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Wild Rattan in Sulawesi: a Case Study of the Production-to-Consumption Systems

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FOREWORD

Indonesia has the largest rattan reserve in the world, with approximately 80% of the world's rattan. Rattan is the most important Non-Timber Forest Product (NTFP) in the country in terms of its potential and export value, as well as for the quantum of employment it generates. The increasing demand for rattan furniture continues to elevate the international value of rattan.

Although Indonesia has cultivated rattan, the primary source, as is the case elsewhere, is natural forests. This heavy dependence on naturally growing rattan makes it necessary that its utilization is sustainable. In view of this, there have been several policy interventions from the national government, either to regulate harvest or to improve utilization of wild‘ rattan. Central Sulawesi is, perhaps, the most important source of wild rattan in Indonesia, and a production-to-consumption system has been in place here for a long time.

The socio-economics of bamboo and rattan being one of its strongest program areas, the International Network for Bamboo and Rattan (INBAR) has been interested in the production-to-consumption systems that operate in these two sectors in various countries. This study is part of a wider program of research on production-to-consumption systems of bamboo and rattan economies of several Asian countries.

The present study was carried out by Sastria Astana and B.D. Nasendi of the Forestry Socio-Economics Group of the Agency for Forestry Research and Development (FORDA) of Indonesia. It attempts to describe and analyse the opportunities and constraints of the wild rattan production-to-consumption system that exists in Central Sulawesi, and to suggest improvements.

We hope the information and data presented here will lead to more substantive research into the potential of the rattan sub-sector in Indonesia and other countries.

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1 INTRODUCTION

Background

Wild rattan plays an important role in Indonesia's rattan trade. Compared with wild rattan (over 9 million ha in 1989, cultivated rattan in Indonesia is very limited (about 24000 ha in 1995).[1] In Central Sulawesi alone, wild rattan covers about 5 million ha of forest area, or about 57.5% of the country's total area under wild rattan.

There are four major domestic markets for raw rattan: West Java, South Sulawesi, East Java and DKI Jakarta. The semi-finished rattan from Central Sulawesi is sold in six regions: East Java, Central Java, West Java, DKI Jakarta, South Sulawesi and North Sulawesi. The largest exports of finished rattan are from East Java and West Java. The share of East Java in the country's export of finished rattan was 40.76% in 1995, while that of West Java was 24.46% in 1994.

Statistics related to Central Sulawesi are quite impressive. In 1995, the region accounted for 38% of semi-finished rattan and 33.97% of the total rattan reaching East Java (South Sulawesi came a close second with 32.04% of the total rattan supplied to East Java; North Sulawesi accounted for 20.44% and South-North Sulawesi 10.21%). The share of its raw rattan was 7.5% in the West Java market and 2% in the South Sulawesi market. Semi-finished rattan from Central Sulawesi accounted for 8.3% in the West Java market and 32.4% in the Central Java market.

Wild rattan has contributed substantially to the development of the Indonesian economy. In 1995, the semi-processors in the Central Sulawesi region employed 9 800 labourers and the manufacturers in East Java employed 33 973. There were 101 trading units involved in rattan trade in Central Sulawesi in the same year, consisting of 68 Koperasi Unit Desas (Village Cooperative Business Units or KUDs) and 33 individual traders. A KUD may have up to 300 members. The number. of farmers involved in gathering rattan from the forest is about 1500 per year. In the last five years, rattan has contributed 11-42% of the total royalty earned by the local government in Central Sulawesi. This amounts to, on an average, Rp. 813 million per year. About 45% of the royalty earned from rattan was used for local development. [2]

1 From "The Current Status and Challenges Faced by Rattan Industries," 1996.

2 Minister of Forestry's Decree No. 271/Kpts - IV/l993 on Forestry Tax Payment, Procedures 'for Imposing, Collecting, Paying and Distributing Forestry Product Fees.

Objectives

This study had the following objectives:

1. To survey the wild rattan production-to-consumption system;
2. To identify potential targets among the groups within the system for developmental interventions;
3. To examine the decision-making environments of the target groups; and
4. To identify the opportunities for improving the system.

The study attempts to provide a basis for the micro-level description and analysis of the social, economic and policy aspects pertinent to sustainable development of the rattan sector and for the prescription of appropriate interventions to facilitate that development. It also aims to provide an empirical basis for a fuller development -of a model of the rattan production-to-consumption system.

Method of Study

The study examines three aspects of the system:

1. The rattan flow from the producer to the final consumer;
2. The cost and value added at each stage; and
3. The major players in the system and the interests and conflicts.

Four different criteria were employed for identifying the target groups for developmental interventions:

1. The level of poverty;
2. The number of people involved;
3. The importance of rattan to the said groups; and
4. The importance of rattan to the disadvantaged (women, children, etc.) in the groups. .

Among the target groups identified, an attempt to describe the decision-making environment was made in terms of knowledge, resources and incentives. These three aspects were also examined for the impact of policy changes in relation to aspects such as credit and institutional facilities. Lastly, the study has also described the constraints in the existing production-to-consumption system, identified the changes required, and proposed an alternative system.

Area of Study

The study was carried out in Donggala, Central Sulawesi. The rattan gatherers and traders of two villages – Olobojo of Biromeru Sub-district and Bangga of Do10 Sub-district – were studied. Olobojo is a more developed village than Bangga, which is earmarked as a less developed village targeted for the President's poverty alleviation programs. The semi-processing firm studied was in Palu and the manufacturing firm in Surabaya, both in East Java.

Data

Primary data were collected from different sources ranging from the gatherers in the two sample villages in Central Sulawesi to the manufacturing firms in Surabaya, East Java. Secondary data were collected in Palu, Surabaya, Cirebon and Jakarta from the following agencies:

- Provincial Office of Forestry, Regional Office of the Ministry of Forestry, Regional Office of ASMINDO, Provincial Office of Statistics and Provincial Office of Income Earning (Palu);
- Regional Office of the Ministry of Industry and Trade, and the Administrative Office of the Tanjung Parak Harbour (Surabaya);
- Ministry of Forestry and Central Bureau of Statistics (Jakarta); and

  SUCOFINDO (Cirebon, West Java).

2 THE PRODUCTION-TO-CONSUMPTION SYSTEM

All wild rattan in Central Sulawesi is a resource owned by the State. The Central Government controls its use through various policy regulations. Therefore, it can be said that the present production-to-consumption system existing in Central Sulawesi and described here is the outcome of government policies.

This section deals with rattan resources and users in the region, stretching from Central Sulawesi to East Java. There are three players in the rattan trade in Central Sulawesi: the gatherer, trader and semi-processor. In the rattan trade in East Java, there are two players: the manufacturer and sub-contractor.

The Resource

As shown in Table 1, natural forests in Central Sulawesi occupy 5 17674 ha (1994). These forests are under the jurisdiction of four Forest Management Units (FMUs) in: Donggala, Buol Toli Toli, Puso and Banggai controlling 1371915 ha (26.50%), 608 342 ha (11.75%), 2 180 730 ha (42.13%), and 1015 687 ha (19.62%), respectively. There are four sub-FMUs within each FMU responsible for:

1. Production and conversion forests;
2. Protected forests;
3. National parks; and
4. Reserve (conservation) forests.

All traded rattan comes from natural forests of the first two categories. Out of the total area under rattan, 4 571 894 ha is open for extraction. This includes 1 764 720 ha of protected forests, 2 565 415 ha of production forests and 241 759 ha of conversion forests.

Table 1: Forest area in Central Sulawesi

District	Protected forests (ha)	Definitive production forests (ha)	Limited production (ha)	Conversion forests (ha)	Natural park & reserve forests (ha)	Total area (ha)
Banggai	289 090	65 728	523 619	122 625	14 625	1015 687
Poso	795 398	177 505	767 551	67 016	373 260	2 180 730
Donggala	467 296	52 140	649 619	37 752	165 135	1371915
Buaol Toli Toli	212 936	127 436	201 817	14 393	51 760	608 342
Total	1 764 720	422 809	2 142 606	241 759	604 780	5 176 674

'Source: Central Sulawesi Provincial Statistics Office, 1994.

The average rattan stock is **1.51** tons/ha in the Donggala FMU and **1.59.** in the Poso FMU (Table 2). The numbers of species growing in these FMUs were 9 and 7, respectively. The Poso FMU has the lowest stock of *Calamus inops* (Tohiti): 0.08 tons/ha. The highest stock in this FMU was that of *Daemonorops* sp.3 (Kuyupi/ Susu) at 0.50 tons/ha. In the Donggala FMU, the stock of *Calamus* sp. (Nyole) was the lowest at 0.01 tons/ha and that of *Calamus omatus var. celebica* (Boga/ Lambang/Bukudalam) with a stock of **0.48** tons/ha was the highest.

