06 to 0.08 (S/ 0.15 to 0.20) per board foot (bf). The aim of the Project is to get the community to process the forest products and market them, for which a knowledge of the possible markets for the resources available in the area should be obtained through a market survey.

Business management

It is well known that the indigenous population attributes little value to administration and accounting systems, and this causes their main management problems. The management and administration of funds is always a problem in the communities, and therefore it is necessary to educate the young to assume this responsibility. In each of the communities, ten young people with leadership skills will be chosen for intensive training in administration and accounting.

The processing and marketing stages will require the participation of the people better prepared within the communities. In general, these persons are young. Young people are seeing the need, the value and possibility of adapting to the current marketing system. It will therefore be essential to evaluate from the start the development of the Project, the aptitude of the young men and women, the degree of interest in the various events, as well as the respect for other members of the community and the degree of influence that they exert on them. A maximum of 15 young people will be selected to receive special courses on business management, as they will be the future leaders in the small or micro companies to be formed.

Small or micro forest companies

Based on the analysis of legislation and tax regulations related to various forms of industrial organisation, as well as the analysis of project objectives, it was decided that initially micro or small industries should be established. The Micro and Small Business Promotion Law (Legislative Decree No. 705) stipulates the requirements and benefits for industries of this type.

The Project envisages that at the end of the second year, indigenous communities will be able to plan the management of their forests and annual production of timber and medicinal plants. They will have practical knowledge on forest harvesting systems, and will continue to train in areas of industrialisation and forest trade as well as in administration and business management. The aim of all this transfer of technology is to enable family groups or young people to form small forest organisations and request parts of their community forests to utilise them economically and ecologically through small and micro production and marketing companies.

The initiative of these family groups or young people will be supported by the Project with the aim of formalising the legal situation of the forest companies to be established.

Financing

The main obstacle preventing indigenous communities from participating in the benefits of a market economy is the lack of financing to update their productive activities. The Project will offer finance for the purchase of equipment and tools to those small or micro companies that have obtained legal status. The line of credit will take the form of capital equipment (tools and other equipment as selected by the company), not cash.

The loan will be supervised by EDMAR in order to ensure the repayment of invested funds.

Every small or micro company requires as part of its logging equipment a chainsaw (US\$ 1 250 000). Transport within the forest may require the use of a "sulky" (a simple form of trailer) (US\$ 750.00) and hooks (US\$ 100.00). Transport to the road will require a 40 HP outboard motor (US\$ 3 000.00).

For the sawing of logs, a minimum primary processing equipment consisting of two chainsaws, guides and edger (US\$ 3 300.00) will be required.

The processing of the bark of uña de gato will possibly require a small planer (US\$ 1 000.00) powered by a power generator (US\$ 1 000.00, a chipper or a lathe (US\$?).

In essence, a small business will require US\$ 5 100 for extraction equipment, US\$ 3 300 for timber sawing tools and US\$ 2 200 for the equipment necessary to process uña de gato bark. In other words, each company will require US\$ 10 600 although only three will need the equipment for processing uña de gato bark, therefore an amount of US\$ 60 000 will be sufficient to provide the necessary gear to the seven companies envisaged by the Project.

Loan repayments made by the seven companies should be used to continue reinforcing the businesses (particularly those meeting repayments) with additional equipment, to help them fulfil their management plans, and achieve the sustainable development of participating indigenous communities.

The financing proposed will have a multiplier effect in that the introduction of new technologies into indigenous communities productive systems will enable them to achieve greater productivity, more employment opportunities and higher value added products. The resulting improvement in income will stimulate other internal and external sectors of the native economy. Repayments should not be used to create other small businesses and other communities because the idea is to establish firm and competitive companies within the national and international markets.

The introduction of modern technology in the indigenous communities will require ongoing technical assistance so as to allow the industries to produce optimum results in their production processes and thus commit themselves to gradually expand in order to become eligible for credit from the commercial banks.

3.6.4 Economic aspects

Currently, in the Project area, the sale of forest products (standing timber and round wood) generates occasional earnings. A maximum of 5 m³ per ha, that is 1 100 board feet (bf) is extracted. The board foot is sold at US\$ 0.08 (S/ 0.20), therefore, one hectare yields US\$ 88.00 (S/ 220). The Project would increment the value of this production because the resource would be sold as sawn timber at a minimum price of US\$ 0.45 (S/ 1.20). The yield of 5 m³ of round timber processed into sawn timber is 1 100 bf equivalent to US\$ 495.00. In conclusion, for the same amount of timber the community can obtain an income that is practically five times higher.

The current price of one kg of uña de gato bark is US\$ 0.19 (S/ 0.50). With the Project, the sale price of this product will increase to US\$ 1.14 (S/ 3.00) after going through a process of dimensioning, cleaning and drying. If a secondary process is included (packaging and labelling) the price should reach US\$ 18.94 (S/ 50.00).

The gallon of resin is sold at US\$ 7.58 (S/ 20.00). The Project would increase this price to a minimum of US\$ 18.94 (S/ 50 00) through the introduction of tapping techniques and strict quality control standards.

3.6.5 Ecological/Environmental aspects

The Project area covers zones with different levels of forest disturbance. The areas closer to economically important centres (Puerto Bermúdez, and Ciudad Constitución) show landscapes obviously disturbed by the introduction of grasses for stock raising, a larger number of colonists in neighbouring areas, larger farmed areas, and a higher level of extractive activities. The communities living in areas further away have important reserves of timber trees and large areas of forest containing uña de gato.

This differentiation helps to understand how the involved communities perceive the environmental effects caused by their disturbance on the forest. Natives know and love their forests because plants, and land and aquatic animals form the basis of their economy. Therefore, their cultural values would be more receptive to the development of a democratic, participatory forest economy.

Natives know that it is possible to produce more quantities and better quality if the right land is chosen for the different purposes (agriculture, stock raising, forestry) and therefore they are willing to bring their land under management. They know that extractive activities involving timber and other forest products provides them with the best cash income, but if a sustainable management system is not adopted, the resource will be depleted and their economic situation will worsen. They understand that there must be areas reserved for wild fauna to recover their numbers, and where genetic material, which ensures biodiversity and harmony, is maintained. And because natives have themselves laid down the foundations for the formulation of the present Project, the risks of ecologic disturbance and of further deterioration are minimal.

3.6.6 Social aspects

It cannot be assumed that because they are natives they will automatically select ecologically and economically sound objectives. There is an economic factor that can induce them to adopt activities that are harmful to the environment. However, the provision of technical assistance through participatory programs can help avoid these risks.

The Project involves organised native communities that have accumulated knowledge about tropical soils, rotation practices, and use of forest and water products. The Indigenous population is rural, poor and scattered. The labour, capital and product markets are poorly developed in the basin area, and communal work is the predominant form of supplementary work for families. At different levels, communities maintain their traditional characteristics because of their isolation. This isolation and lack of river transportation means have lead to the problem of middlemen and employers who extract products from their own communities and form market social chains.

