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Silkworm Agribusiness in Bejen Village Temanggung

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***Abstract* – The purpose of this research is to determine the silkworm agribusiness in Central Java and to know farming and provision of seeds. This research has been carried out from December 2013 till January 2014. The village of village of Bejen in altitude of 575-600 meters above sea level. In relation to Indonesia's natural silk agribusiness development, its seedlings always develop silkworm eggs, and mulberry seeds. In addition, there is an effort to develop seeds and seedlings of mulberry silkworm; technical coaching or mentoring. It is a determinant of the success of natural silk production business. By offering opportunities and farmers' training on mulberry garden and silkworm maintenance to be able to cultivate silkworm.**

***Keywords* – Agribusiness, Mulberry Silkworm.**

I. Introduction

Silkworm originated in China, its cultivation known since the antiquity of *Han* dynasty i.e 2500 BC. The dominance of large-scale trade in Chinese expeditions made silk spread around in many areas; start from Middle China, North Indian, *Persian* to mainland Europe in the center of Rome (Italy). This commerce is well known as The Silk Road. In 1718, silk came into Indonesia, than in 1970 silkworm cultivation began to develop (Anonymous, 2007[a]).

Indonesia can develop the production of silkworm by providing human resources, supported climate and fertile land as food providers of silkworm (Handoro, 1997). Besides cassava leaves have advantages for health. It has many nutrition, especially its protein, high fiber (95 mg/100 g) and vitamin C 3300 RE (Anonymous, 2008[c]). According to Nuryani and Soedjono (1994), per 100 gram of cassava leaves contain 7.58 mg of HCN, but when harvested earlier (± 5 months) the rate of HCN was still low. It needs four times cleaning toward silkworm's cage; before and after instar's second and third molting (Anonymous, 2008[a]).

II. Research Method

The research did from December 2013 till January 2014 at the Bejen Village Temanggung on 575-600 meters above sea level. The strategy is based on the problem of this study which scrutinize on the process and its meaning, thus this research belong to qualitative research (Sutopo, 2002). The strategy in this research is a case study. To get further understanding of the emerging phenomenon and to interpret their potential , thus researcher employs inductive approach (Moleong, 2000).

The source of data are 1) The resource persons (obscured); 2) The place of the research is in the workplace. To Yin (1987) in depth interview means researcher may asks to the key informant about the facts besides asking informant's opinion. This type of information uses several varieties of forms and become the project of explicit collecting data such as scientific article to support and to add another proofs besides the informant (Yin, 1987). Although these documents are the primary source of data, but these data must bring in depth interview wih stakeholders and in holistic way (Deddy Mulyana, 2002).

The unit of analysis in this study is the company. This research will be done in a company, so the data analyzing technique is single case study. In each case, the analyses process will use interactive analyzing model (Miles and Huberman in Sutopo, 2002).

III. Results and Discussion

1. Market prospects

There is an attempt on natural silk export-oriented markets. The countries' largest importers of silkworms are European countries and America. Where as the biggest competitor for silk worm producer is China. Commodities of silkworm can only be developed in tropical countries, this is an opportunity for Indonesian particular farmers that have excellent comparative and competitive as well to develop this commodity as an excellent commodity.

The development of natural silkworm in the past years has shown a pretty good prospect. Most of them did not describe the total world production of raw silk then continued to decline over the last six years, from 55.222 tons to 52.342 tons. Where as the need is big enough and quite, 81.546 ton. Based on some predictions, this business will move on hand in hand with the growing of the human population.

Some analyzes indicate that natural silk had good prospects, and predicted demand of silk will rise between 2-3 % per year (ISA) while FAO predicts them greater to 5 %, while the increase in demand in Indonesia is estimated aroound 12.24 % (Sri Kuncoro Utami, 1999).

The land for producing_natural silk business which has been produced in 1997/1998 in Indonesia recorded about 400 hectares, which consists of intensive silk farming and the other growing land about 200 hectares. While traditional natural silk farming was pioneered 20 years ago, 2000 acres that produces 5,000 tons per year. Actual market needs fresh cocoons at this time as the raw material for silk industry.

2. Natural resouces Support

Supported local silk industry includes Java resources; government policy, human resources and land resources. Natural silk business, as well as fully supported by regional government, also get the widest credit funding in Indonesia. The natural silk business can be done by both men and women. The number and quality of farmers in

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Java give its chance to be the capital of the development of natural silk. Mulberry crop acre is 1141.47 ha.

Standardized technology of natural silk business in the farmers' level is not maximize yet. Natural silk farmers' knowledge are varied thus cocoons production is not optimal, although in fact there is an increasing of cocoon production from 4.5 tons in 2000 to 8.3 tons in 2001.

3. Opportunities and feasibility investment

There are investment opportunities in Central Java in natural silk business have to be integrated; starts from with the cultivation of mulberry crop in the process of spinning or weaving which will push garment industry for the next step.

Based on the calculation/finance analysis, the cost of production used for extensive cultivation of 1 ha using a single monoculture is Rp 32.375.000, in the past two years. Whereas the need for working capital is up to Rp 9.6624.000, Above all the total production is done through stages in a two-year maturity is Rp 42,037,400, whereas the expected profit is Rp 89.600.000.

