

The Innovation of Value Chain Model of Cocoa Oil Industry to Increase The Sustainable Value Added

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Abstract----- This research aims to innovation of value chain model of the cocoa oil industry based on resources event agent (REA) in the Lembah Lanipa Agropolitan Area of North Kolaka Regency of Southeast Sulawesi Province in order to increase the value added of the business sustainably.

This research was conducted at 4 (four) sub-districts in the Lembah Lanipa Agropolitan Area in North Kolaka Regency, i.e.; Pakue sub-district, Centre Pakue sub-district, North Pakue sub-district, and Batu Putih sub-district, where in each of the districts assigned a sample of 25 respondents using *purposive sampling* technique, therefore the total respondents were 100 respondents. The analysis used is *Activity Based Costing (ABC)* and *Focus Group Discussion (FGD)*, Hayami method, and REA analysis.

The results showed that the development model of cocoa oil industry value chain produced is projected to; (1) increase the selling price of products, (2) lower the purchase price of the main raw materials (dried cocoa beans), (3) reduce the costs of other inputs contribution, (4) increasing the value of output, (5) increasing the value-added products, (6) increase profits, (7) increase profit margins, and (8) reduces the margin portion of remuneration for labor factors of production.

Keywords----- Innovation Model , Value Chain, Value Added, Activity Based Costing, Resources Event Agent (REA), Hayami method.

1. INTRODUCTION

1.1. Background

Development of cocoa oil industry development in Southeast Sulawesi cocoa done in order to increase the value added of commodities as well as to prevent the cocoa farmers from selling their cocoa production in the form of logs. However, it is yet to achieve optimal results. It can be seen from the level of competitiveness of the cocoa oil industry in Southeast Sulawesi which is still at moderate levels (Zaid, 2016). The results of a preliminary survey showed that the main cause is the increased production volumes tend to be less due to higher operating cost from the raw materials gain cost, the cost of production, and marketing costs.

In addition, the decreased volume of cocoa oil production in Southeast Sulawesi is also caused by lower selling prices. The low price of the product is due to the low market access that result in low demand. Demand for production only leads to collecting traders which impedes to the wider market access because business communities seem to be carried away by the rhythm of the collecting traders who eventually become the determinant of the selling price.

Referring to these conditions, it is then very necessary to build strategic procedure to reduce costs, increase production volume and selling prices, and add value. The Strategic procedure in this paper is to develop the models of cocoa oil industry value chain in order to reduce costs, increase production volume and

selling prices as well as expand market access in order to increase the added value in a sustainable manner.

1.2. Research Purposes

This research aims to develop cocoa oil industry value chain model to increase cocoa oil industrial added value in a sustainable manner. The purpose of this study can be described as follows:

- Constructing the initial models of cocoa oil industry value chain.
- Performing analysis of *Activity Based Costing (ABC)* to the initial model of cocoa oil industry value chain in order to select and analyze which value chain activities that can provide added value.
- Constructing development models of cocoa oil industry value chain.
- Calculating the amount of projected value added of cocoa oil industry which can be obtained from the development model of cocoa oil industry value chain by using Hayami method.
- Constructing innovation models of cocoa oil industry value chain in use Resources Event Agent (REA) models.

2. RESEARCH METHODS

2.1. Research sites

This study will be conducted in the Lembah Lanipa Agropolitan Area in North Kolaka where the

located in 4 (four) sub-districts, namely; (1) Pakue sub-district, (2) Centre Pakue sub-district, (3) North Pakue sub-district, and (4) Batu Putih sub-district.

2.2. Population and Sample

The population in this study is the whole business community of cocoa oil industry in the Lembah Lanipa Agropolitan Area, North Kolaka, Southeast Sulawesi province, which includes four (4) sub-districts, namely; (1) Pakue sub-district, (2) Centre Pakue sub-district, (3) North Pakue sub-district, and (4) Batu Putih sub-district.

Based on the characteristics of the population, then subsequently determined by purposive sampling as many as 25 respondents in each district, therefore, the total respondents in this study were 100 respondents.

2.3. Analysis Technique

Analysis techniques used in this study conducted by three (3) phases;

- a. *The first stage*; developing models cocoa oil industry value chain. Analysis were performed by *activity-based costing* (ABC).
- b. After development models of the value chain is formed, then continued with HAYAMI method which is used to calculate the amount of the projected increase in the added value of business acquired from value chain development model that has been constructed. If the added value gained from the value chain development model is greater than the previous value chain model, then the development model is ready to be applied.
- c. Based on development models of the cocoa industry value chain that give value added is formed, then continued with PRA, FGD, and REA analysis to resulted of the innovation models.

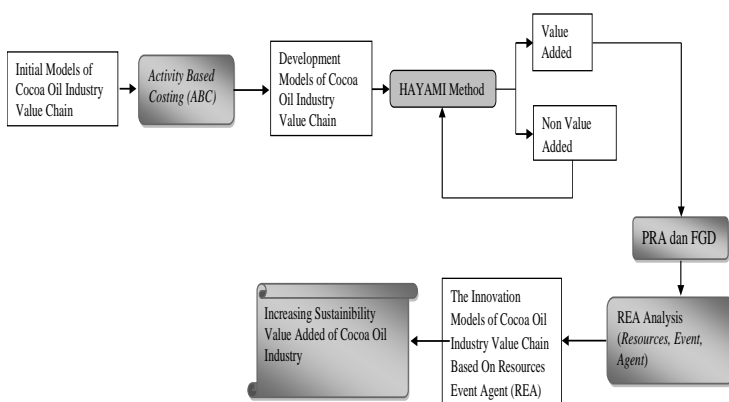


Figure 1
Research Analysis Framework

3. RESULT AND DISCUSSION

This research will be focuses on developing and innovation models of cocoa oil industry value chain in order to reduce cost and increase the additional value of business continuously.