For this reason, the present proposal has tackled, in the first place, the social aspect in an attempt to design actions and take measures that are technically and socially acceptable. Therefore, the first aspect to be addressed by the Project will be the study of land-use capacity of the areas involved. The study will be used in conjunction with the map of current land use to be prepared by beneficiaries under the guidance of EDMAR. The communities involved will have to answer the following questions: what is the condition of their physical resources, what are the current trends in land use, how is land distributed, how does current land use compares with its major land-use capacity, what would be the situation of the community in terms of their land in another 20 years if the current land use pattern continues.

Based on their answers, the future use of the land for each community will be planned, and this will form the technical framework for the development of management plans.

3.6.7 Managerial aspects

Internal administrative problems in the indigenous communities stem from the fact that people attribute little value to accounting systems. The management and administration of funds is always a problem for them, hence, the presence of a development promoter/friend is required to help in this regard and educate young people to assume this responsibility.

The shortage of qualified personnel among indigenous communities to take on the various duties involved in development is obvious. There are not foresters or agricultural experts in any of the seven beneficiary communities, therefore, training is essential in any project to be implemented.

EDMAR is the only non-government body that has been working in the Pichis River Valley since 1994. The Government is present through the Pichis-Palcazú Special Project whereby it carries out integrated actions extending over quite a large area. USAID, in agreement with the Peruvian Government, is implementing an alternative development plan for the Pichis and Palcazú river basins.

The main aspect of the presence of EDMAR is that it specialises in forest development and coexists with native communities to carry out its activities. As a result, indigenous people do not consider EDMAR foreign to their communities. Through EDMAR, INRENA is present in the Pichis Valley.

The present Project will be executed by INRENA through EDMAR. The General Forest Directorate of INRENA will act as the supervisory body ensuring that actions are carried out according to plan.

3.7 Reasons for ITTO support

3.7.1 ITTO aspects

Since its inception, the ITTO has shown to be an efficient and technical institution with little bureaucracy in relation to other multilateral sources. Because the present Project is directed to the demonstration use of forests based on sustainable management plans developed with the participation and commitment of the communities involved, it is essential to find a technical body which is in a position to make a fair and just evaluation, and for this reason, this proposal is being submitted to ITTO.

3.7.2 Relationship to relevant actions supported by other donors

Apart from the work carried out between 1982-90 in the Palcazú Valley by the Project "Management of Natural Resources in the Central Forest" (USAID-Peru agreements No. 527-0240 and No. 527-0321), no similar actions have been undertaken in the Pichis valley.

3.8 Risks

Because the Central Forest is considered one of the main coca production areas in Peru, one of the risks of the Project is the settlement in adjacent untitled lands, of coca growing farmers who have been expelled from other areas, because unfortunately coca is produced mainly through shifting agriculture. However, the unity encouraged through community democratic participation in the Project's decisions, will result in a community better prepared to resist the drug trade and support anti-drug trade activities.

In the Peruvian forests, there is also the problem of a lack of maintenance of the road network, which increases the cost of transport of products to consumer centres. Fortunately, the Project will use as its communication link the Marginal Road (Carretera Marginal), one of the main arteries of the country.

The limitations commonly encountered by the participating communities constitute a serious risk for this project. It is expected that the need for qualified personnel in the communities will become increasingly urgent as the implementation of the project progresses. Thus, the continuity of technical assistance will be ensured through the

establishment of a Revolving Fund and reinvestment in equipment and technical assistance for a sufficient period of time after project completion.

In the development of this project, the lack of finance for the activities implemented by the indigenous communities has been considered as a limitation or risk. The indigenous communities are not eligible for lines of credit from the national financing system. Therefore, a major component of this project is the establishment of a Revolving Fund for the micro or small industries to be set up by the communities. This fund will not only serve to finance equipment, tools and technical assistance, but it will also help to raise awareness among the communities about the value of monetary capital and their accountability through the payment of interests. The communities are not eligible for lines of credit but small companies are.

4. Outputs

Forest development planning (1 year)

- Seven major land-use capacity distribution maps, 7 current land use maps, and 7 land management/allocation or future land-use maps.
- Identification of 7 forest management demonstration areas. Each demonstration site will have an area of 600 ha totalling 4 200 ha to be managed.
- Seven forest inventory surveys covering an area of 4 200 ha.
- Seven sustainable management plans for demonstration areas

Reforestation (3 years)

- 210 ha reforested through agro-forestry techniques and 35 000 timber trees established.

Forest harvesting (2 years)

- Train 70 people in forest harvesting techniques, 35 young people in primary processing of forest products and 28 young people in secondary processing of forest products.
- Conduct a market survey for the main products identified in the Project area.

Business management (2 years)

- Train 35 young persons in business management.

Small or micro forest companies (1 year)

- Set up and legally register seven small or micro forest companies.

Financing (1 year)

- Provide loans totalling US\$ 75 000 to duly formed companies for the purchase of equipment and tools.

5. Activities and inputs

Output 1

Seven major land-use capacity distribution maps, 7 current land use maps, and 7 land management/allocation or future land use maps.

Activity 1

Compile and analyse the available basic information. The aim of this activity is to learn about the basic features of the area, and about existing accessibility and limitations. With the help of the ecological map of Peru, it will identify life zones contained in the seven indigenous territories involved. Photo-interpretation will assist in the establishment of physiographical units for the formulation of a sampling design for land designation.

Activity 2

Conduct sampling for designation of lands. In this activity, the Project will assess topographic conditions (geological and physiographical formations, gradients and micro-topography) and soil characteristics (depth, texture, aggregation, drainage, pH, erosion and type of vegetation).

Activity 3

Management of information and land designation map. The rules of land designation will be applied. Up to five land-use capacity groups could be observed (clean crops, permanent crops, pastures, forest production and protection).

Activity 4

Organise participatory workshops to develop maps of current land use. In each community, workshops will be conducted for the purpose of defining areas for the cultivation of subsistence and commercial crops, pastures, areas for forest production, protection and populated centres.

Activity 5

Conduct general meetings for approval of current land-use maps.

Activity 6

Organise participatory workshops for the preparation of maps of future land use. The communities will plan future uses for their land and define forest production and protection areas to be managed.

Activity 7

Conduct general meetings for approval of future land-use maps.

Output 2

Identification of 7 forest management demonstration areas. Each demonstration site will have an area of 600 ha totalling 4 200 ha to be managed.

Activity 1

Plan forest development. Through participatory workshops, a diagnostic analysis will be carried out of predominant products in each community. The potential of existing resources will be assessed, and limitations to development of the area will be identified within the context of the market economy in which these communities function.

Activity 2

Identify forest management demonstration areas. In each of the participating communities, areas will be selected for demonstrating methods of forest management and sustainable resource utilisation.

Output 3

Seven forest inventory surveys covering an area of 4 200 ha.

