

# INTERNATIONAL TROPICAL TIMBER ORGANIZATION

ITTO

## PROJECT DOCUMENT

TITLE	PRE-FEASIBILITY STUDY FOR THE INDUSTRIAL UTILIZATION OF RUBBERWOOD ( <i>Hevea brasiliensis</i> ) INCLUDING THE FORMULATION OF A PILOT CASE STUDY FOR IMPLEMENTATION IN A SPECIFIC AREA OF COLOMBIA
SERIAL NUMBER	PD 46/99 Rev.3 (I)
COMMITTEE	FOREST INDUSTRY
SUBMITTED BY	GOVERNMENT OF COLOMBIA
ORIGINAL LANGUAGE	SPANISH

### SUMMARY

This Project seeks to analyze and assess the feasibility of rubberwood processing industry development in Colombia and to formulate and establish a pilot case study for demonstration purposes in a specific area of the country so as to provide a set of guidelines to investors and beneficiary communities for future implementation.

EXECUTING AGENCY                      CENTER FOR INVESTMENT IN SUSTAINABLE AGRICULTURAL PRODUCTION SYSTEMS - CIPAV

DURATION                                      12 MONTHS

APPROXIMATE STARTING DATE                      UPON APPROVAL

BUDGET AND PROPOSED SOURCES OF FINANCE	Source	Contribution in US\$
	ITTO	137,684
	Gov't of Colombia	41,300
	TOTAL	178,984



## PART I. CONTEXT

### A. RELEVANCE TO ITTO

#### 1. Compliance with ITTO objectives

This project is consistent with the following objectives established in the International Tropical Timber Agreement, 1994:

- Obj. c) It will contribute to the process of sustainable development;
- Obj. d) It will enhance the capacity of members to implement a strategy for achieving exports of tropical timber and timber products from sustainably managed sources as soon as possible;
- Obj. e) It will promote and support research and development with a view to improving forest management and efficiency of wood utilization as well as increasing the capacity to conserve and enhance other forest values in timber producing tropical forests;
- Obj. f) It will promote and support research and development under guidelines aimed at improving forest management and efficiency of wood utilization as well as increasing the capacity to conserve and generate value added products from timber producing forests;
- Obj. i) It will promote increased and further processing of tropical timber from sustainable sources in producing member countries with a view to promoting their industrialization and thereby increasing their employment opportunities and export earnings;
- Obj. j) It will encourage members to support and develop industrial tropical timber reforestation and forest management activities as well as rehabilitation of degraded forest land, with due regard for the interests of local communities dependent on forest resources;
- Obj. k) It will increase and improve marketing and distribution of tropical timber exports from sustainably managed sources;
- Obj. m) It will promote the access to, and transfer of, technologies and technical cooperation to implement the objectives of the Agreement, including on concessional and preferential terms and conditions as mutually agreed.

#### 2. Compliance with ITTO criteria

This project is closely related to the development of industrial timber processing activities with the participation of private investors and communities. The project envisages the transfer of appropriate technology and training of technical personnel. All these activities support the concept of sustainable forest management and promote the establishment of forest plantations based on a detailed analysis of markets and the production chain. Furthermore, the project is related to the utilization of lesser-known and lesser-used species (rubberwood) and to the use of tropical timber for industrial purposes. It will yield benefits to the Colombian economy as a whole and is relevant to both producing and consuming members. In Colombia, the project will benefit conflict affected areas, environmentally degraded areas and areas subject to substitution for illegal crops. In addition, the proposal is related to four ITTO criteria as follows:

- Criterion a: It is related to the production and utilization of industrial tropical timber.
- Criterion b: It will yield benefits to the tropical timber economy as a whole and is relevant to producing as well as consuming members.
- Criterion c: It is related to the maintenance and expansion of the international tropical timber trade.
- Criterion d: It offers reasonable prospects for positive economic returns in relation to costs.

### 3. Relationship to ITTO Action Plan and priorities

This project is consistent with ITTO Action Plan (Libreville 1998-2001) and is related to the goals established for the Committee on Forest Industry, as it is aimed at promoting industrialization in one of ITTO's producing member countries, thus increasing employment opportunities and export earnings while encouraging increased and further processing and the manufacturing and export of higher value added products. Therefore, the proposed project is consistent with the goals established for the above Committee in the following areas:

**Goal 1:** Promote increased and further processing of tropical timber from sustainable sources. This goal relates to the aforementioned objectives (c), (d), (f), (i), (k) and (m) of Article 1 of the International Tropical Timber Agreement (ITTA), 1994.

This goal can be achieved through the proposed project as it offers an investment alternative and involves the formulation of a demonstration pilot case study in order to ensure the following:

- Encourage public and private investment by increasing awareness of investment opportunities.
- One of the outputs of this project will be an analytical study to identify critical knowledge and information gaps.
- Assist in the promotion and transfer of new and/or improved techniques and technologies.
- Improve access to relevant information through the publication of project outputs, including the project's training courses and workshops/seminars which will in turn help establish a tropical timber database.
- Assist human resource development and institutional strengthening by designing and organizing regional activities such as specialized workshops and seminars as envisaged in the project.
- Assist a producing member country to promote investment in the tropical timber processing industry by taking steps to recognize the importance of a sound balance between sustainable timber production and the processing capacity of the related industries, making investment in forest industry attractive to private capital, clarifying the benefits of funding downstream processing for high value, internationally competitive products, and facilitating the establishment of joint ventures to make optimal use of both public and private financial resources.

**Goal 2:** Improve efficiency of processing of tropical timber from sustainable resources. This goal relates to the aforementioned objectives (d), (f), (i) and (m) of Article 1 of the ITTA, 1994.

This goal can be achieved through the Project, particularly by the promotion, transfer and adoption of new and/or improved techniques and technologies through publications, workshops and seminars conducted during project implementation; and by developing a demonstration project to promote efficient and socially sound rubberwood-based forest industries with the participation of the communities and the private sector.

## B. RELEVANCE TO NATIONAL POLICIES

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

This project proposal is consistent with the principles established in the Political Constitution of Colombia and the Code for Renewable Natural Resources and the Environment (Decree Law No. 2811 of 1974).

Furthermore, the project complies with Act No. 99 of 1993 establishing the Ministry for the Environment and re-organizing the public sector in charge of environmental management, particularly with regard to the Ministry's functions (Article 5).

The overall objective of the Forest Policy of Colombia (document CONPES No. 2834 of January 31, 1996) is: "To achieve the sustainable utilization of forests so as to ensure their conservation, consolidate the incorporation of the forest sector into the national economy, and improve the quality of life of the population".

The specific objectives of the Forest Policy include:

- Strengthen and streamline administrative procedures for the sustainable use of forests, including both timber resources and forest products and services.

- Address the cultural, social and economic problems that could lead to unsustainable forest utilization.

Moreover, in 1998 the Ministry for the Environment promulgated the Strategic Plan for the Rehabilitation and Establishment of Forests in Colombia, 1998 ("Green Plan") and the National Forest Development Plan, which outline a number of elements to facilitate the development of support mechanisms for forest projects related to manufacturing activities, including procurement of external resources, strengthening of the Forest Incentive Certificate (FIC)<sup>1</sup> and other financial mechanisms, support for the development of commercial plantations and for the conservation, protection and rehabilitation of natural forests, streamlining of government regulatory bodies and promotion of forest activities for commercial and industrial purposes.

Finally, the Development Plan of the current government -"Change for the Construction of Peace"- proposes to overcome the social conflict and economic crisis facing the country by the implementation of a peace and peaceful coexistence strategy known as the "Colombia Plan", as well as boosting non traditional exports in a stable macro-economic environment supporting competitiveness. The Colombia Plan will be mainly implemented in areas of conflict and illegal crops, as well as in areas with environmental problems generated by illegal crops or by the expansion of the agricultural frontier. The plan will be implemented through production projects that will generate permanent employment and exports in the medium term, including high value added products exports. Plantation forestry and industrial timber processing have been identified as priority fields for production project.

Thus, this project proposal is consistent with all the above aspects of the national forest policy and will contribute to its implementation.

## 2. Relationship to sub-sectoral aims and programs

A fundamental element in the strategies and courses of action defined in the National Forest Policy is increasing the efficiency and competitiveness of the forest industry by reducing the pressure exerted by social groups on the forests.

## 3. Institutional and legal framework

The Directorate for Ecosystems of the Ministry for the Environment will be the agency responsible to ITTO for the implementation of the project and will hire the services of the CIPAV Foundation, which is described in section 8 below.

The General Directorate for Ecosystems was established by virtue of Decree No. 1687 of 1997.

# PART II. THE PROJECT

## 1. ORIGIN

Over the last 8 years several policies and instruments have been established in Colombia to support the competitive development of industrial production, including the production of forest products. The main aspects of this process are:

- (i) Law 99/93 establishing the Ministry for the Environment.
- (ii) Accession of Colombia to ITTO and signing of multilateral agreements for environmental protection.
- (iii) Trade liberalization in the country as from 1991, which led to a considerable reduction in the cost of equipment and input imports but also liberalized the price of end-products.

<sup>1</sup> FIC – Forest Incentive Certificate (Certificado de Incentivo Forestal – CIF). Established through Law 139 of 1994 and its regulation 1824 of 1994, the FIC is a direct contribution in cash granted by the Government in recognition of the positive externalities of afforestation. It consists in a cash bonus to cover the cost of establishing forest plantations for protection and production purposes on forestry-apt lands, up to 50% if exotic species are used in the plantations and up to 75% for native species plantations. Up to 50% of total net costs of management from year 2 to year 5 are covered in both cases. It includes timber and non-timber species.

- (iv) Accession to several free trade agreements (Andean Community, G3, Chile, Central America and Caribbean, among others) and the establishment of specific preference regimes such as the Andean GPS of the European Union and ATPA in the United States. Forest products and processed timber products are tariff free under all these agreements and systems of preferences.
- (v) Establishment of the Forest Incentive Certificate in 1995. This is a legal instrument similar to those established in other countries such as Chile to finance the reforestation of new areas through the establishment of commercial plantations.
- (vi) Over five years ago, the Colombian Institute for the Development of Science and Technology "Francisco José de Caldas" (COLCIENCIAS) started to support the establishment of Centers for Technological Development in Production Chains, which have been very successful in some sectors, including fiber, textile and clothing, leather and manufactured leather products, which are very similar to the timber product sector in that there are a few large companies and a large number of informal small and medium scale industries. The Center for the Forest and Forest Products Sector has not yet been established. In this respect, COLCIENCIAS, as the institution in charge of science and technology in the country, started in 1996 a process of selection, grading and certification of Scientific Excellence Groups and Centers in Colombia. Out of a total of 106 centers assessed, CIPAV has been certified by COLCIENCIAS as one of 22 Category A Centers of Excellence.
- (vii) The Strategic Plan for the Establishment and Rehabilitation of Forests (Green Plan) together with the National Forest Development Plan, recently developed by the Ministry for the Environment, which outline a number of elements to facilitate the development of support mechanisms for forest projects related to manufacturing activities, including procurement of external resources, strengthening of the Forest Incentive Certificate (FIC) and other financial mechanisms, support for the development of commercial plantations and for natural forest development, streamlining of government regulatory bodies and promotion of forest activities for commercial and industrial purposes. These policy guidelines should be implemented through effective actions in favour of investors and forest companies supplying raw materials to timber processing industries.
- (viii) At the end of 1998, the Government, the industrial sector and the work force in the Forest Production Chain in the particleboard, plywood, furniture and timber products sectors, signed a Competitiveness Agreement aimed at continuously increasing the competitiveness of products in the Chain with the support of a number of mechanisms and actions agreed upon by the signatory parties. A Forest Chain Agreement had previously been concluded for the pulp, cardboard, paper and graphic industries.