3.1. Value Chain Development Model of Cocoa Oil Industry

In the previous section, it has been explained that this research is a multi-year research where in the first year have been finish to constructed the initial models of cocoa oil industry value chain. Based on the initial model of the value chain of cocoa oil industry that previously built, then the researcher will construct the development and innovation of the model. The process of developing and innovation the initial model of the value chain of cocoa oil industry will be done by using activity based costing (ABC) dan resources event agent (REA) concept.

The ABC (Activity Based Costing) method is another alternative to traditional financing methods over overhead costs. This concept arises because it is considered that the traditional method is not appropriate in allocating overhead costs to production only by relying basis of direct materials, direct wages or production units only. Based on this concept, this kind of imposition is improper and will be able to provide misinformation in providing information about production costs, therefore ABC offers that the overhead charge is also based on a proportional percentage to other costs or to the product. However, to the activities undertaken to produce the goods, the concern is the element that drives the cost (cost driver) not the product. If this concept is applied then the decision making will be more appropriate and the business will not be lose due to unit cost error.

ABC (Activity Based Costing) is a system of cost accumulation and charging cost to the product by using various cost driver, done by tracing cost from activity and then tracing cost from activity to product. The benefits of implementing ABC are:

- 1) Determining the cost of products more accurately, especially to eliminate cross-subsidy so that there is no loading over of basic price kinds (over costing) and other under-cost product.
- 2) Improving decision-making. By using ABC not only provide more accurate information about product cost, but also provide information for business community about the activities that lead

to the cost, especially indirect costs, which is important for management in making decisions both on products and in managing the activities - activity so as to improve the efficiency and effectiveness of the business.

- 3) Enhancing control over overhead. Overhead costs caused by activities that occur in the company. ABC system facilitates business community in controlling the activities that cause the overhead.

The stages in the application of ABC are as follows:

- A. Identify activities. The identification of activities requires a listing of the types of jobs within the company related to the production process.
- B. Charging fees to activities. Each time an activity is set, the cost of implementing the activity is determined.
- C. Specifies the activity driver. The next step is to determine the activity driver for each activity, which is the controlling factor of the activities.
- D. Determining tariff. In determining this rate, the total cost of each activity is divided by the total activity of the driver used for the activity.
- E. Charging the product. The next step is to multiply the rate obtained for each activity with the driver activity consumed by each type of product produced and then divide by the number of units produced for each product.

The Development Model of Raw Material Chain

The development model of raw material chain of the cocoa oil industry is a model developed based on the initial model of the raw material chain that has been previously research. Based on the results of ABC and FGD analysis conducted, the development model of raw material chain is as follows:

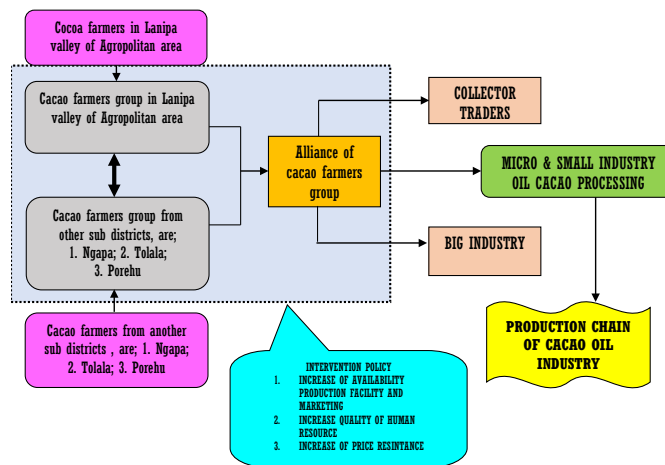


Figure 2.

The Development Model of Raw Material Chain

Based on the result of activity based costing (ABC) analysis and focus group discussion, the researcher then construct the development model of raw material chain as shown in Figure 2. Several points that become the development from initial model of cocoa oil industry raw material chain are:

- 1) Supply of raw materials in the initial model is supplied from 2 (two) sources namely; (1) Traders of dry cocoa bean collectors in the Agropolitan Lembah Lanipa area with an average price of Rp. 20,000, - / kg; And (2) Collecting traders of dry cocoa beans from other sub-districts, with an average price of Rp. 20.000, - / kg. Based on the results of ABC and FGD analysis then the researcher obtained results as follow:
 - a) For the source of raw material, it is expected that the cocoa industry can obtain the raw materials either directly from the cocoa farmers located in the Agropolitan Lembah Lanipa area or from other subdistricts located close to the production pole; (1) Ngapa Subdistrict; (2) Tolala Subdisttric; And (3) Porehu Subdistrict.
 - b) Each cocoa farmer in the agropolitan Lembah Lanipa and cocoa farmers located in other subdistricts adjacent to the poles of production, is expected to establish Cocoa farmers group (Poktan) for each subdistrict and then to form a Cocoa

Farmers Group association (Gapoktan) for the entire farmer groups. This is done with the consideration that farmer groups and farmer group associations can be become institutions that are able to stabilize prices in accordance with prevailing market prices.

