Educating the Community in an Effort to Improve the Quality of Rubber: A Case of Karang Intan Constituency in Banjar District of South Kalimantan Province in Indonesia

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Abstract: Though Banjar district is known as a city of diamond, it is an also famous for its community based rubber production. According to BKPMD Kalsel (2015) 89.9% of rubber produced is from the local community. The constituency of Karang Intan consists of 26 rubber producing villages which have existed since the Dutch era. Rubber is the main income earning product for this community. The newly tapped Latex is thickened using sap vinegar (formic acid or accident) to form lump. It is this lump which is then bought by its collectors from local producers (tappers) and then sold to rubber processing plants in Banjarmasin, i.e.; SIR10 and SIR20 for export. In accordance with the Dry Rubber Content (KKK) standards the price of wet rubber for each kilogram ranges from Rp. 2,500.00 to Rp. 6,500.00. The price of dry rubber ranges from 10,000.00 to Rp. 13.000,00. However, besides Karang Intan rubber, there is rubber from other areas such as Pleihari, Danau Salak, and Hulu Sungai which is purchased by factories at a higher price. Rubber from Karang Intan is of low price because of its poor quality. After an investigation, it has been established that during the processing of rubber, the farmers use Urea NSP fertilizers (agricultural fertilizers) as thickener component. Using NSP fertilizer as a thickener is not bad but it affects the quality of the rubber. In this case, farmers of Karang Intan need to be educated about the importance of quality and how to produce quality rubber. They should know that good quality rubber leads to better rubber prices. In this regard, the district department of industry and trading of Banjar through groups has attempted to provide acid ant vinegar which helps in the thickening of rubber however, continuous monitoring and education efforts are required to improve the image quality of Karang Intan rubber.

1 INTRODUCTION

In South Kalimantan, 89.9% of rubber produced is from smallholder rubber plantations (BKPMD, 2015). For Banjar district, the main income earning sector is agriculture and plantation. In the past, for this area agriculture was considered as an effort to grow rice either in wetland rice fields, or in fields on dry land. With time, there developed a culture of planting in the formerly agricultural dry lands, replacing rice with other crops such as rubber which is a cash crop, then the farmers would look for another more fertile land for their rice. The land planted with rubber could then be called rubber plantation. In the Dutch era South Kalimantan was famous for its community rubber products. The community economy grew strong, because basically they had gardens as an investment that produced sustainably. However, of recent the price of rubber has declined and continues to dwindle its lowest due to (a) the abundance of rubber products which has taken course increasingly widespread rubber plantation areas, (b) the rubber plant manufacturers have found mixtures other than natural rubber or synthetic rubber. (C) the decreasing quality of rubber tapped by the community because of the wrong way of thickening from latex to lump. The causes that is (a) and (b) are national problems which must be solved through government regulations. This research puts its attention on problem (c) that is the low quality of rubber produced by the community members.

Depending on the information obtained from the field investigation, the author established that Banjar district which was formerly famous for its diamond,

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it has all over a sadden turned into a famous district for rubber production, mostly the constituency of Karang Intan whose biggest population lives on rubber farming. This constituency consists of 26 villages, and there are 20 villages that are mostly planted with rubber, namely: Bi'ih, Sungai Besar Ulu, Sungai Besar Ilir, Tangga, Mali-mali, Arpah River, Habirau, Sungai Asam, Mandi Kapau, Carikan Awang Bangkal Barat, Awang Bangkal Timur, Padang Panjang, West Wind Bath, East Wind Bath, Sirang Lake, Piris Stone, Nyiur Island, Babar and Balau. Among the villages, Bi'ih's most extensive village has a rubber plantation area. According to Pambakal Bi'ih, H. Abdul Malik (2017) Bi'ih village with population of 1,875 people (600KK) owns 900 rubber plantation and 400 ha of agricultural land. There are many rubber gardens compared to usual farmland. The people of Bi'ih Village not only have a rubber plantation in their village, but also have expanded their gardening to villages in the villages of Karang Intan. This has led to a saying that the Bi'ih people are synonymous with the nickname rubber farmers, their work from generation to generation right from the Dutch era, the Japanese era until now is rubber production.