These agreements stipulate a number of commitments based on a consistent range of policies and actions which must be constantly followed up and supported by the signatory parties so as to achieve the objectives established in a spirit of ongoing cooperation to allow for any adjustments to the agreements as required.

It should be noted that these Competitiveness Agreements are based on similar initiatives implemented in Southeast Asia, in the Spanish Industrial Retrofitting Process for the accession of Spain to the European Union, in Mexico for its accession to NAFTA and in Chile. In most cases, Competitiveness Agreements in Production Chains and Competitive Development Programs were established at the level of specific cities or regions.

- (ix) It should also be pointed out that in several departments throughout the country there are Regional Competitiveness Organizations, which were established through recently developed regional competitiveness programs. These have already identified a considerable number of forest and forest processing development projects, which should be coherently integrated to be submitted for international and domestic financing.
- (x) The Colombia Plan was developed as a fundamental component of the current National Development Plan ("Change for the Construction of Peace") with the core objective of financing production projects in areas of conflict and environmental degradation. In this respect, emphasis has been placed on the need to ensure that the projects to be financed, many of which are forest-related, should clearly aim at their integration with processing and export activities, making them economically viable while ensuring the provision of social benefits for the target communities.

The above policies and mechanisms established in recent years to support the competitive development of forest products are both useful and necessary, but have not yet been effectively applied in the forest production and processing chain. Thus, it is now necessary to ensure their implementation through a number of forest-related industrial projects to facilitate the integration, adjustment and effective application of the various mechanisms available. Furthermore, it should be stressed that, given all the above policies and mechanisms, Colombia already has a legal framework and incentives in the forestry field, but a catalyst would now be essential to boost forest harvesting and tropical timber processing activities. This catalyzing action could be a clear set of guidelines and directives to private investors and communities on how to channel their efforts and resources, in other words, investment alternatives for tropical timber processing/manufacturing activities. This mechanism can be validated through demonstration pilot case studies to provide practical guidelines so that investors and/or communities can subsequently carry out investment projects.

## **2. PROJECT OBJECTIVES**

### **2.1 Development objective**

Carry out a socio-economic pre-feasibility study with an emphasis on the markets and marketing of processed rubberwood products from Colombian plantations that are no longer being used for latex production.

### **2.2 Specific objectives**

In order to achieve the above development objective, the following specific objectives are proposed for this Project:

#### **2.2.1 Evaluate the status of rubberwood plantations and select those with timber production potential**

This objective includes:

- Assess the viability of rubberwood processing and marketing in Colombia and select suitable plantations for such manufacturing process.
- Identify manufacturing alternatives related to rubberwood forest production, considering options for adding complementary land uses to enhance economic and social benefits (crops and animal farming in agroforestry and silvo-pastoral systems).

#### **2.2.2 Assess the potential of one pilot rubberwood plantation in Colombia, including processing and marketing alternatives**

- Selection of pilot area in the country to formulate and establish a project for industrial rubberwood processing.
- Scaling of pilot project in terms of potential rubberwood products, markets, production scale and investment requirements, costs and expected profitability levels for beneficiary communities.

#### **2.2.3 Coordination with potential beneficiaries and dissemination of results**

It includes the following aspects:

- Development of motivation project for potential project beneficiaries with a view to establishing mechanisms for discussion, information sharing and training regarding new production and income-generating alternatives.
- Workshops with the participation of interested industrialists and communities on production and marketing processes in the pilot case study.
- Exploratory market survey for processed rubberwood products, particularly in the timber processing sector for furniture manufacturing.

- Preparation and distribution of document on market and marketing alternatives for national investors, production companies, local communities and government agencies.
- Development and dissemination of general guidelines for the establishment of a pilot production and marketing organization.

### 3. PROJECT JUSTIFICATION

This section sets out the different elements that explain the importance of the proposed project for the country. The aspects that are being considered are the following:

#### 3.1 Problem to be addressed

The development of the forest chain and related manufacturing industries has been very slow in Colombia in comparison to other Latin American countries of similar development and to other regions of the world. One of the reasons has been the limited export orientation of the country and its high dependency on the domestic construction cycle. Recent studies have confirmed this fact<sup>2</sup>. The following table highlights the strengths and weaknesses that have been identified for each of the forest chain components and their products.

CURRENT STRENGTHS AND WEAKNESSES OF FOREST TIMBER PRODUCTS, SECONDARY PRODUCTS AND PROCESSED PRODUCTS

TYPE OF PRODUCTION	STRENGTHS	WEAKNESSES
FOREST PRODUCTION	<ul style="list-style-type: none"> <li>• The average annual increase obtained in Colombia from planted forests is one of the highest in the world.</li> <li>• Several forest industries have a long history of research and development activities with state-of-the-art technological development.</li> <li>• The most important business groups of the country participate in the forestry sector.</li> <li>• The suitability of forestry soils (which cover 68% of the national territory) provides a great range of soils for the establishment of commercial forest plantations of native and exotic species.</li> <li>• A Forest Incentive Certificate – FIC has been established and is fully regulated for plantations to generate new investments in the forest sector. Furthermore, there are tax incentives for reforestation investments.</li> <li>• Development plans have been established for the sector, such as the Colombia Plan and the Green Plan.</li> <li>• Colombia is one of the countries that could potentially benefit the most from the Clean Development Mechanism (CDM).</li> </ul>	<ul style="list-style-type: none"> <li>• There is a growing under-supply of raw timber, which results in increased prices.</li> <li>• The harvesting of natural forests is not technically based, with high waste levels and almost no processing carried out in the harvesting areas.</li> <li>• Marketing and transport of timber are costly and inefficient.</li> <li>• The total planted forest area is small and the annual increments are very limited, even compared to the levels observed 15 years ago.</li> <li>• There is no dissemination of the advantages of forest activities to potential investors.</li> <li>• There is a lack of training activities for the management of natural forests. There is not enough training provided for the management of natural forests.</li> <li>• All the timber currently being produced in plantations has already been allocated to the companies that own the plantations, so there is no timber supply available for other companies in the sector.</li> <li>• There is insufficient dissemination of the results of technological research to medium and small scale reforesters.</li> <li>• The research carried out for the development of commercial plantations with native species currently does not allow for large scale planting activities.</li> <li>• The problem of insecurity represents a serious barrier for increased levels of forest investment.</li> <li>• The sectoral statistics are deficient and a barrier to medium and long term planning.</li> </ul>

<sup>2</sup> See: "Studies of international markets for forest timber and non-timber products, secondary products and processed products", Ministry for the Environment, Econometrics – Acofore, 1999; and the diagnosis of competitiveness agreements in the forest chain and processing industries, Econometria Pty. Ltd., 1998.



TYPE OF PRODUCTION	STRENGTHS	WEAKNESSES
WOODPULP PRODUCTION	<ul style="list-style-type: none"> <li>• Extensive experience and ample knowledge of the national market.</li> <li>• Leading world companies participate in the sector.</li> <li>• Good quality products.</li> <li>• A variety of primary products available in the country.</li> <li>• Proximity of regional markets and possible market niches in the United States.</li> </ul>	<ul style="list-style-type: none"> <li>• Forest development policies exist, but are not being implemented.</li> <li>• Low national income levels resulting in low per capita levels of consumption.</li> <li>• High costs of energy and transport.</li> <li>• Difficulty in securing timber supplies from plantation forests.</li> <li>• High cost of environmental retrofitting.</li> <li>• The size of the national market does not justify competitive world scale expansion of the sector.</li> </ul>
PLYWOOD AND PARTICLEBOARD PRODUCTION	<ul style="list-style-type: none"> <li>• The main companies in the sector participate in technological research and forest production activities.</li> <li>• The producing companies have a good reputation and an excellent knowledge of the national market.</li> <li>• The main companies have recently finished important expansion works in their factories.</li> <li>• Good quality products.</li> <li>• Although in small volumes, the sector has a long tradition of exporting its products.</li> <li>• Highly favorable treatment given by all trade treaties and preference regulations/laws.</li> </ul>	<ul style="list-style-type: none"> <li>• Higher prices and a growing shortage of timber.</li> <li>• High transport and energy costs for industrial uses.</li> <li>• There is a high level of idle capacity that generates high financial costs.</li> <li>• High costs of environmental retrofitting.</li> <li>• Lack of an export-based approach.</li> <li>• There are no projects being implemented on new technologies or new products such as MDF and OSB.</li> <li>• There is a very high dependency on the construction cycle, which explains the current serious production crisis.</li> <li>• High penetration of competitive imports.</li> </ul>
TIMBER FURNITURE PRODUCTION	<ul style="list-style-type: none"> <li>• Although producing at a small scale, there are a number of high quality furniture manufacturers.</li> <li>• Because of the construction boom, several small scale producers have specialized in making office furniture, hotel furniture, etc.</li> <li>• This is one of the groups of products most favored by trade treaties.</li> </ul>	<ul style="list-style-type: none"> <li>• Great diversification of types of products and large numbers of very small scale producers.</li> <li>• Very reduced systematization and technological modernization of industrial processes.</li> <li>• High levels of waste.</li> <li>• High dependency on the construction cycle.</li> <li>• There is no export tradition or knowledge.</li> <li>• Significant fall in production levels over the past three years.</li> <li>• Low business management capacity and human resources development capacity.</li> <li>• Lack of financing for industrial upgrading and retrofitting.</li> <li>• Lack of knowledge about trade niches and channels in foreign markets.</li> <li>• Lack of capacity to produce their own designs.</li> <li>• Lack of response to the high level of penetration of imports.</li> <li>• Reduced prices due to the Asian crisis.</li> </ul>

SOURCE: ECONOMETRIA S.A. Competitiveness Agreements of the Forestry Chains.

The objective of this project is to overcome a major part of the competitiveness problems that have been detected, by identifying and implementing specific investment alternatives that will use and adapt existing national policy instruments and minimize the negative effects of the lack of competitiveness that were previously discussed. Furthermore, the proposal will act as a point of reference to attract resources for the pilot project.

