

VALUE CHAIN PERFORMANCE OF COCOA BEANS IN BANJAROYA, KULON PROGO

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Abstrak: Kabupaten Kulon Progo merupakan daerah yang memiliki luas lahan paling besar untuk komoditas kakao di Daerah Istimewa Yogyakarta, yaitu seluas 3.522 Ha. Penelitian ini dilakukan untuk menganalisis kinerja rantai nilai dari biji kakao. Data yang digunakan adalah data primer yang diperoleh dari wawancara langsung dengan responden dari beberapa pihak yang terlibat dalam rantai pasok biji kakao, yaitu diantaranya; petani, kelompok tani, koperasi, perusahaan dan konsumen. Metode yang digunakan untuk menganalisis rantai nilai biji kakao ini adalah *economic value added*, yaitu analisis untuk mengetahui nilai tambah ekonomi dari suatu produk setelah mengalami pengolahan. Hasil perhitungan pertambahan nilai (*value added*) dalam setiap rantai entitas dari rantai pasokan dapat dilakukan berdasarkan data di atas maka didapatkan penerimaan dan pengeluaran yang diperlukan. Nilai R/C (*Revenue/Cost*) tertinggi didapatkan pada penjualan buah kakao yaitu sebesar 10.95, akan tetapi *demand* pasar yang menerima tidak banyak. Sementara itu R/C rasio untuk kakao yang sudah difermentasi belum sebanding antara harga jual dan biaya yang dikeluarkan, ini merupakan tugas untuk memberikan edukasi kepada pasar dan juga menarik pembeli kakao berfermentasi dengan harga yang layak, dikarenakan kualitas dari kakao yang difermentasi akan menghasilkan produk coklat yang lebih baik pula. Untuk Produk yang telah

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difermentasi Petani dapat menjual grade A dan B langsung ke perusahaan sedangkan mereka dapat menjual grade C dan S kepada tengkulak atau pasar. Untuk biji basah dan buah kakao yang dipanen, petani sebaiknya menjual ke koperasi karena mereka memberikan nilai tertinggi dibandingkan dengan perusahaan atau pasar. Pemrosesan menjadi cokelat batangan belum memberikan nilai tambah yang tinggi, dalam hal ini investasi alat yang menjadi beban depresiasi belum tertutup oleh jumlah produksi kakao yang dimiliki oleh petani. Solusi terkait masalah ini adalah dengan cara pembelian mesin pengolah cokelat bersama atau di level Koperasi menjadi lebih ekonomis dengan skala produksi yang lebih besar maka nilai R/C akan meningkat

Kata Kunci : : *economic value added*, kakao, kinerja, rantai nilai, rantai pasokan

Abstract: : Kulon Progo is the area with the largest cultivation area for cocoa commodity in Special Region of Yogyakarta, which is 3,522 Ha. This study was conducted to analyze the performance of the value chain of cocoa beans. The data used in this study was the primary data obtained depth interviews with respondents from; farmers, farmer groups, cooperatives, companies and consumers. The method used to analyze in this study was the economic value added method. From the result, the highest R/C value is obtained from the sales of cocoa fruit which is equal to 10.95, but if the sales of products in fruit form demanded by the receiver market are not much. Meanwhile the R/C ratio for cocoa that has been fermented is not comparable between the selling price and costs incurred for fermentation, it is the duty to educate the market and also find buyers of fermented cocoa at reasonable prices, because the quality of fermented cocoa will result into better chocolate products as well. For fermented products, farmers can sell grade A and B directly to companies while they can sell C and S grade to middleman or the market. For wet seeds and harvested cocoa fruits, farmers should sell to cooperatives because they give the highest value compared to companies or markets. Processing into bars has not given a high value added yet, while this process should provide a very large added value. This may occur because the investment value of the equipment which becomes a depreciation expense has not been covered by the amount of cocoa production owned by farmers. The solution to this problem is by purchasing chocolate processing machines collectively or at the Cooperative level to make it more economical with a larger production scale, the R/C value will increase.

Keywords: cocoa, economic value added, performance, supply chain management, value chain

1. Introduction

Kulon Progo regency is an area with the largest field of cocoa commodity in Special Region of Yogyakarta, with around 3.522 Ha field [Government Database Statistics, 2013]. The sub district with the largest area in Kulon Progo regency are the Kokap sub district with around 1.218 Ha and Kalibawang sub district with 1.063 Ha cocoa plantation. Ten other sub districts in Kulon Progo have the width of cocoa commodity under 1.000 Ha. Looking from the data of the plant which can be produced, there are nine sub districts in Kulon Progo regency which are able to produce cocoa commodity. Kokap and Kalibawang sub districts are the largest ones when it comes to the cocoa commodity which means the cocoa products from those two sub districts are also big. Alongside with that, the production of cocoa since 2008-2013 has experienced significant increase peaked at 1.043,87 tons/year production numbers. The potency of cocoa development in Kulon Progo is very promising if handled well starting from the cultivation, post-harvest, cultivating processing, packaging, distribution and marketing.