Activity 1

Compile and analyse the available basic information. This will be done in Activity 1, Output 1. Using this information, define type and design field sampling.

Activity 2

Carry out sampling for forest inventory. Information from tree quantitative parameters will be obtained (BHD, basal area, volume), dispersion and natural regeneration of species will be assessed, and seed trees will be identified.

Activity 3

Management of information and presentation of results of forest inventory. Because inventories will be used by the indigenous populations in the development of their respective management plans, the results of the said inventories will be presented in the simplest possible terms. Maps will be drawn showing the situation of trees to be utilised. Seed trees will be identified, marked and tended to ensure provision of seeds.

Activity 4

Conduct training workshops on the use of the information provided by the forest inventory. A series of courses/workshops will be conducted on the use of information for persons who have expressed an interest in participating in setting up communal companies. These events will help identify future leaders for these companies so that they receive further specialised training.

Output 4

Seven sustainable management plans for demonstration areas.

Activity 1

Organise participatory workshops for the development of forest management plans. In each community, a series of workshops will be conducted to formulate the different stages in the forest management plan.

Activity 2

Conduct general meeting for approval of forest management plans.

Output 5

210 ha reforested through agro-forestry techniques and 35 000 timber trees established.

Activity 1

Introduce plant production techniques. The professional staff of EDMAR will train the beneficiary population in these techniques so that they can produce the necessary plants to combine native fast growing forest species (medicinal and timber) with their agricultural crops. A production of 110 000 plants of sangre de grado, and 47 330 of

bolaina, huamanzamana and topa is envisaged. With respect to silvicultural techniques, and depending on the quality of the site, 35 000 trees will be produced of the following species: cedar, mahogany, tornillo ishpingo, copaiba, moena amarilla, and pumaquiro, among others.

Activity 2

Introduce agro-forestry methods. Through this activity, indigenous farmers will plant fast growing species in combination with their crops, for the purpose of obtaining an additional product during the fallow period.

Activity 3

Establish demarcation plantations around crop fields. In conjunction with the agro-forestry system, tree plantations will be established around the perimeter of plots. Spacing between plants will be 8 m, or 50 trees per plot (10 500 high value timber trees in the 210 ha for agro-forestry).

Activity 4

Conduct silvicultural operations for the protection of watersheds and timber production. In areas not subject to water erosion, three forest plantation lines will be established along river banks as protection to encourage the natural reforestation of adjacent areas and stabilise its course. The distance between plants will be 8 m; under this system, it is expected that at least three lineal kilometres will be reforested on both banks (2 250 trees).

Activity 5

Establish plantations in areas intensely disturbed. This will consist of strip plantations of 2.5 m every 15 m; spacing between plants will be 5 m (22 250 plants).

Output 6

Train 70 people in forest harvesting techniques, 35 young people in primary processing of forest products and 28 young people in secondary processing of forest products.

Activity 1

Conduct workshops/courses in forest harvesting methods.

Activity 2

Conduct practical training courses in primary and secondary forest processing techniques.

Output 7

Conduct a market survey for the main products identified in the Project area.

Activity 1

Identify the main forest products available in the participating native communities.

Activity 2

Carry out a market survey of the main products identified.

Output 8

Train 35 young persons in business management.

Activity 1

Conduct theoretical/practical training courses on administration and accounting for small and micro forest companies.

Activity 2

Conduct theoretical/practical training courses on management of small and micro forest companies.

Output 9

Set up and legally register seven small or micro forest companies.

Activity 1

Support efforts to organise small and micro forest companies.

Activity 2

Legally set up at least 7 small or micro forest companies.

Output 10

Provide loans totalling US\$ 75 000 (non-recoverable) to duly formed companies for the purchase of equipment and tools.

Activity 1

Support, through a supervised line of credit for the purchase of equipment and tools, small or micro forest companies legally set up.

The purpose of the line of credit will be to support the small companies that are formed by providing them with equipment and tools. Loans will not be in cash. A promotional interest of 5% in the first year would increase to 7.5% in the second year, 10% in the third, and a commercial interest of 14% in the fourth year.

The amount of \$ 75 000 for the line of credit will enable the introduction in indigenous societies of the value of money to finance productive activities. It will permit EDMAR to provide technical assistance for ten years after the conclusion of the Project, to the small companies established during the period of the Project. The following table shows the progress of the loan in the ten-year period; capital reduces to nil as a result of the cost of technical assistance provided by EDMAR.

The technical assistance to be provided will include the following:

- Advice on the implementation of annual inventories and harvesting by small companies.
- Advice on the legislation related to forest administration.
- Advice on forest harvesting.
- Advice on primary and secondary forest product processing.
- Advice on the implementation and maintenance of forest equipment and machinery.
- Assistance in the introduction of products into the regional, national and international markets.
- Advice on reinvestment of returns.
- Assistance in reforestation and forest management.
- Technical assistance in the administration of micro or small industries.

Table: Progress of credit funds for establishing small forest companies (non-recoverable funds in US\$)

YEAR	CAPITAL	INTEREST	LOAN RECOVERY/ TECHNICAL ASSISTANCE	BALANCE
1	75 000	3750	12 000	66750
2	66750	5006	12 000	59756
3	59 756	5976	12 000	53732
4	53 732	7 522	12 000	49 254
5	49 254	6 896	12 000	44 150
6	44 150	6 181	12 000	38 331
7	38 331	5 366	12 000	31 697
8	31 697	4 438	12 000	24 135
9	24 135	3 379	12 000	15 514
10	15 514	2 172	12 000	5 686

6. Project Logical Framework Worksheets

Project Logical Framework

Specific Objective

To sustainably utilise timber species and other forest species in order to arrest and reverse the deterioration of tropical forests in territories belonging to indigenous communities in the Amazon Region.

To utilise forest products in accordance with pre-determined plans which guarantee the sustainability of economic activities and the reforestation of previously abundant species.

Phases

Planning	Reforestation	Forest harvesting	Business management	Financing
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Outputs

Seven major land-use capacity distribution maps, 7 current land use maps, and 7 land management maps	210 ha reforested through agro-forestry techniques	Train 70 people in forest harvesting techniques	Train 35 young persons in business management.	Provide loans totalling US\$ 75 000 to duly formed companies for the purchase of equipment and tools.
Seven demonstration areas in 4 200 ha	35 000 timber trees established.	Train 35 young people in primary processing of forest products	Set up and legally register seven small or micro forest companies.	
Seven forest inventory surveys of demonstration areas		Train 28 young people in secondary processing of forest products.		
Seven sustainable management plans		Conduct a market survey for the main products identified in the Project area.		