### 3.2 Characteristics of the regions where the project will be implemented

A pre-feasibility study for the use of rubberwood will be prepared for the regions of the country that are most suited for this type of activity. To this end, the project will be structured in accordance with climate conditions, possibilities of supplying raw materials, existence of processing industries, proximity to export markets and other factors that will facilitate the viability of the project. The project will evaluate the advantages and possibilities for one area to be selected amongst the following regions: the Amazon Region (Caquetá, Guaviare), the Pacific Coast (Valle del Cauca, Nariño), the Orinoco (Piedmont and high plateau) and the Andes (coffee producing region of lower Caldas and Santander), where complementary activities are essential for ensuring forest profitability.

### 3.3 Other relevant aspects of "pre-project situation"

As stated in the project justification section, the effective implementation of the aforementioned plans and policy instruments, and in general, the development of a sound forest product supply base in Colombia, requires the identification and development of forest investment alternatives linked to viable manufacturing activities throughout the country, some of which will by necessity require to be closely linked to export activities, particularly for high value-added products.

Although some initiatives have been taken to develop this type of projects (such as the Regional Competitiveness Programs of some Departments<sup>3</sup>, which have forest based and forest product processing projects, and a number of research activities related to these projects), in general terms, all of these initiatives are at the initial identification stage. In most cases they have only reached the forest project planning stage, they do not have a clear link with forest products processing activities and they have not identified potential markets and the viability of these markets.

With regard to other instruments such as the Competitiveness Agreements, the Green Plan and international trade instruments, the possibility of establishing a forest and processed forest products Technological Development Centre has not been followed through due to the following factors: the difficult situation in which the companies of the sector find themselves; failure to identify a set of viable projects; serious competitiveness barriers such as transport and energy costs, insecurity, etc.; and a lack of social participation strategies for rural grassroots communities.

Furthermore, although there are financing sources in the country for companies and projects, such as the FIC, the Investment Fund for Peace (Fondo de Inversión para la Paz – FIP), FINAGRO<sup>4</sup>, BANCOLDEX<sup>5</sup> and other rediscount funds of the IFI<sup>6</sup>, to date these national financing institutions have had a very low level of participation in the funding of forest activities and activities related to forest products. There are many reasons for this situation, including the Government's fiscal consolidation policy, the financial vulnerability of the timber processing industries and the "high risk" classification that the financial sector has given in the past few years to the manufacturers of timber products and timber furniture.

With regard to environmental factors, it should be pointed out that some feeble progress has been made in establishing forest product certification processes which indicate that these products have been obtained using clean processes, which due respect for protected areas and the rights of indigenous and rural communities. Private groups and groups of non-governmental organizations are undertaking viability studies to develop internationally standardized certification processes.

The financing system must be redirected towards the forest chain, in such a way that credits or incentives given by agencies such as the Colombia Plan, the Investment Fund for Peace – FIP - and the disbursements of the FIC can be linked to medium term financing from the IFI, BANCOLDEX or FINAGRO, to finance integrated projects that will incorporate and ensure the participation of groups of small and large processing companies in forest projects. It should be pointed out that from the year 2000 onwards, it will

<sup>3</sup> Political-administrative units of the country.

<sup>4</sup> Fund for the Financing of the Agricultural Sector

<sup>5</sup> Foreign Trade Bank of Colombia

<sup>6</sup> Industrial Development Institute

be possible to request international financing for projects similar to the one proposed here, through the Clean Development Mechanism as contained in the Kyoto Protocol.

Therefore, it is necessary to formulate pilot forest investment alternatives, linked with processing activities, that will not only facilitate the implementation of the aforementioned policy instruments and minimize the problems caused by the lack of competitiveness, but will also serve as demonstration tools and as the basis for the effective procurement of national and international financing resources for this purpose.

### **3.4 Intended situation after project completion**

The effective implementation of the specific objectives of this project will ensure that investors, industrialists, communities and government authorities involved in the development of forest projects for the processing sector, will have access to a clear assessment, formulation and harmonization of a pilot project for the industrial use of rubberwood in a specific region of the country, as well as a prioritization of the best investment options of this type in the country. It is expected that during a second phase, the results of the pre-feasibility study will be used to implement the pilot initiative that will be identified by this project.

### **3.5 Target beneficiaries and others affected**

In general the project target beneficiaries will be industrialists, communities, national and regional promotion authorities, and groups of national and international investors, who will have timely information available on the viability of different regional production options, as well as information on the actions required for the development and consolidation of rubberwood processing activities in the country.

Furthermore, the project will specifically benefit the companies and communities that will be involved in the pilot case study to be developed by the project.

## **3.6 PROJECT STRATEGY**

### **3.6.1 Reasons for selection**

It was decided that rubberwood-based manufacturing investment alternatives should be formulated and prioritized as an effective way of implementing a wide range of policy instruments and plans to support these activities in Colombia that to date have not had a clear incidence in the growth of the sector and have not taken advantage of the competitive edge that the country could have with these production processes.

The pre-feasibility study and the general guidelines for the implementation of the pilot project are support elements for the Colombian Peace process, as they will provide investment alternatives for regions affected by violence, environmental degradation and illegal crops.

### **3.6.2 Lessons drawn from past evaluations**

In several developing countries, particularly in Latin America, including Mexico, Chile, Ecuador and Central America, the promotion of competitive activities has been achieved through the identification of specific projects that have facilitated productive investments or the rehabilitation of depressed but potentially viable sectors. In the aforementioned countries, sectors involved in the processing of forest products, agro-industrial production and manufacturing with specialized technologies, using local industries or assembly capabilities, have developed through demonstration pilot projects.

In Colombia, this possibility is only now being explored in the manufacturing sector with the implementation of some Competitiveness Agreements, such as the metal-mechanics chain, and the fiber-textile-dressmaking chain. In the agro-industrial sector, the Colombian International Corporation initiated a similar process some years ago. At the regional level, Antioquia<sup>7</sup>, through Proantioquia, has been the leader in promoting a series of industrial and agro-industrial projects in the department.

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<sup>7</sup> Department of Colombia situated in the Western region of the country, which has the highest relative level of development.

### **3.6.3 Technical and scientific aspects**

The proposed work methodology is based on the definition of a set of policy objectives for the pilot project guidelines, subject to certain restrictions. The objectives will be aimed at maximizing the value-added component of the project, subject to certain restrictions such as available financing, feasibility of securing a market, regional distribution, existence of competitive conditions for production, legal regulations, availability of technological innovation, scientific support structure, available human processes and resources, investment risks, etc<sup>8</sup>.

### **3.6.4 Economic aspects**

The application of the methodology suggested for the proposal will facilitate the evaluation of its economic effects on the net value added production and Project profitability for a given period, as well as the evaluation of other economic variables such as production, markets, employment and generation and distribution of income among target beneficiary communities and producers.

Furthermore, it will take into account the specific characteristics of the selected pilot area that could affect investments and costs, such as the status of communication routes, available cultivation, harvesting and processing technologies, the knowledge base of the various stakeholders about processes and markets, security aspects, and opportunity costs of the use of land, among others

### **3.6.5 Environmental aspects**

The project identified by the pre-feasibility study will have to comply with several environmental requirements, such as observing the national legislation and regional regulations issued by environmental authorities. Furthermore, it will have to incorporate measures to guarantee the sustainability of forest plantations and harvesting operations that will promote positive interactions with biodiversity conservation, water regulation and the positive effects of atmospheric CO<sub>2</sub> sequestration. The guidelines for the future pilot organization will incorporate appropriate environmental variables for the implementation of activities, the rationalization of waste, the integration of other associated production systems that will add diversity and stability (polyculture, agroforestry, silvo-pastoral systems), as well as the maintenance of environmental standards in the manufacturing processes.

### **3.6.6 Social aspects**

This component is vital for the methodological strategy of the pre-feasibility study, as the proposed development objective seeks to increase and consolidate forest-based rubberwood processing production levels in Colombia. The achievement of this objective will increase income levels, employment and the quality of life for a large number of individuals and communities in different activities and regions of the country, most of whom are experiencing problems of violence and poverty.

The guidelines for the pilot project will seek to establish an intelligent and mutually beneficial relationship between companies and disadvantaged rural communities in the pilot area, in order to reduce existing social conflicts and to facilitate social participation through a better distribution of the wealth generated. The incentive provided for small industrialists in different organization, administration and market management aspects is aimed at generating a more equitable social model, which is of vital importance for the Colombian rural sector.

### **3.6.7 Managerial aspects**

The formulation of this project proposal by the General Directorate for Ecosystems of the Ministry for the Environment is based on Law No. 99 of 1993, which establishes the Ministry for the Environment and gives it a series of powers and responsibilities which are related to the objectives and other aspects of this project. The organizational structure envisaged for the implementation of this project is detailed in section 8 of this project document.

The central strategy of this proposal is the cooperation between the public sector, headed by the Ministry for the Environment, private industries, consultants, civil society organizations and rural communities, in search of synergy processes where responsibilities will be shared and determined through a participatory process.

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<sup>8</sup> In this respect, the technical advances developed by some research centres, like CRIWI - ITTO, which has carried out several studies on rubberwood processing (See "Rubberwood Processing - Technical Report, February, 1999), will be extremely useful.

The managerial aspects will be supported through the cooperation and advisory services of public bodies involved in the research and development of technology, such as COLCIENCIAS, the National Training Centre - SENA, and the National Forest Research and Development Corporation – CONIF, among others.

### 3.7 REASONS FOR ITTO SUPPORT

#### 3.7.1 ITTO aspects

ITTO is the international organization that has been involved in the development of the national tropical timber industry. Furthermore, this project on industrial rubberwood utilization in Colombia is submitted to ITTO because it is compatible with the Organization's objectives, criteria, Action Plan and priorities in relation to sustainable forest management and technological processing of tropical timber, as well as the country's need to implement rubberwood projects of this nature, which have not yet been implemented in Colombia.

#### 3.7.2 Relationship to relevant actions supported by other donors

There no other donors related to this project or other similar initiatives.

### 3.8 RISKS

The dispersed nature of the available information and the often difficult access to it in Colombia become a risk when added to the extent of the areas to be covered and the lack of land use management where to focus forestry and agroforestry activities. These factors together with the low or minimal presence of the Government in many regions lead to a complete lack of basic information or to fragmented and incomplete information to identify pilot areas.

The main risks that could hinder the work of the proposed pilot organization are the serious social conflicts involving violence, insurgency and illegal crops in many parts of the country. This will limit the selection of sites for the formulation and establishment of the pilot project in areas with a lower level of conflict. The political negotiation processes for peace of the current national government are helping to alleviate these limiting factors.