Even so, cocoa agro-business in Indonesia is still facing various types of complicated obstacles such as low productivity because of cocoa vermin attack, low quality of the cocoa products as well as not optimized the development of cocoa final product. This has become a challenge as well as an opportunity to achieve greater

value added from cocoa agro business which has been exported as dried cocoa beans compared to its processed products, so there is not much added value to the economy. The price of Indonesian cocoa beans is relatively low and is subject to get price cuts compared to the price of other competitor such as Cote d'Ivoire, Ghana, Nigeria, Brazil, etc. This may be caused by the lack of processing facilities, weak quality control, and the application of technology at all stages of processing activity of public cocoa beans which are not quality oriented. Criteria for quality of cocoa beans include physical aspects, taste and cleanness and the stages of the production process. The process of the cocoa fruit processing determines the quality of the final product of cocoa, because in this process there is the formation of prospective cocoa flavors and a reduction in unwanted flavors, such as bitter and spicy flavors.

Supply Chain Management (SCM) is an integrated, coordinated and controlled planning of all business processes in the supply chain to provide value (Van der Vorst, 2000). The supply chain does not only includes producers and suppliers, but also the horizontal relationships which are suppliers, manufacturers, wholesalers (distributors), retailers and customers, and also vertical relationships such as buyers, transporters, storage, sellers and so on (Chopra and Meindl 2001). Value is nothing but the ability of consumers to pay for what the company provides (production) which ultimately relates to the total income earned by

the company. The concept of "value-added activity comes from (value chain) which characterizes the value created by an activity in relation to the cost of executing it (Porter, 1985). Value creation in the supply chain management system is one of the efforts to improve the distribution system. Creation of value in the supply chain is one way to get competitive advantage. According to Porter 1980, that the competitive advantage can be the choice of strategy undertaken by the company to seize the market and competition.

Global business competition is currently leading to a customer-based economy, resulting in a paradigm shift that demands the readiness of companies to compete in the market by creating value from each process in producing their products or services in accordance with consumer expectations, so they can survive and achieve competitive advantage (Totanan, 2004). Value chain analysis views companies/business entities as part of the product value chain. The product value chain is an activity that starts from raw materials to after-sales handling. This value chain includes activities that occur due to relationships with suppliers (supplier linkages) and relationships with consumers (consumer linkages). This activity is a separate activity but very dependent on one another (Porter, 2001). Therefore, farmers must change the old paradigm and begin to create innovation and competitive advantages in order to enter the era of agricultural industry which is increasingly demanding sustainable quality. This study was

conducted in order to find out the value chain of each entity in the cocoa seed supply chain using economic value added analysis, which is an analysis to determine the economic value added of a product after processing. This value is the comparison between net income and costs, so that further analysis is expected to formulate strategies to increase the value of cocoa beans can be done which leads to an increase in the income of cocoa farmers in the village of Bajaroya, Kulon Progo Regency.

2. Material and Methods

This study was conducted on farmers, farmer groups, cooperatives, companies, middleman and cocoa consumers in Banjaroya Village, Kalibawang sub district, Kulon Progo. The data used were primary data obtained depth interviews with respondents from several cocoa seed supply chain entities. The method used in this study was survey method with convenience sampling technique. Data analysis used descriptive statistics to collect, process, present, and analyze quantitative data descriptively related to the value added structure of cocoa beans. The datas were processed to analyze the cocoa bean value chain with the economic value added method, which was an analysis to find out the economic value added of a product after processing. This value was calculated by divided net income with total costs, as showed in formula (1)

$$EVA = (\text{Net Income})/(\text{Total Cost}) \times 100\%$$

For cocoa commodities the treatment begins with the process of drying wet cocoa, initial sorting, further drying, and grading.

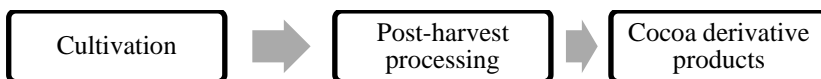


Figure 1. Value chain of cocoa bean products

The results obtained are expected can be a help to determine the value chain of each entity in the cocoa seed supply chain, so that further analysis is expected to formulate strategies to increase the value of cocoa beans to increased income of cocoa farmers in Bajaroya village, Kulon Progo Regency.