Project Logical Framework Matrix

Project Elements	Indicators	Means of Verification	Important Assumptions
<p>Development Objective</p> <p>To sustainably utilise timber species and other forest species in order to arrest and reverse the deterioration of tropical forests in territories belonging to indigenous communities in the Amazon region.</p>	<ul style="list-style-type: none"> . Use of land according to land-use capacity, and establishment of permanent forest production areas. . Forest component integrated into indigenous agriculture. . Indigenous communities participate in the international market through the trading of high value timbers and non-timber products. 	<ul style="list-style-type: none"> . Land management /allocation map, and forest management map. . Forest management demonstration areas. . Annual harvesting area records. . Small or micro forest companies running. . Annual production records. 	
<p>Specific Objective</p> <p>To utilise forest products in accordance with pre-determined plans which guarantee the sustainability of economic activities and the reforestation of previously abundant species.</p>	<ul style="list-style-type: none"> . Land management /allocation map determines land use in each community. . In demonstration areas, forest management, utilisation and reforestation are based on a sustainable forest management. . Groups of families or young people are utilising areas under forest management. 	<ul style="list-style-type: none"> . Field verification of map application. . Annual production record. . Annual harvesting area records. . Register of trained young persons. . Letters of credit to small business. 	<ul style="list-style-type: none"> . The communities are participating in the planning process. . Demonstration, training and technical assistance programs are being complied with. . Communities grant forest areas to applicant groups.

Project Elements	Indicators	Means of Verification	Important Assumptions
<p>Outputs</p> <ul style="list-style-type: none"> . 7 major land-use capacity distribution maps, 7 current land use maps, and 7 land management/allocation m. . 7 forest management demonstration areas. . 7 forest inventory surveys . 7 sustainable management plans . 210 ha reforested through agro-forestry plantations and 35 000 timber trees established. . 70 people trained in forest utilisation techniques, 35 young people in primary processing and 28 in secondary processing. . Market survey for the main products identified in the Project area. . 35 young persons trained in business management. . 7 small or micro forest companies legally set up . Line of credit of US\$ 75 000 purchase of equipment and tools 	<ul style="list-style-type: none"> . Participation of community in the process of planning of land management and identification of permanent forest production areas. . The community learn inventory and forest management techniques in demonstration areas. . Existence of family nurseries and families engaged in reforestation activities. . Through extension, training and technical assistance leaders are being educated in all stages of forest management, utilisation, processing and marketing. . Leaders receive special training in small and micro business establishment and operation. . Companies apply for loans to purchase equipment and tools 	<ul style="list-style-type: none"> . Maps and plans for each community. . Records of planning workshops and general meetings. . Demonstration areas for forest management have been delimited. . Family nurseries have commenced production, and trees are being used in combination with agriculture. . Record of participants in training courses and workshops. . Forest companies have legal capacity. . Letters of agreement regarding loan repayment. 	<ul style="list-style-type: none"> . Formulation of land distribution survey and forest inventories enables communities to plan Project implementation. . Inputs enable to carry out demonstration, training and technical assistance activities. . Extension/training encourage groups of families or young people to set up small/micro businesses. . Market gives confidence to small businesses to take production loans .

Project Elements	Indicators	Means of Verification	Important Assumptions
<p>Output 1 Activities</p> <ul style="list-style-type: none"> . Compilation information on lands. . Soil sampling . Land distribution map . Workshops on current land use. . General meeting for approval of map. . Workshops for preparation of future land-use map. . General meeting for approval of map <p>Output 2 Activities</p> <ul style="list-style-type: none"> . Planning of forest development. . Identification of forest management demonstration areas. <p>Output 3 Activities</p> <ul style="list-style-type: none"> . Compilation of information from forest inventory . Presentation of results of forest inventory . Training workshops on use of the information from forest inventory <p>- Output 4 Activities</p> <ul style="list-style-type: none"> . Workshops for development of forest management plans. . General meeting for approval of plans <p>Output 5 Activities</p> <ul style="list-style-type: none"> . Plant production . Introduction of agro-forestry methods . Demarcation plantations fields . Protection of watersheds and timber production . Plantations in degraded areas <p>Output 6 Activities</p> <ul style="list-style-type: none"> . Workshops in forest utilisation methods . Courses on forest processing techniques <p>Output 7 Activities</p> <ul style="list-style-type: none"> . Identification of main forest products . Market survey <p>Output 8 Activities</p> <ul style="list-style-type: none"> . Administration and 	<ul style="list-style-type: none"> . Use of satellite imaging, mosaic diagram, maps . Soil engineering equipment and forest inventory . Drafting equipment . Training equipment . Sampling teams <ul style="list-style-type: none"> . Training equipment . River transport equipment <ul style="list-style-type: none"> . Use satellite imaging, mosaic, maps . Computer analysis of forest inventory . Sampling teams <ul style="list-style-type: none"> . Teaching materials . Videos <ul style="list-style-type: none"> . Seeds, polyethylene bags . Tools . Materials from the area <ul style="list-style-type: none"> . Sawing equipment . Tools <ul style="list-style-type: none"> . Consultancy 	<p>Purchase of inputs and payment of services verified by accounting documents issued by goods or services providers</p>	

Project Elements	Indicators	Means of Verification	Important Assumptions
accounting courses . Business management courses Output 9 Activities . Establishment small or micro forest companies. . Legal registration of small forest companies. Output 10 Activities . Provision of supervised loans to small businesses	. Teaching materials . Video . Extension team . Daily subsistence allowance . Financing		

7. Work plan

Work plan - Year 1

Outputs/Activities□	Responsible party	Schedule in months																		
		1	2	3	4	5	6	7	8	9	10	11	12							
<p>Output 1: 7 major land-use distribution maps; 7 current land use and land management/allocation maps</p> <p>Activity 1: Compilation of information for allocation Activity 2: Soil sampling Activity 3: Land allocation map Activity 4: Workshop on current land use Activity 5: General meeting for approval current land-use map Activity 6: Workshops on preparation of land-mgt/allocation map Activity 7: General meeting for approval land management map</p>	<p>EDMAR/Expert in forest management and planning</p> <p>EDMAR/Project Director Communities EDMAR/Project Director, Expert forest management Communities</p>		xxxxxxxx		xxxxxxxxxx			xxxxx		xxxxxxxxxx			xxxxx				xxxxxxxxxx			xxxxxx
<p>Output 2: 7 forest management demonstration areas covering 4 200 ha</p> <p>Activity 1: Workshop on forest development planning Activity 2: Identification of forest management areas</p>	<p>EDMAR/Project Director Expert on forest management</p>								xxxxxxxxxx											xxxxxxxxxx
<p>Output 3: 7 forest inventory surveys of demonstration areas</p> <p>Activity 1: Compilation of information of forest inventory Activity 2: Sampling of forest activity Activity 3: Presentation of forest inventory results Activity 4: Workshop on use of information from forest inventories</p>	<p>Consultant Consultant Consultant EDMAR/Project Director</p>		xxxxxxxx										xxxxxxxx						xxxxx	xxxxxxx
<p>Output 4: 7 sustainable forest management plans</p> <p>Activity 1: Workshop on formulation of management plans Activity 2: General meetings for approval of management plans</p>	<p>Expert on forest management Communities</p>																			xxxxxx