- c) The selling price of dried cocoa beans at the farmer group level or the combination of farmer groups is predicted to be in the range of Rp. 18,500, - / kg with the consideration that the current price at the farmer level is currently Rp. 17.000, - / kg and at the collecting merchant level is Rp. 20.000, - / kg, therefore if this can be implemented it will have a positive impact in the form of increase in selling prices at the farmers level, and decrease in the purchase price of raw materials at the level of cocoa oil business community.
- 2) Regional Regulation Factor. The government should establish an intervention policy at the farmer group level, whether located in the research location or in the region adjacent to the production poles, the price of the dry cocoa beans applicable to the cocoa industry is set at, Rp. 18,500, - / kg. This is based on the consideration that if the cocoa oil industry in this region is increased, the positive impacts that can be gained by the region is the increased economic added value, the absorptive capacity of the workforce and can the reduction of poverty rate. In addition, the form of intervention policies that can be granted in the framework of developing the cocoa oil industry is; improving the quality of human resources, and increasing the availability of production facilities and infrastructure.
 - 3) There is a need for a partnership with cocoa farmers in other adjacent areas, such as; Ngapa Subdistrict, Tolala Subdistrict, and Porehu Subdistrict, so the cocoa industry community do not experience the scarcity of main raw materials. However, this can only be done if there is support from the local government in the improvement of supporting facilities and infrastructures, such as; Means of transportation to facilitate the flow of

raw material mobility from the poles of raw materials to the poles of production.

The Development Model of Production Chain.

The development model of cocoa oil industry's production chain is a model developed based on the initial production chain model in previously research. The development of this production chain model is constructed by using activity based costing (ABC) and focus group discussion (FGD). Based on the results of the analysis, the Development Model of Production Chain can be explained in Figure 3.

Based on the results of ABC analysis and the information obtained from the FGD results showed that the production stages contained in the initial model of the production chain (Figure 6) are standardized stages, therefore, that the initial model development process is only focused on the raw materials and equipment preparation. The current packaging process in the initial model is the packaging in the form of a bottle which is then given a label of simple paper that inscribed the name of the product, price and production address.

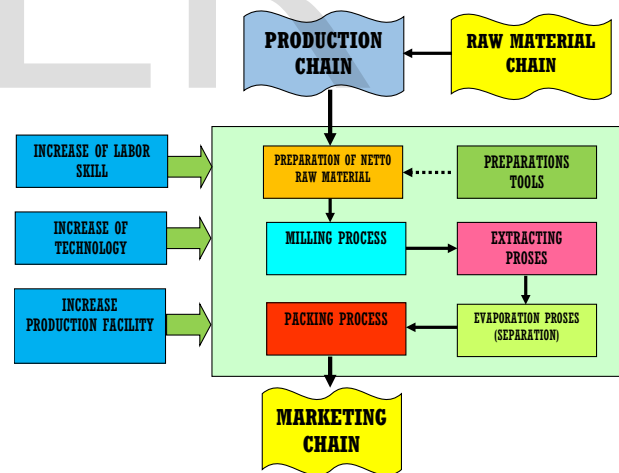


Figure 3.

Development Model of Production Chain

The results of ABC analysis and FGD implementation result indicate that some of the things that become different between the development model and the initial model of cocoa oil industry production chain are;

- 1) Preparation and cleaning activities of raw materials are in one stage activity, so that both of these activities decided to be done through a series of activities namely; clean of material preparation

activities. Merging these two activities can shorten the cycle of production activity. While for equipment preparation activity, it is not included in the production chain activity cycle but is considered as an activity supporting the production cycle.

- 2) Modification of Extraction Activity. In the initial model of the production chain, the extraction was carried out using a solvent (96% ethanol) with a total of 10 liters at a cost of Rp. 300.000, - i.e. for the purchase of 10 liters of solvent with a price of Rp. 30.000, -. The price is the prevailing price around the business location. Based on the FGD results, researcher found that the price of solvents per liter in the area of South Sulawesi Province is Rp. 26.000, - / liter, so with reference to the information, it is deemed necessary to form a joint business cooperative that serves as a solvent distributor from the South Sulawesi Province to the cocoa oil industry community in the research location. Estimated pricing if this is implemented is Rp. 28,500, - / liter, with details as follows: (a) Rp. 26,000, - is the purchase price in South Sulawesi Province; (B) Rp. 2.000, - represents the transportation cost / liter, and Rp. 500, - represents the margin received by the joint venture cooperative.
- 3) Based on FGD results, it is found that there are some obstacles that are often faced by cocoa oil industry business community, they are; (A) inadequate labor skills; (B) lack of use of production technology that can improve production quality; And (c) lack of availability of production facilities and infrastructure. Based on this information, it is necessary to run a strategic procedures that can overcome these problems such as Increasing training intensity for industry players, increasing availability of production facilities and infrastructure, and improving the production technology through research in cooperation with related parties such as; Government, universities, non-government organizations, and other relevant parties.

The Development Model of Marketing Chain

The development model of marketing chain is a model developed based on the initial model of the marketing chain from previously research. The development of this marketing chain model is constructed by using Activity Based Costing (ABC) and Focus Group Discussion (FGD). Based on the results of the analysis, the Development Model of Marketing Chain was obtained.