Table 2: wild rattan stock in Poso and Donggala FMUs

Local name	Botanical name	Stock (tons/ha) Donggala	Poso
Taimanu	***Ceratolobus celebica***	0.08	0.16
Boga/Buku dalam (Lambang)	***Calamus ornatus*** var. ***celebica***	0.48	0.45
susu	?	0.26	—
Tohiti	***Calamus inops***	0.13	0.08
EPe	?	0.04	—
Batang	?	0.09	—
Saburo	?	0.02	—
Ronti	***Calamus leptostacbys***	0.40	—
Nyole	?	0.01	—
Batang Kuning	***Daemonorops sp. 1***	—	0.20
Batang bombang	***Daemonorops sp.2***	—	0.10
Laru	*Calamus sympbysipus*	—	0.10
Kuyupi	***Daemonorops sp.3***	—	0.50
Total		1.51	1.59

Source: Hasanudin University and Forestry Research and Development Agency, 1995/1996.

Rough estimates of the value of rattan resources are shown in Table 3. The value of the resource per year in Scenario I (where 80% of the area is considered to be under rattan) is Rp. 804 billion. In Scenario II (where 60% of the area is taken to be under rattan), it is Rp. 600 billion. The value is estimated at Rp. 402 billion in Scenario III (where **40%** of the area is taken to be under rattan). In Scenario III, the highest value estimated is Rp. 290 billion, in Donggala, and the lowest is Rp. 51 billion in Buaol Toli Toli. These values could be more as the reference prices taken for the estimates were the ones at the gatherer level. The average annual production, it may be noted, was **34 264** tons during the last 12 years (Fig. **1).** If the sale price at the semi-processor level is used as the reference price, the estimated average value would be Rp. 77.1 billion.

Table *3:* Estimated values of rattan resources in Central Sulawesi

FMU	Value of rattan resource (Rp billion)		
	Scenario I (80% of area)	Scenario II *(60%* of area)	Scenario III (40% of area)
Donggala	224 048	173 692	117 022
Poso	386 949	290 212	193 473
Banggai	114 753	85 160	57 375
Buaol Toli	68 731	51 006	34 365
Total	804 481	600 070	402 235

Note: Prices quoted are those at the gatherer's level.

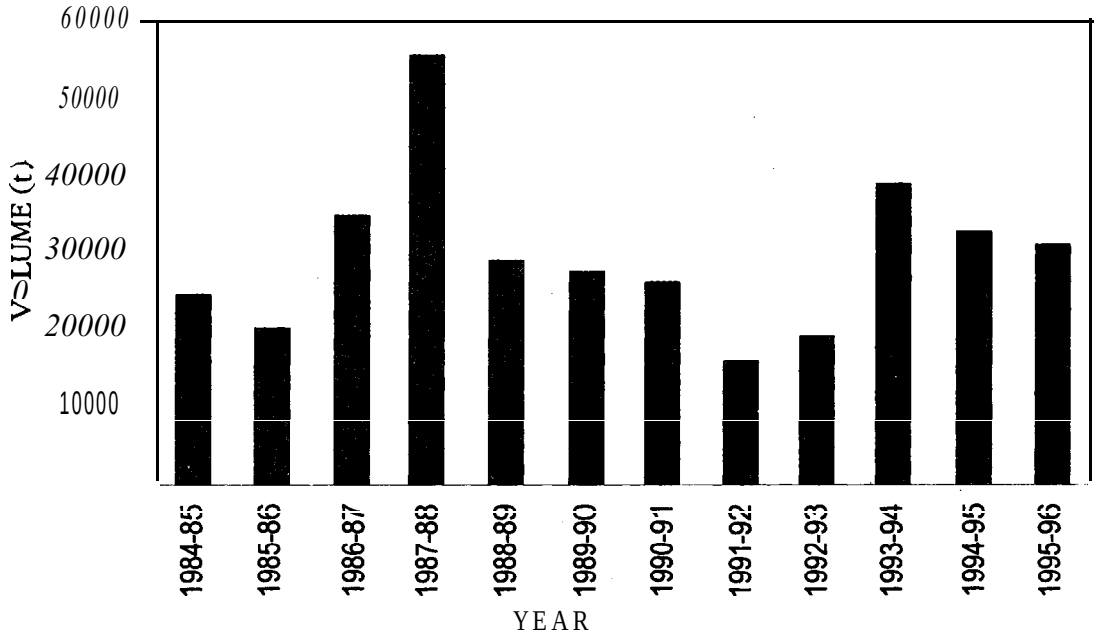

Fig. 1: Wild rattan trade in Central Sulawesi — *l984/85* to 1995/96
(Source: Dinas Kehutanan of Central Sulawesi Province)

Gatherers

Within the system, the functions of the gatherers are to harvest and gather rattan from the forests, and deliver it at a trade outlet (TO) for sale. A TO is the place where raw rattan is sold by the gatherers and bought by the traders. In the forest, the gatherers construct a small, simple camping tent, called a *gubuk,* for their accommodation. The frame of the tent is made of small-diameter timber and its cover of leaves, both of which are available in the forest. Camping is usually near a river, on which the harvested rattan is transported up to the TO. On rattan-gathering trips, the gatherers' carry with them some uncooked food, a set of simple

cooking utensils, and a type of machete called a parang for rattan cutting. The meals are prepared at the *gubuk.* The cut rattan is stacked near the *gubuk.* When enough material has been gathered for sale, the farmers tie the collected rattan with ropes and haul it to the river for transporting the material to the TO.

, The rattan gatherers obtain a low incomes. As shown in Table 4, the highest annual net incomes of the gatherers range from Rp. 972 000 (in a less developed IDT village) to Rp. 2 792 044 (in a more developed or non-IDT village). However, earnings from rattan gathering form the lion's share in a gatherer's total income: *87.84%* of the annual net income in an IDT village and 78.34% in a non-IDT village. The situation is similar in the case of other villages, as an earlier study had pointed out. 3. For instance, in Sausu (Parigi) and Balanggala (Ampana Tete) villages, the incomes ranged from Rp. 1583 000 to 1674 000. In the villages of South Sulawesi, they ranged from Rp. 1073 000 to 1170 000. In these places too, the share of income from rattan gathering was dominant: 75% of the annual net income in Sausu and 80% in Balanggala. The low incomes these people, who are mostly farmers, receive from their other activities could be the main reason why they become rattan gatherers.

Table *4:* Income of a rattan gatherer in an IDT (Bangga-Dolo) and a non-IDT (Olobojo-Biromeru) village in the study area

Type of village	Annual net income					
	Rattan		Non-rattan		Total	
	Rp/year	%	Rp/year	%	Rp/year	%
IDT	*801600*	*87.84*	*111000*	*12.16*	*912 600*	*100*
Non-IDT	*2 157 072*	*78.34*	*596 492*	*21.66*	*2753.564*	*100*

The farmers gather rattan from the forest based on orders. Orders come from either a KUD or a *mandor* (an intermediary), offering a certain price for rattan delivered at a particular TO. It may be noted that the order from a *mandor* is also on behalf of a KUD. But in this case, the intermediary sells the rattan directly to the semi-processor after paying the KUD a fee, currently fixed at Rp. loo/kg of raw rattan. The gatherers are free to decide which order to take, and they usually choose the ones offering a better price. Both the KUD and the *mandor* 'are expected to obtain a licence for extracting rattan and to issue it to the gatherer; Yet, often, gather&-s without licence harvest and supply rattan to TOs. This is observed mainly in cases where intermediaries and mismanaged KUDs are involved.

One rattan-gathering trip may involve up to 10 groups of gatherers, each group consisting of at least three people. However, each group member cuts, gathers and sells rattan individually. In the two villages studied, three trip schedules were observed: the gatherers leave for the forest on a Monday, Tuesday or Wednesday, and return with rattan to the TO on a Friday, Saturday or Sunday, respectively. Hence the TO remains active from Friday through Sunday. The number of trips

3 Hasanudin University and Forestry Research and Development Agency (1995-96). Prospek Pengusahaan Hutan: Studi Kasus Sulawesi Selatin dan Sulawesi Tengah.

of a gatherer undertakes in a year varies depending upon weather conditions, farming seasons and roadwork.

The three factors that regulate a farmer's rattan collection trips also have an effect on rattan's price in the local market and thus, on the income the farmer receives from rattan. A farmer will generally prefer to gather rattan when the income obtained from rattan gathering is higher than what he will make from the farm or roadwork. This is particularly so in the case of villages which have comparatively less unemployment. At non-IDT villages, the average net income from rattan is about Rp. 6 818/day, while from farm work it is Rp. 5 000/day and from roadwork, Rp. 2 893/day.

In IDT villages, in general, farmers do not employ any farm labour because of their low levels of income.

In non-IDT villages, on an average, the time needed for a trip is six days, while in IDT villages it is 12 days because it is more difficult to find rattan in forests near IDT villages than near non-IDT villages. Of the total time spent on a six-day trip, four days are spent in the forest and two for travel and transporting rattan to the TO (one day from the house to the forest; one day from the forest to the TO). During a 12-day trip, 10 days are spent in the forest and two days for travel and transportation (one day from the house to the forest and one day from the forest to the TO).

At both IDT and non-IDT villages, the effective time spent on gathering rattan in the forest per day is five hours. Because of the difference in trip periods, the maximum number of trips a gatherer can make in a month is four in the case of a non-IDT village and two in the case of an IDT village. The average number of days for gathering rattan in a year is 288 days for both types of villages. The effective working hours during these 288 days are 1 392 hours in an IDT village and 1 248 hours in a non-IDT village. Rattan accounts for a major share of the total hours a farmer spends working per year: 95.10% in an IDT village and 75.84% in a non-IDT village (Table 5).

