

# INTERNATIONAL TROPICAL TIMBER ORGANIZATION

## ITTO

### PROJECT DOCUMENT

TITLE	DEVELOPMENT OF SUSTAINABLE RATTAN PRODUCTION AND UTILIZATION THROUGH PARTICIPATION OF RATTAN SMALL HOLDERS AND INDUSTRY IN INDONESIA
SERIAL NUMBER	PD 108/01 REV.3 (I)
COMMITTEE	FOREST INDUSTRY
SUBMITTED BY	GOVERNMENT OF INDONESIA
ORIGINAL	ENGLISH

#### **SUMMARY**

The objective of the project is to develop a competitive rattan industry from sustainable sources to provide multiple benefits for the communities of rattan-based industry in Indonesia. Raw materials obtained from rattan natural and plantation will be studied for their sustainability, silvicultural and processing aspects. This study is focused on developing cultivating and harvesting system, rattan processing, grading system, product design, product diversification and marketing. The local communities in small-scale rattan industry will be involved in these activities to find out the market incentive and policy recommendation. The characteristic of the project is field trials involving local communities and laboratory experiments.

EXECUTING AGENCY	Directorate General of Land Rehabilitation and Social Forestry in cooperation with Forestry Research and Development Agency Ministry of Forestry	
DURATION	36 MONTHS	
APPROXIMATE STARTING DATE	UPON APPROVAL	
PROPOSED BUDGET AND OTHER FUNDING SOURCES	Source	Contribution in (US\$)
	<b>ITTO</b>	<b>434,839</b>
	Gov't of Indonesia	414,460 (in kind)
	<b>TOTAL</b>	<b>849,299</b>

## PART I. CONTEXT

### 1. Origin

Rattan is one of the Non-Timber Forest Products (NTFPs). It contributes 6,5 % of the revenue coming from forest product industry in Indonesia as well as contributes about 80 % of rattan global market.

The total area producing rattan in Indonesia is 9.37 million ha. In majority it is found in East Kalimantan (4.2 million ha). Since 1986 there are 46 rattan species, which commercially traded in rural areas as well as international market. Most of the species belongs to small size diameter (diameter less than 18 mm). The most important small size diameter is rattan Sega (*Calamus caecius*) and the big size is rattan Manau (*Calamus manan*) and Semambu (*Calamus scipionum*). The importance of rattan species depends on the species properties and utilities, such as for frame of chairs usually made of rattan big size diameter, and lampit (traditional carpet) material from rattan small size diameter.

The Government pays attention to draw a policy on export restriction of raw rattan material as well as on semi-finished rattan products since 1986. This imposition is aimed for promoting the rattan domestics industries, opening the employment opportunity, getting added value, and the willingness to ensure the sustainable management of rattan resources. This policy influenced to rattan industrial developments, especially on the raw rattan material price at national level as well local/community level. The rattan price decreased for almost two decades.

Rattan products become popular because of its beauty and endurance. At present, although the products are still in great demand the activities of weaving and utilizing rattan canes have almost completely disappeared from the communities. The main problem is the lack of raw materials. People used to harvest rattan cane in the forest near by their houses but now they have to spend a day or longer to find rattan in the deep forest. Promotion on research and development of rattan plantation is therefore needed to help conserving the rattan species and farmers in the region of rain forests. The experts recommended follow-up the-project activities, taking into account the limited information and the unawareness of rural communities to use appropriate technologies for the efficient and diversified utilization of rattan that can conserve tropical forests.

The rattan expert meeting (FAO-Expert Meeting 5-7December 2000) in Rome, Italy identified (twelve) problems and recommendations for the global rattan developments. One of the problems is a rattan resource in natural tropical forest in Indonesia and Africa that is being degraded due to over exploitation.

**At the Rattan Policy Review Workshop held at CIFOR on 29-30 November 2002 to promote the rattan sector in Indonesia, experts from various institutions such as Indonesian Research Institutes, FORDA, Universities, NGO, GTZ, ASMINDO, DG-LRSF, and the private sector, including the Indonesian Rattan Association, and a small-scale rattan industry (P.T. Kerasaan Huta Nauli), attended and discussed four main issues on rattan resources, producers, trade and policies. Experts from various private sectors in the country considered great potential in the utilization of rattan to enhance rural income through promoting the small-scale industry development. The results of the workshop were used to support the formulation of this proposal.**

The DG-LRSF solicits to ITTO support especially in improving living standard of rural community by promoting appropriate technology for rattan utilization and management. This purpose is in line with the new government policy in the reformation in which the participation of community in management and utilization of natural resource in general will be encouraged and intensified. This project forms the first cooperation project in rattan development ever conducted between the government of Indonesia and international agency.

## **2. Sectoral Polices**

### National Policy

#### **Constitution of the Indonesia**

It ratifies the significance of sustainable utilization of natural resources. It is further emphasized that based on article 33 of the Constitution, the sustainable utilization of natural resources should be directed to support and improve the welfare of the community.

#### Basic principle Law of Forest

It provides mandate to the Ministry of Forestry to manage forest resource in a sustainable way in which the Ministry hold responsibility in formulation, coordination and evaluation of national policies with regard to preservation and conservation of forest resources. Besides, this law also forms the basis of legislation consisting of government regulation, Ministerial decree and others aimed at ensuring the sustainable use of forest resources.

Directorate General of Land Rehabilitation and Social Forestry (DG-LRSF) has a responsible for promotion of rehabilitation of degraded land and development of social forestry in which the management and utilization of rattan and the other non-wood forest products becoming part of social forestry development and preservation of biological diversity with a view to sustainable development.

#### Code for the Environment and Natural Resources

The code reinforces forest policy guidelines related to the conservation of various types of natural ecosystems and the sustainable management and utilization of natural resources and natural life as an integral part of the nation natural heritage.

The project is framed within the aims and plans of the DG-LRSF with the main objective of promoting polices, plans and regulations on rehabilitation of degraded forest and sustainable use forest resources, as well as supervising and monitoring their enforcement. Other objective is to coordinate, supervise and to promote the utilization of non-timber forest product which support the livelihood of local communities. The DG-LRSF will act as executing agency and will be responsible to ITTO for the technical and administrative implementation agency as well as establishing the policy strategy to be followed by the project.

#### Programmes and Operational Activities.

The government of Indonesia has given top priority to sustainable management under the ITTO's year 2000 objective and to implement both the old and new forest laws. There are number of program and activities undertaken and supported by social forestry management, the devolution of forest management to the communities and improved living standard for people surrounding or near the forest.

### 3. Programmes and Operational Activities

The studies on the basis properties of selected rattan species will be conducted at the Forest Product Technological Research and Development Center in Bogor. There are suitable laboratories that capable to facilitate the project. The demonstration plots for studying management of rattan plantation on a sustainable management practices for rattan production is in West Java (Sukabumi, Cianjur, Bandung and Kuningan district). Experimental plots on sustainable management and harvesting for rattan production will be on rattan plantation trial in Sukabumi and Kuningan.

Technology transfer to support socio-economic development and community owned enterprise establishment should be implemented to the right target groups. Therefore, national conference on plantation management and utilization of rattan will be organized for 3 days in West Java Province. This conference will be participated with 50 participants from private persons, government sector, university, NGO and community leader. A Training course on rattan plantation and utilization will be organized for 15 days with 30 participants from rural people. Training course on rattan furniture processing, weaving and designing will be held in Cirebon for 15 days with 30 participants from small scale enterprise. The project leader and assistants will manage the implementation and administration of all activities and set up the objectives. He should coordinate with relevant government, private offices, and organization to ensure the efficient implementation of the project. He will prepare and submit part time/report to ITTO. The assistant project leader will coordinate the activities and evaluate the implementation of the activities gathered by the project. He will assist the project leader and the preparation of the project report and the relevant document. DG-LRSF will appoint assistance project leader and support personnel to ITTO. Based on the estimated duration of the activities, the project implementation will be carried out for 36 months.

## PART II. THE PROJECT

### 1. Project Objectives

#### 1.1. Development Objective

***The development objective of the project is to enhance the multiple benefits of rattan to the local communities through securing rattan raw materials and production flows from sustainably managed resources.***

#### 1.2. Specific Objectives

Specific Objective 1. To develop sustainable utilization of natural and planted rattan from sustainable sources in Indonesia.

Specific Objective 2. To improve rattan industrial competitiveness through improvement in rattan grading system, product designs and qualities, market incentives and policy, as well as diversification of rattan products.

## 2. Project Justification

### 2.1. Problems to be addressed

Indonesia has long been well known as the biggest rattan exporting country in the world. Since in the 1980's, Indonesia has been dominating rattan supply by sharing 80% of the total world trade. Rattan industry in Indonesia plays significant role on both national economy and people livelihood, particularly on those who are living at adjacent forest. On the economic sector, rattan industry contributes more than US \$ 300 million annually to the national foreign exchange in 1998 and 1999 (National Statistic Bureau, 2000). For the local people, rattan provides not only various benefits for subsistence needs, such as materials for housings and household utensils, medicines as well as food, but also cash income. More than a million of people currently involved in rattan-based activities on natural collecting, cultivating, processing, trading and marketing.

Statistic recorded that around 300 rattan species grow in Indonesia, although only a few of them have been commercially well known. Based on 1995 inventory, the potential production of rattan in Indonesia was predicted about 415 thousand tones. This production potential derived from both natural rattan collection and cultivated rattan. East Kalimantan, South and Central Sulawesi and Jambi are some of the main provinces of rattan producer areas. Within these provinces, rattan has been culturally harvested and cultivated and for some local community, those activities become the main source of household income.

Recent trend, however, showed that the direction of rattan development in Indonesia is not somewhat promising. Statistic recorded that within only a decade (1986 to 1995), the potential rattan production has decreased 40% from 697 thousand tones into 415 thousand tones (Sukardi, 2000). Natural rattan, particularly the most market demanded large diameter rattans are getting scarce and difficult to find at reasonable distances in the forest, indicating the past over exploitation of these rattan species. In some areas, such as in the District of Kutai and Pasir, East Kalimantan, rattan dwellers and rattan farmers have changed their main activities into other alternatives. These are happened as rattan became no more attractive and less competitive as the main income generation if compared to other activities. Even in some areas, rattan gardens have been changed into other land use system, such as into agriculture land or estate crops plantation. In the long term, this trend could threaten the sustainability of rattan industries in Indonesia. In fact, some of the medium-scale industries have been closed due to raw material problem.

The declining attention of rattan dwellers and rattan farmers was caused by complex factors. One of the key factors is the inefficient rattan marketing system that lower the bargaining power of the rattan dwellers and farmers. Raw rattan market tends to be occupied by monopoly system causing the price was more determined by buyers than fair market system. For many years, the rattan dwellers and farmers suffered from this system. This, furthermore, affects the rattan qualities. Little incentive was available for the producers to improve their rattan qualities due to unclear or not rewarded grading system. Improper regulations also contributed to the declining of rattan production. Improper export ban on semi-finished rattan products and the implementation of export quota has made some of the medium scale rattan industries under stress and lost their competitiveness. Improper regulations on taxation and trade licenses have made high economic cost and pushed the industry to further lowering the farm gate price.

Resource scarcity on certain rattan species could be solved by investment on rattan plantation. However, despite the high potential for developing this plantation, the investment has not yet

become an attractive business. Perum Perhutani, a state owned company, which major activities are in timber plantation, has tried to plant 32,000 ha of rattan. They experienced with some technical and management difficulties on intensive rattan cultivation that may hinder the continuity of the program. These problems should also be addressed, considering the potential benefits of the plantation. Intensive rattan plantation could be integrated with timber estate and could provide opportunity to increase the efficiency of land utilization. This intensive plantation needs to involve local community for mutual benefits. The local community could be provided by income benefits, whereas the company could reduce both the risk on investment and the cost of forest maintenance.

Rattan industry in Indonesia is also facing the dynamic changing of international market. Market preferences on products are changing rapidly. New competitors from other countries are emerging. All of these changing situations should be taken into account to maintain the competitiveness of the Indonesian rattan industry. Product development on qualities and designs as well as product diversification is some of the key points that should be addressed.

This project will address those problems and expectedly could find the more sound strategy to achieve sustainable production of both natural and cultivated rattan, to improve rattan industrial competitiveness, and to support more equal benefit among the rattan stakeholders.

## **2.2. Intended situation after project completion**

This project is expectedly could accelerate and maintain the development of rattan industry in Indonesia. The intended situation after the project completion is as follow:

- Rattan resource is being sustained because of the implementation of better management on natural rattan in natural forest; growing interest of rattan farmers to maintain and expand their rattan gardens due to attractive incentives, and growing interest of investor on intensive rattan plantation.
- Rattan dwellers and rattan farmer's incomes are increased because of supportive market system, sound government policies and available opportunities for adding value of raw rattan and rattan products.
- Rattan market system become more efficient and fair because of the elimination of improper policies, improved market transparency and well acceptance of rattan grading system for both raw and processed rattan.
- Rattan industry became stronger and more competitive in international market due to stable flow of raw rattan supply, improved qualities and available opportunities for promoting diversified rattan products.