3. Result and Discussion

This study was conducted on farmers, farmer groups, cooperatives, companies, middleman and cocoa consumers in Banjaroya Village, Kalibawang sub district, Kulon Progo The sequences of value added starts from farmers getting seeds until selling their crops as shown in Figure 4. Cocoa seeds were first purchased in 2014 by the Ngudi Rejeki Farmer Group with the help of the Yogyakarta Plantation Office for 750,000 Rupiahs per pack with \pm 1000 seeds, because through Yogyakarta Plantation Office, there was no delivery fees. Of the total seeds purchased, \pm 99% could produce cocoa seeds and until now still able to bear fruit. Ngudi Rejeki Farmers Group also received assistance in the

form of cocoa seeds aged between 2-3 months from PT. Pagilaran at the price of 6,000 Rupiahs which is accommodated in polybags, as well as some cocoa seeds produced by the Yogyakarta Plantation Office. The price of cocoa fruit after being harvested if it is still in its full form is sold to middlemen at the nearest market, namely Jagalan Market, at the price of 200 Rupiahs/piece. At present, the Ngudi Rejeki Cooperative also buys cocoa in fruit form at the price of 1,000.00 Rupiahs/kg where 1 kg contains 2-3 fruits if the size is medium and 1 fruit if the size is large. If the cocoa fruit has been broken down and sold in the form of wet beans, it will be worth 3,000-5,000 rupiahs per kg, where to get 1 kg of wet beans, an average of 15 cocoa fruits are needed. If the seeds are already in the form of dried beans they usually are sold to market middlemen or to PT. Pagilaran, PT. Bumi Tangerang, and industrial home of chocolate product makers. The price of fermented dried seeds: 22,000 Rupiahs/kg, and for the non-fermented ones: 21,000 Rupiahs/kg

The Ngudi Rejeki Cooperative preferreds to buy in the form of harvested cocoa fruit valued at 1,000 Rupiahs/kg. In one week, the Koperasi Ngudi Rejeki Cooperative usually got around 40 kg or 200 kg/month of cocoa fruit. As soon as collected, then the fruit was opened, fermented and dried, this processes required 2 workers at a cost of 50,000 Rupiahs per person per day from the opening to drying. Shipping cost from the Ngudi Rejeki

Cooperative to the Jagalan Market every week was 8,000 Rupiahs for vehicle fuel for one trip. On average, after grading, the number of fermented dried cocoa beans that came in quality B was only 10%, the rest was included in C and S quality. The price of dried B quality cocoa beans was 35,000 Rupiahs/kg which was usually purchased by PT. Pagilaran every 1 or 2 months. The price of C quality cocoa beans was usually sold to collectors or the market at the price of 22,000 - 25,000 Rupiahs/kg, while S quality was directly sold at the market without fermentation at the price of 18,000 Rupiahs/kg.

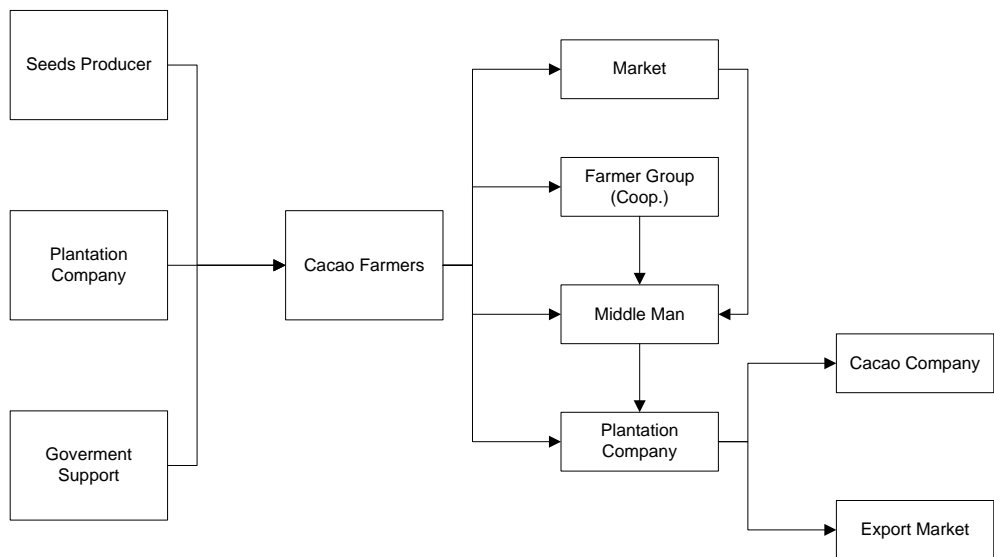


Figure 4. Cocoa distribution chain sequences done by Cocoa Farmers in Banjaroya

The profits obtained by the cooperative were divided into 3 parts, namely 30% group cash, 30% manager and 40% for profit sharing. The consumers of the Ngudi Rejeki Cooperative come from home industries such as Coklat Pegagan, Companies, school children and other consumers.