Table 5: Work pattern of a gatherer in an IDT (Bangga-Dolo) and a non-IDT (Olobojo-Biromeru) village in the study area

Type of village	Working hours					
	Rattan		Non-rattan		Total	
	hours/year	%	hours/year	%	hours/year	%
IDT	1164	95.10	60	4.90	1124	100
Non-IDT	816	75.84	260	24.16	I 076	100

The number of rattan poles gathered per person during a trip varies. Often it is just a question of luck. On an average, raw rattan gathered is 246 kg in a non-IDT village and 300 kg in an IDT village. The price of raw rattan also varies: for batang it is Rp. 158/kg in an IDT and Rp. 175/kg in a non-IDT village. Similar price differences can also be noticed in the case of other rattan species. During

a trip, a gatherer spends about Rp. 6 900 on food and other items in a non-IDT village. The figure is almost double at Rp. '17 250 in an IDT village, because of the longer duration of the trip. The profit a gatherer earns is Rp. 147.65/kg of rattan in a non-IDT village and Rp. 96.74/kg in an IDT village' (T able 6).

Table 6: 'Earnings of a gatherer from rattan in an IDT (Bangga-Dolo) and a non-IDT (Olobojo-Biromeru) village in the study area

Type of village	Rates (for raw batang)			
	cost	Sale price	Profit	
	Rp/kg	Rp/kg	Rp/kg	%
IDT	61.26	158.00	96.74	61.23
Non-IDT	27.35	175.00	147.65	84.37
Average	44.31	166.50	122.20	72.80

Traders

A rattan trader in the region carries outs several functions:

1. Collects sufficient information on the species, stock; and locations of rattan in the forest.
2. Applies for a licence to extract rattan from the forest.
3. Places orders with gatherers, instructing them on the species and location of therattan to be extracted, to which TO the rattan is to be delivered and at what price. Most traders place their orders with gatherers in villages near the forest.
4. Grades and weighs the delivered rattan at the TO. Normally all the rattan brought by the gatherers is taken and paid for by the trader.
5. Sells the rattan to semi-processors.

Of all the functions of the trader, the critical one is applying for a licence. Two types of licences for rattan extraction are granted by the governor of the region: up to 100 tons and up to 600 tons.[1] The duration of the first licence is three months, while that of the second is six months, extendable in both cases. The licence needs to be endorsed by officials at different levels, sometimes by up to four of them in one office (Fig. 2). There are as many as seven such offices that control the issue of licences, starting from the village up to the capital city of the province. There is a .fee for the licence but the amount is not specified. According to reports, it may be up to Rp. 1.5 million. The time taken for the award of a licence varies, ranging anywhere from one month to several months. Trading in rattan without a licence is illegal.

There are four types of traders who apply for a licence: the KUDs, cooperative units, individuals and groups of people. The first .two types of traders are given

1 Governor's Decree No. l88.44/8154/RO.Prod (1991) on Improvement of Governor's Decree No. 188.44/2386/RO. Hukum (1989) on Procedures and Requirements for Proposing Licence of Wild Rattan Extraction in Central Sulawesi.

the licence for 600 tons, while the last two types are eligible only for 100 tons. A farmer has the right to apply for an extraction licence; however, most farmers are unable to do so owing to the unaffordable fee involved in acquiring a licence. Even most *mandors,* farmers who have become traders by virtue of their position of leadership in their respective villages, find it difficult to obtain the licence and hence, sell the rattan under a KUD's licence. The number of licensed traders in the region is given in Table 7.

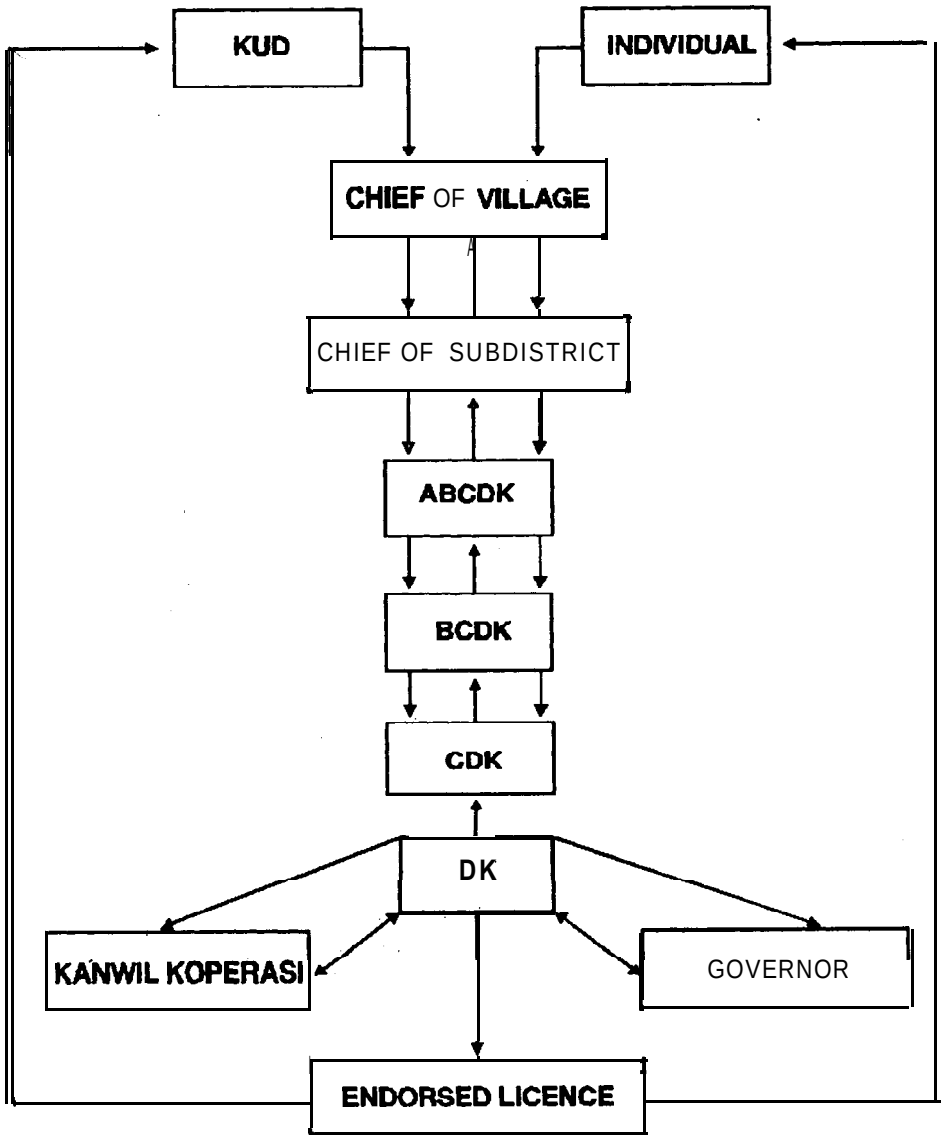

Fig. 2: Procedure for getting licence for rattan extraction in Central Sulawesi (please see Annexe for notes on acronyms)

Table 7: Types and number of rattan traders in Central Sulawesi

Type of Trader	Number
KUDs	68 units
Individuals*	33 people
Total	10 1 traders

Source: Dinas Kehutanan of Central Sulawesi Province.
Note: * = On behalf of groups, including semi-processors.

In the two sample villages, two types of KUDs were identified. The first is the well-managed KUD in a sound financial position. It finances the process of obtaining extraction licences from its own funds. It independently buys and sells rattan. The second type is the ill-managed KUD (two such KUDs were found in the study area). In this case, either the KUD requests a *mandor* to organize the farmers to gather rattan from the forest, or a *mandor* approaches the KUD offering his services. In an extreme case, the *mandor* buys rattan from the gatherers at the TO and sells it directly to semi-processors. Here, the role of the KUD is just that of obtaining the necessary licence and renting it for a fee. During the study, it was found that one such KUD was earning a fee of up to Rp. LOO/kg of the raw rattan sold at the TO.

There are three major species of rattan sold by the KUDs in the area studied: batang (big diameter), lambang and tohiti (small diameter). Tables 8 shows the proportion of the three species sold by a well-managed and an ill-managed KUD at the non-IDT village, while Table 9 gives the cost input at the same KUDs. The sale price of raw batang ranged from Rp. 450 to Rp. 500/kg.. For raw lambang the price was Rp. 3OO/kg and for tohiti Rp. 250/kg. It can be seen from Table 9 that of the total cost, the cost of transportation forms the major component. 'The profit earned by the well-managed KUD was naturally higher than the profit earned by the ill-managed KUD (Table 10).