## **2.3. Project strategy**

A large extent of studies on rattan in Indonesia has been published. All of these materials will provide important references of the main issues of rattan development in Indonesia. The project will use those materials for references and further develop new strategies to achieve the objected goals. Various relevance institutions will be involved in the project and this will improve the possible acceptance of the project findings or outputs by various parties. In particular this project will take the following approaches in order to achieve project objectives:

- Understanding the rattan potency of both natural rattan in the natural forest and the cultivated rattan. Through review activities on the available materials (papers, reports, proceedings

etc.), combined with the field surveys and incorporated with the development of practical inventory techniques, more reliable figures on rattan potency in Indonesia could be gathered. This information is important for determining the sustainable rattan production and predicting the required cultivated rattan through intensive plantation.

- Understanding rattan demand of both raw rattan and rattan products. Through surveys and market studies, the demand of raw rattan and rattan products, including their types, qualities and designs could be identified. This will provide useful information for the industry and planners on preparing their strategies. This and the previous information will also be useful for planning the optimum industrial capacity in the rattan sector.
- Understanding the rattan dwellers and farmers of their perceptions, capabilities (skills, capital, etc.) and responds to the changing environments on markets, policies and new opportunities. This information is useful for identifying the sound policy intervention.
- Market intervention to increase farm gate price, accepted grading system and empowering rattan dwellers and farmers to increase their bargaining power.
- Providing guidelines and tools for investor who is interested on establishing rattan intensive plantation. The experiments, data and technical knowledge gathered from the demonstration plot, will be useful on encouraging potential investor to establish intensive rattan plantation and this will support the efforts to sustain rattan resources.
- Conduct training for farmers and investors on cultivation techniques. The training will be useful for the farmers to directly increase their technical and management skills on cultivating rattan.
- Conduct national workshop on rattan that expectedly will be participated by various parties who concern to rattan. This workshop is useful to deliver project findings to a broad audience and simultaneously increase the national awareness on rattan resources and industries in Indonesia.

#### **2.4. Target beneficiaries**

The project expectedly will provide both direct and indirect benefits to various parties. On rural communities, the direct beneficiaries of the project will be the rattan dwellers and rattan farmers who may gain a better farm gate price of their raw rattans, due to more efficient market. This may also stimulate them to improve their rattan qualities because of the opportunity to gain more profits from the adding value process. Rattan traders could be indirectly benefited by the more stable supply of raw rattan from the dwellers and farmers.

Rattan industry will take advantage by the secured supply of raw rattan and better qualities. They will also benefit with a better environment in rattan trading system and policies. High economic cost could be reduced or even eliminated due to more transparent market and the elimination of improper regulations. Technological innovation and management experience on rattan intensive plantation trials will encourage rattan industries to invest on rattan plantation. Similarly, the technological innovation on processing that resulted from the project will help the industries to improve their product qualities and strengthen their competitiveness at international market. These situations will then create more investment on rattan industries and provide employment opportunities for the community.

Government, both at central and regional levels will be benefited by the project because of more reliable data on rattan resources and so help them in the decision making process. Some inventory tools for rattan resource will minimize the inventory cost and support the continual

monitoring of rattan resources. The most important benefit is probably the increasing foreign exchanged contributed by the rattan industries due to their expansion on rattan export activities.

Better practice on natural rattan harvesting by the rattan dwellers as well as better perception from the rattan farmers on rattan resource will help to encourage community awareness and efforts to sustain rattan resources. The improved livelihood of rattan dwellers and farmers will also reduce their tension to natural forest resources, which help the conservation efforts of the natural forest.

Last but not least, the other ITTO member countries may take lessons and experience from this project for their own benefits on improving their rattan sector.

## **2.5. Technical and scientific aspects**

This project does not start from the scratch, instead it will efficiently use the current available resources of the previous studies and experiences on rattan development. Rattan inventory, for example, has been conducted by the Ministry of Forestry, but with limited scope, and probably it has been out of date. Within this project, a new approach on inventory techniques by involving community participation will be developed. This will revise the current status of rattan resources in Indonesia, as well as provide a better approach on inventory techniques for future works.

Market and policy studies will review the previous works reported by various institutions (research Institutions, NGOs as well as government agencies) and try to fill the gaps for better implementation of any given recommendation. One of the important issues in this particular area is to establish more sound and well-accepted rattan grading system. Currently the uncertainty of this grading system has been abused to reduce the bargaining position of rattan dwellers and rattan farmers.

The experiment and innovation that will be developed in the rattan plantation trials will provide better techniques on cultivation for some of commercial and potentially commercial rattan species. Currently, although some works on rattan cultivation have been conducted, most of them focused on certain commercial rattan species, such as Manau (*Calamus manan*) and Sega (*Calamus caesius*). There is still abundance of potential rattan species waiting to be explored. Furthermore, the documented guidelines are mostly based on traditional technology culturally practiced by the rattan dweller and farmers. Scientific background for these traditional practices is still very limited. Apart from the technical aspects, management schemes experienced from this project will provide options for better approach on rattan cultivation. Similarly on the processing techniques, the innovation that will be resulted from this project will enrich the processing techniques and open new opportunities to the industries to improve their product qualities and diversification.

## **2.6. Economic aspects**

The economic aspect is one of the underlining targets of this project. As already mentioned in the previous section, the rattan industry itself contributes more than US\$ 300 million annually to the Indonesian foreign exchange. The investment cost of this project hence is very efficient that should be considered the total benefits deriving from the increasing of rural community income in rattan activities. Moreover, the positive impacts may be delivered to natural forest conservation



efforts. The demonstration plot of intensive rattan plantation of this project will provide direct economic benefits to the participants (participated rural communities and the state owned company) and may be used for different purposes in further activities on the rattan development efforts, such as training and permanent research sites.

## 2.7. Environmental aspects

This project concerns with the environmental aspect, in particular the sustainability of rattan resources in Indonesia, either rattan in the natural forest or cultivated area. The improved income of the rattan dwellers and farmers from their rattan activities will increase their appreciation to the rattan and forest resources that greatly help the forest conservation efforts. The greater concern and interest of the rattan industries is to develop intensive rattan plantation to reduce the tension of over exploitation on the natural rattan. Finally, the innovation of processing techniques could improve rattan product qualities and prolong their life services, and hence improve the efficiency of raw material utilization.

## 2.8. Social aspects

The selected demonstration plots for rattan establishment and smallholder participation will locate in 4 (four) forest district, i.e. Kuningan, Cianjur, Bandung Selatan and Sukabumi (Figure 1) Perum Perhutani as the State-owned Forestry Company manages these forest districts, which have a total area of 100 ha (Table 1). The communities in these locations primarily live from activities in agriculture and farming (food crops, cash crops, cattle raising, and agroforestry), estate crops, etc.

Table 1. Profile of Each Demonstration Plots Area

No.	Description	Kuningan	Cianjur	Bandung Selatan	Sukabumi
1	Forest area : 1.1. Total area (ha) 1.2. Level of productivity 1.3. Demplots size (ha) 1.4. Accessibility	38,600 Productive 25 easy	68,862,5 Productive 25 easy	54,475,36 Productive 25 easy	107,935,38 Productive 25 easy
2	Concerned local community 1.1. Total (people) 1.2. Main incomes	872,250 Agriculture	489,432 Agriculture	1,576,728 Agriculture	1,962,220 Agriculture
3	Facilities: 1.1. Schools 1.2. Hospitals/clinics	72 14	56 21	68 17	79 17

Population growth is undoubtedly a demographic factor that has a considerable influence on forests. As the population grows, the availability of resources is increasingly reduced due to the growing demands on land for their live. Furthermore, the continuing of the use of traditional and unsustainable land-use systems practiced by a major part of the rural population deteriorates and reduces the resources degradation.

Figure 1. A map of the project sites

The social impact will be increasingly reflected in the communities, as they realize that forest resources are being sustainably managed and can generate income and employment in rural areas, which in turn help to minimize rural – urban migration and reduced the pressure exerted by the population on forest areas.

The results of the project, which benefit concerned local community and the development of rattan by community participation is likely direction for improvements. The project will also generate paid employment. Furthermore, the income generated from these management activities will improve the living standards of the rural communities and the project implementation is with a capacity for rapid expansion and replication.

The implementation of this project will involve and accommodate active participation of the rural communities and private companies. The inventory and market studies in particular on developing the accepted rattan grading system will accommodate the local technology. Further development will build common understanding between them. This will help to increase the probability of the adoption of the project results by the targeted communities. The management scheme model on rattan intensive plantation trials will provide the opportunities of the local communities and private companies to work together in mutual benefits condition.

## **2.9. Risks**

There is a minor risk that may impede the successful implementation of the project. Low participation from the rural community and the private companies may be encountered due to misunderstanding about the meaning and value of the project. This, however, can be solved by pre-conditioning plan through coordination with local chiefs and Forestry District authorities in the field, which are more familiar with the culture. There is also risk following the completion of the project. Once the market incentives for the rattan dwellers and farmers achieved, they may over exploit rattan resource from natural forest to gain more profits. This should be anticipated by finding the sound policies that maintain the balance between natural rattan exploitation and the establishment of rattan gardens.

## **2. Outputs**

### **3.1. Specific Objective 1.**

To develop sustainable utilization of natural and planted rattans from sustainable sources in Indonesia.

Output 1.1.: Report on rattan supply and demand in Indonesia. It covers survey on rattan potency, rattan processing, rattan production and their management options.

Output 1.2.: Report on existing natural rattan management and utilization

**Output 1.3: Four demonstration plots of intensive rattan plantation trials at the Forestry District (KPH) Sukabumi, Cianjur, Bandung Selatan and Kuningan. The first two plantation trials cover a model of management scheme on rattan plantations at natural forest [*rasamala (Altingia excelsa) and puspa (Schima wallichii)*] managed by local community organization (wanatani). The other two plantation trials will be developed for a model of rattan plantations within rattan plantation forest [*pine (Pinus merkusii) and damar (Agathis***

*loranthifolia*) or meranti (*Shorea spp.*)], where applicable, plantation areas managed by state own forestry company.

### 3.2. Specific Objective 2.

To improve rattan industry competitiveness through improvement on rattan grading system, product designs and qualities, market incentives and policy, as well as diversification of rattan products.

Output 2.1.: Report on market preferences of rattan products types, designs, and qualities. The constraints and options on achieving products preference will be identified.

Output 2.2.: Appropriate technology to achieve better qualities of rattan products. This will include technological innovation on grading system, processing techniques (preservation, drying, bending techniques, etc.), designs, and products diversification (extraction techniques on dragons blood product).

Output 2.3.: Recommendation on socio-economic and policy of rattan market system.

Output 2.4.: *Establishment of two small rattan processing factories involving active participants of local communities. The two models factories will be established from the existing factories by upgrading the facilities of selected factories.*

Output 2.5 : Two short training courses to master knowledge of rattan cultivation and on rattan processing (Each course will be participated by around 30 participants within 15 days).

Output 2.6.: National workshop. It will cover cultivation, processing, socio-economic, marketing and policies of rattan products. The workshops will be participated by around 50 persons within 3 days.

### 4. Activities

Output 1.1.: Report on rattan supply and demand, rattan processing and rattan production and management options in Indonesia.

