

APPENDIX 4 ENHANCING RUBBER PRODUCTION IN COMMUNITIES AROUND A VILLAGE FOREST IN BUNGO DISTRICT, JAMBI PROVINCE

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SUMMARY

Rubber is the main commodity for the people of Jambi. The livelihood of 98% of the community around *Ndendang hulu Buat* Village Forest in Bathin III Ulu Sub-district, Bungo District depends on tapping rubber trees. The rubber farmers work from dusk to dawn on their plantations located about 1 km toward the hills, and they return home late in the afternoon. Rivers provide one mode of transportation for the rubber harvest. On average, the quality of dry rubber content is 40-50%. The low harvest and dry rubber content (DRC) of the community plantation is caused by an incorrect tapping method. Farmers do not use the right coagulating agent/ acetic acid to coagulate the rubber, they cast a rubber mould in an earthen mould, and immerse the rubber harvested in water.

Keywords: low rubber productivity, correct tapping methods, ways to enhance rubber harvest quality from protected rubber plantation.

BACKGROUND

Rubber is the primary commodity in Bungo District, Jambi. The community rubber plantation in Bungo District covers 91,470 ha and produces 32,496 tons (Bappeda and BPS, 2007). The low productivity is due to the old age of 98% of the plantation (aged plantation covers 5,392.71 ha, with an average annual productivity of 725 kg/ha/year), and the selection of inferior seedlings (planting germinant).

Rubber is always identified with a strong odour but smells good when farmers receive money from selling it. The current price of rubber is very high. Village farmers can receive IDR 9,000-13,000/kg depending on the quality. Rubber quality is determined based on the dry rubber content (DRC). Normally the DRC from community farms ranges from 40 to 60%. This is due to the treatment during and after harvest of creating thick slabs, immersing the rubber in stagnant water or in the river (Figure 18), as well as the addition of tapping bark or battery acid, TSP fertilizer and other compounds into the rubber harvested. The farmers think that the selling price for their products is related to the weight of the rubber instead of its quality, so they try many ways to add to its weight.

Rubber quality is greatly affected by treatment during and after harvest. In general, the rubber farmers of Bathin III Ulu Sub-district (Bungo District) do not understand the term DRC. The distant location of the rubber plantations from the villages and the difficulty of transportation also decrease the product's DRC. The river is one of the primary ways to transport rubber products from the plantations to the village. The distance and hilly topography make these farmers rely on the river as the chosen mode of transportation. The farmers come from the lower economic class, and when the rubber is transported to the village they sell their product immediately to local collectors (known as *toke*), which only provides them with a low selling price due to the condition of the unprocessed wet rubber

product. The already low selling price receives a *basi* cut or is reduced by 10% from the total rubber weight to compensate for water shrinkage.

In addition, the low DRC is caused by the use of improper coagulants by the farmers. They usually add a thin vinegar solution, as well as battery acid or TSP fertilizer and other coagulants (such as floor cleaners).

To increase the rubber productivity of the village forest community, ICRAF together with KKI-WARSI conducted a study to enhance the community's rubber harvest to obtain a better rubber selling price through training sessions covering tapping and collecting rubber lump.

Box 2 Development of Rubber Commodity Jambi Province

I. Development of Rubber Production and Export

A rubber price increase on the international market causes an increase in rubber exports and volume in Jambi Province. In 2005, the rubber export volume increased by 9.99%, (127.4 thousand ton), in 2004 to 140.2 thousand ton and in 2005 income increased 10% from USD 142.99 million to USD 157.28 million. Growth is expected to keep rising, because the world demand for natural rubber is increasing; in 2015 it will reach 10.6 million ton and in 2035 it will be 15.03 million ton. Indonesia and Vietnam are countries with the most potential to supply the world rubber market demand by increasing their productivity or by increasing the area under rubber through expansion, if possible.

Rubber export table in Jambi to 2005

	2003	2004	2005	Growth	
				2004	2005
Export (USD)	92,319,348.78	142,987,229.12	157,285,952.26	54.88	10.00
Volume (kg)	105,144,406	127,432,918	140,176,209	21.19	9.99

(Data derived from Kompas 7 March 2006)

Most of the rubber export from Jambi province (65% to 70%) goes through ports in Jambi province, Talang Banjar, Muara Sabah and Tanjung Jabung Barat; 25% goes through Teluk Bayur port in West Sumatra; 5% to 10% goes through Palembang.