This proposal seeks to help reduce these risks through its key reconciliation strategy between the public sector led by the Ministry for the Environment, the private sector, consultants, civil society organizations and rural communities, so as to establish synergy processes based on a participatory approach establishing and respecting the rights and responsibilities of all stakeholders. Thus, it is envisaged that this proposal will generate the required information and other expected outputs.

It is also expected that in the medium term the implementation of actions as suggested in this proposal will make a significant contribution to the current peace process in Colombia based on the strengthening of social structures in the selected area through research, training and employment generation alternatives with a view to socio-economic equity.

## 4. OUTPUTS

Expected project outputs in relation to specific objectives are given below.

#### 4.1 Specific objective 1. Evaluate the status of rubberwood plantations and select those with timber production potential

The following outputs are expected to be produced by the Project in order to achieve this objective:

Study of the potential of regions with pure or associated rubberwood (*Hevea brasiliensis*) plantations, where an economic and technical feasibility analysis will be carried out, including environmental and social viability of a pilot project to ensure its implementation. Conduction of evaluation of advantages and possibilities of areas such as the Amazon region (Caquetá, Guaviare), the Pacific Region (Valle del Cauca, Nariño), the Orinoco Region (Piedmont and high plains) and the Andes region (coffee belt region of Lower Caldas and Santander). Expected outputs are:

4.1.1 Document on rubberwood use potential and complementary activities in existing plantations throughout the country.

This document will include a classification of options according to type of production, location, existing markets, and competitive advantages for production, different rubberwood producing areas of the country, supply volumes, and timber quality. This identification will be prioritized in short-term priority projects, longer term projects and projects that require more research work to assess their viability.

**4.2 Specific objective 2. Assess the potential of one pilot rubberwood plantation in Colombia, including processing and marketing alternatives**

The following outputs are expected:

4.2.1 Selection of pilot area. An analysis of strengths and opportunities of selected areas will be carried out, including a study of critical aspects for the design of a demonstration pilot project for rubberwood product processing. As a result, a pilot area will be selected for the development of the project.

4.2.2 Scaling of pilot project in terms of products, markets, marketing, production scale, technology, investment requirements and production costs, employment and expected profitability for the communities participating in the development of the pilot case study.

4.2.3 Design of rubberwood marketing strategy, including the identification of current and potential markets for rubberwood with an emphasis on the furniture and timber products industry sector, its characteristics, technical requirements, production absorptive capacity, current and potential demand.

4.2.4 Identification of comparative advantages and disadvantages of processed rubberwood products in the Colombian and international markets.

**4.3 Specific objective 3. Coordination of potential beneficiaries, training and dissemination of results**

The following outputs are expected:

4.3.1 Training courses and workshops for industrialists and communities on rubberwood production, markets and marketing.

4.3.2 Two seminars for the presentation of results to be addressed to investors, industrialists, community leaders and government agencies involved in this field in the study area.

4.3.3 Ongoing exhibition of proposal and project progress on CIPAV's Web Page with inquiry and feedback options for users.

4.3.4 Printed and electronic edition of project to serve as a demonstration tool.

**5. ACTIVITIES BY EXPECTED OUTPUTS**

The following activities are required to produce each of the expected outputs:

**Output 4.1.1: Classification of potential rubberwood producing areas in Colombia**

	<b>Activities</b>	<b>Inputs</b>
5.1.1	Collect information on government and private projects on rubberwood plantations in Colombia	Past records of institutions (INCORA, Ministry for Agriculture, INDERENA, Secretariats of Agriculture, Universities, CONIF, private companies) Review of available forest databases Library search, interviews with past and recent project directors Technical visits to rubberwood plantations in the Amazon, Orinoco, Pacific and Andean regions

5.1.2	Evaluate the status of rubberwood estates in Colombia: area, soils, climate, densities, development, health, age of trees, approximate timber volume, limiting factors, companies and communities involved	Workshops with rural communities and industrialists related to plantations Participatory exercises to identify non-systematized technical and economic information Consultations with secondary sources of companies and Regional Autonomous Corporations
5.1.3	Carry out a comparative analysis of Colombian plantations vis-à-vis international and South American parameters	Contacts, bibliographic information, international databases
5.1.4	Study potential rubberwood products in Colombia	Evaluation of rubberwood products portfolios in various regions (Malaysia, Indonesia, China, etc.)
5.1.5	Identify 2 international projects that may be applied to Colombia.	International consultant in international markets for forest products and manufactured products Project staff
5.1.6	Classify the various options according to their degree of development, scale of production, current viability and other characteristics to ensure consistency, complementarity and prioritization of proposed initiatives	Panel of experts from project staff

#### Output 4.2.1: Selection of area for pilot case study

Activities	Inputs	
5.2.1	Prioritize the various regions for the development of the pilot case study based on variables such as availability of timber, socio-economic and industrial environment, conflicts, communication routes, local expectations and interest, social participation, possibility of commercial links.	Interdisciplinary summary of information from 5.1.1 to 5.1.6.
5.2.2	Selection of pilot area.	Decision jointly taken with the communities concerned regarding the area that shows the best potential. Consultation with land management agency and the Ministry for the Environment and other public and private institutions interested in the project.

#### Output 4.2.2: Scaling of pilot project in terms of products, markets, marketing, production scale, technology, investment requirements and production costs, employment and expected profitability levels for the communities participating in the development of the pilot case study.

Activities	Inputs	
5.3.1	Scaling of project according to markets, production scale, comparative and competitive advantages, investments, production costs, activities, development stages and goals.	National consultant specialized in project evaluation and investment impact estimates. Project staff.
5.3.2	Estimate profitability, employment and income levels for project beneficiaries.	National consultant specialized in project evaluation.
5.3.3	Identification of current and potential markets for rubberwood.	Coordination with furniture and timber products industry sector. Consultancy to establish characteristics, technical requirements and quality control.

5.3.4	Evaluation of potential markets.	Coordination with the timber furniture manufacturing and related sectors to identify their absorptive capacity, current and future demand, production, employment and expected profitability.
5.3.5	Analysis of successful experiences in South East Asian countries to establish the basis for international competitiveness parameters.	Exchange visit to rubberwood processing plants in Malaysia and Indonesia. Contacts for research, technical assistance and marketing.
5.3.6	Based on this evaluation, the work team will make specific recommendations on the issues described in item 4.1.4 regarding this project output.	Panel of experts from project staff.

**Output 4.3.1: Courses and workshops for industrialists and local communities on production and marketing processes in the pilot case study.**

Activities	Inputs
5.4.1 Participatory diagnosis on: <ul style="list-style-type: none"> <li>- current status of region</li> <li>- rubberwood plantations</li> <li>- socioeconomic and environmental conditions of the region:               <ul style="list-style-type: none"> <li>* Visits to rubberwood plantation areas</li> <li>* Annotated maps</li> <li>* Assessment of knowledge on rubberwood plantations</li> <li>* Assessment of knowledge on other rubberwood uses, by-products and timber</li> <li>* Evaluation of current status of rubberwood plantations</li> <li>* Review of history of the region, rubberwood plantations and other production systems</li> <li>* Socio-economic and environmental evaluation of the region</li> </ul> </li> </ul>	Transport, accommodation and meals Photographic camera Video camera Tape recorder Supplies for cameras and recorder Measuring tapes, clinometers, compasses Basic mapping of region, aerial photographs, regional agroforestry database Secondary information on region Paper, markers, chalk, tapes, staples Venue for meetings Computer Software National consultant specialized in participatory research methodologies National consultant specialized in rubberwood plantations and processing of rubberwood and by-products
5.4.2 Strengthening of local knowledge on: <ul style="list-style-type: none"> <li>- Rubberwood plantation management</li> <li>- Processing alternatives for rubberwood and by-products</li> <li>- Marketing channels and marketing of value-added forest products</li> </ul>	Transport, accommodation and meals National consultant specialized in rubberwood plantations, processing of rubberwood and by-products, and marketing channels and marketing of value-added forest products
5.4.3 Participatory development of pilot project for rubberwood processing: <ul style="list-style-type: none"> <li>- Definition of alternatives</li> <li>- Evaluation of alternatives</li> <li>- Prioritization of alternatives</li> </ul>	Transport, accommodation and meals Photographic camera Video camera Tape recorder Supplies for cameras and recorder Measuring tapes, clinometers, compasses Basic mapping of region, aerial photographs, regional agroforestry database Secondary information on region Paper, markers, chalk, tapes, staples Venue for meetings Computer Software National consultant specialized in participatory research methodologies National consultant specialized in rubberwood plantations and processing of rubberwood and by-products



5.4.4 Strategic planning of future activities

Transport, accommodation and meals  
National consultant specialized in participatory research methodologies  
National consultant specialized in rubberwood plantations and processing of rubber wood and by-products

**Output 4.3.2: Two seminars for the presentation of results addressed to investors, industrialists, community leaders and government agencies involved in this field in the study area.**

**Activities**

**Inputs**

5.5.1 Hold two regional seminars on pilot projects for rubberwood products processing.

Documents, reports and research carried out by this project  
Regional convention center  
Airtfares, accommodation

**Output 4.3.3: Ongoing exhibition of proposal and project progress on CIPAV's Web Page with inquiry and feedback options for users**

**Activities**

**Inputs**

5.6.1 Design a special link to CIPAV's Web Page on the main project components, i.e. portfolio and pilot projects.

Software  
Project documents and progress reports

5.6.2 Lay out a diagram showing research progress, photographs, statistics, mail box and links to other pages from other countries and/or institutions.