Activities	Description	Inputs
A 1.1.1	Literature review and survey on rattan supply and demand.	Project staff, Consultants, Local travel cost (Bogor-Jakarta), Consumable items,
A 1. 1. 2	Field survey on rattan producer area and capacity industry. It will be carried out at Jambi, East Kalimantan, South Sulawesi, Cirebon, Bogor, Jakarta, Tangerang, Surabaya	Project staff, Consultants, Local travel cost (Bogor-Jakarta-Tangerang; Cirebon), Air tickets (Jambi, East Kalimantan, South Sulawesi and Surabaya), Local labors, Consumable items,
A 1.1.3	Report writing on a) Indonesian rattan supply and demand in Indonesia, b) guide line on rattan processing technology	Project staffs, data, Consumable items

Output 1.2.: Report on existing natural rattan management and utilization

Activities	Description	Inputs
A 1. 2.1	Study on rattan inventory techniques of natural rattan management practices at rattan producer areas (Jambi, East Kalimantan and South Sulawesi).	Project staff, Local consultants, Air tickets (Jambi, East Kalimantan and South Sulawesi), Equipment (GPS tools, satellite imagery maps, computers, GIS soft wares).
A 1. 2.2	Study on natural and planted rattan utilization	Project staff, Local consultants, Air tickets (Jambi, East Kalimantan and South Sulawesi), Equipment (GPS tools, satellite imagery maps, computers, GIS soft wares).
A 1. 2.3.	Report writing on inventory, cultivation, harvesting and rattan processing technology	Project staffs, data, Consumable items

**Output 1.3: Four demonstration plots of intensive rattan plantation trials at the Forestry District (KPH) Sukabumi, Cianjur, Bandung Selatan and Kuningan. The first two plantation trials cover a model of management scheme on rattan plantations at natural forest [*rasamala (Altingia excelsa) and puspa (Schima wallichii)*] managed by local community organization (wanatani). The other two plantation trials will be developed for a model of rattan plantations within rattan plantation forest [*pine (Pinus merkusii) and damar (Agathis loranthifolia) or meranti (Shorea spp.)*], where applicable, plantation areas managed by state own forestry company.**

Activities	Description	Inputs
A 1.3.1	Establishment of rattan plantation trials at each demplot (four sites at KPH Sukabumi, Cianjur, Bandung and KPH Kuningan, West Java) by local community.	Project staff, Local consultants, Travel cost to Kuningan, Bandung, Sukabumi and Cianjur. Local labors cost.
A. 1.3.2.	Empowering local community on intensive rattan plantation through: establishment community groups extension program on rattan silviculture, developing contract models and marketing scheme	Project staff (surveyors), Local consultants, Travel cost to Sukabumi, Cianjur, Kuningan and Bandung. Local labor cost
A 1.33.:	Maintenance and data collection of the plantation forested company	Project staff (surveyors), Local consultants, Travel cost to Sukabumi, Cianjur, Kuningan and Bandung. Local labor cost
A 1.3.4.:	Financial analysis on rattan plantation,	Project staff, Local consultants, Travel cost to Jambi, East Kalimantan, Central Sulawesi and Surabaya), Consumable items
A. 1.3.5.	Report writing	Project staffs, data, Consumable items

**Output 2.1.:** Report on market preferences of rattan products types, designs, and qualities. The constraints and options on achieving products preferred will be identified.

Activities	Description	Inputs
A 2. 1. 1.	Field survey at rattan industries, i.e. Cirebon, Jakarta-Bogor-Tangerang and Surabaya, to identify market preferences on rattan products (in terms of their types, designs and qualities) to achieve the preferred products	Project staff (surveyors), Local consultants, Air tickets to Surabaya, Travel cost (Cirebon and around Bogor-Jakarta-Tangerang), Local labors cost, Consumable items
A 2. 1. 2	Evaluation and report writing on market preferences of rattan-based products.	Project staff, Local consultants, Consumable items, Computers network

**Output 2.2.:** Appropriate technology to achieve the product preference and adequate qualities, including the technological innovation on grading system, processing techniques, designs, and products diversification.

Activities	Description	Inputs
A.2.2.1	Study on basic properties of 18 selected rattan species (commercial but less	Project staff, Local consultants, Air tickets (Jambi, East Kalimantan, South Sulawesi and Surabaya), Local labors

	information species and potential less commercial species) collected from rattan producer areas	cost, Consumable items
A. 2.2.2.	Study on rattan grading system (raw rattan, semi-finished and finished products) at rattan producer areas and rattan industries (Cirebon, Jakarta-Bogor-Tangerang and Surabaya).	Project staff, Local consultants, Air tickets (Jambi, East Kalimantan, South Sulawesi and Surabaya), Travel cost to Cirebon and around Bogor-Jakarta-Tangerang, Consumable items, Local labors cost
A. 2.2.3.	Study on rattan processing for better qualities, including preservation, drying, bending, knock down designing and finishing techniques	Project staff, Local consultants, Travel cost (Cirebon and around Bogor-Jakarta-Tangerang), Laboratory materials and equipment, Consumable items
A. 2.2.4.	Study on diversification of rattan's dragon blood.	Project staff, Local consultants, Travel cost (Cirebon and around Bogor-Jakarta-Tangerang), Laboratory materials and equipment, Consumable items, Local labors cost
A. 2.2.5.	Benefit-cost ratio analysis of added value of rattan products.	Project staff, Local consultants, Travel cost (Cirebon and around Bogor-Jakarta-Tangerang), Consumable items
A. 2.2.6.	Guideline on processing technique, grading system formulation on rattan and dragon's blood, benefit-cost ratio analysis.	Project staff, Local consultants, Travel cost to Bogor from Cirebon, Jakarta, Tangerang and Surabaya, Air tickets to Bogor from East Kalimantan, South Sulawesi and Jambi, Travel cost for participants meetings
A. 2.2.7	Report writing	Project staffs, data

**Output 2.3.: Recommendation on Socio-economic and policy of rattan market system.**

Activities	Description	Inputs
A 2.3.1.	Review and analysis of all rattan regulations and its impact to community livelihood (rattan dwellers and local traders) and rattan industry development (home industry, small-scale and large industries).	Project staff, Local consultants, Travel cost (Cirebon and around Bogor-Jakarta-Tangerang), Air tickets (Jambi, East Kalimantan, South Sulawesi and Surabaya), Consumable items, Local labors cost
A 2.3.2.	Review and analysis of rattan marketing system with crosscheck survey to rattan producer areas (Jambi, East Kalimantan and South Sulawesi) and rattan industries (Cirebon, Jakarta-Bogor-Tangerang and Surabaya).	Project staff, Local consultants, Travel cost (Cirebon and around Bogor-Jakarta-Tangerang), Air tickets (Jambi, East Kalimantan, South Sulawesi and Surabaya), Consumable items, Local labors cost
A 2.3.3.	Report writing and policy recommendation.	Project staff, Local consultants, data, Consumable items

**Output 2.4.: Establishment of two small rattan processing factories involving active participants of local communities. The two models factories will be established from the existing factories by upgrading the facilities of selected factories.**

Activities	Description	Inputs
A 2.4.1	Establishment of small-scale industry, including processing trial unit.	Project staff, Local consultants, Travel cost (Sukabumi and Kuningan), Semi permanent workshop, Rattan processing equipment, Local labor cost
A 2.4.2	Financial and benefit-cost ratio analysis on selected rattan species (small and large diameter rattans)	Project staff, Local consultants, Travel cost (Sukabumi and Kuningan), Consumable items, Local labor cost
A 2.4.3	Report writing and guideline for preparing small-scale industry	Project staff, Local consultants, Consumable items, Local labor cost, data

**Output 2.5 : Two short training courses to master knowledge of rattan cultivation and on rattan processing (Each course will be participated by around 30 participants within 15 days).**

Activities	Description	Inputs
A 2.5.1.	Preparation of Training Program (Curriculum, participant and instructor selection training, and preparation of training materials).	Project staff, Local consultants, Consumable items, Local labor cost
A 2.5.2.	Implementation of two consecutive short training courses (each comprise of 60	Project staff, Local consultants, Training materials, Accommodation for participants, Consumable items

	participants within 30 days).	
A 2. 5. 3.	Report writing/proceeding and evaluation of training courses.	Project staff, Local consultants, Consumable items, Local labor cost

**Output 2.6.:** National workshop. It will cover cultivation, harvesting, processing, socio-economic, marketing and policies of rattan products. The workshops will be participated by around 50 persons within 3 days.

Activities	Description	Inputs
A 2. 6. 1.	Preparation of workshop program (agenda, participants, keynote speakers, workshop materials).	Project staff, Local consultants, Consumable items
A 2. 6. 2.	Implementation of the workshop (location: Bogor or Jakarta).	Project staff, Local consultants, Accommodation for participants, Consumable items
A 2. 6. 3.	Report writing/proceeding, evaluation of the workshop and publication.	Project staff, Local consultants, Consumable items

## 5. Logical Framework Worksheets

Project elements	Indicators	Means of verification	Important assumptions
1	2	3	4
<b>Development Objectives:</b>  <i>The development objective of the project is to enhance the multiple benefits of rattan through securing rattan raw materials and production flows from sustainably managed resources</i>	<ul style="list-style-type: none"> <li>- <i>National export of rattan-based products increased by 5 %</i></li> <li>- <i>Income of rattan collectors and rattan farmers increased by 10 %</i></li> <li>- <i>Natural and plantation of rattan areas increased by 10 %</i></li> </ul>	<ul style="list-style-type: none"> <li>- Technical reports by the project.</li> <li>- Evaluation report of project activities and output</li> <li>- Recommendation</li> <li>- Proceedings national workshop</li> </ul>	<ul style="list-style-type: none"> <li>- Government's willingness to conserve, manage and to utilize rattan properly.</li> <li>- Communities need and willingness to have alternative income from <b>rattan utilization</b></li> </ul>
<b>Specific Objective 1.</b>  To develop sustainable utilization of natural and planted rattan from sustainable sources in Indonesia.	<ul style="list-style-type: none"> <li>- <i>A study to analyze supply and demand of rattan products will be conducted the year one</i></li> <li>- Improve cultivation technique on natural and plantation of rattan will be available by quarter 3, year three</li> <li>- <i>Mutual collaboration among major rattan stakeholders will be established by the year three</i></li> </ul>	<ul style="list-style-type: none"> <li>- Technical report</li> <li>- Guide line</li> </ul>	<ul style="list-style-type: none"> <li>- Positive attitude implementation of rattan stakeholders</li> <li>- Local community willingness to adopt new technology and regulation</li> </ul>
<b>Output 1.1.:</b> Report on rattan supply and demand, rattan processing and rattan production and management options in Indonesia.	<ul style="list-style-type: none"> <li>- <i>Reliable inventory technique for natural rattan will be developed in the year two</i></li> <li>- Availability of Information for some important rattan species by the year two</li> </ul>	<ul style="list-style-type: none"> <li>- Technical report</li> <li>- Practical guidelines</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Availability of reliable rattan data from respondents</b></li> </ul>
<b>Output 1.2.:</b> Report on existing natural rattan management and	<ul style="list-style-type: none"> <li>- Availability of data on rattan supply and demand <b>will be</b></li> </ul>	<ul style="list-style-type: none"> <li>- Guide line on rattan inventory</li> </ul>	<ul style="list-style-type: none"> <li>- Availability of reliable rattan inventory</li> </ul>

utilization	<p><i>reported by the year two</i></p> <ul style="list-style-type: none"> <li>- <i>Sustainability of rattan utilization will be reported by the year two</i></li> </ul>	<ul style="list-style-type: none"> <li>- Technical report on rattan utilization</li> </ul>	<ul style="list-style-type: none"> <li>- Local community willingness to adopt new technology</li> </ul>
<p><b>Output 1.3:</b> Four demonstration plots of intensive rattan plantation trials at the Forestry District (KPH) Sukabumi, Cianjur, Bandung Selatan and Kuningan. The first two plantation trials cover a model of management scheme on rattan plantations at natural forest [<i>rasamala (Altingia excelsa)</i> and <i>puspa (Schima wallichii)</i>] managed by local community organization (wanatani). The other two plantation trials will be developed for a model of rattan plantations within rattan plantation forest [<i>pine (Pinus merkusii)</i> and <i>damar (Agathis loranthifolia)</i> or meranti (<i>Shorea spp.</i>)], where applicable, plantation areas managed by state own forestry company.</p>	<ul style="list-style-type: none"> <li>- <i>Four (4) demonstration plots will be established on fourth to seventh quarter from the project commencement.</i> 2 for natural forest 2 for planted forest</li> </ul>	<ul style="list-style-type: none"> <li>- Project progress report</li> <li>- Monitoring visits</li> <li>- List of participants</li> <li>- Guidelines</li> <li>- Report on scheme model</li> </ul>	<ul style="list-style-type: none"> <li>- Local community and district foresters actively anticipating of demonstration plots</li> </ul>
<p><b>Specific Objective 2.</b> To improve rattan industry competitiveness through improvement in rattan grading system, product designs and qualities, market incentives and policy, as well as diversification of rattan products.</p>	<ul style="list-style-type: none"> <li>- <i>Better rattan quality and diversified products are available by the end of year two.</i></li> <li>- <i>Fair rattan price achieved by 5 %</i></li> <li>- <i>Improved skill of local community are available by the end of quarter nine.</i></li> </ul>	<ul style="list-style-type: none"> <li>- Project report on sustainable rattan utilization</li> <li>- Project report on rattan policy</li> </ul>	<ul style="list-style-type: none"> <li>- Positive responds of rattan stake-holders on providing real information</li> </ul>
<p><b>Output 2.1.:</b> Report on market preferences of rattan products types, designs, and qualities. The constraints and options on achieving products preferred will be identified.</p>	<ul style="list-style-type: none"> <li>- Reliable data on rattan marketing are available by the quarter five</li> <li>- Rattan development constraints are identified by the quarter nine.</li> </ul>	<ul style="list-style-type: none"> <li>- Project report</li> </ul>	<ul style="list-style-type: none"> <li>- Positive responds of rattan stake-holders on providing real information</li> </ul>
<p><b>Output 2.2.:</b> Appropriate technological to achieve the product preferences and adequate qualities including innovation</p>	<ul style="list-style-type: none"> <li>- Improved quality semi and finish product designs of rattan products are introduced by the quarter</li> </ul>	<ul style="list-style-type: none"> <li>- Technical report on rattan properties and processing</li> </ul>	<ul style="list-style-type: none"> <li>- Positive responds of local community</li> <li>- Availability of</li> </ul>