Table 8: Proportion of rattan sold by well-managed and ill-managed KUDs in Donggala, Central Sulawesi

Species	Proportion of species sold (%)	
	Well-managed KUD	Ill-managed KUD
Batang	65	80
Lambang	30	15
Tohiti	5	5
Total	100	100

Table 9: Cost inputs at well-managed and ill-managed KUDs in Donggala, Central Sulawesi

Cost component	Cost structurea			
	Ill-managed KUD (Rp/kg)	(%)	Well-managed KUD Rp/kg)	(%)
Labour	3.00	15.08	3.00	20.45
TransPort[b]	16.90	84.92	11.67	79.55
Total	19.90	100.00	14.67	~100.00

Notes: a = based on wet weight of rattan; b = excluding sundries incurred on the road.

Table 10: Earnings of well-managed- and ill-managed KUDs in Donggala, Central Sulawesi

Type of KUD	Cost (Rp/kg)			Price (Rp/kg)	Profit	
	Inputs	Rattan[a]	Total		(Rp/Kg)	(%)
well-managed KUD	14.67	175.00	189.67	475.00	285.33	60.07
Ill-managed KUD[b]	119.90	158.00.	277.90	475.00	197.10	41.49
Average	67.29	166.50	233.79	475.00	241.22	50.78

Notes: All figures are based on wet weight and exclude information cost. Prices quoted are averages at the semi-processor stage. a = price at gatherer level; b = conducted by *mandor* on behalf of KUD; c = fee from *mandor* to KUD was Rp lOO/kg of raw rattan.

Semi-processors

The semi-processor is the next link, between the trader and the manufacturer, in the rattan production-to-consumption system. A semi-processor carries out the. following tasks:

1. Selects, categorizes (second-level grading, the first being done by the trader) and weighs the rattan brought by the trader to reach a bargained price.
2. Pays the trader the agreed price for the rattan and its royalty.[5]
3. Treats, dries and stores the rattan bought.
4. Processes the rattan further according to market demands (some process the rattan only on receipt of orders, while others do so based on the traditional demand patterns).
5. Sells and arranges for the transportation of the sold goods to the buyers.

[5] Minister of Forestry's Decree No. 377/Kpts - IV/l995 on Forestry Products Levies for Non-timber Forest Products throughout Indonesia, for the period 1st August - 31st March *1996.* The royalty is revised every year. In 1995, the royalty for batang, lambang and tohiti was Rp. 44, Rp. 39 and Rp. 39 per kg, respectively.

Rattan is processed in several steps. First the rattan poles are oil-cured in a curing tub called a *bak,* by immersing them in hot kerosene. The cured poles are wiped clean and placed on a drying platform in open air for l-3 weeks to reduce the water content to that of the ambient (20%). The dried poles are then stored in a warehouse prior to further processing. Semi-finished rattans are mainly of two types: core and polished rattans. Process wastage for the core type is up 'to 30% and for the polished type up to 15%. Finally, the processed rattans are quality-graded. The grades are many but fall mainly into two classes: 'quality class' for use in export products (Grades A and B) and 'reject class' (Grades C and D) for use in products made for the domestic market. It may be noted that some 'rejects' do get used in export products, for making components that are not overtly visible.

The quantity of each grade of rattan obtained from a lot varies, but on an average, up to 20% of Grade A and up to 50% of Grade B are obtained, with the rest consisiting of Grades C and D. It is difficult to maintain the weight of each grade of rattan within a consistent narrow range because of the lack of widely accepted quality standards. Added to this is the limited supply of rattan. Also, if a consistent weight is to be maintained, more rattan will be required as contracts are signed in terms of number of rattan poles.

There are two types of semi-processing units. The first type has no links with any manufacturer and hence, it has to seek a buyer for its goods. The other type functions under a larger firm which also has a manufacturing unit. The manufacturing unit will buy the semi-processed rattan and hence, it does not have to worry about finding a buyer. In case it has more rattan than is needed by the manufacturing unit, it is free to sell this excess quantity to any other buyer. In the opposite case, when the semi-processing unit cannot meet the demand- of the manufacturing unit in full, the latter seeks other sources of supply. Both types of semi-processors seem to be able to obtain the supplies they require, even at times of high market demand, although there is a healthy competition between the two types.

There are 58 semi-processing units in the study region. About 90% of such units are linked to a specific buyer.[6] Capacities of the semi-processing units in the region for rattan intake vary from 900 to *4* 800 tons per year and the capital value from Rp. 250 million to Rp. 900 million *(60%* working capital and 40% for plan and other items). The minimum price of land in this region is Rp. 5 000/m^2. The production rate of a semi-processing firm studied was 500 tons of dried rattan per month, 80% of which was batang, 30% lambang and 10% tohiti. The price of polished rattan and rattan core was more or less the same at Rp. 2 000-2 500/kg at the buyer gate in Sura.baya, East Java. The cost of semi-processed rattan may be up to Rp. 1 195/kg (Table 11). Of this, the bulk is the price of rattan (81.84%). The profit earned is about *48.4%* of the price (Table 12).

[6] Interview with the head of Central Sulawesi Regional Office of Ministry of Industry and Trade.

Table 11: Costs involved in the semi-processing of rattan in Donggala, Central Sulawesi

Types of costs	Sample A[a]		Sample B[b]	
	(Rp/kg)	(%)	(Rp/kg)	(%)
A. Variable cost	1 082.34	90.57	1 059.03	91.23
1 Rattan'	950.00	79.49	950.00	81.84
2 Other materials	78.38	6.56	68.18	5.87
3 Labour	53.96	4.52	40.85	3.52
B. Fixed cost	36.70	3.07	21.76	1.88
1 Depreciation	22.85	1.86	7.87	0.68
2 Maintenance	0.78	0.07	0.56	0.05
3 General expense	13.67	1.14	13.33	1.15
Total (A+B)	1 119.04	93.64	1 080.79	93.11
C. Shipping	76.00	6.36	80.00	6.89
Total (A+B+C)	1 195.04	100.00	1 160.79	100.00

Notes: a = Production at I50 tons/month; b = Production at 75 tons/month; c = Excluding royalty of rattan and sundries.

Table 12: Earnings of a rattan semi-processing unit in Donggala, Central Sulawesi

Sample	Cost (Rp/kg)				Price" (Rp/kg)	Profit	
	Processing	Shipping	Rattan[b]	Total		(Rp/kg)	(%)
Sample A	169.04	76.00	950.00	1 195.04	2 250.00	1 054.96	46.89
Sample B	130.79	80.00	950.00	I 160.79	2 250.00	1 089.21	48.41
Average	149.92	78.00	950.00	1 177.92	2 250.00	1 072.08	47.65

Notes: a = Average price in Surabaya; b = Excluding royalty of rattan and any informal cost.

Manufacturers

A manufacturing firm's activities begin with searching for a semi-processor who can supply suitable rattan at the best price possible. While buying the rattan, a manufacturer looks mostly at the grade. Some firms buy only the top grades, while others buy mixed grades. Some buy their requirements from the market, while others use a system of contract buying. Once a manufacturing firm has the rattan it needs, it commences 'production and then sells the products. Most products are for the export market, but there are several major firms with no outlets abroad. There are a number of brokers who promote and sell the products a manufacturer makes. This, of course, means that most manufacturers do not sell their products at the best price available.

In East Java, there are 47 manufacturing firms. The working capital of these Firms ranges from 50% to 70% of total capital. The minimum land price in this region is Rp. 30,000/m^2. The manufacturing firms may be classified into three types according to their capitalization: a small-scale manufacturing firm has a capital ranging from Rp. 28 million to Rp. 1 billion; a medium-scale firm has a capital of Rp. 1 billion to Rp. 10 billion; a large-scale firm has a capital of Rp. 10 billion to Rp. 60 billion. The number of the single firms (SF) which are not linked to any specific semi-processor is about half that of the group firms (GF), which have their own semi-processing units (Table 13).

Table 13: Profile of manufacturers in East Java

Production scale*	Number of firms		
	Single firms	Group firms	Total
Large	0	7	7
Medium	0	24	24
Small	16	0	16
Total	16	31	47

Source: East Java Regional Office the Ministry of Industry and Trade (Data processed).
Notes: * = Based on the rattan intake per year; Large = 10 000 to 33000 tons; Medium = 1000 to 10 000 tons; Small = 21 to 1000 tons.

As shown in Table 14, the SF's need for raw material is much less than that of the GF. The 16 SFs together need about 6 100 kg/year (about 381.6 kg/firm), while the 31 GFs required 217 557 kg/year (about 7018 kg/firm). It is generally hard for SFs to supply to specific customer demands. Also, their bargaining power in terms of rattan supply and price is very little. The demand of SFs on the raw material is so small that a fluctuation in their demand will not have any significant effect on rattan prices. On the other hand, if there is an increased demand from the GFs, it would cause rattan prices to shoot up, rendering the bargaining position of the SFs even worse. Thus, GFs are well positioned in the market for raw and semi-processed rattan.

Table 14: Annual rattan intake of manufacturers in East Java

Production scale	Annual rattan intake capacity					
	Single Firm		Group Firm		Total	
	(tons)	(%)	(tons)	(%)	(tons)	(%)
Large	0	0	126 116	56.39	126 116	56.39
Medium	0	0	91 441	40.88	41 683	40.88
Small	6 107	2.73	0	0	6 107	2.73
Total	6 107	2.73	217 557	97.27	223 664	100.00

Source: East Java Regional Office of Ministry of Industry and Trade.
Notes: Large = 10000 to 33000 tons; Medium = 1000 to 10000 tons; Small = 21 to 1000 tons

It is also worth noting that the largest exports are from East Java. In the last four years, East Java accounted for 41% of the total exports (Table 15). Hence, the GFs can easily control the rattan market in terms of products as well. This is particularly so if the GFs form formal or informal cartels for market manipulation. Thus, the SFs face two major constraints. The first relates to buying rattan at the best price and quality, and the second relates to sustaining their market for rattan products.