Photographic camera  
Expanding available space on the net

**Output 4.3.4: Printed and electronic edition of rubberwood alternatives and of pilot case studies as a guide for the formulation and implementation of projects to serve as demonstration for other regions of the country and as a source of information for investors**

**Activities**

**Inputs**

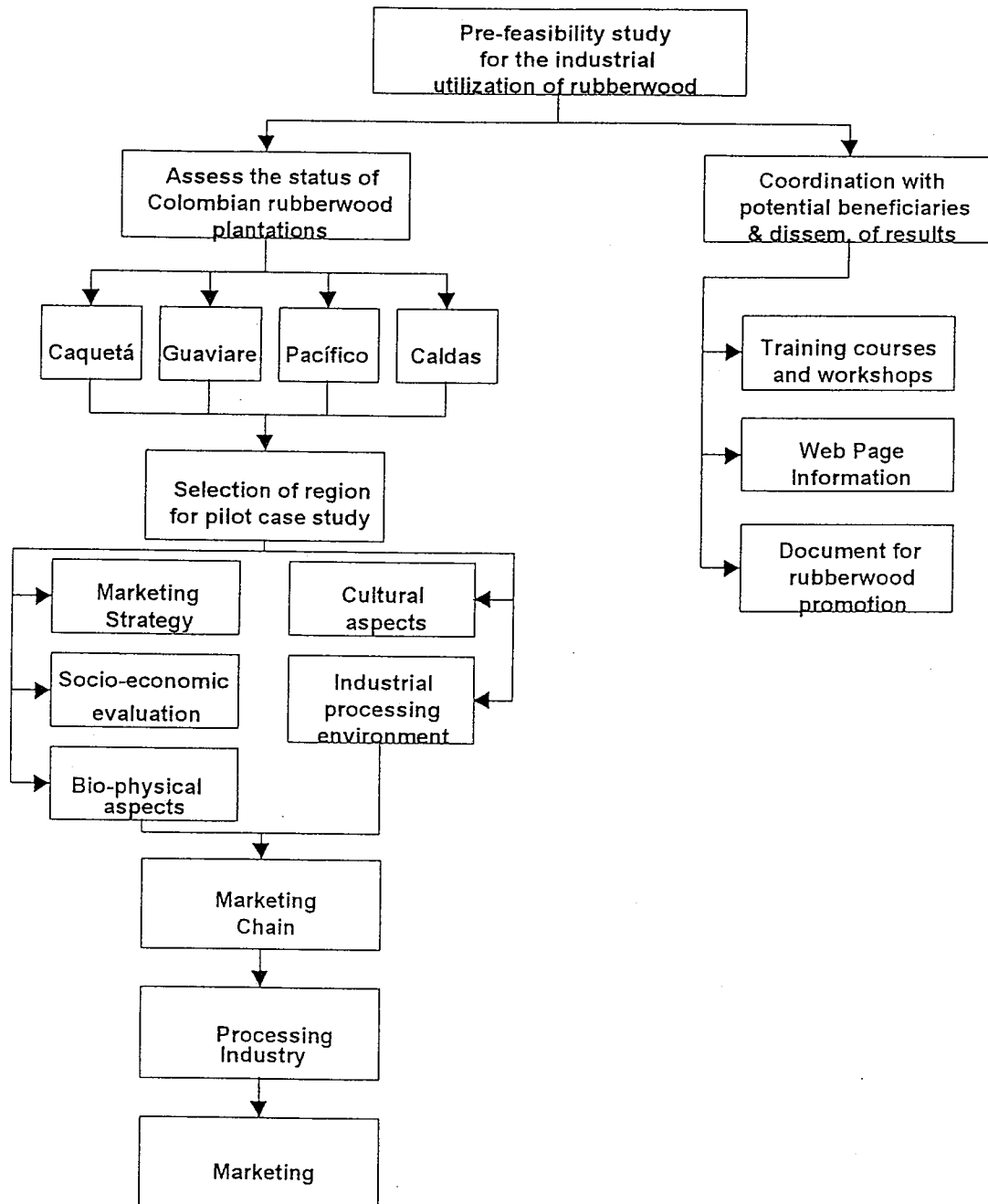
5.7.1 Select documents, draft diagrams, revise texts, illustrations, electronic edition (diskette and CD-ROM) and printing in fine paper

Documents and research carried out by this project  
Software, consultancy on communication means, illustrators, photographs, maps.  
Printing services.

# LOGICAL FRAMEWORK WORKSHEETS

## WORK BREAKDOWN STRUCTURE

The Project's Work Breakdown Structure is given below:



## WORK PLAN

The work plan to be implemented over a period of 12 months is given below.

PROJECT ELEMENTS	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
<b>Output 1.1</b> Documents on rubberwood use potential and complementary activities in existing plantations throughout the country.												
<b>Activity 1.1.1</b> Collect information on government and private projects on rubberwood plantations in Colombia												
<b>Activity 1.1.2</b> Evaluate the status of rubberwood estates in Colombia: area, soils, climate, densities, development, health, age of trees, approximate timber volume, limiting factors, companies and communities involved												
<b>Activity 1.1.3</b> Carry out a comparative analysis of Colombian plantations vis-à-vis international and South American parameters												
<b>Activity 1.1.4</b> Study potential rubberwood products in Colombia												
<b>Activity 1.1.5</b> Identify 2 international projects that may be applied to Colombia												
<b>Activity 1.1.6</b> Classify the various options according to their degree of development, scale of production, current viability and other characteristics to ensure consistency, complementarity and prioritization of proposed initiatives												
<b>Output 2.1</b> Selection of area for pilot project												
<b>Activity 2.1.1</b> Prioritize the various regions for the development of the pilot case study based on variables such as availability of timber, socio-economic and industrial environment, conflicts, communication routes, local expectations and interest, social participation, possibility of commercial links.												
<b>Activity 2.1.2</b> Selection of pilot area												

PROJECT ELEMENTS	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
<b>Output 2.2</b> Scaling of pilot project in terms of products, markets, marketing, production scale, technology, investment requirements and production costs, employment and expected profitability levels												
<b>Activity 2.2.1</b> Scaling of project according to markets, production scale, comparative and competitive advantages, investments, production costs, activities, development stages and goals												
<b>Activity 2.2.2</b> Estimate profitability, employment and income levels for project beneficiaries.												
<b>Activity 2.2.3</b> Identification of current and potential markets for rubberwood.												
<b>Activity 2.2.4</b> Evaluation of potential markets.												
<b>Activity 2.2.5</b> Analysis of successful experiences in South East Asian countries to establish the basis for international competitiveness parameters.												
<b>Activity 2.2.6</b> Specific recommendations by the work team												
<b>Output 3.1</b> Training courses and workshops for industrialists and local communities on production and marketing processes in the pilot case study.												
<b>Activity 3.1.1</b> Participatory diagnosis on current status of region, rubberwood plantations, and socioeconomic and environmental conditions of the region												
<b>Activity 3.1.2</b> Strengthening of local knowledge on rubberwood plantation management, processing alternatives for rubberwood and products, and marketing channels												
<b>Activity 3.1.3</b> Participatory development of pilot project for rubberwood processing												
<b>Output 3.2</b> Seminars for the presentation of results addressed to investors, industrialists, community leaders and government agencies involved in this field in the study area												
<b>Activity 3.2.1</b> Hold two regional seminars on pilot projects for rubberwood products processing.												
<b>Output 3.3</b> Ongoing exhibition of proposal and project progress in the Internet												

PROJECT ELEMENTS	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
<b>Activity 3.3.1</b> Design a special link to Web Page on project and main project components												
<b>Activity 3.3.2</b> Lay out a diagram showing research progress, photographs, statistics, mail box and links to other pages and institutions.												
<b>Output 3.4</b> Printed and electronic edition of rubberwood alternatives and of pilot case study as a guide for the formulation and implementation of projects												
<b>Activity 3.4.1</b> Select documents, draft diagrams, revise and edit texts, illustrations, electronic edition and printing in fine paper												

## 8. INSTITUTIONAL ARRANGEMENTS FOR EXECUTION AND OPERATION

### 8.1 Management structure

A Project Steering Committee will be established. This Committee will be made up of the Director of Ecosystems of the Ministry for the Environment as the chairperson; an ITTO representative; the Head of Forestry in the Area of Ecosystems; the Coordinator and some members of the National Project Team; a FEDECAUCHO member; a representative from the producers; and a member of the relevant Regional Autonomous Corporation.

CIPAV will be responsible for the operational coordination of the National Project Team.

CIPAV was established in 1986 through a consortium made up of seven private institutions and a government agency on the basis of an Inter-institutional Agreement for Agricultural Production in Valle del Cauca. From the onset, this organization has been searching for production alternatives based on environmental and social benefits and on the resources available in tropical countries. In 1992, CIPAV became a non-profit foundation specialized in research, training and dissemination of agricultural and environmental issues.

CIPAV has been recognized in Colombia by COLCIENCIAS as a Category A Center of Excellence and at the international level, by FAO and the International Foundation for Science. It comprises a network of agricultural companies and a group of rural families associated with a team of qualified researchers (biologists, agronomists, zoo-technicians, veterinary scientists, foresters) who carry out research to find solutions to concrete problems through inter-disciplinary approaches. CIPAV is in constant contact with various groups, research centers, institutions and companies that promote sustainable rural development throughout Colombia and in other countries of Latin America, Asia, Africa and Europe.

Since 1998, CIPAV, in conjunction with FAO and the Tropical Agricultural Center for Research and Training (CATIE) in Costa Rica, has coordinated the Latin American Network for Livestock-based Agroforestry so as to consolidate almost 15 years of experience, knowledge and benefits gained through agroforestry systems for the environmental and social restructuring of extensive cattle-raising, which is currently the major land use in Latin America.

CIPAV's fields of work include:

Research, validation and design of technologies: At the beginning, CIPAV activities focused on the validation of technologies developed in countries such as Mexico, the Dominican Republic, Cuba, Australia, India and Bangladesh, in relation to sugar cane utilization, by-products of the sugar and panel industries, agroforestry and sylvo-pastoral systems, harvesting residues, non-conventional sources of protein, timber and non-timber forest products, oil palm and organic waste, and their direct transfer to medium scale producers and agro-industrial estates in Valle del Cauca.

Based on the above, sustainable agricultural production systems have been developed in cooperation with land owners, who work in close relationship with the Foundation as co-researchers or associate researchers.

This approach has been expanded to include the design of new technological proposals suited to the specific environmental, social and economic conditions of small and medium producers. Applied and participatory research is becoming increasingly important for the institution. Basic research is often carried out to fill information gaps. Based on appropriate technologies for tropical resources, CIPAV helps to develop systems in line with the social and environmental potential and needs of these countries.

#### *Training*

In order to disseminate the ideas and principles related to sustainable forest and agricultural systems, CIPAV has developed a number of training programs including internships, research fellowships, theses, short courses, seminars, workshops, tours and a master's degree program.

The work carried out with the rural communities includes a training process based on a social, economic and environmental diagnosis of each area, analysis of farm systems, agricultural issues, environmental conservation, sustainable use of forests and wetlands, human and animal nutrition, and project formulation. Old traditional knowledge and modern scientific and technological knowledge are combined to identify the opportunities offered by local resources.

Informal training has developed into farmer-to-farmer communication models with the participation of leaders (men and women, adults and adolescents) who disseminate agro-ecological innovations and ideas in an appropriate language.

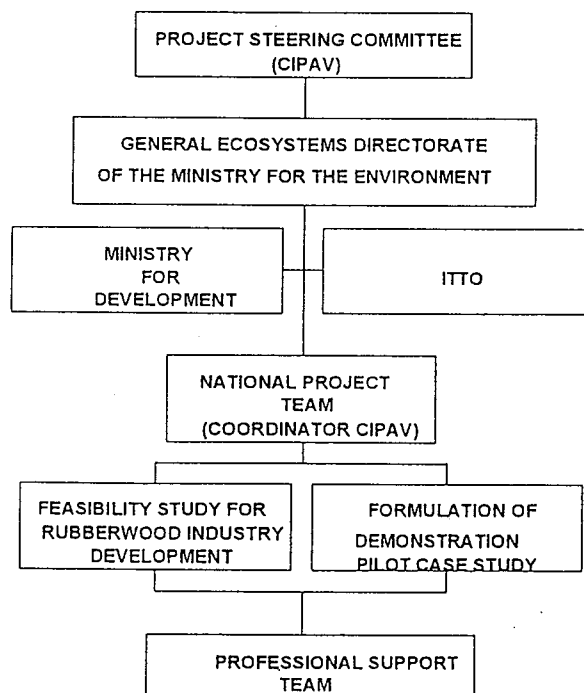
In 1992, through an agreement between the Javeriana University, CIPAV and the Higher Rural Institute, a Master's Degree course was started in the field of Sustainable Development of Agrarian Systems, which is largely under the academic responsibility of CIPAV, including coordination of research activities and design of theoretical-practical modules. CIPAV contributes to various graduate and post-graduate professional education initiatives both in the country and abroad in the fields of rural development and sustainable production systems.