qualities, including innovation on grading system, processing techniques, designs and products diversification	introduced by the quarter six - Diversified of rattan products are available by the quarter six	- Product prototypes	financial capital
Output 2.3.: Recommendation on Socio-economic and policy of rattan market system.	- An action plan for rattan development is identified by the quarter five.	- Project report - Policy and marketing recommendation	- Forestry and relevant offices provide the relevant data and information - Detailed information is available
<b><i>Output 2.4.: Establishment of two small rattan processing factories involving active participants of local communities. The two models factories will be established from the existing factories by upgrading the facilities of selected factories.</i></b>	- <b><i>Two small scale rattan factories are established by the year three</i></b>	- Reports from national and international consultants - Monitoring visits - Guidelines on rattan processing	- Community need to develop a small scale rattan industry to get more income - Forestry company's willingness to provide technical expertise
Output 2.5 : Two short training courses to master knowledge of rattan cultivation and on rattan processing (Each course will be participated by around 30 participants within 15 days).	- <b><i>Training course will be implemented at the quarter nine to eleven</i></b>	- Reports of the training countries	- Qualified participants attend the training course
Output 2.6.: National workshop on rattan covering cultivation, harvesting, processing, socio-economic, marketing and policies. The workshops will be participated by around 50 persons within 3 days.	- <b><i>A national workshop will be conducted by with the participant of the key stake-holders by the quarter nine to eleven</i></b>	- Workshop proceedings	- Key stake-holders in rattan development participate in the workshop

## 6. Work Plan

Output/Activity	Responsible Party	Schedule of 3 years (in quarter)																
		1	2	3	4	5	6	7	8	9	10	11	12					
<b>Specific Objective 1</b>																		
<b>Output 1.1.</b>																		
A.1.1.1. Literature review and survey on rattan supply and demand.	DG- LRSF FORDA																	
A.1.1.2. Field survey on rattan producer area and capacity industry.	DG- LRSF FORDA																	
A.1.1.3. Report writing	DG- LRSF FORDA																	
<b>Output 1.2</b>																		
A.1.2.1. Study on rattan inventory technique of natural and planted rattan	DG- LRSF FORDA																	
A.1.2.2. Study on natural and planted rattan utilization	DG- LRSF FORDA																	
A.1.2.3. Report writing	DG- LRSF FORDA																	
<b>Output 1.3</b>																		
A.1.3.1. Establishment of rattan plantation trials (demptot)	DG- LRSF FORDA																	
A.1.3.2. Empowering local community on intensive rattan plantation	DG- LRSF FORDA																	
A.1.3.3. Maintenance and data collection of the plantation forested company	DG- LRSF FORDA																	
A.1.3.4. Financial analysis on rattan Plantation	DG- LRSF FORDA																	
A.1.3.5. Report writing	DG- LRSF FORDA																	

Output/Activity	Responsible Party	Schedule of 3 years (in quarter)																
		1	2	3	4	5	6	7	8	9	10	11	12					
<b>Output 2.1</b> A.2.1.1. Field survey of rattan industrial areas at three areas.	DG- LRSF FORDA		█															
A.2.1.2. Evaluation and report writing	DG- LRSF FORDA			█														
<b>Output 2.2</b> A.2.2.1. Study on rattan basic properties	DG- LRSF FORDA		█															
A.2.2.2. Study on rattan grading system (raw rattan, semi-finished and finished products)	DG- LRSF FORDA		█															
A.2.2.3. Study on rattan processing for better qualities, including preservation, drying techniques.	DG- LRSF FORDA			█														
A.2.2.4. Study on diversification of rattan's dragon-blood.	DG- LRSF FORDA				█													
A.2.2.5. Benefit-cost ratio analysis of added value of rattan products	DG- LRSF FORDA					█												
A.2.2.6. Guide lines on processing technique	DG- LRSF FORDA						█											
A.2.2.7. Report writing	DG- LRSF FORDA							█										
<b>Output 2.3</b> A.2.3.1. Review and analysis of all rattan regulations and its impact to community livelihood.	DG- LRSF FORDA			█														
A.2.3.2. Review and analysis of rattan marketing system with cross-check survey to rattan producer areas.	DG- LRSF FORDA			█														
A.2.3.3. Report writing and policy Recommendation	DG- LRSF FORDA								█									

		Schedule of 3 years (in quarter)												
Output/Activity		Responsible Party	1	2	3	4	5	6	7	8	9	10	11	12
<b>Output 2.4</b>		DG- LRSF FORDA												
A.2.4.1. Establishment of two small-scale industries including processing trial unit.		DG- LRSF FORDA												
A.2.4.2. Financial and benefit-cost ratio analysis on selected rattan species		DG- LRSF FORDA												
A.2.4.3. Report writing and guideline		DG- LRSF FORDA												
<b>Output 2.5</b>		DG- LRSF FORDA												
A.2.5.1. Preparation of Training Program		DG- LRSF FORDA												
A.2.5.2. Implementation of two consecutive short training courses		DG- LRSF FORDA												
A.2.5.3. Report writing/proceeding and Evaluation of training course		DG- LRSF FORDA												
<b>Output 2.6</b>		DG- LRSF FORDA												
A.2.6.1. Preparation of workshop program		DG- LRSF FORDA												
A.2.6.2. Implementation of the workshop		DG- LRSF FORDA												
A.2.6.3. Report writing/proceeding, evaluation of the workshop and publication.		DG- LRSF FORDA												

## 7. Budget

The project's annual budget by component requested from ITTO is presented.

Government of the Indonesia Contribution in Kind (US\$)

	Components	Year 1	Year 2	Year 3	Total
10	Project Personnel				
	- Project Leader	6,000	6,500	9,000	21,500
	- Asst. Project Leader (2)	8,000	9,000	10,000	27,000
	- Researcher (8)	35,000	40,000	45,000	120,000
	- Admin. Support (4)	6,000	6,500	9,650	22,150
	- Assistant researcher (3)	10,800	10,800	10,800	32,400
	Unskilled persons for demonstration plots and small scale industries (6)	-	14,000	14,000	28,000
	<b>Sub Total</b>	<b>65,800</b>	<b>86,800</b>	<b>93,800</b>	<b>246,400</b>
40	Laboratory Equipment and Facilities				
	- Laboratory Equipment machinery	25,500	25,500	25,500	76,500
	- Plantation Equipment	12,500	12,500	12,500	39,500
	<b>Sub Total</b>	<b>38,000</b>	<b>38,000</b>	<b>38,000</b>	<b>114,000</b>
	<b>Total (10 and 40)</b>				<b>360,400</b>
70	Executing Agency Management Cost (15 %)				54,060
	<b>TOTAL</b>				<b>414,460</b>

## 7.1. OVERALL PROJECT BUDGET BY ACTIVITIES

Out put & Activities Budget Component (US\$)

Output & Activities	Project Personnel		Sub Contracts		ITTO Duty Travel	Capital Items		Consumable Items	Misc and Contingency	ITTO Monitoring & Evaluation Adm	Grand Total	
	ITTO	GOI	ITTO	GOI		ITTO	GOI				ITTO	GOI
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Specific objective.1.</b>												
<b>Out Put 1.1.</b>												
Activity.1.1.1. Literature review and survey on rattan supply and demand.	-	2500	-	-	2100	500	-	100	500	-	4615	2500
Activity.1.1.2. Field survey on rattan producer area and capacity industry.	26490	2300	-	-	6180	4000	-	200	4000	-	11310	2300
Activity.1.1.3. Report writing	-	1800	-	-	-	-	-	250	1550	-	2040	1800
<b>Sub Total</b>	<b>26490</b>	<b>6600</b>	<b>-</b>	<b>-</b>	<b>8280</b>	<b>4500</b>	<b>-</b>	<b>550</b>	<b>6050</b>	<b>-</b>	<b>17965</b>	<b>6600</b>
<b>Out Put 1.2.</b>												
Activity.1.2.1. Study on rattan inventory Techniques and natural and planted rattan	3000	4200	-	-	5490	-	-	200	400	-	7530	4200
Activity.1.2.2. Study on natural and planted rattan	4500	3900	-	-	5550	-	-	150	500	-	8075	3900
Activity.1.2.3. Report writing	-	2100	-	-	-	-	-	100	1800	-	2365	2100
<b>Sub Total</b>	<b>7500</b>	<b>10200</b>	<b>-</b>	<b>-</b>	<b>11040</b>	<b>-</b>	<b>-</b>	<b>450</b>	<b>2700</b>	<b>-</b>	<b>17970</b>	<b>10200</b>
<b>Out Put 1.3.</b>												
Activity.1.3.1. Establishment of rattan plantation trials (demplo)	27500	26000	26000	80250	5460	-	37500	400	7000	-	32995	119250
Activity.1.3.2. Empowering local community on intensive rattan plantation	-	-	-	-	5100	-	-	1100	5000	-	11900	4500

Continued

1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Activity.1.3.3.</b> Maintenance and data collection of the plantation forested company utilization	-	15400	11000	-	5760	-	-	500	2500	-	26605	15400
<b>Activity.1.3.4.</b> Financial analysis on rattan	-	4100	-	-	4580	-	-	500	3000	-	9670	4100
<b>Activity.1.3.5</b> Report writing	-	1100	-	-	-	-	-	-	710	-	2015	1100
<b>Sub Total</b>	<b>27500</b>	<b>26600</b>	<b>37000</b>	<b>80250</b>	<b>20800</b>	<b>-</b>	<b>37500</b>	<b>2500</b>	<b>18210</b>	<b>-</b>	<b>83185</b>	<b>144350</b>
Specific objective.2												
<b>Out Put .2.1</b>												
<b>Activity.2.1.1.</b> Field survey at rattan industrial areas in three locations	-	3600	-	-	4900	-	-	1500	-	-	9605	3600
<b>Activity.2.1.2.</b> Evaluation and report writing on market preferences of rattan based products.	-	1200	-	-	-	-	-	1000	-	-	2155	1200
<b>Sub Total</b>	<b>-</b>	<b>4800</b>	<b>-</b>	<b>-</b>	<b>4900</b>	<b>-</b>	<b>-</b>	<b>2500</b>	<b>-</b>	<b>-</b>	<b>11760</b>	<b>4800</b>
<b>Out Put .2.2</b>												
<b>Activity.2.2.1.</b> Study on rattan basic properties	1500	2900	-	-	3950	-	-	1000	-	-	10390	2900
<b>Activity.2.2.2.</b> Study on rattan grading system	1500	2200	-	-	3040	-	-	2000	-	-	9845	2200
<b>Activity.2.2.3.</b> Study on rattan processing for better qualities, including preservation, drying, techniques.	3000	5300	-	-	4620	-	-	2500	-	-	15770	5300
<b>Activity.2.2.4.</b> Study on diversification of rattan's dragon-blood.	-	4100	-	-	4975	5400	-	1500	-	-	22590	4100
<b>Activity.2.2.5.</b> Benefit-cost ratio analysis of added value of rattan products	10000	2300	-	-	4055	-	-	2000	550	-	10765	2300
<b>Activity.2.2.6.</b> Guidelines	-	1900	-	-	3560	-	-	1000	850	-	10920	1900
<b>Activity.2.2.7.</b> Report writing.	-	1500	-	-	-	-	-	1500	950	-	5450	1500
<b>Sub Total</b>	<b>16000</b>	<b>20200</b>	<b>-</b>	<b>-</b>	<b>24200</b>	<b>5400</b>	<b>-</b>	<b>10500</b>	<b>5270</b>	<b>-</b>	<b>85730</b>	<b>20200</b>