The low added value of rubber is caused by the low quality of the rubber and the fact that it is exported in the form of *bokar* (basic material of rubber) which is crude rubber. *Bokar* production is 250,000 ton/year, but of that amount, only 125,000 ton meets SIR.

Jambi Province plantation exports by the SITC group

SITC	March-2006	Apr-2006	2006	Segment		Growth
	53,885,274	160,015,472	160,015,472	Apr-06	March-06	
	in USD					
Coffee, tea, cocoa, spices	49,189	142,421	163,911	0.13	0.06	189.54
Crude materials, inedible	29,727,952	44,688,477	104,187,238	41.47	35.05	50.32
Crude rubber	28,727,938	43,019,651	99,118,847	39.92	33.87	49.75
Fixed vegetable oils and fats	6,918,760	2,196,250	31,855,414	2.04	8.16	(68.26)
Total plantation	65,423,839	90,046,799	235,325,410	83.55	77.14	37.64
Total export	84,811,018	107,770,548	427,801,492			27.07

The rubber area in Jambi province in 2005 was 565,000 ha, with an average production of 725 kg dry rubber/ha/year. This was low compared to Vietnam (1,100 kg/ha/year) and Thailand (1,500 kg/ha/year). The

low productivity is affected by high rubber management costs which cost USD 0.65/kg, due to most rubber plantation belonging to communities and generally being old rubber. The old rubber area is 120,000 ha or 21.24% of all rubber plantation in Jambi. The old trees have low productivity (250 kg dry rubber/ha/year).

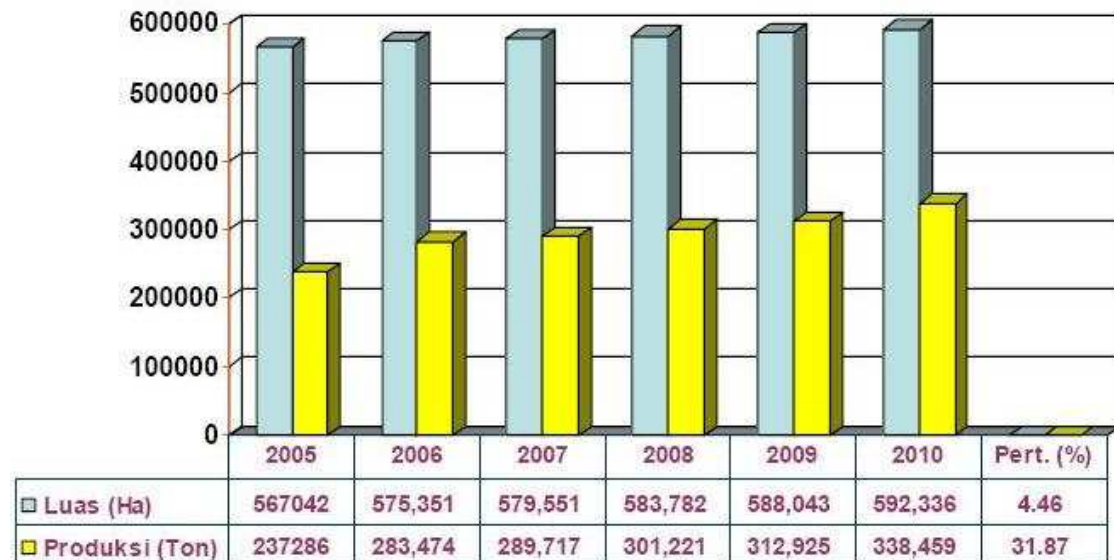
II. Rubber Development Program

The Jambi Provincial Government has allocated 10% of their budget to replant old rubber with the main target being community rubber plantations or a total budget of around 60 billion rupiahs for rubber regeneration of 17,500 ha in 2006. Up to 2010, local government has allocated a budget to replant 130,000 ha of rubber in Jambi Province.