Outputs/Activities□	Responsible party	Schedule in months											
		1	2	3	4	5	6	7	8	9	10	11	12
Output 5: 210 ha agro-forestry plantations and 35 000 established timber trees Activity 1: Plant production Activity 2: Indigenous agro-forestry Activity 3: Plantations delimiting crop fields Activity 4: Protection and production forestry Activity 5: Plantations in disturbed areas	Expert on reforestation Expert on reforestation Expert on reforestation Expert on reforestation Expert on reforestation	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx						xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx					
Output 6: Market survey on main forest products from the Project area Activity 1: Identification of main products Activity 2: Market survey	Consultant Consultant												xxxxxxxxxxxx
Output 7: 70 people trained in forest utilisation, 35 young people trained in primary processing methods, and 28 in secondary processing methods. Activity 1: Workshop on utilisation techniques Activity 2: Workshop on processing methods	Expert on forest utilisation and processing												
Output 8: 35 young people trained in business management Activity 1: Administration and accounting courses Activity 2: Business management courses	Expert on business management												
Output 9: 7 small or micro companies set up. Activity 1: Establishment of small or micro forest companies Activity 2: Legal registration of small businesses	Expert on business management												
Output 10: US\$ 75 000 credit line for purchase of equipment and tools Activity 1: Supervised loans to small businesses	Expert on business management												

Work plan - Year 2

Outputs/Activities□	Responsible party	Schedule in months											
		13	14	15	16	17	18	19	20	21	22	23	24
<p>Output 1: 7 major land-use distribution maps; 7 current land use and land management/allocation maps</p> <p>Activity 1: Compilation of information for allocation Activity 2: Soil sampling Activity 3: Land allocation map Activity 4: Workshop on current land use Activity 5: General meeting for approval current land-use map Activity 6: Workshops on preparation of land-mgt/allocation map Activity 7: General meeting for approval land management map</p>	<p>EDMAR/Expert in forest management and planning</p> <p>EDMAR/Project Director Communities</p> <p>EDMAR/Project Director, Expert forest management Communities</p>												
<p>Output 2: 7 forest management demonstration areas covering 4 200 ha</p> <p>Activity 1: Workshop on forest development planning Activity 2: Identification of forest management areas</p>	<p>EDMAR/Project Director Expert on forest management</p>												
<p>Output 3: 7 forest inventory survey of demonstration areas</p> <p>Activity 1: Compilation of information of forest inventory Activity 2: Sampling of forest activity Activity 3: Presentation of forest inventory results Activity 4: Workshop on use of information from forest inventories</p>	<p>Consultant Consultant Consultant EDMAR/Project Director</p>												
<p>Output 4: 7 sustainable forest management plans</p> <p>Activity 1: Workshop on formulation of management plans Activity 2: General meetings for approval of management plans</p>	<p>Expert on forest management Communities</p>	xxxxxx											xxxxxx

Outputs/Activities□	Responsible party	Schedule in months														
		13	14	15	16	17	18	19	20	21	22	23	24			
Output 5: 210 ha agro-forestry plantations and 35 000 established timber trees Activity 1: Plant production Activity 2: Indigenous agro-forestry Activity 3: Plantations delimiting crop fields Activity 4: Protection and production forestry Activity 5: Plantations in disturbed areas	Expert on reforestation Expert on reforestation Expert on reforestation Expert on reforestation Expert on reforestation	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx								xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx						xxxxxxx
Output 6: Market survey on main forest products from the Project area Activity 1: Identification of main products Activity 2: Market survey	Consultant Consultant	xxxxxx														
Output 7: 70 people trained in forest harvesting, 35 young people trained in primary processing methods, and 28 in secondary processing methods. Activity 1: Workshop on harvesting techniques Activity 2: Workshop on processing methods	Expert on forest utilisation and processing					xxxxxxxxxxxxxxxxxxxxxxxx				xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx						
Output 8: 35 young people trained in business management Activity 1: Administration and accounting courses Activity 2: Business management courses	Expert on business management															
Output 9: 7 small or micro companies set up. Activity 1: Establishment of small or micro forest companies Activity 2: Legal registration of small businesses	Expert on business management															
Output 10: US\$ 75 000 credit line for purchase of equipment and tools Activity 1: Supervised loans to small businesses	Expert on business management															