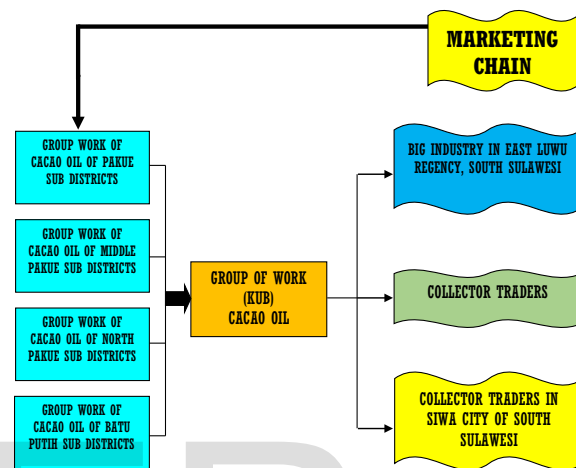


Figure 4.

The development model of marketing chain

Based on ABC analysis and FGD implementation it is deemed necessary to establish cocoa oil industry groups in the research location. This is done to replace the role of shelter location that is economically not provide added value for cocoa oil industry community. In addition, the existence of shelter location does not create added value and only become the cost driver for the business. Therefore, in the simulation of this chain of marketing development model, the existence of the shelter location is omitted and replaced with the group works. The collector trader in this research is expected to come directly to the cocoa oil industry group work to make purchases of ready-to-sell products. Estimated selling price at the business group level in each sub-district, as well as at the level of joint business group is Rp. 26.000, - / 100 ml. If this is implemented then it is projected that the potential increase in cocoa product selling price is Rp. 1,000, - / 100 ml.

Table 1.
PROJECTIONS COMPARISON OF VALUE-ADDED INCREASING BETWEEN INITIAL MODELS AND DEVELOPMENT MODELS OF COCOA OIL INDUSTRY VALUE CHAIN
(one production activity standard Calculation = 10 Kg)

NO	VARIABLE	VALUE	
		Initial Model	Model Development
OUTPUT, INPUT, AND PRICE			
1	OUTPUT (Kg/Production)	3 liter	3 liter
2	RAW MATERIAL (Kg/Production)	10 Kg	10 Kg
3	LABOR PEOPLE (Person/Production)	3 person	3 person
4	CONVERTION FACTORS	0,3	0,3
5	LABOR COEFFICIENT	0,3	0,3
6	OUTPUT PRICE	Rp. 2.500.000,- /liter	Rp. 2.600.000,- /liter
7	WAGES AVERAGE TK (Rp/Production)	Rp. 450.000,-	Rp. 450.000,-
REVENUES AND BENEFITS			
8	RAW MATERIAL PRICE	Rp. 200.000,-	Rp. 185.000,-
9	OTHER INPUT PAYMENTS	Rp. 362.000,-	Rp. 347.000,-
10	OUTPUT VALUE	Rp. 750.000,- /prod	Rp. 780.000,- /prod
11	A. ADDED VALUE	Rp. 188.000,- /prod	Rp. 248.000,- /prod
	B. ADDITIONAL RATIO RATING	25,07%	31,80%
12	A. EMPLOYMENT BENEFITS	Rp. 135.000,-	Rp. 135.000,-
	B. PART OF WORK	71,81%	54,44%
13	A. BENEFITS	Rp. 53.000,-	Rp. 113.000,-
	B. LEVEL OF ADVANTAGES	28,19%	45,56%
REFERSE THE OWNER OF THE PRODUCTION FACTORS			
14	MARGIN BENEFITS	Rp. 550.000,- /prod	Rp. 595.000,- /prod
	A. ADVANTAGES	9,64%	18,99%
	B. LABOR	24,55%	22,69%
	C. OTHER INPUT	65,81%	58,32%

Source: HAYAMI Calculation Results for Early Model and Development Model

Based on the result of comparison of added value between initial model and cocoa oil industry value chain development model, it can be seen that:

- 1) The results of development model of value chain of cocoa oil industry resulted in the increase of product selling price from Rp. 2.500.000, - / liter in

the initial model to Rp. 2.600.000, - / liter on the development model.

- 2) The price of the main raw material (dried cocoa beans) in the initial model is Rp. 200.000, - / production decreased to Rp. 185.000, - / production on the development model.
- 3) Fees for other input contributions from Rp. 362.000, - / production on the initial model, dropped to Rp. 347.000, - / production on the development model.
- 4) An increase in the output value of the initial model is Rp. 750.000, - / production to Rp. 780.000, - / production on cocoa oil industry value chain development model.
- 5) There is an increase of product added value from Rp. 188.000, - / production on the initial model, to Rp. 248.000, - / production on the development model resulting in an increase of profit from Rp. 53.000, - / production on the initial model to Rp. 113.000, - / production on the development model.
- 6) Increased profit margin from Rp. 550.000, - / kg on the initial model to Rp. 595.000, - / kg on the development model.
- 7) There was a decrease in the margin portion of the labor cost factor of 24.55% in the initial model, to 22.69% in the development model.

3.2. Value Chain Innovation Model of Cocoa Oil Industry

The model of innovation value chain of the cocoa oil industry based REA in the study was developed with reference to the concept of REA information system developed based on the cocoa oil industry value chain model developed in the previous year. Similar to the cocoa oil industry value chain development model, cocoa oil industry chain innovation model is divided into 3 (three) innovation models, namely; (1) raw material chain innovation model, (2) production chain innovation model, and (3) marketing chain of cocoa industry innovation model.

The formulation of value chain innovation model of cocoa oil is prepared based on stages in the development of resource event agent (REA) model as follows:

- a. Identify all resources needed in each value chain model those are; raw material chain, production chain, and marketing chain, using Partipatory appraisal technique.
- b. Identify all events that occur in each model of the cocoa oil industry value chain, namely; raw material chain, production chain, and marketing chain using Partipatory appraisal technique.
- c. Identify all agents or economic agents involved in each value chain model of cocoa oil industry, namely; raw

material chain, production chain, and marketing chain using Participatory appraisal technique.