Rubber Development Plan in Jambi Province

ACTIVITY	Development Plan (ha/year)				
	2006	2007	2008	2009	2010
Rubber regeneration	4,170	4,200	4,231	4,261	4,293
Fertilizer	17,500	25,000	27,500	27,500	33,156
Area extension	468,911	472,334	475,782	479,255	482,754

Rubber Area and Production Target



For industrial development, the target in 2007 is to establish two rubber factories that will process crumb rubber in Sarolangun District. These factories will expand rubber production in Jambi City in cooperation with the investor:

- PT Golden Energi Jambi with a capacity of 15,000 ton/year, located in Muaro Ketalo village, Mandiangin Subdistrict (being built since July 2005).
- PT Angkasa Raya Djambi with a capacity of 36,000 ton/year located in Dusung Lesung Batu, Rantau Tenang village, Pelawan Sikut Subdistrict (built in early February 2006).

These factories will help farmers or rubber land owners to sell their rubber and they will also absorb local manpower.



Figure 18 Rubber collected that is very thick (left) and immersion of rubber harvest to add to its weight (right).

Aims

1. To enhance the quality of rubber harvest by communities around the Bathin III Ulu Sub-district.
2. Train farmers in the correct methods of tapping and rubber harvest treatment.
3. Improve the community's rubber market by selling their products directly to rubber manufacturing factories.

Outputs

1. Rubber farmers are able to produce a clean harvest. Although the rubber harvest is transported by river, they have to dry their products for two weeks before selling them.
2. Farmers will obtain a good selling price by selling directly to the factories, rather than selling to collectors.

METHODS

The study was conducted in the Bathin III Ulu Sub-district in Lubuk Beringin, Laman Panjang, (Kampung Sungai Mengkuang Kecil and Sungai Mengkuang Besar), and in Buat villages (Kampung Sangi and Letung).

To increase the farmers' knowledge of rubber cultivation and ways to improve rubber production, the farmers were given training on the correct methods of rubber tapping, collection and the use of acetic acid. The training was carried out collaboratively with PT. Bridgestone Sumatra Rubber Estate (PT. BSRE), and was held in the Laman Panjang sub-village office during March 2010. Twenty seven rubber farmers and traders took part in this training.

To study the interest of the farmers and traders in a change in the quality of the rubber harvest and trade chain, an individual survey was also conducted

Farmer Background

Results of interviews with 136 respondents in four villages in Bathin III Ulu Subdistrict showed that the main source of income was rubber. Most farmers had only elementary school education, while some had attended until junior high school, high school or to the bachelor degree level (bachelor in religious study).

The smallest rubber garden was 1 ha and the largest more than 10 ha, with farmers of larger holdings usually employing someone to tap the rubber. Rubber stands averaged between 250 to 1,000 rubber trees and only a few people had more than 6,000 trees. Their rubber gardens were generally mixed rubber gardens, indicating that they also had other trees, including *petai*, *duku*, *durian*, *cempedak* and *bedaro*.

All rubber gardens were old (between 20 and 81 years) and seedlings came from local rubber species. The rubber garden pattern was a simple rubber agroforest consisting of rubber, fruit trees and wood trees such as *jelutung*.

Community Rubber Production Quality

Productive rubber stands consist of 250-200,000 trees. Farmer taps rubber for 4-5 days consecutively without a break. Tappings from day 1 to day 3 are collected in a bowl and tapping from the last day (day 5) is collected as latex. The rubber lump then will be put in a sink and later combined with latex that has already been mixed with vinegar (as a coagulant).

Community rubber production is between 20 and 5,000 kg per week, with average daily production being 12 kg/ha (KKK 40-50%). Only production from Senamat Ulu village had a better rubber quality (KKK>60%) compared to the other villages. The quality was low because the latex was soaked in water and farmers did not clean the latex, so it was mixed with bark and even batteries filling. The purpose of such actions was to increase the weight of the latex (Figure 19). Most rubber farmers received information on the properties of good quality rubber from the merchant, factory and training conducted by ICRAF. Their assumption was good quality rubber was clean from dirt (in local language known as 'tatal'). It was hard to get dry rubber, because the farmers were always immersing their latex in water.