7. Work plan

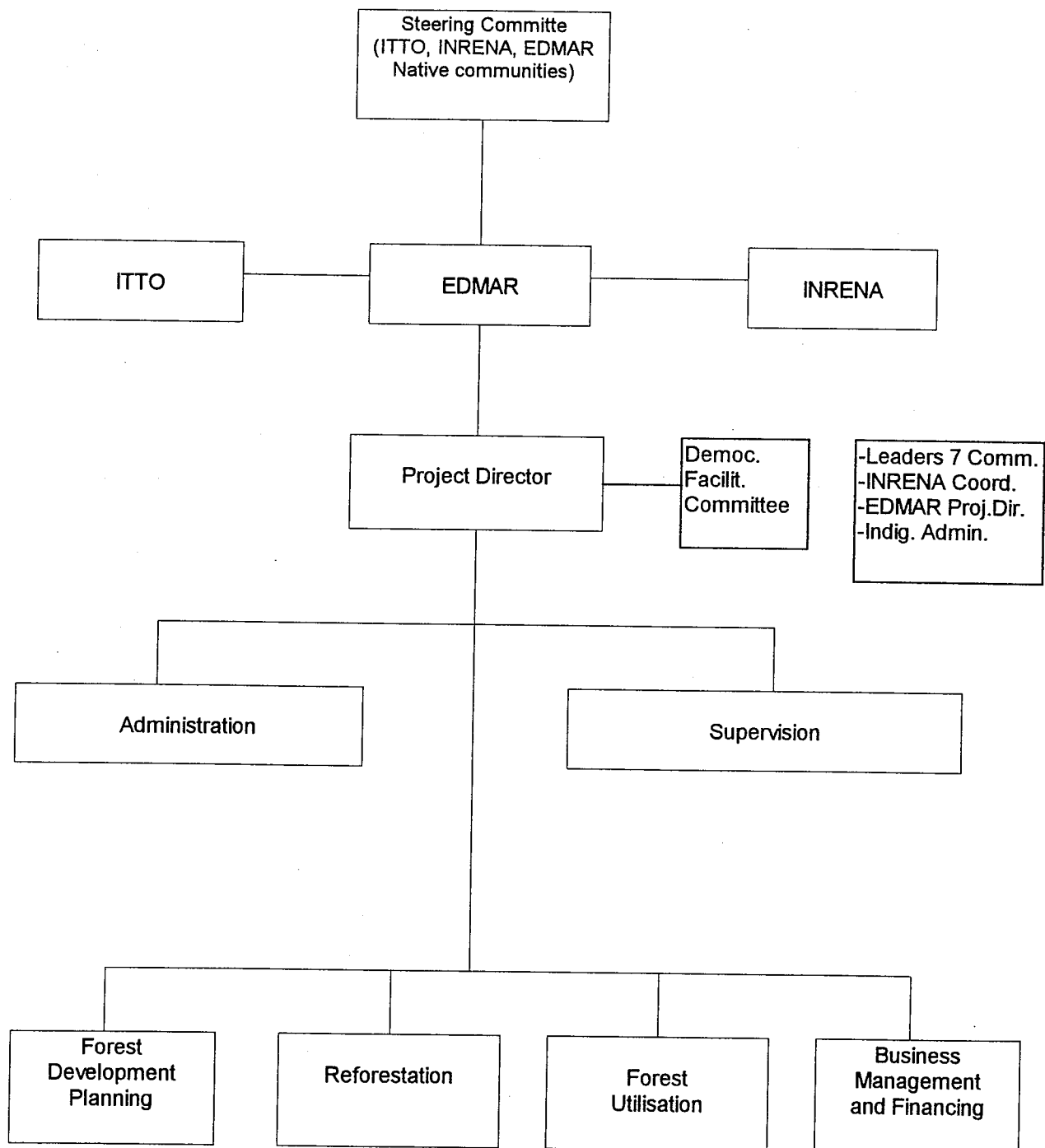
Work plan - Year 3

Outputs/Activities□	Responsible party	Schedule in months											
		25	26	27	28	29	30	31	32	33	34	35	36
<p>Output 1: 7 major land-use distribution maps; 7 current land use and land management/allocation maps</p> <p>Activity 1: Compilation of information for allocation Activity 2: Soil sampling Activity 3: Land allocation map Activity 4: Workshop on current land use Activity 5: General meeting for approval current land-use map Activity 6: Workshops on preparation of land-mgt/allocation map Activity 7: General meeting for approval land management map</p>	<p>EDMAR/Expert in forest management and planning</p> <p>EDMAR/Project Director Communities</p> <p>EDMAR/Project Director, Expert forest management Communities</p>												
<p>Output 2: 7 forest management demonstration areas covering 4 200 ha</p> <p>Activity 1: Workshop on forest development planning Activity 2: Identification of forest management areas</p>	<p>EDMAR/Project Director Expert on forest management</p>												
<p>Output 3: 7 forest inventory surveys of demonstration areas</p> <p>Activity 1: Compilation of information of forest inventory Activity 2: Sampling of forest activity Activity 3: Presentation of forest inventory results Activity 4: Workshop on use of information from forest inventories</p>	<p>Consultant Consultant Consultant EDMAR/Project Director</p>												
<p>Output 4: 7 sustainable forest management plans</p> <p>Activity 1: Workshop on formulation of management plans Activity 2: General meetings for approval of management plans</p>	<p>Expert on forest management Communities</p>												

8. Institutional arrangements for execution and operation

8.1 Management structure

The structure of the Project will be as follows:



The Project Steering Committee will comprise the representatives of the ITTO, INRENA, EDMAR and the leaders of the seven participating communities. Its main function will be making decisions regarding policy aspects and project strategies, as well as the implementation of plans and budgets.

INRENA is made up by a Board of Directors responsible for the policy orientation, approval of annual plans and budget.

The Head of INRENA is responsible for compliance with the Institute's policies and plans. It is supported by an Internal Control office and an Administration office, and two advisory bodies, a Planning Department and a Legal Advisory Department.

The General Directorates are its line agencies responsible for the application of current legislation and implementation of annual plans. One of its basic functions is the supervision of actions carried out by public entities in the different regions of the country as well as actions and projects executed by the private sector.

In the present Project, INRENA will be responsible for the supervision of actions aimed at the achievement of the Project objectives through the General Forest Directorate, while actual execution will be the responsibility of the Eco-Development, Environment and Reforestation Civil Association" (EDMAR).

EDMAR is a non-government organisation made up of professionals of long standing in the forestry field. Its organisation is very simple and efficient.

Its honorary President attends to the protocol duties of the institution and presides general assemblies.

The Executive Director represents the organisation and is responsible for its technical and administrative aspects.

The Executive Director is supported by an Administrative Coordination Unit and a Technical Supervisory Unit.

Following the recommendations of the Fifteenth Expert Panel, a meeting was held in the Native Community of Sargento Lores with the leaders of the seven participating communities and EDMAR representatives, who reviewed the recommendation of establishing a Committee to ensure dialogue and interaction among all stakeholders. It was agreed at this meeting that a Democratic Facilitating Committee should be established for the Project. The following parties should be represented at this committee: the seven participating communities, through their leaders; INRENA, through the Project Coordinator and Supervisor; EDMAR, through the Project Director; as well as an Indigenous Administrator, who should act as rapporteur/secretary without voting rights. This Committee should meet on a quarterly basis so as to receive and evaluate progress reports on project activities and participatory actions with the communities involved in the project. Based on this information, the Committee will make recommendations to the participating institutions so that corrective actions can be taken in order to facilitate the achievement of project objectives.

8.2 Future operation and maintenance

Within a period of 12 months, two essential tools for the development of the seven indigenous communities will be acquired: a map of land management/allocation and a sustainable forest management map. These tools will serve to guide land use and forest utilisation in terms of sustainable yield within a time framework of 50 years. Therefore, the communities themselves will have the responsibility of implementing guidelines and actions established in those documents.

The following two years will see the Project moving forward in the application of these plans by the indigenous communities. Intensive training will be provided to a group of native people from which leaders will be selected to carry out the activities established by the plans, to set up production and marketing companies and to replicate management plans in the concessions granted to those companies by their communities.

A period of three years has been considered appropriate for the communities to put plans into action with the continuous guidance of experts. This is a reasonable period to demonstrate the advantages of the Project in relation to the situation prior to it. It will also allow the necessary time to organise small companies following selection and training of the people who will run them. These small businesses will ensure the continuation of the Project without external participation.

8.3 Key staff

EDMAR submits the following team for the execution of the Project:

Mr Mario Loayza Villegas - born in Lima on 22 September, 1943. Mr Villegas undertook university studies at the National Agricultural University (Faculty of Agricultural Sciences) in La Molina, and completed a MSc in Agricultural Sciences through the Renewable Natural Resources Program of the Research and Education Tropical Agronomy Centre (CATIE), Costa Rica. During the last three years, he has worked as Officer in Charge and national expert in the EDMAR project being executed under an agreement by INRENA, EDMAR and ITTO in the area being considered for this Project. He is a member/director of the National Forest Network (Red Nacional Forestal - REDFOR).

Mr Oscar Pérez Contreras - born in Lima on 26 April, 1946. He is a forest engineer graduated from the Faculty of Forest Sciences of the National Agricultural University, La Molina. He lectures on Planning-Engineering at the National Autonomous University of Mexico. He works as a consultant at a national and international level on forest planning and economy, formulation and evaluation of forest projects, community development and environmental stewardship.