- d. Developed a model of cocoa oil industry value innovation based on resource event agent model using Participatory appraisal technique.
- e. Identify all costs or costs of resources, events, agents that arise in each stage of the value chain innovation model of cocoa oil industry.
- f. Calculates the accumulated of the amount of costs arising from the value chain innovation model based on REA that have been produced.

The Innovation Model Raw Materials Chain Of The Cocoa Oil Industry Based REA

- a. Resources of the Raw Material Chain of Cocoa Oil Industry.

The resources referred to in the cocoa oil industry raw material chain model are dried cocoa beans which are the main raw material in the production of cocoa oil. Referring to the model of developing the raw material chain that has been produced previously, there are 3 (three) main raw materials in the manufacture of cocoa oil in the Lembah Lanipa Agropolitan Area North Kolaka Regency, namely:

- Priority Resources I. The First Priority Resource as the main source of raw material for the production of cocoa oil is sourced from cocoa farmers located in the Agropolitan Area of Lembah Lanipa of North Kolaka Regency, District Pakue, District Pakue Tengah, District North Pakue, and District of Batu Putih. The quantity of the main raw material availability capacity at this source is based on the data collection result is an average of 5,000 tons per year, with the amount of Rp. 18,500, - / kg. It is said that the first priority because the price of the main raw material at this source is considered the most inexpensive so it is expected to impact the greater margin received by the cocoa oil industries assuming that the cocoa oil market price is considered given.
- Resources Priority II. The Second Priority Resources as the main source of raw materials for the production of cocoa oil are sourced from cocoa farmers located outside the Agropolitan Area of Lembah Lanipa which is the nearest Sub-District such as; Ngapa Sub-district, Tolala Sub-District, and Porehu Sub-District. Based on the results of data collection, obtained information that the size of the main raw material capacity at this source is 7,500 tons, with price is Rp. 19.000, - / kg. Said to be a second priority because the final price of raw materials from this source is classified is more

expensive than the price of raw materials in the first priority source.

- Resources Priority III. The Third Priority Resources as the main source of raw materials for the cocoa oil industry are the collecting traders. The result of the collection shows that the capacity of the main raw material availability at this source is 1,500 tons with the average price is Rp. 20.000, - / kg. It is said that the third priority is because the price of the main raw material at this source lean to be more expensive than to the price of raw materials from the first and the second priority source.

- b. Event of The Raw Material Chain of Cocoa Oil Industry.

The event referred to in the cocoa oil industry raw materials chain is an activity undertaken in the framework of the process of raw material mobilization. Referring to the model of developing the raw material chain that has been produced before, the events identified in the cocoa oil industry raw materials in theLembah Lanipa Agropolitan Area of North Kolaka Regency are as follows:

- Event I. First Event in cocoa oil industry raw material chain model is activities that appear in the process of mobilization of raw materials derived from raw material resources from first priority namely; cocoa farmers in the Lembah Lanipa Agropolitan Area of North Kolaka Regency. Based on the results of data collection, it is found that the events identified in this event I are (a) transportation cost and margin estimation of the magnitude on the process of mobilization of cocoa farmers in the Lembah Lanipa Agropolitan Area to the Farmers Group, where the total cost of this event is Rp. 1,500, - / kg; and (b) transportation cost and estimated amount of raw material mobilization process from Association of Cacao Farmers Group at Agropolitan Area of Lembah Lanipa to cocoa oil industry agent located in Lembah Lanipa Agropolitan Area, where total cost of this event is Rp. 0, - / kg.
- Even II. Second Event in the cocoa oil industry raw material model is activities that appear in the process of mobilization of raw materials derived from the priority raw material second resources, namely; cocoa farmers in sub-districts outside the Lembah Lanipa Agropolitan Area, such as; District Ngapa, Tolala, and District Porehu. Based on the results of data collection, it is found that the events identified in this second event are (a) transportation cost and margin estimate on the process of mobilization from cocoa farmers in Ngapa, Tolala and Porehu sub-districts to the

Joint Farmer Groups, where the total cost of this event is Rp. 1,500, - / kg; and (b) transportation costs and estimated quantities in the process of raw material mobilization from the Cocoa Farmers Group Association in Ngapa, Tolala and Porehu Sub-districts to the cocoa oil industry located in the Lembah Lanipa Agropolitan Area, where the total cost of this event is Rp. 500, - / kg.

- Even III. Third Event in the cocoa industry's raw material chain model is activities that appear in the process of mobilization of raw materials derived from the priority raw material third resources, namely; cocoa bean collectors in the Lembah Lanipa Agropolitan Area as well as in Ngapa, Tolala and Porehu Sub-Districts. Based on the results of data collection, it is found that the event that was identified in third event was (a) transportation cost and margin estimate on the process of mobilization from cocoa farmers in Lembah Lanipa Agropolitan Area with in Ngapa, Tolala and Porehu Sub-districts to collecting traders , where the total cost of this event is Rp. 1,500, - / kg; and (b) transportation costs and estimated quantities in the process of raw material mobilization from collecting traders to the cocoa oil industry operators in the Lembah Lanipa Agropolitan Area, where the total cost of this event is Rp. 1,500, - / kg.

c. Agent of The Raw Material Chain of Cocoa Oil Industry.