Table 15: Share of East Java in Indonesian exports of rattan products (1992-95)

Year	Indonesian export[a] (US$ million)	East Java's export[b] (US$ million)	East Java's share (%)
1992	285.49	107.27	37.57
1993	295.25	132.85	45.00
1994	336.47	135.14	40.16
1995	345.55	140.84	40.76
Average	315.69	129.03	40.87

Sources: a = Central Bureau of Statistics, Jakarta; b = ASMINDO, Surabaya.

Arguably, most SFs receive. sub-contracts to manufacture products of GFs. There are also cases of SFs being more efficient manufacturing units than GFs. An analysis of two sample SFs and one GF selected for this study illustrate this point well. Although the expenses of the GF (Sample B) were less than that of the SF (Sample A), the GF was less efficient than another SF (Sample C) as shown by Table 16. The profit of 29.76% of the cost earned by Sample B (GF) was not much higher than the 29.13% earned by Sample A (SF), and was substantially lower than the 45.77% earned by Sample C (SF) (Table 17).

Table 16: Costs involved in rattan products manufacture at Surabaya, East Java

Types of cost	Manufacturer					
	Sample A (SF)		Sample B (GF)		Sample C (SF)	
	(Rp/kg)	(%)	(Rp/kg)	(%)	(Rp/kg)	(%)
A Variable	6 329	83.62	5 686	83.37	3 892	92.40
1 Rattan	2 750	36.33	2 465	36.14	2 607	61.89
2 Non-rattan	1 108	14.64	997	14.62	557	13.22
3 Labour	2 471	32.65	2 224	32.61	728	17.28
B Fixed	1 240	16.38	1 134	16.62	320	7.60
1 Maintenance	193	2.55	174	2.55	54	1.28
2 Depreciation	259	3.42	264	3.87	31	0.74
3 Interest	568	7.50	498	7.30	148	3.51
4 General expenses	220	2.91	198	2.90	87	2.07
Total	7569	100.00	6 820	100.00	4 212	100.00

Table **17:** Earnings of rattan products manufacturers at Surabaya, East Java

Manufacturers	Costs (Rp/kg)[a]			Price (Rp/kg)b	Profit	
	Manufacturing	Rattan	Total		(Rp/kg)	%
Sample A	4 819	2 750	7 569	10 680	3 111	25.13
Sample B	4 355	2 465	6 820	9 709	2 889	29.76
Sample C	I 605	2 607	4 212	761	3 555	45.77
Average	3 593	2 607	6 200	9 385	3 185	34.89

Notes: a = See Table 16; b = Price is FOB, average.

As the rattan used is from natural forests, its harvesting in quantitative terms is sensitive to changes in price. A small increase in its price will normally see a disproportionate increase in its market supply, and a decrease in its price will bring about a disproportionate fall in market supply. Fig. 3 illustrates the fluctuations in the price of rattan products over the last 19 years.

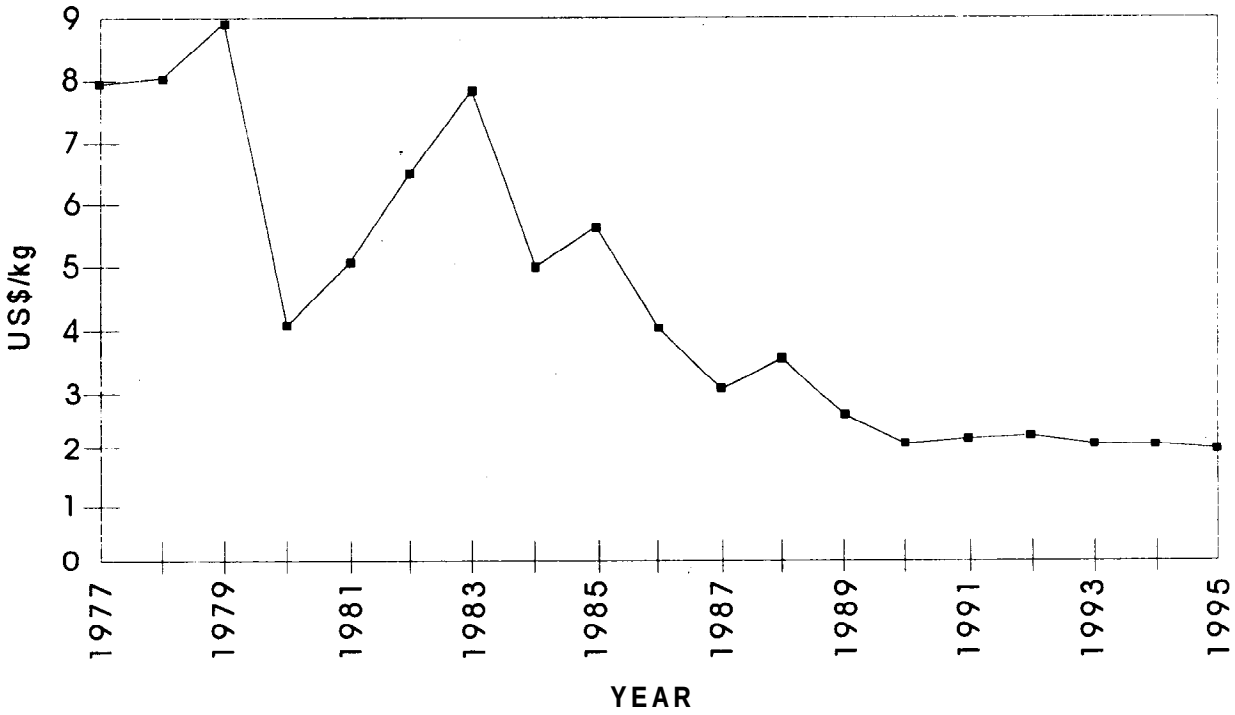

Fig. 3: Fluctuation of real export price of rattan products, 1977-1995

The unstable export price is the main constraint in selling the products at better prices. Besides, the absence of direct export outlets, even for several major producers (mainly owing to budget constraints), brings in brokers who influence prices. The sales turnover of most firms is so small that it is difficult for them to maintain their own outlets, despite the fact that such an outlet can be used to obtain market intelligence. Also, since the product designs in demand change frequently, causing older items to remain unsold, even firms which have such

outlets find it difficult to maintain them on a permanent basis. They gradually became passive exporters. As most products are made according to the orders of buyers abroad, stiff competition on price has developed among the firms, each trying to sell their products at prices lower than those of a competitor and thus capture a greater market share (Fig. 3). It is evident that the joint marketing board formed to improve the marketing prospects of rattan products has not been effective so far.

There is also intense and damaging competition in buying rattan. About 200 firms are reported to have collapsed in the last two years.[7] Some business sources believe that this was more because of unsound management than the market situation. This is partly true because the export value of the products did increase (Table 15), and other firms had been able to easily take over the market share of the collapsed ones. There is, however, a greater chance for SFs to collapse as their share in the raw rattan market is too small for them to make any beneficial change. An inefficient GF, as it controls the rattan market, has a better chance of survival than a not-so-efficient SF. In other words, the firms that win in a competitive environment are those that control the market of raw rattan.

Sub-contractors

Contracts are usually given by manufacturers who export their products (PE firms). The sub-contractor has just one function: to up the production process for the PE firms. The need for sub-contracting arises when a PE firm by itself cannot fulfil all of its contracts or one contract in full. In such a situation, a PE firm seeks the help of a sub-contractor, with whose help it can fulfil the quantitative obligations under the contract.

A sub-contractor is formally engaged through a work contract. Most firms which receive such contracts are those which are not in 'a position to export their products alone. Some craftspersons who run home-based industries also receive sub-contracts. The types of work contracts vary. Sometimes, a firm may just sub-contract to produce a component for its products. At other times, it may be a complete product that is sub-contracted. Although such an arrangement is expected to benefit both parties – the contractor and the contractee – some problems do arise. For instance, it does not increase the income of the sub-contractor to any appreciable extent. Or a sub-contractor may not be able to keep to the qualitative specifications.

The tribe of sub-contractors has grown because of two factors. The first is the government's poverty alleviation program. Under this program, the government first selects some villages for development intervention and trains the craftspersons in these villages at government-run training centres. The government then scouts for firms that are able to provide employment to these craftsmen. Such firms

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7 *Suara Indonesia* daily, 22nd January 1996.

8 Interview with a senior officer at the East Java Regional Office of the Ministry of Industry and Trade. The net income of the craftspersons was not surveyed but was estimated.

supply the rattan to the craftspersons and buy their products at agreed prices. A village hosting such a project is called "LIK" (home industry centre). In East Java, there are 12 LIKs located around Malang and Pasuruan. Ten firms are involved in this project called "Bapak Angkat". The project involves 1 944 persons. The cost of the products made by the project is Rp. 1 billion/year and the total sales value about Rp. 1.6 billion!