The information obtained by traders in Jagalan market (Table 1), the current price in the market for C and S quality without grading was 18,000 Rupiahs/kg. Currently in one week only gets about 10 kg. The biggest achievement ever obtained is 400 kg/week in 2015 ago. There is only one trader in the market who live and have their own kiosk there. Other traders use motorcycles accompanied by carts or baggage and move around. The cost of renting a kiosk with a size of 3x3 meters in Pasar Jagalan is 500,000 Rupiahs/year and a daily retribution fee of 2,000 Rupiahs. Traders in the market do not require inventories or the cost of providing special treatment for cocoa, because on the exact same day, collectors usually come to traders in the market to be deposited. Shortly, traders in the market are only intermediaries between farmers and collectors. Meanwhile from the collectors or middleman, one of the large-scale collectors who had started a business in 2010 gave a price of 19,000 Rupiahs for all types of quality dry cocoa, so now many farmers sell cocoa beans which are only dried without fermentation and degrading first.

Table 1. Income of the Cocoa in every stages:

No.	Value/Income of the cocoa in every stages	Income
1	Income if sold in the form of cocoa fruit:	
	a. Number of production (fruit)	129.360
	b. 1. Market product price (Rp/Buah)	200
	2. Cooperation product price (Rp/Buah)	333
	c. Income if sold fruit to Market (Rp) (b.1*a)	5.872.000
	Income if sold fruit to Cooperation (Rp) (b.2*a)	43.120.000
2	Income if sold in the form of wet seed:	
	a. Number of production (wet seed) (kg)	9.240
	b. Cooperation Product Price (Rp/kg)	4.500
	c. Income if sold wet seed to Cooperation (Rp) (b*a)	41.580.000
3	Incomes if sold in non-fermented dry seed:	
	a. Number of production (non-fermented dry seed) (kg)	3.234
	b. Market/Company/Middleman product price (Rp/kg)	21.000
	c. Incomes if sold in non-fermented dry seed to Market/Company/Middleman (Rp) (b*a)	67.914.000
4	Income if sold in fermented cocoa seed:	
	a. Number of production (fermented seed) (kg)	3.234
	b. 1. Product Price Grade A/B/C (Rp/Buah)	3.500
	2. Product Price Grade S (Rp/Buah)	8.000
	c. 1. Income for Product Price Grade A/B/C (Rp) (70%*b.1*a)	53.199.300
	2. Income for Product Price Grade S (Rp) (30%*b.2*a)	17.463.600
	Total income if sold in fermented cocoa seed (c.1+c.2)	70.662.900
5	Income if sold in cocoa (Cocoa Block):	
	a. Number of production (kg)	3.234
	b. Product price (Cocoa Block): (Rp/kg)	65.000
	c. Income if sold in cocoa (Cocoa Block): (b*a)	10.210.000

Table 2. Cost of production in every stages:

No.	Cost of production in every stages	Cost
1	Production Cost (Cocoa Fruit)	
	a. Seedings cost	288.750
	b. Labor Cost (Rp)	1.875.667
	c. Depreciation (Rp)	-
	Total Cost (Rp)	2.164.417
2	Production Cost (Wet Seed)	
	a. Seedings cost	288.750
	b. Labor Cost (Rp)	4.275.667
	c. Depreciation (Rp)	-
	Total Cost (Rp)	4.564.417
3	Production Cost (non-fermented dry seed)	
	a. Seedings cost	288.750
	b. Labor Cost (Rp)	6.675.667
	c. Depreciation (Rp)	-
	Total Cost (Rp)	6.964.417
4	Production Cost (fermented cocoa seed)	
	a. Seedings cost	288.750
	b. Labor Cost (Rp)	7.275.667
	c. Depreciation (Rp)	583.333
	Total Cost (Rp)	8.147.750
5	Production Cost (Cocoa Block)	
	a. Seedings cost	288.750
	b. Labor Cost (Rp)	40.875.667
	c. Depreciation (Rp)	1.583.333
	Total Cost (Rp)	42.747.750