The agent referred to in the cocoa oil industry raw chain is the economic actors involved in each activity on the raw material chain. Referring to the model of developing the raw material chain that has been produced previously, the agents identified in the cocoa oil industry raw materials in the Lembah Lanipa Agropolitan Area of North Kolaka Regency are as follows:

- Agent I. First Agent in the cocoa oil industry raw material chain model is the economic actors involved in the process of mobilization of raw materials derived from the raw material resources of the first priority. Based on the results of data collection obtained information that the agents involved in the first agent, these are (a) cocoa farmers located in the Lembah Lanipa Agropolitan Area of North Kolaka Regency; and (b) the alliance of cocoa farming groups located in the Lembah Lanipa Agropolitan Area of North Kolaka District.
- Agent II. Second Agent in the cocoa oil industry raw material chain model is the economic actors

involved in the process of mobilization of raw materials derived from raw material resources from the second priority. Based on the results of data collection, it is found that the agents involved in this second agent are (a) the cocoa farmers located in Ngapa, Tolala and Porehu Sub-districts of North Kolaka Regency; and (b) the alliance of cocoa farming groups located in Ngapa, Tolala, and Porehu Sub-districts of North Kolaka District.

- Agent III. Third Agent in the cocoa oil industry raw material chain model is the economic actors involved in the process of mobilization of raw materials derived from raw material resources from third priority. Based on the results of data collection obtained information that the agents involved in third agent are (a) the cocoa farmers located in Lembah Lanipa Agropolitan Area and other Sub-Districts, namely; Ngapa, Tolala, and Porehu District of North Kolaka Regency; and (b) cocoa collectors located in both the Lembah Lanipa Agropolitan Area and in Ngapa, Tolala and Porehu Sub-districts of North Kolaka Regency.

Based on the result of identification of REA of cocoa oil industry raw material chain adopted from the cocoa oil industry raw material development model, it can be formulated cocoa oil industry raw material innovation model based on resources, event, agent, as follows:

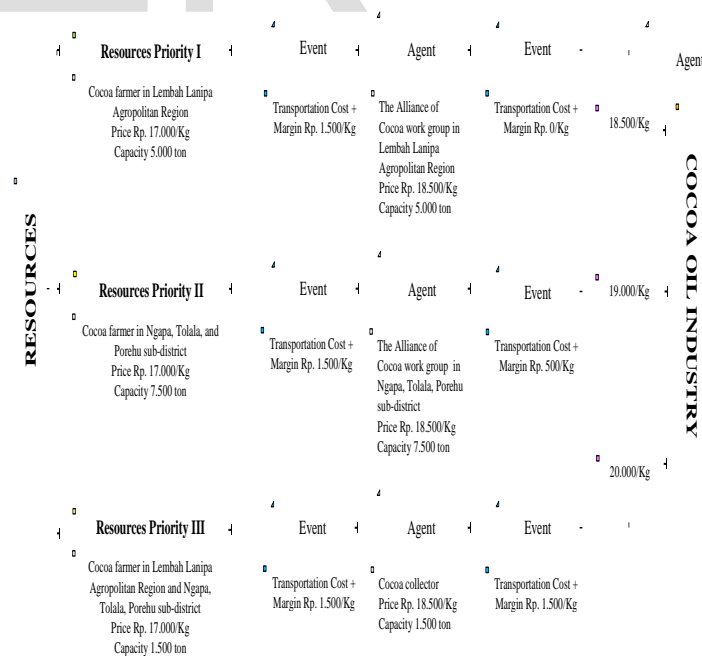


Figure 5. The Innovation Model of Raw Material Chain

The Innovation Model of Production Chain of the cocoa oil industry based REA

- a. Resources of The Production Chain of Cocoa Industry.
The resources referred to the cocoa oil industry production chain model are dried cocoa beans obtained from the formulation of cocoa oil industry raw material chain innovation model based on resource, event, agent. Referring to the model of innovation of raw material chains that have been produced previously, there are 3 (three) main raw materials in the manufacture of cocoa oil in the Lembah Lanipa Agropolitan Area North Kolaka Regency, namely; (1) Resources I, namely; a combination of cocoa farmer groups located in the Lembah Lanipa Agropolitan Area of North Kolaka Regency; (2) resources II, namely; a combination of cocoa farmer groups in Ngapa, Tolala and Porehu sub-districts; and (3) Resources III, namely; cocoa bean collectors located in the Lembah Lanipa Agropolitan Area, and collecting traders in Ngapa, Tolala and Porehu sub-districts.
- b. Event of The Production Chain of Cocoa Oil Industry.
The event referred to the cocoa oil industry production chain model is the activities undertaken in the process of converting dry cocoa beans into cocoa oil products based on resource, event, and agent model. Referring to the production chain development model that has been produced before, there are 5 (five) events in the process of making cocoa oil, namely; (1) First event, that is; raw material preparation process. In this process, the cost incurred is Rp. 0, - / production; (2) Second event, that is; grinding process. In this process, the cost incurred is Rp. 0, - / production; (3) Third event, namely; extraction process. In this process the cost incurred is Rp. 28.500, - / production. This cost is the cost of purchasing some help materials such as; ethanol and fuel; (4) Fourth event, that is; evaporation process. In this process the cost incurred is Rp. 0, - / production; and (5) Fifth event, namely; packaging process. In this process the cost incurred is Rp. 600.000, - / production. The costs incurred are the costs associated with the packaging ie; purchase bottles and labels of cocoa oil.
- c. Agent of The Production Chain of Cocoa Oil Industry.
The Agent in the cocoa oil industry production chain model is the direct labor involved in the process of producing cocoa oil. Based on the results of data collection, obtained information that the number of direct labor involved in one production process is as much 3 (three) people. The amount of salary given to one labor is Rp. 150.000, - / production, so the total cost of labor issued in one production process is as much as Rp. 450.000, - / production.