### Dissemination

CIPAV's training and dissemination activities are strengthened through its international seminars and workshops, which are very significant for the exchange of information with other researchers.

CIPAV also plays an active role in electronic communication media. 1998 marked the tenth anniversary of the electronic journal "Livestock Research for Rural Development", which over the last ten years has been a constant medium for the dissemination of the work carried out by researchers in tropical and sub-tropical countries. CIPAV has a page in the Internet and cooperates with FAO in teleconferences with Latin America and throughout the world.

The Project Organizational Structure is shown in the chart below.



## **8.2 Future operation and maintenance**

The General Ecosystems Directorate of the Ministry for the Environment will be responsible for the monitoring and continued implementation of activities related to the pilot project with the participation of communities and investors identified during the implementation of this proposal. It is expected that the knowledge and experience acquired during the implementation of this proposal will facilitate the implementation of the pilot case study.

## **8.3 Key staff**

The General Ecosystems Directorate of the Ministry for the Environment will be the implementing and coordinating agency for all project activities. In addition, CIPAV's Executive Director will be in charge of coordinating activities with the professional team responsible for the development of the proposal and the design of the implementation plan for the future pilot production organization.

## **9. PRIOR OBLIGATIONS AND PRE-REQUISITES**

An agreement will be concluded between the Colombian Ministry for the Environment, ITTO and CIPAV, for the implementation of this project.

## **10. POSSIBLE FUTURE ACTIONS**

It is expected that after project completion, the development and implementation of the proposed pilot case will be initiated.

## **PART III. MONITORING, REPORTING AND EVALUATION**

### **1. ARRANGEMENTS FOR REPORTING**

#### **1.1 Progress reports**

Project progress reports will be prepared by the Project Team and submitted to the Director of Ecosystems of the Ministry for the Environment, who will inform ITTO on activities implemented and outputs achieved.

Two project progress reports will be submitted, i.e. the first within 4 months of project start-up and the second after 8 months of project implementation.

#### **1.2 Final report**

A project completion report will be prepared by the Project Team and submitted to the Director of Ecosystems of the Ministry for the Environment, who will formally send it to ITTO within 12 months of project start-up.

### **2. Arrangements for ITTO monitoring and review**

The project will be subject to monitoring reviews by representatives of ITTO according to the provisions of the work plan. The monitoring and review process will be carried out as stipulated by ITTO.

### **3. Evaluation**

Project progress and implementation will be evaluated during the ITTO visits to Colombia and/or on the basis of the progress reports prepared by the work team. In addition, ITTO and the Directorate of Ecosystems of the Ministry for the Environment may carry out regular evaluations as required.



## PART IV. PROJECT BUDGET

TABLE 1  
PROJECT BUDGET BY ACTIVITY (US\$)

OUTPUTS/ACTIVITIES	Project personnel	Travel	Consumable Items (*)	Miscellan.	Admin. monit. & eval.	Total
<b>Output 1.1</b> Documents on rubberwood use potential and complementary activities in existing plantations throughout the country.	23,600	11,106		2,075		36,781
<b>Activity 1.1.1</b> Collect information on government and private projects on rubberwood plantations in Colombia	2,360	1,111		208		3,678
<b>Activity 1.1.2</b> Evaluate the status of rubberwood estates in Colombia	4,720	7,774		415		12,909
<b>Activity 1.1.3</b> Carry out a comparative analysis of Colombian plantations vis-à-vis international and South American parameters	3,540			311		3,851
<b>Activity 1.1.4</b> Study potential rubberwood products in Colombia	3,540			311		3,851
<b>Activity 1.1.5</b> Identify 2 international projects that may be applied to Colombia	3,540			311		3,851
<b>Activity 1.1.6</b> Classify the various options according to their degree of development, scale of production, current viability and other characteristics	5,900	2,221		519		8,640
<b>Output 2.1</b> Selection of area for pilot project	14,160	3,702		692		18,554
<b>Activity 2.1.1</b> Prioritize the various regions for the development of the pilot case study based on variables such as availability of timber, socio-economic and industrial environment	11,328	3,702		346		15,376
<b>Activity 2.1.2</b> Selection of pilot area	2,832			346		3,178
<b>Output 2.2</b> Scaling of pilot project in terms of products, markets, marketing, production scale, technology, investment requirements and production costs, employment and expected profitability levels	13,600	3,702		2,767		20,069
<b>Activity 2.2.1</b> Scaling of project according to markets, production scale, comparative and competitive advantages, investments, production costs, activities, development stages and goals	1,360	3,702		830		5,892
<b>Activity 2.2.2</b> Estimate profitability, employment and income levels for project beneficiaries.	2,040			830		2,870
<b>Activity 2.2.3</b> Identification of current and potential markets for rubberwood.	2,720					
<b>Activity 2.2.4</b> Evaluation of potential markets.	2,720					

OUTPUTS/ACTIVITIES	Project personnel	Travel	Consumable (Items [*])	Miscellan.	Admin. monit. & eval.	Total
Activity 2.2.5 Analysis of successful experiences in South East Asian countries to establish the basis for international competitiveness parameters.	2,720	13,800				
Activity 2.2.6 Specific recommendations by the work team	2,040			1,107		3,147
Output 3.1 Training courses and workshops for industrialists and local communities on production and marketing processes in the pilot case study.	24,160	14,808	10,000	4,151		53,119
Activity 3.1.1 Participatory diagnosis on current status of region, rubberwood plantations, and socioeconomic and environmental conditions of the region	7,248	4,442	3,000	1,245		15,936
Activity 3.1.2 Strengthening of local knowledge on rubberwood plantation management, processing alternatives for rubberwood and products, and marketing channels	9,664	4,442	4,000	1,660		19,767
Activity 3.1.3 Participatory development of pilot project for rubberwood processing	7,248	5,923	3,000	1,245		17,416
Output 3.2 Seminars for the presentation of results addressed to investors, industrialists, community leaders and government agencies involved in this field in the study area	9,440	3,702	6,550	692		20,384
Activity 3.2.1 Hold two regional seminars on pilot projects for rubberwood products processing.	9,440	3,702		692		13,834
Output 3.3 Ongoing exhibition of proposal and project progress in the Internet	4,720			1,384		6,104
Activity 3.3.1 Design a special link to Web Page on project and main project components	2,360			692		3,052
Activity 3.3.2 Lay out a diagram showing research progress, photographs, statistics, mail box and links to other pages and institutions.	2,360			692		3,052
Output 3.4 Printed and electronic edition of rubberwood alternatives and of pilot case study as a guide for the formulation and implementation of projects	4,720			2,075		6,795
Activity 3.4.1 Select documents, draft diagrams, revise and edit texts, illustrations, electronic edition and printing in fine paper	4,720			2,075		6,795
ITTO Resources					17,178	17,178
<b>TOTAL</b>	<b>94,400</b>	<b>37,020</b>	<b>16,550</b>	<b>13,836</b>	<b>17,178</b>	<b>178,984</b>

\* Workshops, courses and seminars.

**TABLE 2**  
**OVERALL PROJECT BUDGET BY COMPONENT**  
**(in US\$)**

<b>PERSONNEL COSTS</b>					
<b>Professional staff</b>	<b>Position</b>	<b>Quantity</b>	<b>Duration (m/m)</b>	<b>Total unit cost/month<sup>9</sup></b>	<b>Total</b>
Marketing Expert	Director, expert in project evaluation		10	2,800	28,000
Forest Expert	Co-Director, expert		8	2,400	19,200
Community Relations Expert	Participatory strategy		5	2,000	10,000
Support personnel			10	1,400	14,000
<b>TOTAL COSTS - Professional Staff</b>					<b>71,200</b>
<b>DIRECT COSTS</b>					
			<b>Days</b>	<b>Price</b>	<b>Value</b>
Training workshops in the area		4	3	2,500	10,000
Local seminars in pilot case area		2	3	3,275	6,550
Local travel to rubberwood production areas, tickets, land transport		12		300	3,600
DSA			52	160	8,320
Trip to Malaysia / Indonesia					
Airfares		2		2,000	4,000
Hotels		2	10	300	6,000
DSA		2	10	190	3,800
Communications, mailing costs					3,500
Editing (reports)					3,536
<b>TOTAL - DIRECT COSTS</b>					<b>49,306</b>
<b>TOTAL - PERSONNEL AND DIRECT COSTS</b>					<b>120,506</b>
ITTO Administration 5.5%					7,178
ITTO Monitoring and Evaluation					2,800
<b>TOTAL COST OF PROJECT FUNDED BY ITTO</b>					<b>137,684</b>
<b>NATIONAL COUNTERPART</b>					
	<b>Position</b>		<b>Duration</b>	<b>Unit cost</b>	<b>Total</b>
	Ecosystems Director		2	2,800	5,600
	Forest Engineer		4	2,200	8,800
	Agro-industrial Economist		4	2,200	8,800
					<b>23,200</b>
<b>DIRECT COSTS</b>					
			<b>Days</b>	<b>Price</b>	<b>Value</b>
National travel					
Tickets			11	300	3,300
DSA			50	160	8,000
Use of office space			10	400	4,000
Equipment			40	70	2,800
					<b>18,100</b>
<b>TOTAL - NATIONAL COUNTERPART</b>					<b>41,300</b>
<b>GRAND TOTAL - PROJECT</b>					<b>178,984</b>

<sup>9</sup> Total unit cost is divided into: Salaries and Benefits - 65%; Overall expenses - 25%; Contingencies, Taxes and Insurance - 10%.