The second factor involves some changes that occurred in the industry. The tradition of a craftsperson being a sub-contractor has been alive for a long time, but since 1990, firms have also been invited into the system. In the case of craftspersons, the PE firms began to give the raw material on credit. The credit was made good when craftspersons finished making the products as per specifications and sold them to the PE firm at the agreed price. On an average, the income earned by a craftsperson in Cirebon was about Rp. 165 000 per month.[9] In the case of sub-contracting firms in East Java, PE firms do not supply the raw materials. Even so, credit is offered to them, and some do take credit. The products made are sold to the PE firm at agreed prices. The profit earned is up to 45.77% of the price (see Sample C in Table 17).

Labourers

In the rattan production-to-consumption system, there are three types of labourers. Firstly there are those who work for traders. Each trader employs up to two persons. Secondly there are those who work for semi-processor firms (PFs). The PFs in Central Sulawesi employ 9 800 persons and the wages earned at the .PFs range from Rp. 3 200 to Rp. 6000 per day. Finally, is those who work for manufacturing firms (MFs) number 33 973 in East Java. At the MFs, the wages are from Rp. 4 500 to Rp. 9 000 per day. At the PFs the wages are lower since the skills required are less. There is a minimum wage set by the government. In 1996, the lowest wage was Rp. 2 800 per day in Central Sulawesi and the highest was Rp. 7 350 per day in Batam Riau. There has however been an effort to increase the lowest wage to at least Rp. 7 000 per day.

[9] Soenoto (1995) – Rotan: Masyarakat Rotan Cirebon. .Kadinda Cirebon. About 15.7% above the minimum regional wage set by the government (that is Rp. 117 800 in 1995 and Rp. 142 600 in 1996).

3 DISCUSSION

Capital Intensity and Scale

Rough estimates put the annual potential yield of wild rattan in forests owned by the government at Rp. 402 billion. On an average, only Rp. 77.1 billion worth of rattan has been extracted and used annually in the last 12 years. The farmers gather the rattan when incomes obtained from it are higher than wages offered for farm or road work. Yet, there is a control imposed on the harvesting of rattan through the licence system which limits rattan extraction to 100 tons in the case of individuals and 600 tons in the case of KUDs. Under the present conditions, even if large-scale production is employed, the annual value of rattan traded will be only at Rp. 183.6 billion. Hence, it can be said that although the value of wild rattan is high, its usage factor is low.

Most manufacturing .firms do not use their full production capacities. It was estimated that most large and medium firms use only 30.50% of their installed capacities. The situation of small firms is even worse as their work is dependent upon the contracts given by medium. and large firms.

All small firms have complaints about the lack of rattan. Yet, only 34 264 tons/ year of rattan are used in the region which is very rich in rattan stocks. Other regions where extraction of wild rattan is low are Riau, Jambi, 'Aceh and West Sumatra. Thus, there is an imbalance in wild rattan use in the country. Two reasons may be offered to explain this.

1. There is a lack of support facilities for rattan trade in most regions; and
2. The firms tend to produce for the same market segments instead of developing new ones.

That there is a lack of support facilities for rattan trade was recognized by early 1989 when the initial boom created by the 1986 export ban on unprocessed rattan (washed, sulphured, split, and. roughly polished) began to decline after the 1989 ban on semi-processed rattan (finely polished, core, peels and product components). For instance in 1988, there were 54 projects in the industry. By 1990, this number had dwindled to 12.

In the first phase of rattan sector development, the locations of rattan-working firms were concentrated in Java and North Sumatra. The logic behind this decision was that these regions have: (1) several native rattan species; (2) easy access to port facilities needed for exports; and (3) a labour force skilled in rattan-working.

Hence, although these regions were not rich in rattan stocks, several rattan furniture and basket manufacturers came up in Java and North Sumatra. Development of firms that manufacture *lampit,* which were the mainstay of Indonesian exports before the export ban on raw rattan was introduced, was mostly in South Kalimantan.

Competition between the firms was for a limited range of market segments, which. were reduced to a great extent after the 1989 export ban on semi-processed rattan. Similarly, the characteristics of raw rattan needed by these firms were more or less the same, and intense competition also developed in the supply side. This caused the raw rattan market to be sharply divided into two segments: one for the favoured and the other for the unfavoured varieties. Intensive extraction of the favoured varieties of wild rattan in the regions was the natural consequence.

In the last six years, however, prices of both types of rattan have increased (Fig. 4). This is expected to have an impact on the development of rattan-working firms in the second development phase planned in West Sumatra and South Sulawesi.

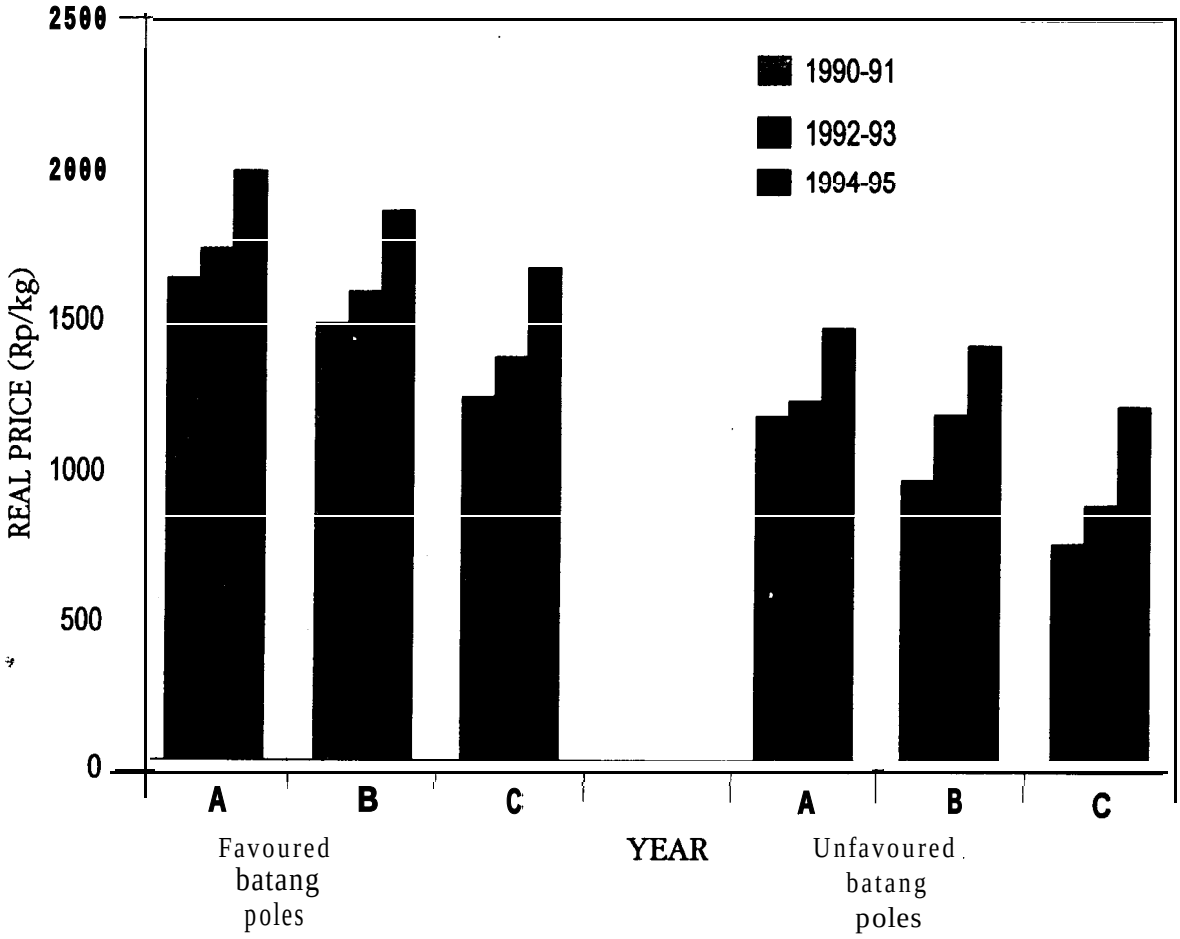

Fig. 4: Trend of real prices of favoured and unfavoured rattans in East Java (A, B, C = Quality classes)

Vertical Linkages

The main players involved in the rattan production-to-consumption system are identified in Fig. 5. The rattan flow consists of four stages:

1. The farmer/gatherer sells the rattan to the trader (KUD);
2. The trader sells it to the semi-processor;
3. After processing rattan into semi-finished products, the semi-processor sells these products to the manufacturer; and
4. The manufacturer converts the semi-finished products into the finished products and sells them to the consumer.

The profit distribution along this chain is unbalanced. Of the total profit made, the gatherer gets 4.90%; 9.68% goes to the trader; 21.51% to the semi-processor and 63.91% is pocketed by the manufacturing firm (Fig. 5).