Natural Silk Farmer Group Business (In 1 Year)

1. Area of Mulberry Gardens : 1 Ha
2. Production of Mulberry Leaves : 20 Ton
3. Caterpillars feed : 1.3 tons box (15.38 box of eggs)
4. Ratio of cocoon/box : 30 tons
5. Cocoon Selling Price : Rp 20,000/kg
6. Egg Price : Rp 44,000/box (value added tax 10%)
7. Cocoon Production : 461.40 (15.38 box x 30 kg)

Cost Calculation

No	Description	Unit	Vol	Unit Price	Type of Business	
					Company	Farmer
I	Mulberry Gardens	Ha				
1	Hoe	Ha	2 times	Rp 500.000	Rp 1.000.000	-
2	Cutting	Ha	4times	Rp 100.000	Rp 400.000	-
3	Pest control	Ha	4 times	Rp 90.000	Rp 360.000	Rp 360.000
4	manure fertilizer	Ton	10	Rp 150.000	Rp 1.500.000	Rp 1.500.000
5	Chemical fertilizer	Kg	200	Rp 2.000	Rp 400.000	Rp 400.000
6	Chemical fertilization	Ha	2 times	Rp 150.000	Rp 300.000	-
7	Manure fertilization	Ha	1 times	Rp 300.000	Rp 300.000	-
8	Ca CO_3	Kg	600	Rp 600	Rp 360.000	Rp 360.000
9	weeds	Ha	2 times	Rp 60.000	Rp 120.000	-
	Total				Rp 4.740.000	Rp 2.620.000
II	Silkworm maintenance					
	Silkworm eggs	Box	15,38	Rp 44.000	Rp 676.720	Rp 676.720
	wage	Box	15,38	Rp 300.000	Rp 4.614.000	-
	drugs					
	Ca CO_3	Kg	7,5	Rp 35.000	Rp 262.500	Rp 262.500
	- Formalin	Liter	7,5	Rp 13.000	Rp 97.500	Rp 97.500
	- paper 3 exps / box	Lbr	7,5	Rp 1.000	Rp 7.500	Rp 7.500
	- etc	Box	7,5	Rp 10.000	Rp 75.000	Rp 75.000
	Total II				Rp 5.733.220	Rp 1.119.220
III	laeves murbay				Rp 4.740.000 / 20.000 = Rp 237	Rp 2.620.000 / 20.000 Rp 131
IV	Capacity technology bamby mori				20.000 / 1.300 = 15,38	Kg / Kg Box
V	coccon				Rp10.473.220 / 461,40 = Rp22.698,78	Rp 3.739.220 / 461,40 Rp 8.104,07
VI	BEP coccon				Rp10.473.220 / Rp 20.000 = 523,66	Rp 3.739.220 / Rp 20.000 = 186,96
VII	BEP / BOX coccon				523,66 / 15,38 = 34,04	186,96 / 15,38 = 12,15

Source . Secondary data PPUS Jatiroto, 2013.

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Natural silk farming for one acre falls into estimated cost Rp 10,548,000. Next, silk farmers will get the profit step by step and will raise its profit hand in hand with increasing volume of silkworm. Cocoon production in the first year is only 200 kg, in the second year is 600 kg. For the next step, cocoon production will be constant; 750 kg. Base on the assumed of cocoon/kg is Rp 20,000, then the profit of natural silk farming will raise gradually.

Market prospects

Natural silk businesses export market oriented. Importing country's largest silkworm for this are the countries of Europe and America. The biggest competitor silkworms for this is China. Commodities silkworms can only be developed in tropical countries, this situation is an opportunity for Indonesia, especially farmers d that have comparative and competitive advantages to develop such commodities as a leading commodity (Anonim, 2009).

The development of natural silk worm in recent years shows good prospects. At least of total world production of raw silk that has steadily decreased over the past six years, from 55 222 tons to 52 342 tons, while the world needs is quite large and stable in the amount of 81 546 tons. This requirement is predicted to continue to increase along with the increase of population as well as the improvement in economic conditions.

Some analysts claim that natural silk have good prospects, and expected demand for silk will increase between 2-3% per year (ISA) while the FAO predicted greater up to 5%, while the increase in demand in Indonesia alone is estimated at 12.24% (Sri utami kuncoro, 1999).

The actual land area of natural silk which has been in production in 1997/1998 in Indonesia is approximately 400 acres, consisting of natural silk intensive farming and the still growing area of 200 hectares (Anonim, 2008[c]). While traditional natural silk farming was initiated 20 years ago 2,000 hectares with production reached 5,000 tons per year. Fresh cocoon actual needs of domestic market today, as raw material for industrial threads.

IV. CONCLUSION

1. In order to support the development of natural silk agribusiness in Indonesia, *Perum Perhutani* seedlings always develop silkworm eggs and mulberry seedling.
2. In addition, there are some efforts to develop seeds and seedlings of mulberry silkworm, e.i, technical coaching or mentoring. It is a critical success on silk business production.
3. Providing training opportunities for silkworm eggs consumer/silk farmers about mulberry garden maintenance, maintenance of caterpillar with the intention that consumers are really able to cultivate silkworms business.

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