Based on the identification of resources, event, and agent of cocoa oil industry production chain adopted from the cocoa oil industry production development model, it can be formulated cocoa oil industry production innovation model based on resources, event, agent, as follows:

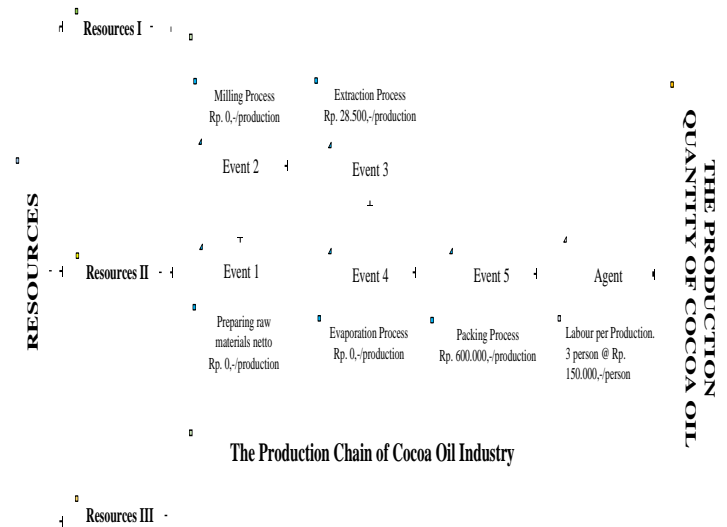


Figure 6.
The Innovation Model of Production Chain

The Innovation Model of Marketing Chain of Cocoa Oil Industry Based REA

- a. Resources of The Marketing Chain of Cocoa Industry.
The resource referred to the cocoa oil industry production chain model is cocoa oil which is derived from the formulation of cocoa oil industry production model innovation model based on resources, event, agent. Referring to the production chain innovation model that has been produced before, there are 4 (four) sources of cocoa oil in the Lembah Lanipa Agropolitan Area of North Kolaka Regency, namely; (1) First resources, namely; the cocoa oil industry group located in Pakue District within the Lembah Lanipa Agropolitan Area of North Kolaka Regency; (2) Second resources, namely; the cocoa oil industry group located in Pakue Tengah Sub-District within the Lembah Lanipa Agropolitan Area of North Kolaka Regency; (3) Third Resources, namely; the cocoa oil industry group located in North Pakue District within the Lembah Lanipa Agropolitan Area; and (4) Fourth Resources, namely; the cocoa oil industry group located in Batu Putih Sub-District within the Lembah Lanipa Agropolitan Area.
- b. Event of The Marketing Chain of Cocoa Industry.
The event referred to the cocoa oil industry marketing chain is an activity undertaken within the framework of the process of mobilizing cocoa products. Referring

to the model of marketing chain development that has been produced before, the events identified in the cocoa oil industry marketing chain in the Lembah Lanipa Agropolitan Area of North Kolaka Regency are as follows:

- Event I. First Event in cocoa oil industry marketing chain model is activities that appear in the process of cocoa oil mobilization from cocoa oil resources from First Resources (cocoa oil industry group in Pakue Sub-District), Second Resources (industrial group of industry cocoa oil in Pakue Tengah District), Third Resources (cocoa oil industry group in North Pakue Sub-District), and Fourth Resources cocoa oil industry group in Batu Putih Sub-District). Based on the results of data collection obtained information that the event that was identified in this event I is; transportation cost and margin estimation of the magnitude on the mobilization process from cocoa oil industry group in each Sub-District in Agropolitan Area of Lembah Lanipa to Joint Group of Cocoa Farming Industry Farmers Agropolitan Area Lembah Lanipa North Kolaka Regency, where total cost at this event is Rp. 100.000, - / kg.
- Even II. Second Event in the cocoa oil industry marketing model is the activities that arise in the process of mobilization of cocoa oil from the Joint Group of Cocoa Industry in the Agropolitan Area of Lembah Lanipa of North Kolaka Regency to the Big Cocoa Industry in East Luwu Regency South Sulawesi Province. Based on the results of data collection, it is found that the event that was identified in second event was the transportation cost and the estimated margin in the mobilization process of the Joint Group of Cocoa Industry in the Agropolitan Area of Lembah Lanipa of North Kolaka Regency to the large cocoa industry in East Luwu Regency South Sulawesi, where total cost in this event is Rp. 150.000, - / kg.
- Even III. Third Event in the cocoa oil industry marketing model is the activities that arise in the process of mobilization of cocoa oil from the Joint Group of Cocoa Industry in the Agropolitan Area of Lanipa Valley of North Kolaka Regency to the cocoa farmer collectors in the Lembah Lanipa Agropolitan Area North Kolaka Regency. Based on the results of data collection obtained information that there is no cost arising from this event.
- Even IV. Fourth Event in the cocoa oil industry marketing model is the activities that arise in the process of mobilization of cocoa oil from the Joint Group of Cocoa Industry in the Agropolitan Area of Lembah Lanipa of North Kolaka Regency to the

cocoa oil collecting traders located in Siwa City South Sulawesi Province. Based on the results of data collection obtained information that the event that was identified in fourth event is the cost of transportation and the estimated amount of margin in the process of mobilization of the Joint Group of Cocoa Industry in Agropolitan Area Lembah Lanipa North Kolaka Regency to the cocoa oil collectors in Siwa City Province South Sulawesi, where total cost in this event is Rp. 200.000, - / kg.