Continued

1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Out Put. 2.3</b>												
<b>Activity.2.3.1.</b> Review and analysis of all rattan regulation and its impact to community livelihood	-	3500	-	-	3520	-	-	1500	-	-	11195	3500
<b>Activity.2.3.2.</b> Review and analysis of rattan marketing system with cross-check survey to rattan producer areas	4500	4100	-	-	4120	-	-	1750	-	-	10265	4100
<b>Activity.2.3.3.</b> Report writing and policy recommendation	-	1500	-	-	-	-	-	2000	-	-	4070	1500
<b>Sub Total</b>	4500	9100	-	-	7640	-	-	5250	-	-	25530	9100
<b>Out Put. 2.4</b>												
<b>Activity.2.4.1.</b> Renovation of small-scale industry, including processing trial unit	13200	5600	20000	46000	1450	27840	76500	2500	1550	-	68610	128100
<b>Activity.2.4.2.</b> Financial and benefit-cost ratio analysis	1500	4500	-	-	1780	-	-	500	310	-	8800	4500
<b>Activity.2.4.3.</b> Report writing and guideline	-	900	-	-	-	-	-	1000	1255	-	3590	900
<b>Sub Total</b>	14700	11000	20000	46000	3230	27840	76500	4000	3115	-	81000	133500
<b>Out Put. 2.5.</b>												
<b>Activity.2.5.1.</b> Preparation of training program	-	1500	-	-	-	-	-	1000	2500	-	7000	1500
<b>Activity.2.5.2.</b> Implementation of two consecutive short training courses	-	3600	24425	15000	11475	7500	10000	2000	2250	-	59050	28600
<b>Activity.2.5.3.</b> Report writing/proceeding and evaluation	1750	850	-	-	-	-	-	2500	3130	-	54600	850
<b>Sub Total</b>	1750	5950	24425	15000	11475	7500	10000	5500	7880	-	71650	30950

Continued



1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Out Put .2.6.</b>												
<b>Activity.2.6.1.</b> Preparation of workshop program								1500			4920	1500
<b>Activity.2.6.2.</b> Implementation of the workshop		13300	13300	1500	5650			785	710		28300	5100
<b>Activity.2.6.3.</b> Report writing/proceeding evaluation of the workshop and publication.									1510		6250	850
Sub total		13300	13300	1500	5650			2285	2200		39470	7450
<b>Component Total</b>	<b>98440</b>	<b>94725</b>	<b>104725</b>	<b>142750</b>	<b>97315</b>	<b>45240</b>	<b>124000</b>	<b>34535</b>	<b>42525</b>	<b>-</b>	<b>392225</b>	<b>360400</b>
Monitoring & Evaluation											18000	
Sub Total											410225	
<b>ITTO Administration 6 %</b>											24614	
<b>GRAND TOTAL</b>											<b>434839</b>	

## 7.2. ANNUAL CONSOLIDATED BUDGET (ITTO)

NO	BUDGET COMPONENT	UNIT COST (US \$)	TOTAL (US \$)	YEAR 1 (US \$)	YEAR 2 (US \$)	YEAR 3 (US \$)	
1	2	3	4	5	6	7	8
<b>10. Personal Project</b>							
11	National Consultants (4 persons) on utilization management, inventory and processing, each for 2 months, and business development for 3 months	1,500/month	13,500	7,500	3,000	3,000	
12	International Consultant	10,000/month	10,000	-	10,000	-	
<b>13 Other Labor</b>							
	Technicians (field and laboratory)	15/day	26,490	13,500	9,390	3,600	
	Skilled labors Demonstration plot labors (4 locations)	10/month	16,500	-	9,600	6,900	
	Skilled labor for 2 small scale factories	100/month	8,500	-	3,700	4,800	
	Unskilled persons for demonstration plot and small scale factories	10/month	16,000	5,000	6,000	5,000	
<b>14 Administration personal</b>							
	Secretary, 36 months	125/month	4,500	1,500	1,500	1,500	
	Accountant, 30 months	150/month	4,500	1,500	1,500	1,500	
<b>19</b>	<b>Component Total</b>		<b>99,990</b>	<b>29,000</b>	<b>44,690</b>	<b>26,300</b>	
<b>20 Sub Contract</b>							
21	National conference (50 men, 3 days)		13,300	-	-	13,300	
22	Training Organization and proceeding		24,425	-	-	24,425	
23	Establishing demonstration plot 100 ha	370 ha	37,000	-	37,000	-	
24	Upgrading 2 small scale factories		20,000	-	20,000	-	
<b>29</b>	<b>Component Total</b>		<b>94,725</b>	<b>-</b>	<b>57,000</b>	<b>37,725</b>	
<b>30 Duty Travel</b>							
31	DSA for surveying,	40/dim	51,080	25,240	15,160	10,680	
32	Air ticket to Jambi, East Kalimantan, South Sulawesi, Suabaya and Banjarmasin		15,700	11,100	2,700	1,900	
33	Local transport to Cirebon, Jakarta, Kuningan, Tangerang, Sukabumi, Bandung		11,235	3,030	4,015	4,190	
34	International air ticket		6,000	2,000	2,000	2,000	
<b>39</b>	<b>Component Total</b>		<b>84,015</b>	<b>41,370</b>	<b>23,875</b>	<b>18,770</b>	
<b>40 Capital Items</b>							
41	Machinery and laboratory equipments		25,740	-	25,740	-	
42	Training equipments and materials		15,000	-	-	15,000	
<b>49</b>	<b>Component Total</b>		<b>40,740</b>	<b>-</b>	<b>25,740</b>	<b>15,000</b>	
<b>50 Consumable items</b>							
51	Office supplies		9,215	3,150	3,050	3,015	
52	Sample specimens		3,440	2,000	1,440	-	
53	Chemical reagents, fertilizer, soil, etc.		12,170	4,500	6,150	1,520	
54	Stationary		2,650	1,100	800	750	
55	Fuel and utilities		5,250	2,000	2,250	1,000	
<b>59</b>	<b>Component Total</b>		<b>32,725</b>	<b>12,750</b>	<b>13,690</b>	<b>6,285</b>	

1	2	3	4	5	6	7	8
60	<b>Miscellaneous</b>						
61	Sundry			22,320	4,400	10,210	7,710
62	Technical Support (editor for the publication)			8,710	2,350	3,450	2,910
63	Auditing			9,000	3,000	3,000	3,000
69	<b>Component Total</b>			<b>40,030</b>	<b>9,750</b>	<b>16,660</b>	<b>13,620</b>
	<b>Total</b>			<b>392,225</b>	<b>92,870</b>	<b>181,655</b>	<b>117,700</b>
70	<b>ITTO Monitoring, Evaluation and Administration</b>						
71	Monitoring and Administration			18,000	6,000	6,000	6,000
72	ITTO Administration, 6 %			24,614	5,932	11,259	7,422
73	<b>Component Total</b>			<b>42,614</b>	<b>11,932</b>	<b>17,259</b>	<b>13,442</b>
	<b>TOTAL BUDGET</b>			<b>434,839</b>	<b>104,802</b>	<b>198,914</b>	<b>131,142</b>

### 7.3. LIST OF CAPITAL ITEMS (US\$)

No.	I T E M	*	QUANTITY	UNIT	TOTAL
				COST	
1	Rattan Cane Processing Unit	M	2	2,870	5,740
2	Portable Weighing Scale	M	2	1,000	2,000
3	Rattan Slicing & Trimming Machine	M	2	2,500	5,000
4	Moister Content Tester	M	2	1,150	2,300
5	Rattan Straightening	M	2	2,100	4,200
6	Preservation tank	M	2	1,100	2,200
7	Water Pump (Gasoline Engine)	M	2	1,200	2,400
8	Rattan Sander and Polisher Machine	M	2	2,000	4,000
9	Rattan seed extractor	M	2	2,200	4,400
10	Computer notebook	T	2	1,000	2,000
11	LCD Projector	T	1	3,500	3,500
12	Photograph Overhead Projector	T	1	1,000	1,000
13	Digital VDO Camera	T	1	2,000	2,000
<b>TOTAL</b>					<b>40,740</b>

Note \* M = Machinery and Laboratory Equipment

T = Training Equipment

## **PART III. OPERATIONAL ARRANGEMENT.**

### **1. Management structure**

The Project Management Structure is described on Figure 2. The Project Executing Agency will be the Directorate General of Land Rehabilitation and Social Forestry (DGLRSF) cooperation with Forestry Research and Development Agency of the Ministry of Forestry. The project structure will be legalized by a decree issued by the Directorate General of Land Rehabilitation and Social Forestry.

A steering committee was established to direct all of the project objectives and activities regarding consultation with ITTO. This committee consists of representatives of the main involved institutions within this project and some invited experts. The committee guides and consults to the implementing agency since the preparation process of the project proposal and the subsequent periodic meetings. At least twice a year the committee will meet to evaluate the progress of the project.

A project leader will be assigned to implement the project and determined by the Executing Agency. Project Leader will be supported by technical advisers that were hired for special tasks in the implementation of project activities. These technical advisers consist of consultants and specialists who have the required expertise in technical knowledge as well as experiences that are relevant with the project activities. Two task managers will be assigned to achieve each of the specific objectives. The Project Leader subject to the consultation with the Steering Committee will determine these task managers.

### **3. Monitoring, reporting and evaluation**

#### **a. Project progress report**

Annual progress reports will be prepared in accordance with the provisions of the ITTO Project Manual. These reports will contain information on project performance for each project activities and will be prepared at least 4 weeks before each monitoring mission. The documents will be submitted following the standard format for progress reports as established in the ITTO Manual for Project Formulation (ITTO, May 1999).

#### **b. Project completion report**

The final project report will be submitted within three months after the project completed. The DGLRSF as the executing agency will take over the responsibility of this reporting and will consult the Steering Committee before submission of the report.

#### **c. Project technical reports**

Technical reports will be submitted annually as part of the progress report. After the completion of the project or when relevant technical results have been achieved, the technical reports will be submitted separately. Report format will follow guidelines as provided in the ITTO Manual for Project Monitoring and Evaluation.

**d. Monitoring, review and steering committee's visit**

As noted earlier, the Steering Committee will meet at least twice a year to monitor the progress of project implementation. Strategic decisions could be taken by the committee during the meeting in order to fulfill the project objectives. ITTO representative's participation during the meeting is expected, at least within one of the meetings. The meetings are proposed to hold at the midterm of the annual project implementation and at least within 1 month before submitting the progress or final report.

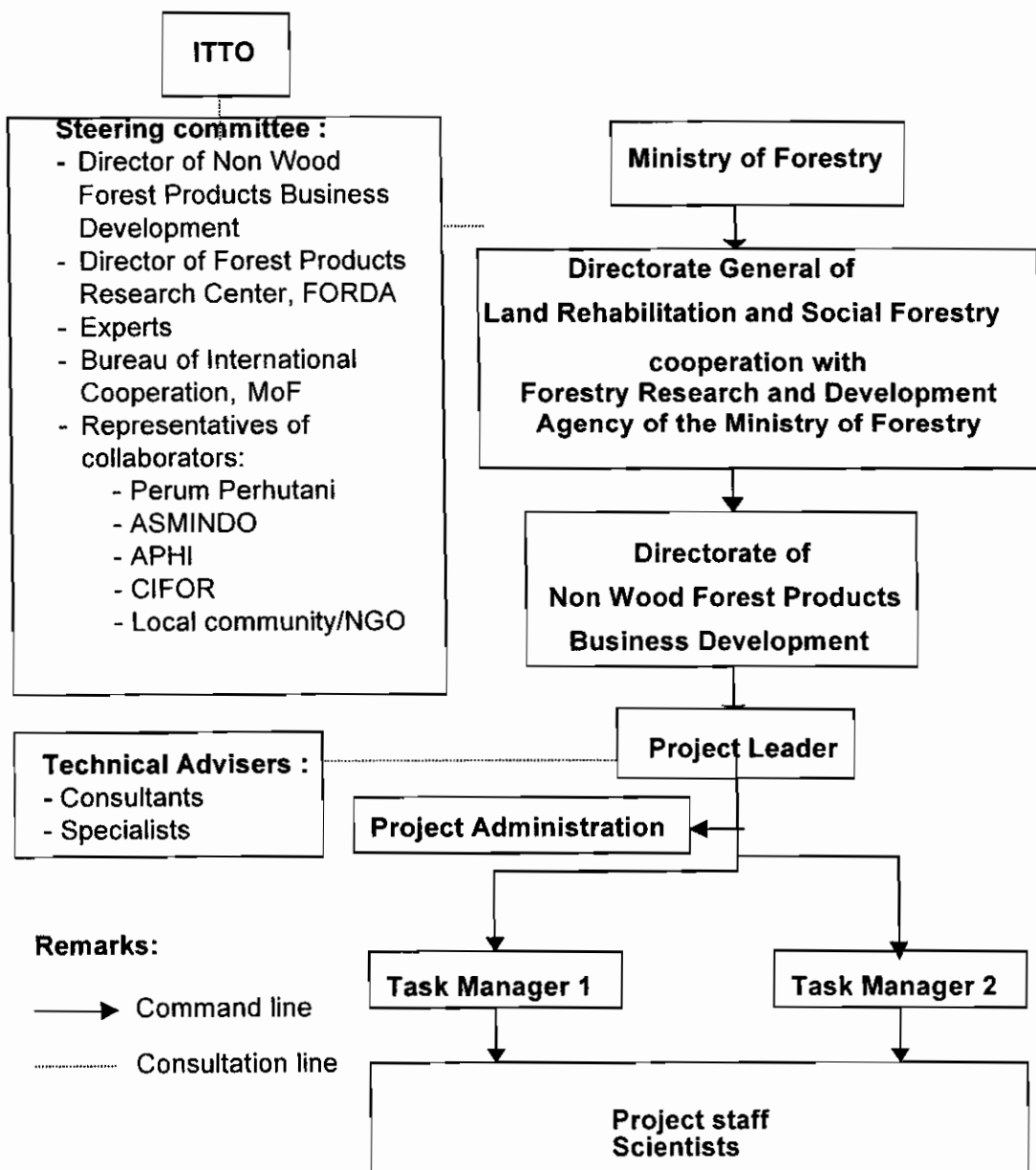


Figure 2. Project Management Structure

#### e. Evaluation

Apart from the steering committee evaluation, the project will be evaluated by the ITTO. The evaluation by ITTO will be based on the submitted progress report. ITTO recommendation is expected to ensure that the project is implemented in accordance with the work plan and improve the approach on the following project implementation, whenever possible, that may assure to the achievement of the project objectives. This evaluation could be held at the same time with the steering committee meeting.