TABLE 3

## PROJECT BUDGET BY COMPONENT (US\$)

Code	Budget component	ITTO	Gov't of Colombia	Total	Year 1	Year 2	Year 3
10	<i>Project Personnel</i>						
11	National experts	57,200	23,200	80,400	80,400		
12	Administrative personnel	4,200		4,200	4,200		
13	Consultants	7,000		7,000	7,000		
14	Other labour	2,800		2,800	2,800		
15	Fellowships and training	0		0	0		
16	International experts	0		0	0		
19	Component Total	71,200	23,200	94,400	94,400		
20	<i>Sub-contracts</i>	0	0	0	0		
21	Sub-contract x	0	0	0	0		
22	Sub-contract y	0	0	0	0		
23	Sub-contract z	0	0	0	0		
29	Component Total	0	0	0	0		
30	<i>Duty Travel</i>						
31	DSA	18,120	8,000	26,120	26,120		
32	Transport costs	7,600	3,300	10,900	10,900		
39	Component Total	25,720	11,300	37,020	37,020		
40	<i>Capital Items</i>						
43	Capital equipment	0	0	0	0		
49	Component Total	0	0	0	0		
50	<i>Consumable Items (*)</i>						
51	Raw materials	11,585		11,585	11,585		
52	Spares	0		0	0		
54	Office supplies	4,965		4,965	4,965		
59	Component Total	16,550	0	16,550	16,550		
60	<i>Miscellaneous</i>						
61	Sundry	7,036	6,800	13,836	13,836		
62	Refund of pre-project costs	0	0	0	0		
69	Component Total	7,036	6,800	13,836	13,836		
70	<i>ITTO Admin., monitoring and evaluation</i>						
71	Monitoring and evaluation	10,000					
72	Administrative costs	7,178					
79	Component Total	17,178					
99	Grand Total	137,684	41,300	178,984	178,984		

(\*) Refers to workshops and seminars envisaged in the Project.

**TERMS OF REFERENCE**  
**FOR THE NATIONAL CONSULTANT**  
**IN PROCESSED TIMBER PRODUCTS MARKETING**

**DUTIES**

- Identify international projects that may be applied to Colombia.
- Participate in the Panel of Experts established to:
  - Define the initiatives identified in the proposal,
  - Prioritize the initiatives of the proposal,
  - Make specific recommendations based on the results of the proposal and the pilot project,
  - Select the region for the implementation of the pilot project,
  - Develop the assessment and evaluation of the pilot case study.
- Prepare documents compiling the results of relevant activities to be submitted to ITTO.
- Participate in national and regional seminars to be held for the presentation of results.

**EDUCATION**

Economist, Mechanical Engineer, Industrial Engineer or Business Management Expert. Master's degree in international trade and/or economics or project evaluation

**EXPERIENCE**

Five years experience in activities related to international markets for forest and manufactured products and structuring of production projects. At least 3 years experience in timber processing, marketing and the marketing of manufactured timber products.

**DURATION OF ASSIGNMENT**

7 man/months

**TERMS OF REFERENCE**  
**FOR THE NATIONAL CONSULTANT**  
**IN FOREST PLANTATION MANAGEMENT**

**DUTIES**

- Collect relevant information and evaluate the status of public and private rubberwood and tropical forest plantations in Colombia.
- Carry out a comparative analysis of Colombian plantations vis-à-vis existing plantations in other countries.
- Study potential rubberwood products from Colombian plantations.
- Analyze and select forest projects associated and integrated with livestock production and micro-industrial processing.
- Participate in the Panel of Experts established to:
  - Define the Portfolio,
  - Prioritize the projects included in the Portfolio,
  - Make specific recommendations based on the results of the Portfolio and pilot projects,
  - Select regions for the implementation of pilot projects,
  - Develop workshops with the participation of the communities for the formulation of pilot projects.
- Prepare documents compiling the results of relevant activities to be submitted to ITTO.
- Participate in national and regional seminars to be held for the presentation of results of the study.

**EDUCATION**

Forest engineer

Master's degree in sustainable development

**EXPERIENCE**

Five years experience in activities related to forest plantation management

**DURATION OF ASSIGNMENT**

7 man/months

**TERMS OF REFERENCE  
FOR THE NATIONAL CONSULTANT  
IN COMMUNITY WORK**

**DUTIES**

- Identify initiatives with industrialists and communities for each sector of the production chain.
- Design and participate in the workshops to be held with the participation of the communities for the formulation of the pilot project.
- Prepare documents compiling the results of relevant activities to be submitted to ITTO.
- Participate in regional seminars to be held for the presentation of results of the study.

**EDUCATION**

Sociologist or professional in the social field

**EXPERIENCE**

Five years experience in activities related to community participation

**DURATION OF ASSIGNMENT**

5 man/months

**ANNEX I. LOGICAL FRAMEWORK WORKSHEETS**

<b>PROJECT ELEMENTS</b>	<b>VERIFIABLE INDICATORS</b>	<b>MEANS OF VERIFICATION</b>	<b>IMPORTANT ASSUMPTIONS</b>
<p><b>Development objective</b> Carry out a socio-economic pre-feasibility study for the processing and marketing of rubberwood from Colombian plantations which are no longer being used for latex production</p>	<p>Rubberwood production costs (US\$/ha) for each region Income generated by latex production/ha/year Cash flow from rubberwood plantations in Colombia Timber processing costs Transport costs Opportunity costs of timber production for furniture manufacturing</p>	<ul style="list-style-type: none"> <li>• Company statistics</li> <li>• Pre-feasibility study report</li> <li>• Proceedings of participatory workshops</li> <li>• Institutional publications</li> </ul>	<p>The project is able to demonstrate the high economic potential of processing tropical timber species such as rubberwood. Timber production can be as profitable as latex production. Abandoned plantations can be re-incorporated into local and regional economies. The active participation of the private sector and communities is ensured.</p>
<p><b>Specific objective 1</b> Evaluate the status of Colombian rubberwood plantations and select those with timber production potential</p>	<p>Hectares planted in each region according to age class. Harvestable volumes of rubberwood Number of hectares of rubberwood plantations which have been abandoned due to latex production problems</p>	<ul style="list-style-type: none"> <li>• Document and checking of information sources</li> <li>• Checking of data against statistics from various institutions, companies and other relevant studies</li> </ul>	<p>There are no reliable statistics at the national or regional levels on rubberwood plantations in Colombia. There are many rubberwood trees planted in association with other crops which have not been considered as part of the timber supply. There are abandoned plantations which were originally established for the extraction of latex.</p>
<p><b>Output 1.1</b> Documents on rubberwood use potential and complementary activities in existing plantations throughout the country.</p>	<p>As above.</p>	<ul style="list-style-type: none"> <li>• As above.</li> </ul>	<p>Increasing pure or mixed rubberwood crops in Colombia is feasible. Timber production can promote these crops in various regions.</p>
<p><b>Activity 1.1.1</b> Collect information on government and private projects on rubberwood plantations in Colombia</p>	<p>As above</p>	<ul style="list-style-type: none"> <li>• As above.</li> </ul>	<p>The information available in Colombia is dispersed. There is no reliable or updated information on rubberwood plantations, hence the importance of implementing a study to check data in the field.</p>
<p><b>Activity 1.1.2</b> Evaluate the status of rubberwood estates in Colombia: area, soils, climate, densities, development, health, age of trees, approximate timber volume, limiting factors, companies and communities involved</p>	<p>Hectares planted in each region according to age classes. Harvestable volumes of rubberwood. Growth rates and DBHs /comparative cycle between regions. UBN of local communities in rubberwood plantation regions.</p>	<ul style="list-style-type: none"> <li>• As above.</li> </ul>	<p>There are bio-physical, social and economic differences that lead to different timber production rates in each region. Different social impact in each region with rubberwood-based projects.</p>



PROJECT ELEMENTS	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<b>Activity 1.1.3</b> Carry out a comparative analysis of Colombian plantations vis-à-vis international and South American parameters	National parameters vs. parameters in other Latin American (Brazil) and Asian (Thailand, Indonesia and Malaysia) countries Number of hectares planted per age class Tree density /ha Latex production/year Timber production /cycle Direct employment /year Indirect employment /year Producers' income Producers' costs/ha/year Export volumes and value/year Contribution to national economy/year Production start-up (months) Duration of production period (years)	<ul style="list-style-type: none"> <li>Evaluation of documents on marketing and markets and on planted regions in Colombia</li> <li>Mission reports on South East Asian countries</li> <li>International statistics - ITTO, FAO</li> </ul>	National parameters are lower than those of other exporting countries in South East Asia and similar to those in the Amazon Region of Brazil. Existing crops have a high production potential which is not used. Economic benefits to producers are lower than in other countries due to problems in the marketing chain. The contribution of rubberwood plantations to the national economy can be increased following other countries' experience. International productive parameters should be the basis for production and growth goals in the sector.
<b>Activity 1.1.4</b> Study potential rubberwood products in Colombia	Number of potential products in the international market. Number of products in the national industry /total potential products % harvestable timber for processed products Economic potential (US\$'000) of rubberwood products (quantity x market price)	<ul style="list-style-type: none"> <li>Evaluation of documents on marketing and markets and on planted regions in Colombia</li> <li>Mission reports on South East Asian countries</li> <li>Contacts via Internet with processing industries throughout the world</li> </ul>	Rubberwood processing in Colombia is at an infant stage or non-existent. There are several rubberwood by-products produced throughout the world that could be manufactured in the country from plantation rubberwood. Rubberwood products add value to the production chain. The development of rubberwood by-products may have a positive social impact on depressed regions and areas with social conflicts.
<b>Activity 1.1.5</b> Identify 2 international projects that may be applied to Colombia	Selection of two relevant cases	<ul style="list-style-type: none"> <li>Reference documents</li> </ul>	n/a
<b>Activity 1.1.6</b> Classify the various options according to their degree of development, scale of production, current viability and other characteristics to ensure consistency, complementarity and prioritization of proposed initiatives	Prioritization of rubberwood production areas based on FODA matrix. Number of potential areas fo possible rubberwood processing projects. Hectares available for pilot projects. Potential timber volume. List of products with best market development potential	<ul style="list-style-type: none"> <li>Evaluation of documents on marketing and markets and on planted regions in Colombia</li> <li>Mission reports on South East Asian countries</li> <li>Contacts via Internet with processing industries throughout the world</li> </ul>	Not all rubberwood producing regions in Colombia can start the processing of timber products in the short term. Different production, infrastructure, socio-economic and cultural characteristics between the various regions require prioritization. Preliminary analysis of multiple alternatives is necessary before implementing pilot rubberwood processing projects.