Figure 19 Thick slab rubber mixed with *tatal* (left) and rubber material mixing (*bokar*) with battery filling (black area in the right picture).

RUBBER MARKETING LINK

Rubber farmers sell their produce to a local trader in their own villages (Figure 20). They usually have very close brotherhoods. When latex production decreases because the rubber leaves are deciduous and the farmers are unable to earn enough, they will get a loan from their traders ('toke'). This relationship not only occurs in rubber trading, but continues beyond rubber trading activity and is used for daily and household needs (such as school tuition fees, marriage, etc.) where they can borrow from toke and then pay the money back gradually after they sell their rubber. Over long periods, farmers make many loans and by so doing, they lose their bargaining position with the trader.

The local traders sell the rubber to midlevel toke (from other district or other villages), who then sell directly to the rubber industry. In cases where rubber production cannot cover the farmer's household needs, they will mortgage their rubber garden to toke, and may end up merely as tapping labour on their own land.

Another trade system involves selling the rubber directly by rubber auction, which operates biweekly. The positive aspects of this arrangement are: (1) many rubber buyers attending may offer better prices without any 'basi' cut (weight differences deducted because the rubber has shrunk due to water loss); (2) farmers are not trapped in debt dependence to toke; and (3) farmers receive better prices than under toke. However, the downside of this arrangement means that the farmers need about 2-3 days to queue and wait for the auction and payment and there is no close brotherhood relationship between the seller and the buyer.

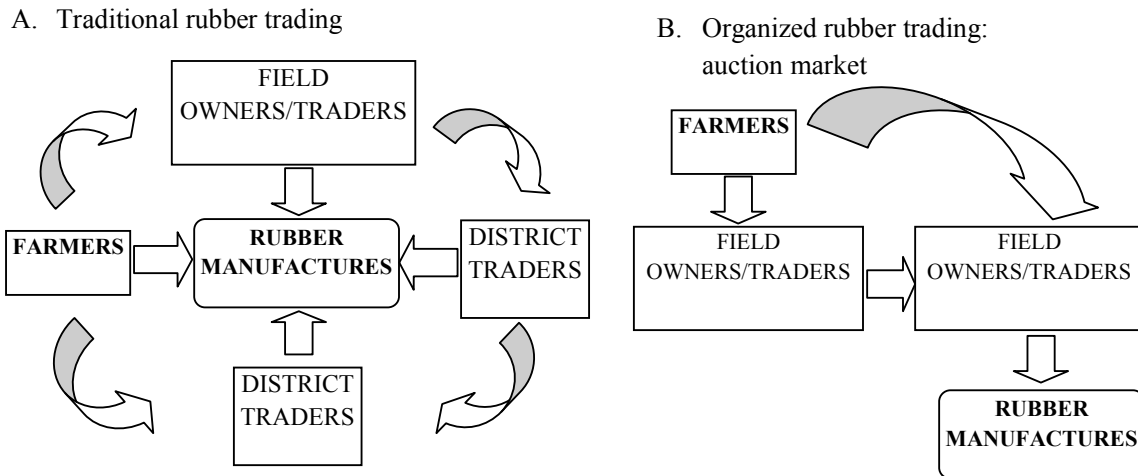


Figure 20 Scheme of organized and traditional unorganized rubber trading.

Community Rubber Production

Community rubber production averages 5-10 kg/day/ha. This low rubber production is due to: (1) the age of the rubber stands (older than 30 year); (2) the productive stands have a low stocking (around 200 trees/ha); and (3) the rubber seedlings are not from a prime species. Even with the low production rate, community rubber gardens in the Bathin III Ulu Subdistrict have high biodiversity, because there are many timber species and fruit trees.

In general, communities in the Bathin III Ulu Subdistrict formed their latex into thick slabs and immersed them in water. However, some of the farmers who had participated in the training did not use the immersion method and instead kept the rubber under their stage house. The survey responses indicated the following production results from the four villages:

Table 13 Rubber production at four villages in Bungo District

Village	Rubber production (ton/month)
Lubuk Beringin	12-20
Laman Panjang	24
Buat	8-20
Senamat Ulu	40