#### 4. Future operation and maintenance

In general, the project consists of two main components. The first component would be a series of studies on rattan, including the inventory techniques, harvesting, cultivating, post harvest handling and the industrial processing up to socio-economic, marketing and policy analysis. The second component is the establishment of rattan plantation demonstration plots and small scale rattan industry. Both project outputs will share significant contribution to the development efforts of rattan in Indonesia. All scientific materials resulted by this project will be useful source of information and will be maintained by the participated institutions.

FORDA, in particular will maintain the research results and use these as the basis for its future research activities. Perum Perhutani and the DGLRSF and its sub institutions (the Regional Forestry District Office for Land Rehabilitation and Social Forestry or "Dinas PKT") will use the experience on rattan plantation and further develop the model in their own programs. The DGLRSF and other institutions, such as FORDA and ASMINDO will disseminate the project results to potential communities and private companies for broader adoption. The experimental plots will be kept and maintained for research and training purposes as well as a model for a profitable investment.

### PART IV : TROPICAL TIMBER FRAMEWORK

#### 1. Compliance with the ITTA 1994 objectives

**This project is at least in compliance with 4 items in the ITTA 1994 objectives. As noted in the project objectives, this project intends to improve people livelihood, particularly on increasing the income of rattan dwellers and farmers generated from their rattan activities. The project also intends to support the development of strong and competitive rattan industries that will have multiplier effects to national development. The project also concerns with the sustainability of rattan resources, both of the natural and planted rattan. These objectives are in compliance with the ITTA 1994 objectives, item (a), i.e. "to contribute to the process of sustainable development".**

Rattan is one among the other valuable forest products. While the past and current forestry business in most of the tropical countries is still focusing on timber, the development of rattan sector will help to diversify forest products and hence reduce the tension to forest due to timber extractions. As the project is directed to support the efforts on utilizing rattan resource in a sustainable way to meet the demand on forest

**products, this will comply with the diversification efforts according to ITTA 1994 objectives, item (e).**

Various innovations on technological and management approaches on rattan processing, as well as on rattan cultivation are expected to be produced in this project. These outputs will promote and support research and development on non-timber forest products, particularly rattan, in order to improve the efficiency of resource utilization. This will comply with the item (f) of the ITTA 1994 objectives.

Finally, the project will promote the use of rattan as potential plant in the reforestation efforts. The establishment of rattan plantation or cultivation will obviously require timber plantation for their host plants. The project hence will encourage the efforts on industrial reforestation and in compliance with the ITTA 1994 objectives, item (j).

## **2. Compliance with ITTO Action Plan**

This project relates to all of the ITTO Action Plans with more focus on the ITTO Forest Industry Action Plans. Studies within this project concern with the improvement on rattan utilization system through various technological innovation and support the rattan industry competitiveness by enhancing more fair market system and conducive policy environment. These studies are in line with the ITTO Forest Industry Action Plans item (3).

The project also concerns with human resources development, in particular on improving the livelihood of rattan dwellers and rattan farmers by increasing their income generated from raw rattan and rattan products. Through the improvement on rattan grading system and promotion of attractive market incentive, the rattan dwellers, farmers or traders are encouraged to invest in the value adding process of rattan products. This will help to improve product quality and performance of raw rattan and rattan products in Indonesia. Studies and experiments on processing techniques and product designs will also improve the competitiveness of the Indonesian rattan products. All of these efforts are in line with the ITTO Forest Industry Action Plans item 4.

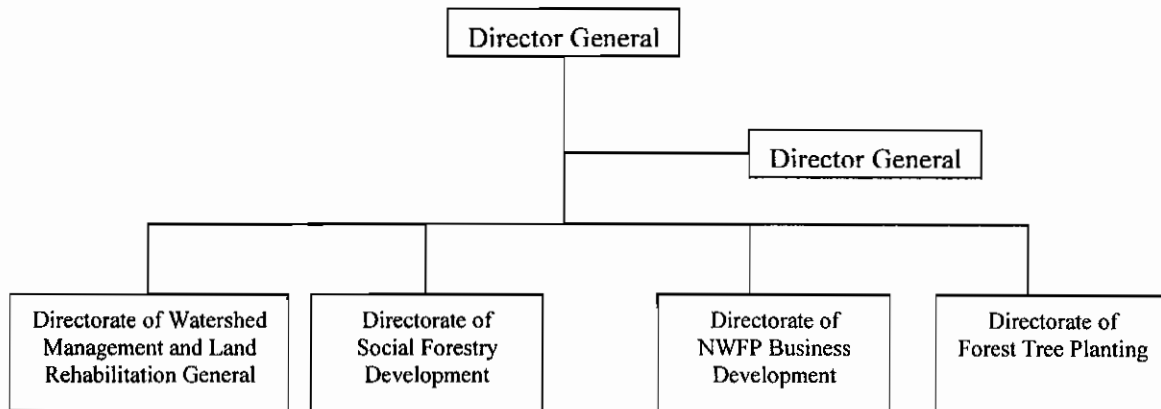
Market studies and policy analysis will provide useful information for better policy recommendation towards sustainable rattan industry in Indonesia. These studies comply with the ITTO Forest Industry Action Plans item 5. As sufficient market information will be collected and analysis will be developed, this project also supports the ITTO Economic Information and Market Intelligence Action Plans items 1 and 2.

The experiences and knowledge derived from the demonstration plot of intensive rattan plantation will provide useful lessons for investors who interested in commercial rattan plantation. The trials on management schemes and technical knowledge on intensive rattan cultivation will provide useful information for investor and encourage them to apply or even further develop on more extensive plantation areas. Beside it relates to the item 4 and 5 of the ITTO Forest Industry Action Plans, it also support the item 3 of the ITTO Reforestation and Forest Management Action Plans.

## ANNEX A. PROFILE OF THE EXECUTING AGENCY

### ANNEX A.1. Directorate General of Land Rehabilitation and Social Forestry

#### ORGANIZATION STRUCTURE



Directorate General of LRSF hold its functions is as follows:

1. Preparing the formulation of policy in the Ministry, i.e. managing of watershed region and land rehabilitation, community forest, community forest, and the planting of forest trees or vegetation.
2. Conducting the policy in the fields of managing of watershed region and land rehabilitation, community forest, community forest, and the seedling of forest plants or vegetation.
3. Formulating standards, norms, guidance, criteria, and procedures related to the fields of managing of watershed region and land rehabilitation, community forest, community forest, and the seedling of forest plants or vegetation.
4. Providing technical guidance and evaluation on the implementation of the policy, standards, norms, guidance, criteria, and procedures related to the fields of managing of watershed region and land rehabilitation, community forest, community forest, and the seedling of forest plants or vegetation, and
5. Accomplishing the administrative matters of the Directorate General

As of the present situation, the number of staffs at the Directorate General of LRSF reaches 465 persons.



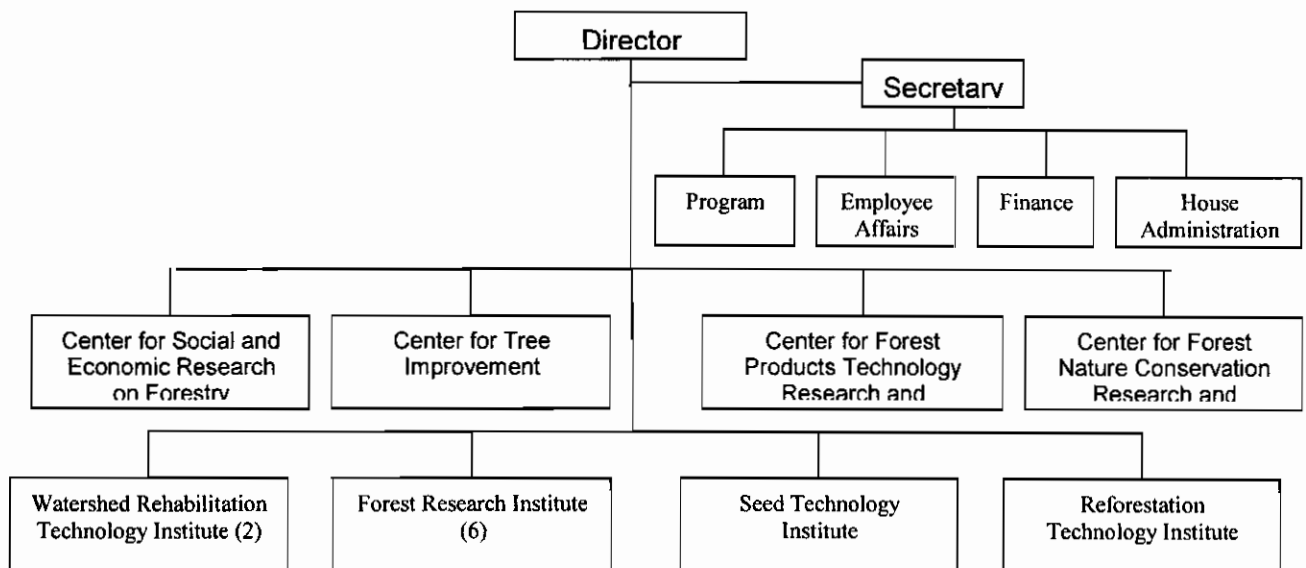
## ANNEX A.2. Forestry Research and Development Agency

### The Expertise of The Executing Agency

FORDA's mission is to find and to provide science and technology to support sustainable, diversified uses of forest for the benefit of people. In pursuit of the mission, FORDA's Research Priorities are:

1. Research and development to secure forest resources base
2. Development of harvesting technique and assessment of all type of quality products obtainable from forest including non timber forest products and service.
3. Research in environmental management and biodiversity assessment, genetic resources, forest health and water resources management.
4. Improving silviculture techniques and forest management practices enhancing better socioeconomic conditions of forest dweller, and social welfare programs.
5. National forest policy research and assessment of forest practices including institutional aspects toward achieving Sustainable Forest Management.

### ORGANIZATION STRUCTURE



### FORDA's Personnel

As of March 1999, FORDA has been supported by 2382 scientists and employees, of which 270 hold post graduates degree and 476 B.S. degree holders, the remaining are graduated of either technical, senior and junior high schools.

### The Infrastructure of The Executing Agency

Facilities available at FORDA are:

- ❖ Libraries;
- ❖ Laboratories facilities for forest products and non-timber forest products research;
- ❖ Dry and wet laboratories facilities for forest research;
- ❖ Herbarium;
- ❖ Office building for meeting, working rooms in Bogor, Jakarta and other cities;
- ❖ Experimental Forest in Bogor, Haurbentes and Samarinda

### Budget

The annual budget of FORDA consists of Routine and Development budget. The budget in 1998/1999 fiscal year was US \$ 2,501,000 and US \$ 4,239,000, respectively.