- c. Agent of The Marketing Chain of Cocoa Oil Industry. Agent who is meant in the cocoa oil industry raw materials chain is the economic actor involved in each activity on the marketing chain. Referring to the model of marketing chain development that has been produced previously, the agents identified in the marketing chain of the cocoa oil industry in the Lembah Lanipa Agropolitan Area of North Kolaka Regency are as follows:
- Agent I. First Agent in the cocoa oil industry marketing chain model is an economic actor involved in the process of mobilization of cocoa oil from the poles of cocoa oil production. Based on the results of data collection, it is found that first agent is a Joint Group of Cocoa Oil Industry located in the Agropolitan Area of Lembah Lanipa of North Kolaka Regency.
 - Agent II. Second Agent in the cocoa oil industry marketing chain model is the economic actor involved in the process of mobilization of cocoa oil coming from the Joint Group of Cocoa Industry in the Agropolitan Area of Lembah Lanipa of North Kolaka Regency to the Big Cocoa Industry in East Luwu Regency South Sulawesi. Based on the results of data collection, it is found that the agents involved in this second agent are members of the cocoa oil industry joint group located in the Agropolitan Area of Lembah Lanipa, North Kolaka Regency, and the big cocoa industry in East Luwu Regency South Sulawesi Province.
 - Agent III. Third Agent in the cocoa oil industry marketing chain model is the economic actor involved in the process of mobilization of cocoa oil from the Joint Industry Group of Cocoa Industry located in the Lembah Lanipa Agropolitan Area of North Kolaka Regency to the cocoa collectors. Based on the results of data collection obtained information that the agent involved in third agent is the cocoa oil collection

traders located in Agropolitan Area Lembah Lanipa, North Kolaka Regency.

- Agent IV. Fourth Agent in the cocoa oil industry marketing chain model is the economic actor involved in the process of mobilization of cocoa oil coming from the Joint Group of Cocoa Industry in the Agropolitan Area of Lembah Lanipa of North Kolaka Regency to the cocoa oil collectors located in Kota Siwa South Sulawesi Province. Based on the results of data collection obtained information that the agent involved in fourth agent is the cocoa oil collecting traders located in Siwa City South Sulawesi Province.

Based on the results of identification of resources, event, and agent of marketing chain of cocoa oil industry adopted from cocoa oil industry marketing development model, it can be modeled cocoa industry marketing innovation model based on resources, event, agent, as follows:

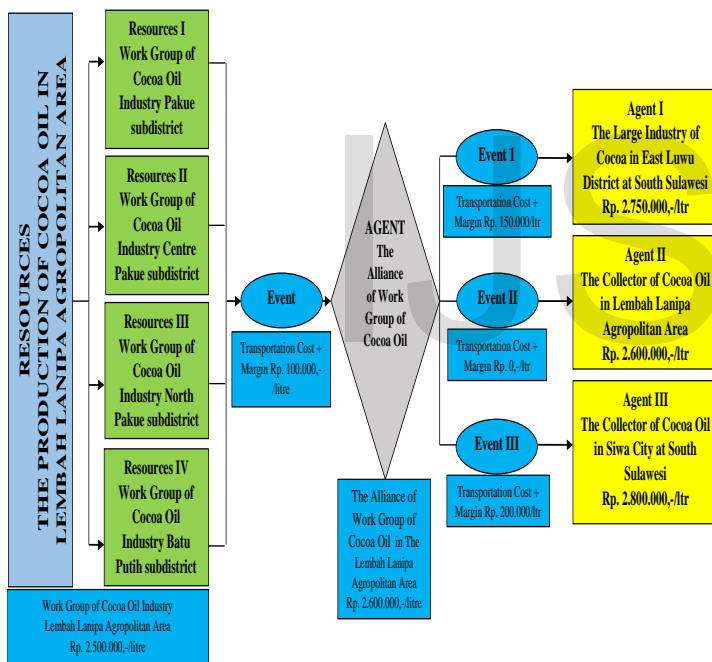


Figure 7.

The Innovation Model of Marketing Chain

3.3. Managerial Implications

The implementation of the innovation model of cocoa oil industry value chain that is generated in this research are focused on the development of raw material chain and production chain. Increasing value added on this development model can be achieved if supported by several things, namely; (1) it is necessary to have an intervention policy from the local government, especially in terms of institutions and partnerships; (2) it is necessary to increase the availability of supporting facilities; (3)

improving the quality of human resources; and (4) improvement of production technology.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1. Conclusion

The innovation models of cocoa oil industry value chain is projected to be; (1) increase the selling price of the product; (2) reduce the purchase price of the main raw materials (dry cocoa beans); (3) lower costs for other input contributions; (4) increase output value; (5) increase product added value; (6) increase profits; (7) increase profit margins; and (8) decrease the portion of margin on the compensation of labor factors of production.

4.2. Suggestion

Based on the results of this first year research, the researcher mention some suggestion as follows:

- 1) There is a need for special attention from the Government in determining the regulation in terms of intervention policies for raw material supply and improvement of facilities and supporting infrastructure of the cocoa oil industry in North Kolaka Province.
- 2) Some trainings for cocoa oil industry business community are required, especially in terms of production technology.
- 3) There is a need for partner institutions for cocoa oil industry business community, especially partners related to capital and production techniques.
- 4) There is a need for improvement of supporting facilities and infrastructure to support the development of the cocoa oil industry in North Kolaka, especially in Pakue, Pakue Tengah, Pakue Utara, and Batu Putih subdistrict.

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