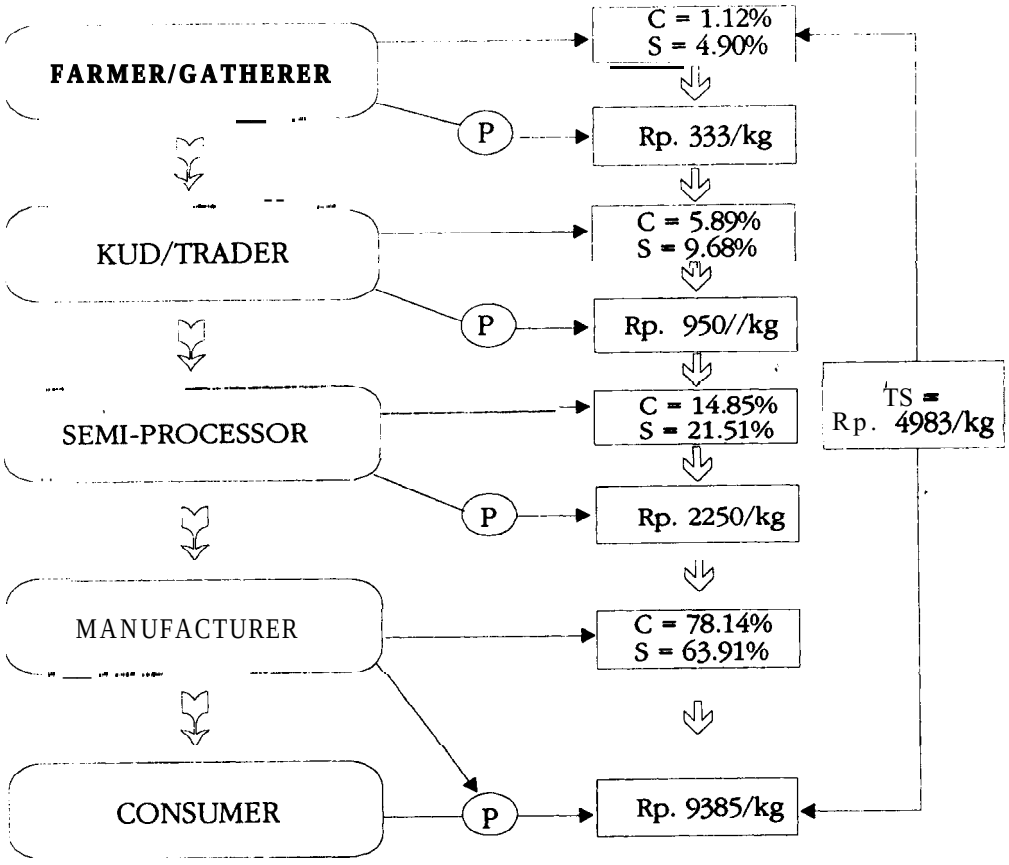

Fig. 5: Main actors and profit distribution in the rattan production-to-consumption system *in Central Sulawesi

Notes: P = Price; C = Cost; S = Profit; 1 kg wet rattan = 0.5 kg dried rattan.

Even so, there are no conflicts among the playes on this account as they dependent on each other. The gatherers supply rattan at a mutually agreed price. The tra'ders buy all the rattan brought on order by the gatherers. The semi-processor is needed by the ,trader, and so on down the line. Yet, the extent to which these players are linked to each other is influenced by the market. A strong market strengthens their linkages and a weak market weakens them.

The role of the trader in the rattan trade is one which has essentially been created by the government as semi-processors are not allowed to buy rattan directly from the gatherers but have to go through a trader.[10] Hence, a trader's position in terms of control of the production-to-consumption chain is very weak. Another weak player in the chain is the sub-contractor, who has access neither to the raw rattan market nor to the export market. Medium and large manufacturers, who control both markets, are the key players. The barrier that hampers entry into this league is the minimum required intake capacity of 1000 tons/year.

Perhaps, the most important aspect is that almost all firms compete for the same market segments (that is, the same items): This keeps the earnings of a sub-contractor static. With rising demands for rattan products, raw rattan prices also increase, driving the production costs up and cutting down the profits earned by sub-contractors (small firms). Although a fall in demand brings down the price of raw rattan, profits earned do not increase to any appreciable extent owning to the decline in product prices. In such situations, production efficiency and sound management (such as in the case of Sample C) are the only ways to survive. The case of home-based industries is worse as the net incomes of those in the home industry (craftspersons) are only marginally above the wages for other jobs.

Horizontal Linkages

There is no unhealthy competition among gatherers, perhaps because of the low earnings involved. It is mostly the low-income farmers who gather rattan in the forest. Well-managed KUDs also coexist peacefully. The mandors, however, feel it is unfair that ill-managed KUDs are allowed to obtain rattan cutting licences while they are not. There might be a conflict of interests in the case of ill-managed and well-managed KUDs, as the former just buy and sell harvesting licences, thereby affecting the market share of the latter.

Among semi-processing firms, conflicts can be noticed in buying and selling. Owing to their large numbers, those who are linked to a group of buyers are in a position to control the prices inside and outside their market. On the other hand, any price manipulations attempted by semi-processors not attached to any group will have no appreciable effect because of their low numerical strength, which is just 10%. The case is similar with manufacturers. Those who have their own semi-processing units are dominant (60%) in East Java.

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10 Governor's Decree No. 188.44/8154/RO/Prod, 1991. Amongst other stipulations it states that a licence may be given to KUD, individuals or groups but not to a semi-processor firm.

Another type of horizontal linkage is the one between players and their partners in activity. The gatherers are the only playes who do not have partners. There is no assistance available to them, and thev have to make all arrangements themselves, including cutting tracks in the forest. KUDs, though expected to assist gatherers, are ineffective in this regard.

A KUD has two partners. The first involves those who operate the transport service, and the linkage between the two are strong. The other type of partner involves those who regulate rattan extraction from the forest. One set of regulators monitors the rattan species and their stock in the forest before licence endorsement. This, however, is not done on a regular basis and many applications for licences are free from this check. Another group of regulators are involved in the long-drawn process of endorsing the licence. The steps involved in this process are so numerous that a trader has to wait for at least one month to get the licence. The main reason is that these regulators are spread out, from villages to the capital city of the province.

At a semi-processor's site there are forest officials who check on the rattan transported to ensure that the number and species harvested match those specified in the licence. ASMINDO also keeps checks on the rattan to ensure that all the rattan traded is semi-finished. Only those rattans which are naturally yellow are exempted from semi-finishing operations. There are conflicts between these two. The forest officials (CDK) feel that their checking function is not properly recognized. On the other hand, ASMINDO personnel feel that raw rattan is being traded out of the region. Apart for these, there is still another checking procedure at the harbour to ensure the legal compliance of the rattan that is traded out of the region.

The situation is similar in the case of manufacturers. First, there is a check at the harbour to make sure that the firoducts being exported comply with all legal requirements. Another check of the products is conducted at the factory site by SUCOFINDO, again to make sure that all regulations related to the export of products are complied with. Only finished products are allowed to be exported, woven components are not. There is, however, a strong opinion in favour of including weavings under the finished product category, as was the practice before. "

" NRMP (1996) – Value-added and Resource Management Policies for Indonesian Rattan: Outcome and Option for Rattan. It is argued that the inclusion of weavings under finished product category for export would raise prices of cultivated rattan around weaving centres, such as Sampit, Central Kalimantan.

The Impact of Policies

There 'are two major issues related to the use of wild rattan: one is the low profits earned by the gatherer; and the other is the lack of adequate raw material supply. These may be explained in terms of the impact of various policy interventions. All policies on wild rattan were made by the central government (Fig. 6). The local government's role is just to implement them. As shown in Fig. 6 rattan flow from the forest to the trader level falls under the purview of the Ministry of Forestry (MOF). The M'mister of Forestry's Decree No. 208 created a change in the actors involved. in the production of the wild rattan by taking production away from the private sector and placing it with KUDs.[12] This move has not only failed to better