## **ANNEX B. CURRICULUM VITAE**

### **Personal Particulars 1.**

Name : Toga Silitonga (M.Sc., PhD)  
Home Address : Jl. Meranti II No. 6 Pasir Jaya Bogor-Indonesia. Ph: (62) (0251) 327972  
Present Address : Forest Products Technology Research and Development Center  
Jl. Gunung Batu P.O. Box 182 Bogor, West Java-Indonesia  
Phone: (62) (0251) 326378; Fax: (62) (0251) 313613  
Education : Bachelor degree in Forestry, Bogor Agricultural University, 1965,  
Indonesia Master of Science Forest Products, University of Wisconsin,  
USA. 1971 PhD Forest Products, University of Minnesota, USA. 1983  
Work Experience :  
1961-1965 : Student organization  
1965-1971 : Senior researcher in Non Wood Forest Products, Forest Product  
Research and Development Center, Bogor-Indonesia.  
1971-1983 : Forest Products Processing Research and Development (20  
publications), Forest Products Research and Development Center,  
Bogor-Indonesia.  
1983-1986 : Research Coordinator of rattan, in collaboration with IDRC- Canada,  
Bogor Indonesia  
1986-1991 : Senior researcher, and Research Program Director, Forest Products  
Research and Development Center, Bogor-Indonesia.  
1991-1994 : Senior Advisor to the Ministry of Forestry, GOI.  
1992-1997 : Member of National Standardization Council  
1992 – present : Member of National research council  
1994-1998 : Director General for Forestry Research and Development Agency,  
Ministry  
of Forestry, GOI.  
1999- Date : Senior researcher at Forest Products Technology Research and  
Development Center

### **Personal Particulars 2.**

Name : P. SUKARDI  
Date of Birth : 10 Desember 1950  
Sex : Male  
Nationality : Indonesia  
Marital Status : Married  
Education : Forestry Enginer 1975, (Forest Economic) Gajah Mada  
University  
MM (Magister Management) 1999 Satya Gama Jakarta  
Languages : Indonesia and English  
Present : Head of Sub Directorate Rattan, Fruit and Resin  
Training/Seminar : 1. Reforestation and Erosion Controller South Korea  
2. Sericulture 1987 India  
3. Sericulture 1989 Thailand

4. Grading Cocoon and raw silk 1989 China
5. Seminar Sericulture 1994 France
6. Social Forestry 1998 Philippine
7. Abaca 1998 Philippine
8. Rattan and Bamboo 1999 China

### Personal Particulars 3.

Name : Hendro Prahasto  
 Date of Birth : 26 September 1952  
 Sex : Male  
 Nationality : Indonesia  
 Marital Status : Married  
 Education : BSc. (Forest Economic) 1978, Gajah Mada University  
 MSc. (Forest Management) 1993 Gajah Mada University  
 Languages : Indonesia  
 English  
 Present : Researcher (Center for Social Economic Research on Forest)  
 Training/Seminar : 1. Recent progress in rattan trades industry and resource development in Indonesia  
 2. Studies on rattan industry and trade  
 3. Marketing of rattan in the Province of East Kalimantan  
 4. A case study on production cost of rattan furniture in West Sumatera  
 5. Production cost and base price of polished rattan: A case study at Luwu, South Sulawesi  
 6. Marketing of rattan in South Sulawesi Province  
 7. A case study of the production to consumption system for rattan in Kalimantan, Indonesia.

### Personal Particulars 4.

Name : Dulsalam  
 Date of Birth : 22 July 1955  
 Sex : Male  
 Nationality : Indonesian  
 Marital Status : Married  
 Field and institution of graduation : 1. Ir. Faculty of Forestry, University of Satyagama Jakarta  
 2. MM. (Magister Management) University of Satyagama Jakarta  
 Languages : Indonesia and English  
 Other training : 1. Environmental impact analysis for 14 days in the University of Padjadjaran, Bandung, Indonesia 1985  
 2. Coconut Wood Utilization for 1 month in Royal Forest Departemen of Thailand, 1986  
 3. The Feasibility study on small diameter log utilization for 14 days in Korean Forestry research Institute, Korea, 2000  
 Position : Chief of Forest Harvesting Researcher Group  
 Job History : 1. Employee in the FPRC since 1980

2. Researcher assistance 1985-1987  
 3. Senior Researcher 1989-1994  
 4. Associate Principal Researcher 1994-present
- Relevant Work : He has many experiences in observation on forest harvesting since 1980
- Publication : 1. Some treatments on tapping of *Aghatis* spp to increase resin yield (Dulsalam & Ishak Sumantri, 1985)  
 2. Exploitation factor for ramin *Gonystylus bancanus* Miq (Marolop Sinaga, Dulsalam & Sampe Radja Simamarta, 1985)  
 3. The efficiency of tree felling at the natural forest areas using the Indonesian Selective cutting and plantation system (Dulsalam, 1993)  
 4. The efficiency of log handling and Loading –Unloading at one logging company in Central Kalimantan (Dulsalam & Arifin Susanto, 1997)  
 5. Productivity and cost of log extraction by using P3HH 20 skyline system (Dulsalam, Maman M. Idris & Wesman Endom, 1997)  
 6. Production and cost of pine resin tapping by using bore system : Case study in PT. Inhutani IV, West Sumatera (Dulsalam, MM. Idris & D. Tinambunan, 1998)  
 7. A case study on productivity and cost of log extraction by using Koller 300 skyline system (Dulsalam & Djaban Tinambunan, 1998)  
 8. Skidding productivity at several felling strip widths, tractor types and slope levels at Indonesia Plantation Strip Cutting Area (Dulsalam, 1999)

#### Personal Particulars 5.

- Name : Dr. Osly Rachman  
 Date of Birth : Juny, 7 th 1944  
 Place : BUkitingggi  
 Sex : Male  
 Nationality : Indonesian  
 Marital Status : Married  
 Residential Address : Gugus Perumahan Kehutanan "Rasamala" Jl. Rasamala No. 47, Ciomas Bogor, Indoesia. Phone (0251) 338870  
 Office Address : Forest Products Research Institute Gunung Batu Box Office 182 Bogo, Indonesia. Phone (0251) 326378 Fax. (0251) 313613  
 Education : Master Science of forest product and technology. Bogor Agricultural University, 1987  
 Philosophy of Doctor of Wood science and technology. Bogor Agricultural University, 1996  
 Other related courses/ : Coconut wood utilization training, Philippine, 1986  
 Wood finishing course, Kualalumpur, Malaysia, 1991  
 Work experiences : Forest Products Research since 1974 until

present.

Technical assistance and Consulting service : Assisting a study on improvement of rattan processing under a joint project Indonesia-IDRC for a period of 3 years.  
Assisting a course on sawmilling and woodworking under a joint project Indonesia-UNDP for a period of 3 years.

Publication : Rattan processing aspects 6 publication  
Sawmilling aspects 5 publication  
Wood working aspects 5 publication

Visit Abroad : Philippine, Malaysia, Korea.

#### Personal Particulars 6.

Name : E. Suwardi Sumadiwangsa (MS, PhD)  
Home Address : Jl. Rimba Baru No. 42 Bogor-Indonesia. Ph: (62) (0251) 314207  
Present Address : Forest Products Technology Research and Development Center  
Jl. Gunung Batu P.O. Box 182 Bogor, West Java-Indonesia  
Phone: (62) (0251) 326378; Fax: (62) (0251) 313613

Education : 1964 Graduated from Academy of Chemical Analysis, Bogor .  
1979 Post graduated, Majoring in Forest Products in the Field of wood adhesives , Bogor Agricultural University.  
1982 Graduated from Bogor Agricultural University with the title of thesis's Master degree: The Effect of Strengtheners of mangrove Tannin Adhesives on the Particle board Properties (in Indonesia).  
1995 Graduated from Oregon State University. Majoring Forest Products in the field of Adhesive Technology. Dissertation of PhD degree: Viscosity and Bond Quality of Urea Formaldehyde Adhesives Extended with Acid Modified and Phosphorylated Sago (*Metroxylon* sp.) The Effect of Strengtheners of mangrove

Work Experience : Since 1964 until now work as a researcher on Non Wood Forest Products at the Forest Products Research and Development Center, under Forestry Research and Development Agency (FORDA) Ministry of Forestry - The Republic of Indonesia. I have had 74 papers written on journal, magazine and seminar, either in Indonesia or in English. The paper mostly deal with Non Wood Forest Products.

#### Personal Particular 7

Name in full : Bambang Wiyono, (M.Sc., Ir.)  
Present employment : Forest Products Technology Research and Development Center  
Forestry Research and Development Agency  
Research area : Utilization and Processing of Natural products from Forest  
Email: [bambangw@usim.or.id](mailto:bambangw@usim.or.id); [b-wiyono@lycos.com](mailto:b-wiyono@lycos.com)  
Permanent address : Kompleks Kehutanan Rasamala - Cikoneng, RT 02/06  
Pada Suka Ciomas-Bogor, West Java Indonesia. Phone (0251) 636495  
Place and date of birth: Trenggalek, March 26, 1959  
Nationality : Indonesian  
Back ground of Education: a. Public High School, graduated in 1977  
b. Faculty of Forestry - IPB, graduated in 1985

c. Dept. of Forestry, University of Canterbury,  
New Zealand, graduated in 1994

Seminar and Conference.

- a. Attending Fourth International Sago Symposium, 6-9 August 1990, Kuching, Serawak Malaysia.
- b. Presenting a paper at Seminar on Forest Plantation and Sustainable Forest Management, Joint Working Group D (Forestry Research, Training and Extension), Bilateral Cooperation Indonesia-Malaysia. Palembang 26-27 August 1996.
- c. Presenting posters at XXI IUFRO World Congress 7-12 August 2000 Kuala Lumpur, Malaysia
- d. Presenting posters at International Conference On Forestry And Forest Products Research (CFFPR 2001) 1-3 October 2001 Kuala Lumpur, Malaysia.
- e. Presenting a paper at Symposium On Utilization Of Agricultural And Forestry Residues, October 31 to November 3, 2001 Nanjing Forestry University Nanjing, Jiangsu, China.

Work experience :

- a. Since October 1, 1985 to present, I have been working at the research group of Non Wood Forest Products Utilization and Processing at Forest Products Technology Research and Development Center, Forestry Research and Development Agency. Most research that I have carried out was utilization and processing of natural products from forest, i.e. extracting or modifying natural resin and essential oil from forest, such as gum resin, rosin and turpentine, dammar, etc.
- b. 1994 – 1998 as Head of Non Wood Forest Product research group at Forest Products Technology Research and Development Center.
- c. 1995-1997 a member of Joint Working Group D (Forestry Research, Training and Extension), Bilateral Cooperation Indonesia-Malaysia
- d. 1995 to present as a research coordinator of Non Wood Forest Product utilization and processing

Publication:

- a. Wiyono, B. 2001. Manufacturing maleic rosin directly from gum resin. Research report at Forest Product Research Center, Bogor-Indonesia.
- b. Wiyono, B. 2001. Effect of various acid concentrations on polymerized. Research report at Forest Product Research Center, Bogor-Indonesia.
- c. Wiyono, B. 2000. Effect of storage time on the quality of processed pine resin gum from West Sumatera. Research report for Forest Product Research and Development Project. Forest Product Research Center, Bogor-Indonesia. Unpublished.
- d. Wiyono, B. 2000. Diversifying gum rosin and turpentine: effect of maleic acid percentage on maleic rosin quality. Research report for Forest Product Research and Development Project. Forest Product Research Center, Bogor-Indonesia. Unpublished.
- e. Wiyono, B. and T. Silitonga. 1989. Fractional distillation experiment of *Pinus merkusii* turpentine oil. Forest Products Research Journal, 6 (4): 231 - 234. Bogor – Indonesia.
- f. Wiyono, B. 1989. Rosin and turpentine processes with pine stumps solvent extraction method and by products of sulfate pulping from pinewoods. Duta Rimba magazine, 103-104/XV/1989. Bogor – Indonesia. Bogor – Indonesia.
- g. Wiyono, B. 1994. Supercritical fluid CO<sub>2</sub> extraction of waxes from radiata pine needles. Department of Forestry. University of Canterbury – New Zealand. Master Thesis. Unpublished.

**Personal Particulars 8.**

Name : Yana Sumarna  
First Name : Yana  
Date of Birth : 3 September 1950, Ciamis West Java, Indonesia  
Sex : Male Nationality : Indonesia  
Marital Status : Married Region : Islam  
Education : Drs. (Biology Sciences), 1980, Soedirman University  
Purwokerto  
MSi. (Forest Sciences), 1995 Pasca Sarjana. Bogor Agricultural  
Istitute  
Other Training : ICRAF, Course of Agricultural System, 1983/1984, UPM  
Malaysia  
Languages : Indonesia and English  
Membership of  
Organisation : Member of FORDSA, FRDC, Forest Departemen of  
Indonesia  
Present : Scientist, Silviculturist of Non Wood Forest Products  
Section.  
Non Wood Forest Product Development Sub Division  
Forest Research and Development Centre, Bogor.  
Previous Experience : 1970-1975, Technician Breeder of Palm Oils, and  
Cultivation other Atsiri/Eteris Oils Industries.  
1980-1983, Research of Mangrove Forest Conservation  
1983-1985, Research of Sago Palm  
1983-1999, Reseaacher Silviculture of Rattan (IDRC  
Cooperation Rattan Resech Project and FRDC Project, FORDA  
Forest Departement).  
1999-2001, Reseaacher Silviculture of Gaharu.  
Publication : -Silviculture and Mangrove Forest Conservation  
- Seed handling and propagation of rattan  
- Development of manau (Calamus manan Miq) and  
semambu (Calamus scipionum) Rattan.  
- Provenance Trial of manau rattan (Calamus manan  
Miq) from 5 Propince Forest Product Areas.  
- Rattan Cultivation on Forest on Forest Log Over  
Areas, of manau (Calamus manan Miq) and sega (Calamus  
caesius) rattan.  
- Evaluation of rattan cultivation for People in South Kalimantan.