This research focuses on the image of rubber produced in Karang Intan, especially from Bi'ih village whose rubber is considered to be of very low quality. According to Pambakal H. Abdul Malik, the main reason is because of the way the thickening of rubber from latex to lump is conducted. According to the scientific guidance, the thickening of rubber should use a mixture of acid ants, however, many people do it in a conventional way. The conventional manner in which the latex: (a) is precipitated mixed with water, (b) mixed with leaves or juice of gadung tubers, (c) mixed with alum, (d) mixed with Urea NSP fertilizer. This method is easy and cheap, however, though the lump appear to be much or big, inside, it is full of pores that contain water.

There are several causes, it may be because: (a) the local farmers do not understand the good practices in thickening rubber, (b) there may be speculation from the collectors who buy the product, (c) the farmers may be less honest regarding quality. This research was conducted in Karang Intan constituency and purposively performed in the village of Bi'ih, in-depth interviews with rubber growers, traders of rubber, and collectors or village chiefs were conducted.

2 LITERATURE REVIEW

The establishment of smallholder rubber plantations in Kalimantan was a Dutch idea to utilize the formerly communal land for the cultivation rubber. This idea started in the village of Mangkatip (in Central Kalimantan). The idea was put to implementation in 1860 by bringing rubber seeds from plantations in Malaya and Singapore. This was after the Dutch had observed the farming practice of people in Kalimantan who used to shift from one cultivation field to another looking for new fertile places. The Dutch directed the communities to plant "care rubber" which later turned to be "rubber" or "kararaba". The experiment of planting on the formerly abandoned land succeeded. Because of the practice of returning to the previously abandoned land, the farmers were then referred to as turn back cultivators or shifting cultivators (Kurniawan, 2011). The community members felt good and were happy because of having rubber plantations which worked as a supplement to their family income. In the process, Netherlands then developed rubber plantations almost all over the entire island of Borneo. According to Fradolin Ukur (1994) "in an agricultural system, we can find alternative forms of farming methods that can be developed into approaches in the development of farming communities. In Borneo the cultivators have long developed a cyclical agroforestry system alternately by planting former fields with rattan, rubber, or other plants"

Rubber is an export commodity which is required to meet the needs of factories in producing materials made of rubber, such as vehicle tires, shoes, and others. With the increasing demand for rubber products, land clearing in Kalimantan continues to be carried out by communities and companies. The quality of rubber from smallholder farmers is difficult to control, whereas the quality of a good product determines the price and usually benefits.

According to Sannia, Ismono and Viantimala (2013) in there research, they mention that the cause of the low quality of smallholder rubber is due to: (a) not using ant acids as latex thickeners into lumps; (b) inserting other unfit components in the thickening process. The commonly used parameter for latex quality at the farm level is the rubber content. Lump quality parameters used are visual parameters such as color, elasticity, dirt level and odor or smell. With these quality parameters, natural rubber can be differentiated. Differences in quality make the prices to be different. Improving the quality of rubber should be perceived by the farmers in the form of value-

added income with the increased quality of processed rubber produced.

Napitupulu (2013) who also researched on the quality of rubber established that the farmers are aware of the low quality rubber.This means they have full knowledge of what they do. This was discovered through interviews that 79.05 percent of rubber producing farmers intentionally mixed dirt and / or unrecommended component into rubber latex during the tapping process and in the post-tapping phase. While the remaining 20.95 percent only insert the mixture at the time of the first day of cutting in each harvest cycle (3-5 days) to speed up the rubber sap clotting and to avoid overflowing they mix water in the sap together mostly during the rainy season.

3 RESULTS AND DISCUSSION

It is true that is South Kalimantan, the prices of rubber vary person to person and from places to place because of quality. For instance rubber from Danau Salak can be bought at a higher price because of its good quality. In Karang Intan because of low quality rubber is usually purchased with a low price. Rubber from Karang Intan is known as low quality rubber in the whole of Banjar district. After investigation it turned out the cause is due to the way the thickening of latex into a lump is not in accordance with the recommended steps.

To discuss the economic benefits of using formic acid as a thickener latex into a lump, it can be seen in the displayed results of the research regarding smallholder rubber farmers in the District of Tulang Bawang, Lampung, and the calculation of rubber profit obtained by farmers from Karang Intan constituency in South Kalimantan.