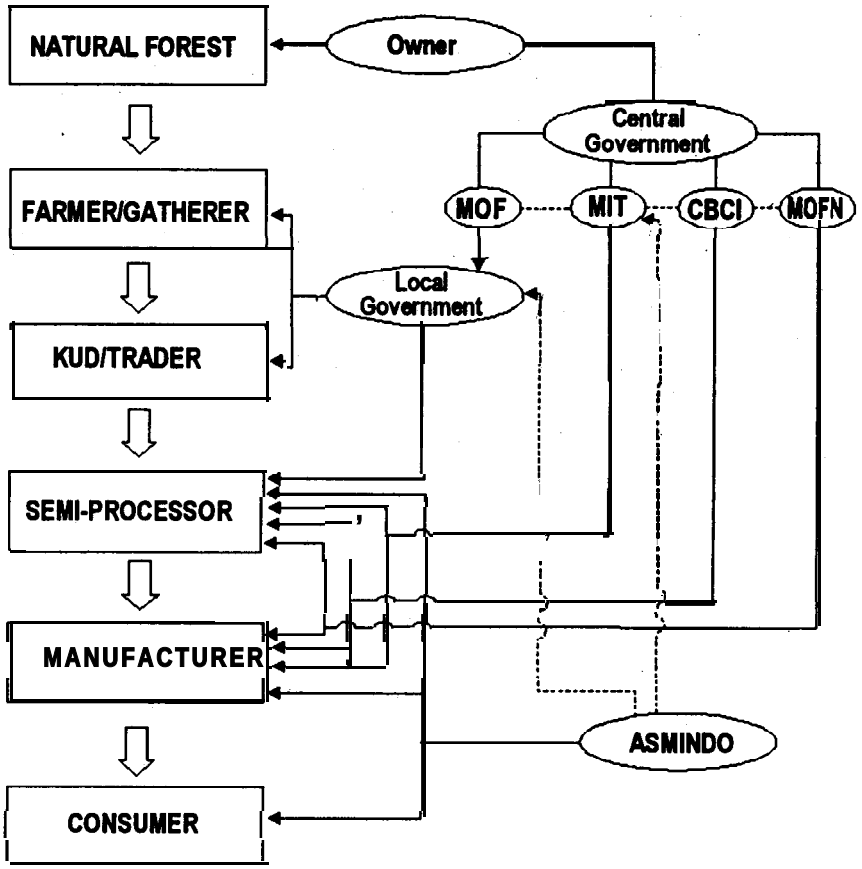

Fig. 6: Control mechanism of wild rattan in Central Sulawesi

Notes: MOF = Ministry of Forestry; MIT = Ministry of Industry and Trade; CBCI = Coordinating Board for Indonesia's Capital Investments; MOFN = Ministry of Finance; ASMINDO = Indonesian Furniture and Handicrafts Association.

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12 **Licence for Wild Rattan Extract. Its objectives: (a) to maintain, increase and sustain economic activity of farmers (gatherers) around forests and (b) to increase and sustain potency of wild rattan through enrichment planting (Chapter 1 article 2 clause 1 and 2). It was arranged by Governor's Decree No. 188.44/8154/RO. Prod, 1991.**

the production, but has created an increasing number of ill-managed KUDs (estimated at 60%). Since their sole function is to buy and sell the licence, it is likely that these KUDs cause a needless increase in the cost of rattan before it reaches the semi-processor. By contrast the very idea behind the policy change was to distribute some profits in the rattan flow to the KUDs.

In line with the export ban on the semi-finished products and its subsequent amendment to increase the export tax procedure,[13] [14] the Coordinating Board for Indonesia's Investments (CBCI) stipulated that a firm must have a rattan intake of at least 1000 tons/year to qualify for its attention. This was a rule aimed specifically at the growth of medium and large scale firms. ASMINDO promoted several big firms abroad as importers to check the growing clout of foreign brokers.

Apart from the government interventions, the industry itself has brought in changes in the pattern of rattan business in the country. For instance, about 90% of the firms in this region have their own manufacturing units. In East Java, more than 97% of manufacturers have their own semi-processing units to hold their own in the raw material market. This was necessitated by the fact that about 900 wood and rattan furniture firms went bankrupt because of raw material shortages.[15]

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13 Ministry of Trade's Decree No. 190/KP/VI/88 on Amendment to Minister of Trade's Decree No. 274/KP/XI/86 on Business Administration of Rattan Exports.

14 Minister of Trade's Decree No. 179/KP/VI/92 on Rattan Export Regime. It was supported by Minister of Finance's Decree No. 534/KMK. 013/1992 on Setting of Tariffs and Methods of Payment and Depositing of Export Taxes and or Extra Export Taxes.

15 Bisines Indonesia daily, 13 December 1994.

4 RECOMMENDATIONS

Targets

It is clear from the discussions that there are four target groups that need to be considered for development interventions: the gatherer, the trader (KUD), the small-scale firm and the home industry (craftspersons). The first two groups are situated at the start of the production-to-consumption chain, and their problems are associated with rattan supply. The last two are related to finished products and are near the end of the chain, their problem being the lack of access to raw material and export markets. Thus, although their needs are different, the main source of their problems is the same: failure of policies. The policies on the supply side conflict with those on the demand side.

On the supply side, interventions are needed to ensure the growth of small-scale and individual businesses. First, the gatherer's and the trader's incomes need to be increased since their current profit shares are only 4.90% and 9.68%, respectively, of the total profits. Second, the wild rattan stock in the forest needs to be sustained. In villages such as Bangga, it is difficult to gather rattan. Twelve days are required to gather 300 kg of rattan, compared to six days for 240 kg at Olobojo. Although this is not the case in all villages in the region, it is a matter of concern.

On the demand side, the policies must further the growth of medium and large scale firms. Two main objectives need to be achieved. One is to increase the value added content in the rattan products of these firms and the other is to increase their foreign exchange earnings. The current situation is such that even the most efficient manufacturer can fold up owing to lack of access to the rattan market if it does not have its own semi-processing unit.

On the other hand, there are cases where firms managed to earn high profits partly owing to the low price of raw rattan. However, all firms cannot. make use of low rattan prices because access to raw rattan market is allowed only for those firms that have a capacity to process a minimum of 1000 tons/year. Although, home industries and small firms do receive sub-contracts for products targeted for export, they cannot be dependent on such contracts because any fall in export prices will leave them vulnerable.

Options

1. There should be arrangements for fair price. The related issues are: How to make sure that a fair price is in effect? What should the fair price be? Who will guarantee the fair price?

There are four alternatives to guarantee a fair price. The first is to apply the floor price mechanism. This can be used to raise the earnings of gatherers and sub-

contractors. The weakness of this option is that often the market price falls below the floor price, as is the case with clove (the floor price of clove is Rp. 7 900/kg but the market price is Rp. 4 000-2 OO0/kg). Therefore, a fund will have to be created to keep the price at about the level of the floor price. This can be achieved as the players in the demand side are strong.

The second alternative is auctioning. If the government is to conduct the auction, then government firms would be involved and they would ensure the harvesting and planting of rattan in the forest. Moreover, this would effectively eliminate the trader and the gatherer, creating unemployment. On the other hand, KUDs can be involved as partners in rattan management. However, this system may not be of much use to small firms and home industries. Yet, before rejecting this option outright, a study should be carried out to investigate the pros and cons of auctioning.

The third is to ensure fair prices through firms' participation. The movement in world rattan prices does not get transmitted to the KUD and gatherer levels. This can be rectified by an agency like ASMINDO. The fact is that ASMINDO can enforce a fair price in the firms and also for the rattan sold by KUDs and gatherers. There are reasons that favour the involvement of ASMINDO in the fair price mechanism; one is that it would increase the efficiency of rattan transportation and checking. Even so, there remains the question of how far ASMINDO can sustain the fair price and there may be a need for a spot checking mechanism at the field level.

Empowering KUDs to apply a fair price mechanism is the fourth alternative. This can be done by strengthening the role of KUDs with the involvement of the semi-processing and manufacturing firms. PUSKUD, the central body of KUDs, should be active in coordinating the buying and selling activities of KUDs. It should also monitor world rattan prices and ensure that they are transmitted to KUDs, and through them to gatherers. Under such a mechanism, it would be easier to help small-scale firms and home industries in their rattan needs. Human and financial resource requirements will be the main constraints, considering that most KUDs are not well managed.

2. The system should be changed through policy reforms. The main objective here should be to build up a free market in the rattan sector. Entry barriers should be removed, and there should be no minimum scale of production fixed for the firms. A firm's size may be controlled only to ensure that it does not have undue control over the market. Semi-processors and manufacturers should be independent of each other. Licences for rattan extraction should be given to all parties concerned.

An in-depth study should be carried out on the advantages and disadvantages of such policy changes. It would be worthwhile if the study were to take a comprehensive look at the benefits and drawbacks of wild rattan utilization. It should also consider the potential effects of the free market on the existing system components – KUDs, farmers, small firms and home industry, etc.

APPENDIX

Notes on the Abbreviations Used

ABCDK: Anak Bagian Cabang Dinas Kehutanan Propinsi – Sub-sub-branch Office of the Provincial Forestry Authority. Village-level office.

ASMINDO: Asosiasi Mebel dan Kerajinan Indonesia – Indonesian Furniture and Handicraft Association. Its central office is located in Jakarta.

BCDK: Bagian Cabang Dinas Kehutanan Propinsi – Sub-branch Office of the Provincial Forestry Authority. Sub-district-level office.

CDK: Kantor Cabang Dinas Kehutanan – Branch Office of the Provincial Forestry Authority. It is a district level office.

DK: Kantor Dinas Kehutanan Propinsi – Provincial Forestry Authority Office. Located at the capital of the Province.

IDT: Inpres Desa Tertinggal – President Instruction Program on Poverty Alleviation at Less Developed Villages. An IDT village is a village where IDT is or will be implemented. A non-IDT village is a village where IDT is not or will not be implemented.

KUD: Koperasi Unit Desa – Village Cooperative Business Unit located in a village. In Indonesia, public and private cooperative business units are promoted. Such cooperative units mostly trade goods for basic needs at low prices.

IMandor – Intermediary: A person who leads and coordinates gatherers (farmers) in rattan harvesting and conducts farmer's rattan transactions with a KUD and/or semi-processor.

TO: A place where rattan gatherers sell their rattans to a KUD or *mandor.* TOs are located near forests.