Mr Guillermo Chota Valera - born in Iquitos on 8 November, 1954. He undertook university studies at the National University of the Peruvian Amazon (Faculty of Forestry), and further studies in agro-forestry at the Chapingo Autonomous University, Mexico. During the last three years he has worked in forest inventoring for the Project "Forest Management of the A. von Humboldt National Forest" sponsored by ITTO, and is currently the Project Director of ITTO Project PD 16/94 (F).

Mr Benjamín Palomares de los Santos - born in Huancayo on 11 December, 1951. He undertook his university studies at the Federico Villarreal National University (Faculty of Economics) and further studies in environmental stewardship at the University of Costa Rica, San Marcos National University and School of Business Management for Graduates (ESAN), Lima. In the last three years, he has worked in Geographical and Environmental Services (GEMA) as consultant in environmental economy; he is also a business agent for small production projects for RC Associates Inc, and promoter of small and micro forest companies in EDMAR.

9. Prior obligations and prerequisites

Because there are precedent project execution agreements between INRENA and EDMAR, it will only be necessary to sign a similar agreement for the period considered by the present proposal. INRENA will then assign EDMAR to implement the Project and will stipulate the conditions relating to supervision, disbursements of funds, and the flow of technical and administrative information.

In the said agreement, the institution submitting the proposal, that is, INRENA, designates officers from the General Forest Directorate for supervision of the Project, defines the supervision budget and establishes the legal responsibilities to be assumed by EDMAR in relation to the management of funds.

10. Possible future actions

Once plans have been implemented, the training of leaders completed, and small businesses set up, EDMAR will need to continue providing technical assistance to the established companies and to monitor application of plans. These activities will be funded by the recovery of the loans granted to small or micro forest companies. The return of capital plus interest will be lent again to companies requesting loans, after deducting from this revolving fund the cost of supervision of EDMAR which totals US\$ 12 000 per annum. This way, EDMAR will be able to provide the appropriate assistance to the forest development of seven native communities for a period of 10 years after the completion of the Project.

PART III: MONITORING, REPORTING AND EVALUATION

1. Arrangements for reporting

Two annual technical reports will be submitted to ITTO, at the end of the first and at the end of the second year of implementation.

A final report will be submitted to ITTO on completion of the Project.

2. Arrangements for ITTO monitoring and review

In its first year, the Project will be subject to two monitoring exams by representatives of ITTO, one at the end of the sixth month and the other at the end of the first year. The first mission will visit the Project area and the second, after completion of intended studies, on a date to be jointly agreed.

A monitoring exam by the ITTO will be required at the end of the second year, and another on completion of the Project.

3. Evaluation

Dates for evaluations will be jointly agreed on by ITTO and INRENA in coordination with EDMAR which will be in charge of the direction of the Project. The terms of reference will be formulated in conjunction with the evaluation mission, the Project personnel and INRENA based on ITTO provisions. Two review missions by ITTO are programmed, one of them at the end of the Project.

PART IV: PROJECT BUDGET

Project budget - National contribution (US\$)

Code	Budget item	Year 1	Year 2	Year 3	TOTAL
I	Funds administered by executing agency				
10	Project personnel				
11	National experts				
12	Administrative personnel				
14	Other labour	118 m/m	186 m/m	186 m/m	482 m/m
19	Component total	17 766	28 000	28 000	73 766
50	Consumable items	17 766	28 000	28 000	73 766
51	Raw materials . Value of standing timber		237 440	237 440	474 880
59	Component total		237 440	237 440	474 880
99	Grand Total	17 766	265 440	265 440	548 646

Project budget - ITTO contribution (US\$)

Code	Budget item	Year 1	Year 2	Year 3	TOTAL
1	Funds administered by exec. agency				
10	Project personnel				
11	National experts	36 m/m 48 000	48 m/m 60 000	48 m/m 60 000	132 m/m 168 000
12	Administrative personnel EDMAR Administrator	12 m/m 8 400	12 m/m 8 400	12 m/m 8 400	36 m/m 25 200
	Indigenous Administrator	12 m/m 4 800	12 m/m 4 800	12 m/m 4 800	36 m/m 14 400
13	Consultants	3 200	5 000		8 200
14	Other labour	60 m/m	60 m/m	60 m/m	180 m/m
19	Component total	27 252	12 300	12 300	51 852
		91 652	90 500	85 500	267 652
30	Duty travel				
31	Daily subsistence allowance	12 000	12 000	12 000	36 000
32	Transport costs	1 800	1 800	1 800	5 400
39	Component total	13 800	13 800	13 800	41 400
40	Capital items				
43	Capital equipment	30 350		60 000	90 350
49	Component total	30 350		60 000	90 350
50	Consumable items				
51	Raw materials	51 150	49 950	61 950	160 050
52	Spares	6 000	6 000	6 000	18 000
53	Utilities	57 726	55 226	55 226	168 178
54	Office supplies	2 500	1 000	1 000	4 500
59	Component total	117 376	109 176	124 176	350 728
60	Miscellaneous				
61	Sundry				
69	Component total				
	Sub-total	253 178	213 476	283 476	750 130
70	ITTO Monit. Evaluation & Admin.				
71	Monitoring and evaluation	10 134	8 553	11 313	30 000
72	Administrative costs	14 494	12 233	16 180	42 907
79	Component total	24 628	20 786	27 493	72 907
99	Grand Total	277 806	234 262	310 969	823 037

Project budget summary (US\$)

Code	Budget item	Year 1	Year 2	Year 3	TOTAL
I	Funds administered by executing agency				
10	Project personnel				
11	National experts	36 m/m 48 000	48 m/m 60 000	48 m/m 60 000	132 m/m 168 000
12	Administrative personnel EDMAR Administrator Indigenous Administrator	12 m/m 8 400 12 m/m 4 800	12 m/m 8 400 12 m/m 4 800	12 m/m 8 400 12 m/m 4 800	36 m/m 25 200 36 m/m 14 400
13	Consultants	3 200	5 000		8 200
14	Other labour	178 m/m 45 018	246 m/m 40 300	246 m/m 40 300	662 m/m 125 618
19	Component total	109 418	118 500	113 500	341 418
30	Duty travel				
31	Daily subsistence allowance	12 000	12 000	12 000	36 000
32	Transport costs	1 800	1 800	1 800	5 400
39	Component total	13 800	13 800	13 800	41 400
40	Capital items				
43	Capital equipment	30 350		60 000	90 350
49	Component total	30 350		60 000	90 350
50	Consumable items				
51	Raw materials	51 150	284 390	299 390	634 930
52	Spares	6 000	6 000	6 000	18 000
53	Utilities	57 726	55 226	55 226	168 178
54	Office supplies	2 500	1 000	1 000	4 500
59	Component total	117 376	346 616	361 616	825 608
60	Miscellaneous				
61	Sundry				
69	Component total				
	Sub-total	270 944	478 916	548 916	1 298 776
70	ITTO Monit. Eval. and Admin.				
71	Monitoring and evaluation	10 134	8 553	11 313	30 000
72	Administrative costs	14 494	12 233	16 180	42 907
79	Component total	24 628	20 786	27 493	72 907
99	Grand Total	295 572	499 702	576 409	1 371 683

Overall project budget by activity (Note: For a complete version of this table see Spanish document, page 60.)