3.1 A Study in the Constituency of Tulang Bawang

Wiyanto and Nunung Kusnadi (2013) conducted a research on the conventional rubber freeze conducted in Tulang Bawang District, they established that there those who follow the program and also those who do not follow the program. To improve the quality of the rubber there are programs that recommend to (a) use ant acids, (b) keep the rubber from the dirt. A fascinating outcome was obtained, after comparing the two groups, it was discovered that those who followed the program increased their profits by Rp. 500.00 per kg.

Prior to their efforts to improve the quality of the use of formic acid village farmer who were accepted in the program and non-program members respectively obtained Rp. 24,785,206.00 and Rp. 28,409,250.00, after they had tried to improve the quality of their farm products, they received an increase amounting to Rp. 27,871,411.00 for the village program and Rp. 28,871,090.00 for non-program village members. This is reflected in table 1.

The study was conducted on two sample sites (A and B), one location i.e. A sample which is conventional rubber thickening method that does not use ant acid, and one sample B that is in its location have used acid ant. Recorded the sale of rubber tapped for two days. In this location sample is then carried out program of rubber quality improvement. Afterwards, the sale of the two-day wiretapping results to see the price increase after following the rubber quality improvement program.

Table 1: Comparing sales of rubber after and before following the program.

Sample	Thickening of Latex	Before the Program	After the Program	Increase in price	%
A	Not yet used acid ants	24,785,206.00	27,875,411.00	3,090,205	12.47
B	After using acid ants	28,409,250.00	28,871,090.00	461,840	1.63
		3,623,994.00			14.10

Source: Wiyanto and Nunung Kusnadi (2013)

It is seen that there price increase for sample A which previously did not use acid ant and after the program is Rp. 3,090,205.00 or 12.47% indicating that the use of ant acid and cleaning latex, the proceeds of the sale rose to Rp. 3,090,205 or 12.47%. For sample B the thickening method has been using acid ant after the program, there is still an increase of Rp. 461,840.00 because before the program has received an increase of Rp. 3,623,994.00. This means that sample B has received an increase of Rp. 3,623,994,00 + 461,840,00 = Rp. 4,085,834.00 or 14.10%. This increase is significant to increase the income of rubber farmers.

3.2 Quality Problem of Karang Intan Rubber

The collectors of rubber in Karang Intan buy from their rubber farmers for two days then sell to a processing factory in Banjarmasin. The price benchmark is given by the factory, which is the lowest and highest price. The would price of rubber during the transaction is determined through negotiations which also depend on quality of the rubber being sold.

Table 2: Challenges faced by rubber producers in the constituency of Karang Intan.

Harvest for Two Days	Tapper	Thickener	Crumb Rubber
Product Commercial Rubber System	*Latex* → Rubber farmers every day tap rubber trees to store latex to be thickened into lumps, sold to collectors	*Lump* : → Traders buy from rubber farmers, rubber that has been thickened. Saved two days later sold to Crumb Rubber factory	SIR10 and SIR20 The factory processes the rubber lumps into SIR10 and SIR20 then shipped to the next product processing plant, either in locally or Overseas

Rubber collectors in Kecamatan Karang intan recorded 12 people: Suri Adi, Rosehan, Ali, Baihaqi, Aris, H. Abdul Wahid, Irwansyah, H, Juniansyah, H. Jahri, Hairil, H. Bain and H. Munir. There is a difficulty in obtaining data in numbers, because these collectors have no written record. Representing fellow collectors, Suri Adi gives an illustration that the results of his purchase for two days brought to Banjarmasin. Rubber there are three classes or criteria, namely (a) dry rubber with the upper price (b) mid-middle rubber with the middle price and (c) wet rubber with the bottom price. They collect rubber using pickup trucks loaded 1 ton per pick up. After collected from rubber farmers enough 2 pickup they take to the processing plant in Banjarmasin. Factory or Crumb Rubber who bought rubber from the collector is PT. Karya Sejati, PT. Balimas, PT Kapuas and PT Sampit in Banjarmasin and surrounding areas.

Table 3: Factory price scheme.