**Personal Particulars 9.**

Name : Dede Rohadi  
Date of Birth : March, 22 - 1959  
Place of Birth : Cirebon, West Java  
Sex : Male  
Nationality : Indonesian  
Office address : Forest Products Technology Research and Development Center,  
Jln. Gunung Batu, PO. Box. 182, Bogor.  
Phone : 0251-326378  
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Home address : Kompleks Kehutanan ACACIA No. 7  
Jln. Raya Sindang Barang, Km 5,5, Bogor

Phone: 0251-622633

Hand-phone: 0817120225

E-mail address : drohadi@indo.net.id

Academic qualification :

No.	Institutions	Degree/ Certificates	Period	Field of study
1	Bogor Agriculture University (Institut Pertanian Bogor), Faculty of Agriculture Technology, Bogor, Indonesia.	Ir	1978-1982	Post Harvest Technology, <i>Thesis : The Effect of corn starch supplementation on physical and organoleptical properties of bread.</i>
2	The University of Melbourne, The School of Agriculture and Forestry, Melbourne, Australia.	Master in Forestry Science.	1989-1991	Wood Science, <i>Thesis : Shrinkage properties and collapse recoveries of 1954 regrowth Eucalyptus sieberi.</i>
3	Australian Language Center, Jakarta	Certificate	1989 (2 months)	English Course for Academic Purpose.
4	Forest Products Research and Development Center, Bogor.	Certificate	1985 (2 months)	Sawdoctoring course
5	ASEAN Timber Technology Center, Kuala Lumpur.	Certificate	1988 (3 weeks)	Furniture Finishing Course.
6	Bureau of Planning, Ministry of Forestry, Jakarta	Certificate	1997 (2 weeks)	Management Training on Planning and Programming.
7	USDA Forest Service, Blacksburg, Virginia, USA.	-	1994 (5 months)	Exchange Scientists Program. <i>Research Topic : Wood Discoloration.</i>
8	NEDO, Japan	-	1994 (10 days)	Exchange Scientists Program. <i>Research Topic : Wood Drying</i>
9	JSPS-LIPI Core University Programme	-	1997 (14 days)	Exchange Scientists Program. <i>Research Topic : Comparative study on research activities on wood science and technology and wood based industries.</i>

WORK EXPERIENCES :

1984 - 1985 : Project Management Unit Officer at Ujung Batu Resettlement Area, Tapanuli Selatan.

Main duties : To assist the rural people (transmigrants) to cope with the new environment, through extension activities on agriculture and post harvest technologies.

1985 - 1994 : Research Scientist in the field of Sawmilling and Timber Drying at the Center for Forest Products and Forestry Socio-economic Research and Development.

Publications :

Rachman, O., Rohadi, D., Balfas, J. 1989. Sawing and machining characteristics of Aren wood (*Arenca pinnata*). Forest Products Research Journal, 6(3). Bogor. Pp. 145-151.

Rohadi, D., Abdurochim, S., Permadi, P. 1991. Problems on the utilization of wood produced from industrial plantation forest. Media PERSAKI, Edisi I-II/MP-6/92. Jakarta. Pp. 30-36.



Rohadi, D. 1994. Improving drying quality : Common factors need to be considered. Proceeding. Seminar on Wood Drying Technology. Joint Cooperation BPPT-Indonesia and NEDO-Japan. BPP Teknologi. Jakarta.

Basri, E., Rohadi, D. 1995. Prospek pemanfaatan energi surya pada pengeringan kayu. Prosiding. Lokakarya Teknologi Tepat Guna di bidang Energi Non Konvensional untuk Pembangunan Nasional di Indonesia. Puslitbang Fisika Terapan-LIPI. Bandung.

1994 - 1998 : Research Planning Officer at the Center for Forest Products and Forestry Socio-economic Research and Development.

Main duties : To coordinate long-term and annual research program  
To evaluate research proposals  
To assist research scientist on research budgeting  
To coordinate research cooperation with other institutions.

1998 - 2000 : Seconded scientist at Forest Products and People Program, Center for International Forestry Research (CIFOR).

Publications:

Rohadi, D., Maryani, R., Belcher, B., Ruiz Perez, M. and Widyana, M. 2000. Can Sandalwood in Timor Islands Survive?. Lesson of policy impacts on resource sustainability. Sandalwood Research Newsletter, Issue 10.

Rohadi, D. 2001. Pengembangan rotan di Indonesia: Pilihan kebijakan dan implikasinya. Makalah disajikan pada Seminar Nasional Masyarakat Peneliti Kayu Indonesia ke IV. Samarinda, 4-6 Agustus 2001 (Prosiding sedang dalam pencetakan).

Rohadi, D., Belcher, B., Ruiz Perez, M. dan Achdiawan, R. 1999. Study perbandingan kasus-kasus perusahaan hasil hutan bukan kayu di Indonesia. Makalah disampaikan pada Ekspose Hasil-hasil Penelitian Kerjasama Luar negeri Badan Litbang Kehutanan dan Perkebunan. Jakarta, 24-25 November 1999

Belcher, B., Ruiz Perez, M., Rohadi, D. and Achdiawan, R. 2000. A Method for Comparative Analysis of Non-Timber Forest Products Cases: A test with cases from Indonesia. Poster paper presented at the IUFRO Congress 2000. Kuala Lumpur.

Rohadi, D., Maryani, R., Widyana, M. and Azhar, I. A case study of production to consumption system of Sandalwood (*Santalum album* L.) in South Central Timor, Indonesia (in preparation).

Rohadi, D. and Permadi, P. A case study of wood carving industry in Bali (in preparation).

2000 - present : Scientist at Non Wood Forest Products Division, Forest Products Technology Research and Development Center, Ministry of Forestry, Bogor.

Main activities : Development of the Indonesian Non Timber Forest Products data base.  
Conduct research on rattan, bamboo and aloewood (gaharu).

**COMPUTER SKILLS :**

1. Proficient on operating Microsoft Office.
2. Able to make homepage with HTML programming.

**AFFILIATION :**

- I. Member of Japan Society for the Promotion of Science (JSPS)-LIPI Core University

- Program.
- II. Member of the Indonesian Wood Scientist Association
  - III. Editorial Board member of Forest Products and Estate Crops Research Journal.
  - IV. Member of Forestry Research and Development Agency (FORDA) Management Information System Team (terminated).
  - V. Member of Working Group D (Forestry Research, Training and Extension), Bilateral Cooperation Indonesia-Malaysia (terminated).
  - VI. Member of Project Steering Committee of the ASEAN Timber Technology Center (terminated).

## **ANNEX C. TERMS OF REFERENCE**

### **A. National Consultants**

#### **1. Management consultant**

Management consultant is requested as consultant for developing of rattan products, such as development of the guidelines for sustainable management of rattan (plantation, management, silviculture, harvesting). Under the overall supervision of the project leader and in close cooperation with the other member of the project's team.

The consultant will:

1. Review of rattan sustainable management based on existing literature consultation and field visits.
2. Carry out the analysis method of the rattan products obtained from local trades and the pilot plant of the project to obtain necessary data for development on production method.
3. Review the existing commercial grading system in national or international market and propose possible new grading system to be introduced in the country.
4. Design a research method on silviculture practices to find out suitable ratio of culms cutting on sustainable management and number of stems weight and total stem length per ha and train the project staff by actually carrying out.
5. Prepare the technical report and guidelines on sustainable management of rattan at the end of each mission including finding and recommendations and submit it to the project leader.

#### **Qualification**

1. At least Forestry management with a master's degree in related field.
2. Both oral and written communication in English.
3. Indonesia Nationality.
4. Experience in forest management at least 10 years.

#### **2. Rattan cane processing consultant**

Rattan cane processing consultant is requested as processing consultants for developing of rattan protection and utilization, such as develop techniques for preservation (against stain fungi and powder post beetle), bending and bleaching of rattan canes. Under the overall supervision of the project leader and in close cooperation with the other member of the project's team. The consultant will:

1. Review of rattan protection and utilization based on existing literature consultations and field visits.
2. Carry out the analysis method of the rattan products obtained from local traders and the pilot plant of the project to obtain necessary data for development on production method.

3. Review the existing commercial grading system in national or international market and propose possible new grading system to be introduced in the country.
4. Design a research method to develop the sustainable utilization of rattan and train the project staff by actually carrying out.
5. Design practical procedures on 1) storage; 2) post-harvesting treatment and 3) production processing.
6. Prepare the technical report at the end of each mission including finding and recommendations and submit it to the project leader.

**Qualification**

1. At least Forestry Engineer in related field.
2. Both oral and written communication in English.
3. Experience in forest management for management consultant and rattan technology for rattan cane processing consultant and least 10 years.

**3. Rattan inventory consultant**

Rattan inventory consultant is requested as a consultant. The consultants conduct in term of developing of rattan protection and utilization for sustainable rattan source and allowable production. Under the overall supervision of the project leader and in close cooperation with the other member of the project's team. The consultant will:

1. Review of rattan sustainable and rattan source potent through literature consultations and field visits.  
Improve and simplify rattan inventory method for project staffs in Indonesia.
2. Establish a research trial plot in the field to test different silviculture method to obtain the sustainable management for quick return and long-term utilization and for demonstration.
3. Prepare the technical report at the end of each mission including finding and recommendations and submit it to the project leader.

**Qualification**

1. At least Forestry management with a master's degree in related field.
2. Both oral and written communication in English.
3. Indonesia Nationality.
4. Experience in forest inventory at least 10 years.

**4. Rattan marketing and business consultant**

The rattan marketing and business conduct in term of rattan business and marketing to provide necessary advice on the establishment and management of rattan small scale industry. The consultant will:

1. Review of rattan marketing and management based on existing literature consultant and field visits.
2. The consultant will be upward trend in raw material requirement in the field of marketing to provide business practice and train the project staff by actually carrying out.
3. To establish and manage rattan small-scale industry in the project site.
4. Design assist in the development and methodology for sustainable utilization for rattan products.
5. Prepare the technical report at the end of each mission including finding and recommendations and submit it to the project leader.

### **Qualification**

1. *At least Engineer in related field.*
2. *Both oral and written communication in English.*
3. *Indonesia Nationality.*
4. *Intensive experience in marketing and business management at the rattan private sector at least 10 years.*

### **B. International Consultant**

#### **Furniture and designing consultant**

Furniture consultant is requested as furniture expert and designing consultant is requested as designing expert. The consultant conducts for developing of rattan furniture and designing. Under the overall supervision of the project cooperation with the other member of the project 's team. The consultant will:

1. Review of rattan utilization in term of furniture and designing in present situation based on exiting literature consultation and field visits.
2. Design cottage machinery and train the project staff by actually carrying out
3. Establish a pilot plant in the project site of demonstration and training activity.
4. Review the progress and problems encountered in the maintenance and development of the pilot plant and provide advice on problem solving.
5. Assist in the development and implementation of a training program for the rural communities.
6. Prepare the technical report including finding and recommendations and its submission.

### **Qualification**

1. At least designer Engineer in related field or experience in design furniture and weaving at least 10 years.
2. Both oral and written communication in English.

## **ANNEX C.**

### **Summary of the modifications in PD 108 Rev.2 (I)**

<b>Recommendations made by the 23rd Expert Panel</b>	<b>Modifications made in PD 108/01 Rev.2 (I)</b>
1. Define the development objective in a concise way	The development object of the project has been improved. (see page 3)
2. Improve further the logical framework and provide concrete indicators.	Indicators and important assumptions for the development and specific objectives, and outputs have been improved (see pages 14, 15 and 16).
3. Scale down the ITTO budget in particular with regard to duty travel and correct arithmetical errors in Capital Item 40, Table 7.2 Annual Consolidated Budget	ITTO budget reduced from US\$489,913 to US\$455,547.  Main reductions are in duty travel while the budget for national consultants is slightly increased and auditing costs are included in Miscellaneous (see pages 20-26)
4. Increase the qualifications required for the national consultant on rattan business development to strengthen the management of small-scale rattan industries in the project sites. The panel felt that only 5 years experience was not sufficient to conduct the proposal work.	The qualifications for the proposed national consultant on rattan business development have been improved (see page 43)
5. Provide information on the previous consultant with the private sector on rattan sector development in Indonesia	Section 1.Origin provides information on the rattan policy review workshop, which was held at CIFOR with the participation of the private sector (see page 1).