OUTPUTS/ACTIVITIES	BUDGET COMPONENTS							
	PROJECT PERSONNEL	SUB-CONT.	DUTY TRAVEL	CAPITAL ITEMS	CONSUM. ITEMS	MISC.	MONIT AND EVAL.	GRAN TOTAL
Output 1: 7 major land-use distribution maps; 7 current land use and land management/allocation maps Activity 1: Compilation of information for allocation Activity 2: Soil sampling Activity 3: Land allocation map Activity 4: Workshop on current land use Activity 5: General meeting for approval current land-use map Activity 6: Workshops on preparation of land-mgt/allocation map Activity 7: General meeting for approval land management map								
SUB-TOTAL								
Output 2: 7 forest mgt demonstr. areas covering 4 200 ha Activity 1: Workshop on forest development planning Activity 2: Identification of forest management areas								
SUB-TOTAL								
Output 3: 7 forest inventory surveys of demonstration areas Activity 1: Compilation of information of forest inventory Activity 2: Sampling of forest activity Activity 3: Presentation of forest inventory results Activity 4: Workshop on use of information from forest inv.								
SUB-TOTAL								
Output 4: 7 sustainable forest management plans Activity 1: Workshop on formulation of management plans Activity 2: General meetings for approval of management plans								
SUB-TOTAL								
Output 5: 210 ha agro-forestry plantations and 35 000 established timber trees Activity 1: Plant production Activity 2: Indigenous agro-forestry Activity 3: Plantations delimiting crop fields Activity 4: Protection and production forestry								

Activity 5: Plantations in disturbed areas								
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Overall project budget by activity (continued)

OUTPUTS/ACTIVITIES	BUDGET COMPONENTS							
	PROJECT PERSONNEL	SUB-CONT.	DUTY TRAVEL	CAPITAL ITEMS	CONSUM. ITEMS	MISC.	MONIT AND EVAL.	GRAN TOTAL
SUB-TOTAL								
Output 6: Market survey main forest prod. from Proj. area Activity 1: Identification of main products Activity 2: Market survey								
SUB-TOTAL								
Output 7: 70 people trained in forest harvesting, 35 young people trained in primary processing methods, and 28 in secondary processing methods. Activity 1: Workshop on harvesting techniques Activity 2: Workshop on processing methods								
SUB-TOTAL								
Output 8: 35 young people trained in business magmt Activity 1: Administration and accounting courses Activity 2: Business management courses								
SUB-TOTAL								
Output 9: 7 small or micro companies set up. Activity 1: Establishment of small or micro forest companies Activity 2: Legal registration of small businesses								
SUB-TOTAL								
Output 10: US\$ 75 000 credit line for purchase of equipment and tools Activity 1: Supervised loans to small businesses								
SUB-TOTAL								
GRAND TOTAL								

Analytical ITTO budget by component (US\$)

(Note: For a complete version of this table see original document, page 62.)

Code	Budget item	Year 1		Year 2		Year 3		Total	
		Number	Cost	Number	Cost	Number	Cost	Number	Cost
I	Funds administered by executing agency								
10	PROJECT PERSONNEL								
11	National Experts								
	. Forest planning and management								
	. Reforestation								
	. Forest utilisation and processing								
	. Business management and financing								
12	Administrative Personnel								
	. Administrator								
13	Consultants								
	. Market survey								
	. Forest inventory								
14	Other labour								
	. Driver								
	. Forest technician								
	. Promoter								
	. Inventory labourers								
19	Component total								
30	DUTY TRAVEL								
31	Daily subsistence allowance								
	. 4 trips per month at US\$ (250/trip)								
32	Transport costs								
	. 1 trip of US\$ 300 every 2 months)								
39	Component total								

Analytical ITTO budget by component (US\$) (continued)

Code	Budget item	Year 1		Year 2		Year 3		Total	
		Number	Cost	Number	Cost	Number	Cost	Number	Cost
40	CAPITAL ITEMS								
43	Capital equipment <ul style="list-style-type: none"> . Outboard motors (25 HP and 40 HP) . Motorcycle (185 cc) . Television (19") . VHS . Mobile phone (US\$ 250) . Electricity generator . Compasses . GPS . Chainsaws . Sawing guides (frame) . Personal computer . Credit line 								
49	Component total								
50	CONSUMABLE ITEMS								
51	Raw materials <ul style="list-style-type: none"> . Polyethylene bags (100 thousand/year) . Building materials (US\$ 350/month) . Fuel (US\$ 600/month) . Teaching materials (US\$ 2000/months) . Cleaning items (US\$ 100/month) . Provisions (US\$ 550/month) . Medicines (US\$ 75/months) . Seeds (70 kg @ US\$ 75/year) . Materials from the area (US\$ 250/months) . Credit line 								

Analytical ITTO budget by component (US\$) (continued)

Code	Budget item	Year 1		Year 2		Year 3		Total	
		Number	Cost	Number	Cost	Number	Cost	Number	Cost
52	Spares								
	. Tools (US\$ 1000/year x 7 comm)								
53	Services								
	. Training services (US\$ 750/month)								
	. Planting (56 666/year @ US\$ 0.76)								
	. Cartographic services								
	. Telephone costs (US\$ 150/month)								
	. Photographic service (US\$ 20/months)								
	. Photocopying service (US\$ 35/months)								
	. Video service (US\$ 500/year)								
	. Printing and publications (US\$ 1000/year)								
54	Office supplies								
	. Office supplies (US\$ 1000/year)								
	. Drafting equipment								
59	Component total								
	SUB-TOTAL								
70	ITTO MONITORING, EVALUATION AND ADMINISTRATION								
71	Monitoring and Evaluation								
72	Administrative costs								
79	Component total								
99	GRAND TOTAL								

ANNEXES

- **MAP 1: Pichis River Valley Location Map**
(See Spanish document, page 65)
- **MAP 2: Location of Sustainable Use and Reforestation of Amazon Forests by Indigenous Communities Project** *(See Spanish document, page 66)*
- **Letter of support from the leaders of the native communities of Sargento Lores, Belén, Puerto Davis, Divisoria, Dinamarca and El Milagro.**
- **Legislative decrees - Micro and Small Business Promotion Law**
- **Minutes of the meeting of leaders of participating native communities on Project PD 14/98 (F): "Sustainable Use and Reforestation of Amazon Forests by Indigenous Communities"**