Purchase 2 days thick wet rubber	Criteria of quality and price assessment and weight		
	Dry	Semi Dry	Wet
Asal = 2.000 kg	1.100 kg	1.400 kg	1,600 kg
@6.500,00 =	@ Rp. 13,000.00	@ Rp. 11.900,00	@ Rp. 10,000.00
Rp.13.000.000,00	Rp. 14,300,000.00	Rp. 16,600,000.00	Rp.16,000,000.00
	Rp. 13,000,000.00	Rp. 13,000,000.00	Rp.13,000,000.00
Profit	Rp. 1,300,000.00	Rp. 3,600,000.00	Rp. 3,000,000.00

It appears from this scheme the collectors prefer to sell semi-dry and wet rubber, at a price of Rp. 11,900.00 and Rp. 10,000.00 per kg. A gain is higher than dry rubber. This price scheme may be situational, and the purchase price of thick rubber can vary from Rp. 2,500.00 to Rp. 6,500.00. Determination of the selling price to this factory also depends on the negotiation, between the ranges of Rp. 10,000.00 to Rp. 13,000.00. The thick rubber that is not good enough, will shrink more time to the factory. The thick rubber that uses the acid of the ant is not much shrinkage.

According to the village head, in fact it has been often been done through counselling by district department of industry and trading o about the benefits of using acid ant, by showing scientific studies. In addition, the collectors have also helped supply the acid ants. But unfortunately the effort was less successful.

Rubber that goes into the plant in-grade first, cut into pieces using a circle machine to see the pores and density. A thick rubber that uses acidic ants is usually solid, whereas using other thickeners such as Urea or NSP fertilizers, will look a lot of pores and in it there

is water content. Rubber that looks a lot of this porridge will drop the price, even less than Rp. 10,000.00. Rubber from Karang Intan which can usually be estimated at Rp. 8,000.00 only per kg while those from other regions such as from Sungai Danau can be sold Rp. 10,000.00 or Rp.11,000.00. Image that the rubber from Karang Intan constituency as a low quality rubber is already attached. Collectors will be easy to negotiate if the rubber is thickened using acid ant, can approach the dry rubber with a better price. The accumulated rubber in the factory is then processed to become SIR10 and SIR20 rubber in accordance with Standard Indonesia Rubber, which is then sent to rubber product manufacturers, such as tire factories, either domestically or exported abroad.

The question is why rubber tappers in the constituency of Karang Intan not many of them want to use acid ant. According to the Village Head Bi'ih, H. Abdul Malik, who was also a collector, from experience and observation, the less likely they are being dishonest. The thought of tappers is: (a). They see pricing and rubber heavy calculations are still profitable, they just want to quickly make money and not too much trouble; (B). Using agricultural fertilizers, Urea NSPs, it's a quick condensed process and fertilizer is easy to obtain, since they are generally cultivated as farmers; (C). There are still collectors who want to buy it, because there are also factories who want to receive it, to be blended with other rubber.

It seems that these rubber tappers considers the conventional tapping process is not wrong, because there are still collectors and crumb rubber factories that receive it. They do not mind if the price is reduced. They seem to have no interest in improving the quality of rubber and that quality improvement is only necessary, in accordance with government programs. Farmers or rubber tappers in the constituency of Karang Intan must also improve their rubber quality, to improve their rubber quality image.

4 CONCLUSIONS

A fact that the quality of rubber in the constituency of Karang Intan is lower than the quality of rubber the surrounding area. The quality of this rubber is low because the tappers do not use acid ant in the process thickening their rubber product. This low quality results in low cost. Bargaining a nice deal during selling becomes difficult. However, rubber tappers can generally accept this situation because they want to quickly get money. It is unlikely that these rubber tappers will intend to cheat, because they accept the price cut proposed by the buyers. The industrial and trading department of the district of Banjar has often conducted counselling about the quality of this rubber, but received less response from rubber farming communities and other related parties.

It is suggested that the department should establish a post for Field Extension Workers who must be tasked by the responsibility of campaigning and educating farmers to maintain the quality of rubber in Karang Intan. Direct supervision can help to educate farmers on to obtain good quality rubber by using better rubber thickening acid ant. Given this post, it is expected that this effort to improve the quality of rubber will be successful.

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