PROJECT ELEMENTS	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><b>Specific objective 2</b> Assess the potential of one pilot rubberwood plantation in Colombia, including processing and marketing alternatives, production scale, technology, investment requirements and production costs, employment and expected profitability</p>	<p>Number of products Products volume/year US\$/ ton of product Number of jobs generated US\$/job IRR NPV</p>	<ul style="list-style-type: none"> <li>• Document on pre-feasibility study for pilot project</li> <li>• Technical and economic analysis</li> <li>• Project reports</li> </ul>	<p>Rubberwood processing projects are economically, environmentally and socially viable.</p>
<p><b>Output 2.1</b> Selection of pilot area</p>	<p>Location of selected area</p>	<p>Document justifying selection of area</p>	<p>The area selected maximizes the desired benefits.</p>
<p><b>Activity 2.1.1</b> Prioritize the various regions for the development of the pilot case study based on variables such as availability of timber, socio-economic and industrial environment, conflicts, communication routes, local expectations and interest, social participation, possibility of commercial links.</p>	<p>Strengths, weaknesses, opportunities and threats matrix. Total investment (US\$) required /priorized production zone US\$/ton of products Number of jobs generated US\$/job IRR NPV</p>	<ul style="list-style-type: none"> <li>• Document on pre-feasibility study for pilot project</li> <li>• Technical and economic analysis</li> <li>• Project reports</li> </ul>	<p>Not all rubberwood producing areas in Colombia are viable for timber processing projects. There are differences in plantation age, type of producer, road infrastructure and industrial infrastructure in the various areas. Social conflicts vary according to the region and can affect the viability of projects.</p>
<p><b>Activity 2.1.2</b> Selection of pilot area</p>	<p>Strengths, weaknesses, opportunities and threats matrix. Total investment (US\$) required /priorized production zone US\$/ton of products Number of jobs generated US\$/job IRR NPV</p>	<ul style="list-style-type: none"> <li>• Document on pre-feasibility study for pilot project</li> <li>• Technical and economic analysis</li> <li>• Project reports</li> </ul>	<p>Not all rubberwood producing areas in Colombia are viable for timber processing projects. There are differences in plantation age, type of producer, road infrastructure and industrial infrastructure in the various areas. Social conflicts vary according to the region and can affect the viability of projects.</p>
<p><b>Output 2.2</b> Scaling of pilot project in terms of products, markets, marketing, production scale, technology, investment requirements and production costs, employment and expected profitability levels</p>	<p>Magnitude and profitability indicators</p>	<p>Document</p>	<p>Availability of relevant information</p>

PROJECT ELEMENTS	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<b>Activity 2.2.1</b> Scaling of project according to markets, production scale, comparative and competitive advantages, investments, production costs, activities, development stages and goals	Strengths, weaknesses, opportunities and threats matrix. Total investment (US\$) required /priorized production zone US\$/ton of products Number of jobs generated US\$/job IRR NPV	<ul style="list-style-type: none"> <li>• Document on pre-feasibility study for pilot project</li> <li>• Technical and economic analysis</li> <li>• Project reports</li> </ul>	Not all rubberwood producing areas in Colombia are viable for timber processing projects. There are differences in plantation age, type of producer, road infrastructure and industrial infrastructure in the various areas. Social conflicts vary according to the region and can affect the viability of projects.
<b>Activity 2.2.2</b> Estimate profitability, employment and income levels for project beneficiaries.	Strengths, weaknesses, opportunities and threats matrix. Total investment (US\$) required /priorized production zone US\$/ton of products Number of jobs generated US\$/job IRR NPV	<ul style="list-style-type: none"> <li>• Document on pre-feasibility study for pilot project</li> <li>• Technical and economic analysis</li> <li>• Project reports</li> </ul>	Not all rubberwood producing areas in Colombia are viable for timber processing projects. There are differences in plantation age, type of producer, road infrastructure and industrial infrastructure in the various areas. Social conflicts vary according to the region and can affect the viability of projects.
<b>Activity 2.2.3</b> Specific recommendations by the work team	Strengths, weaknesses, opportunities and threats matrix. Total investment (US\$) required /priorized production zone US\$/ton of products Number of jobs generated US\$/job IRR NPV	<ul style="list-style-type: none"> <li>• Document on pre-feasibility study for pilot project</li> <li>• Technical and economic analysis</li> <li>• Project reports</li> </ul>	Not all rubberwood producing areas in Colombia are viable for timber processing projects. There are differences in plantation age, type of producer, road infrastructure and industrial infrastructure in the various areas. Social conflicts vary according to the region and can affect the viability of projects.
<b>Specific objective 3</b> Coordination with potential beneficiaries and dissemination of results	Number of communities interested in the project /number of producing areas Number of planning and community consultation meetings Number of local projects aimed at rubberwood production Number of community leaders interested in the project	<ul style="list-style-type: none"> <li>• Minutes of community consultation meetings</li> <li>• Community projects processed by relevant authorities</li> <li>• Project reports</li> </ul>	Community participation is essential for the implementation of projects that can generate economic, environmental and social benefits. Local communities should identify with the project concept to support the project. Rubberwood producing communities are not aware of the significance of the timber of this species and its potential to be processed into high value-added products.

PROJECT ELEMENTS	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<b>Output 3.1</b> Training courses and workshops for industrialists and local communities on production and marketing processes in the pilot case study.	Number of courses and workshops. Number of people trained by sector: producers, farmers, industrialists, municipal and regional authorities.	<ul style="list-style-type: none"> <li>• Conclusions /findings from workshops and courses</li> <li>• Project reports</li> <li>• Photographs</li> </ul>	Rubberwood producing communities are not aware of the significance of the timber of this species and its potential to be processed into high value-added products. Participatory training is an essential tool to ensure the communities' interest in the project.
<b>Activity 3.1.1</b> Participatory diagnosis on current status of region, rubberwood plantations, and socioeconomic and environmental conditions of the region	Number of community leaders participating in the diagnosis. Number of local initiatives on rubberwood production and processing.	<ul style="list-style-type: none"> <li>• Minutes of community consultation meetings.</li> <li>• Community projects processed by relevant authorities.</li> <li>• Project reports.</li> <li>• Photographs.</li> <li>• Copies of communities' conclusions</li> </ul>	Local community leaders' participation is essential to carry out a sound diagnosis of the local situation. Local communities must identify with the project concept to support the project. Participatory training is an essential tool to ensure the communities' interest in the project.
<b>Activity 3.1.2</b> Strengthening of local knowledge on rubberwood plantation management, processing alternatives for rubberwood and products, and marketing channels	Number of communities interested in the project /number of producing areas Number of planning and community consultation meetings Number of local projects aimed at rubberwood production Number of community leaders interested in the project	<ul style="list-style-type: none"> <li>• Conclusions /findings from workshops and courses</li> <li>• Project reports</li> <li>• Photographs</li> </ul>	Local communities must identify with the project concept to support the project. Rubberwood producing communities are not aware of the significance of the timber of this species and its potential to be processed into high value-added products. Participatory training is an essential tool to ensure the communities' interest in the project.
<b>Activity 3.1.3</b> Participatory development of pilot project for rubberwood processing	Number of communities interested in the project /number of producing areas Number of planning and community consultation meetings Number of local projects aimed at rubberwood production Number of community leaders interested in the project	<ul style="list-style-type: none"> <li>• Minutes of community consultation meetings.</li> <li>• Community projects processed by relevant authorities.</li> <li>• Project reports.</li> <li>• Photographs.</li> <li>• Copies of communities' conclusions</li> </ul>	Local community leaders' participation is essential to carry out a sound diagnosis of the local situation. Local communities must identify with the project concept to support the project.
<b>Output 3.2</b> Seminars for the presentation of results addressed to investors, industrialists, community leaders and government agencies involved in this field in the study area	Number and % of investors participating in the events. Number and % of industrialists. Number of community leaders.	<ul style="list-style-type: none"> <li>• Seminar Proceedings</li> <li>• Attendance by MMA and ITTO representatives</li> <li>• Seminar conclusions</li> </ul>	The participation of the private sector in the rubberwood production chain is essential. Projects of this nature require investors and large and small scale industrialists. Coordination with the various stakeholders is essential and should be ensured during all project phases.
<b>Activity 3.2.1</b> Hold two regional seminars on pilot projects for rubberwood products processing.	Publication of materials for seminar	<ul style="list-style-type: none"> <li>• Evaluation of document and reports</li> <li>• List of participants</li> </ul>	n/a

PROJECT ELEMENTS	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<b>Output 3.3</b> Ongoing exhibition of proposal and project progress in the Internet	Number of visits to Web Page /month Number of visits to Web Page /year Number of enquiries Number of inquiries responded Number of countries contacted Number of industrialists contacted Number of suggestions received	<ul style="list-style-type: none"> <li>• Verification of Web Page</li> <li>• Visitors' feedback</li> <li>• Record of inquiries</li> <li>• Paid telephone bills</li> </ul>	Electronic communications are a powerful tool to ensure the multiplier effect of projects of global, national, regional and local interest. The Internet is an excellent medium to establish technical and business contacts. The Internet is the most cost-effective way of disseminating results.
<b>Activity 3.3.1</b> Design a special link to Web Page on project and main project components	Number of visits to Web Page /month Number of visits to Web Page /year Number of enquiries Number of inquiries responded Number of countries contacted Number of industrialists contacted Number of suggestions received	<ul style="list-style-type: none"> <li>• Verification of Web Page</li> <li>• Visitors' feedback</li> <li>• Record of inquiries</li> <li>• Paid telephone bills</li> </ul>	Electronic communications are a powerful tool to ensure the multiplier effect of projects of global, national, regional and local interest. The Internet is an excellent medium to establish technical and business contacts. The Internet is the most cost-effective way of disseminating results.
<b>Activity 3.3.2</b> Lay out a diagram showing research progress, photographs, statistics, mail box and links to other pages and institutions.	Number of visits to Web Page /month Number of visits to Web Page /year Number of enquiries Number of inquiries responded Number of countries contacted Number of industrialists contacted Number of suggestions received	<ul style="list-style-type: none"> <li>• Verification of Web Page</li> <li>• Visitors' feedback</li> <li>• Record of inquiries</li> <li>• Paid telephone bills</li> </ul>	Electronic communications are a powerful tool to ensure the multiplier effect of projects of global, national, regional and local interest. The Internet is an excellent medium to establish technical and business contacts. The Internet is the most cost-effective way of disseminating results.
<b>Output 3.4</b> Printed and electronic edition of rubberwood alternatives and of pilot case study as a guide for the formulation and implementation of projects	Number of copies printed and published. Number of files copied. Number of institutions, companies and local communities receiving the material. US\$ invested/printed copy produced US\$ invested/electronic copy produced	<ul style="list-style-type: none"> <li>• Publication in printed and electronic media</li> <li>• Suggestions and comments received</li> </ul>	There are no specialized or general documents in Colombia illustrating rubberwood qualities and products. Public officers, environmental authorities, industrialists and investors need to be informed.
<b>Activity 3.4.1</b> Select documents, draft diagrams, revise and edit texts, illustrations, electronic edition and printing in fine paper	Number of copies printed and published. Number of files copied. Number of institutions, companies and local communities receiving the material. US\$ invested/printed copy produced US\$ invested/electronic copy produced	<ul style="list-style-type: none"> <li>• Publication in printed and electronic media</li> <li>• Suggestions and comments received</li> </ul>	There are no specialized or general documents in Colombia illustrating rubberwood qualities and products. Public officers, environmental authorities, industrialists and investors need to be informed.