The collectors usually take the cocoa beans from the surrounding markets, starting from the markets of Jagalan, Girimulyo, Kokap, Boro, Dekso, Kenten and others. The cost of

traveling around picking up cocoa beans is around 35,000 Rupiahs/week. At present, the cocoa capacity that can be obtained is only 2 quintals/week, whereas in 2015 it could reach 2.5 tons/week. On the collectors, the sorting and re-drying process is carried out because it will be sent to the companies which requires some requirements such as moisture content, maximum number of moldy, small seeds, or a maximum of 10% damage from the total weight of the cocoa beans deposited. So, in order for the products to be accepted by companies, collectors do the mixing of good and bad seeds in order to avoid cut. The cut is given by companies if the number of seeds that do not meet the requirements is more than 10% at the cost of 10 Rupiahs/seed. The shelf-life of cocoa in collectors to be carried out for re-drying and grading is 1 month at maximum, but with 2 worker usually only takes 1 week, the cost of workers is around 50,000 Rupiahs per person per day. Collectors other than PT. Pagilaran and PT. Bumi Tangerang, also distributes cocoa beans to the Semarang area at the price of 23,500 Rupiahs/kg. It takes a truck rental fee and other handling costs including transportation costs, accommodation, workers, truck roof cover and road costs with a total cost of 1,000,000 Rupiahs per delivery.

From the results of the calculation of value added in each chain of entities from the supply chain that can be carried out

based on the data above, the necessary revenues and expenditures are obtained.

Table 3. Acceptance and Costs Required for the Manufacture of the Products

No.	Description	Value
1	Income if sold in the form of cocoa fruit (Rp)	25.872.000
	Production Cost (Cocoa Fruit) (Rp)	2.164.417
	R/C Rasio	10,95
2	Income if sold in the form of wet seed (Rp)	41.580.000
	Production Cost (Wet Seed) (Rp)	4.564.417
	R/C Rasio	8,11
3	Incomes if sold in non-fermented dry seed (Rp)	67.914.000
	Production Cost (non-fermented dry seed) (Rp)	6.964.417
	R/C Rasio	8,75
4	Income if sold in fermented cocoa seed (Rp)	70.662.900
	Production Cost (fermented cocoa seed) (Rp)	8.147.750
	R/C Rasio	7,67
5	Income if sold in cocoa (Cocoa Block) (Rp)	210.210.000
	Production Cost (Cocoa Block) (Rp)	42.747.750
	R/C Rasio	3,92

The highest R/C value is obtained from the sales of cocoa fruit which is equal to 10.95, but if the sales of products in fruit form demanded by the receiver market are not much, they have to convert it into wet cocoa beans or non-fermented cocoa beans

which actually produce lower R/C value. Meanwhile the R/C ratio for cocoa that has been fermented is not comparable between the selling price and costs incurred for fermentation so they prefer to sell it in the form of wet cocoa beans or non-fermented dry cocoa. Processing into chocolate bars has not provided a high added value, this process should be able to provide very large added value considering that the price of chocolate bars on the market ranges from Rp. 65,000.00 per Kg. In this case, the investment of equipment which becomes depreciation expense has not been covered by the amount of cocoa production owned by farmers. The solution to this problem is to buy a chocolate processing machine together or at the cooperative/collective level to be more economical with a larger scale of production, the R/C value will increase.

4. Conclusions

The results of the analysis of the value chain additions of Farmers' Cocoa beans in Banjaroya, Kulon Progo Regency were obtained if they sold their cocoa products in the form of cocoa fruits, but if the sales of products in fruit form demanded by the receiver market are not much. The cost of fermenting and the selling prices of fermented cocoa is not comparable, which results into smaller R/C ratio than selling non-fermented cocoa, therefore they prefer to sell it in the form of wet cocoa beans or non-

fermented dry cocoa. If farmers do not want to do the fermentation process, they can be sold to markets because companies generally have a grade system before the products are sold. It is the duty to educate the market and also find buyers of fermented cocoa at reasonable prices, because the quality of fermented cocoa will result into better chocolate products as well. For fermented products, farmers can sell grade A and B directly to companies while they can sell C and S grade to middleman or the market. For wet seeds and harvested cocoa fruits, farmers should sell to cooperatives because they give the highest value compared to companies or markets. Processing into bars has not given a high value added yet, while this process should provide a very large added value. This may occur because the investment value of the equipment which becomes a depreciation expense has not been covered by the amount of cocoa production owned by farmers. The solution to this problem is by purchasing chocolate processing machines collectively or at the Cooperative level to make it more economical with a larger production scale, the R/C value will increase.

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