COFFEE SUPPLY CHAIN AND MARKETING CHANNEL MANAGEMENT IN CENTRAL JAVA

Dyah Titisari Anugraheni, MM

Veronica Kusdiartini, MSi

Ign. Supriyanto, Sp. Agr.

ABSTRACT

Coffee is an important agricultural commodity for Indonesia as it becomes one of the country's foreign exchange reserves. Coffee is the mainstay of Indonesian exports and includes the top 10 most important plantation commodities. Given the huge opportunity for Indonesian coffee exports, the government is targeting to become the world's second largest coffee producer; where Indonesia is currently still in third position. Coffee in Indonesia comes from various provinces and influences the world's coffee supply. One of the province's coffee producers in Indonesia is Central Java. Based on the existing phenomenon, this study aims to find the best model for supply chain and marketing point of coffee commodity in Central Java with case study in Semarang regency, Temanggung regency, Boyolali regency and Magelang regency. By finding the right supply chain model and marketing channel, it is expected to increase the export of coffee products and make Indonesia the second largest coffee exporter in the world. The results show that some farmer groups have developed a model of coffee garden management with sustainable agriculture system. With the coffee cultivation model is expected to increase the volume and quality of national coffee as well as to improve the welfare of farmers. This indicates that if managed properly, coffee farming in Indonesia will be more developed and can become Indonesia's flagship commodity. Based on the results of the discussion, this study provides some alternative recommendations related to supply chain model and marketing channel of coffee commodity. To improve the supply chain and marketing channels of coffee commodities, three issues of concern are partnerships with related agencies (government), quality management, and the ability to understand consumers.

Keywords: coffee, supply chain, quality management, marketing channel

BACKGROUND OF THE STUDY

Coffee is an important agricultural commodity for Indonesia. It becomes one of the country's foreign exchange reserves. Coffee includes the top 10 most important plantation commodities and has economic value for countries that produce and export coffee beans like Indonesia. This is supported by the coffee farmers' business, for example with the pattern of garden extensification (area expansion) and intensification of the garden (maximizing coffee yields on limited land). Given big opportunity for Indonesian coffee exports, the government is targeting to become the world's second largest coffee producer; where Indonesia is currently still in third position (as seen in table 1).

For better position among other countries, the amount of coffe production in Indonesia must be increased. There are several approaches that can be used, supply chain and marketing channel analysis. Looking at the phenomenon in Indonesia, it is estimated there is a problem in the coffee supply chain model in Indonesia. Therefore, this study aims to look at supply chain models in some areas of Indonesia and look for the best supply chain model that can be applied in other areas.
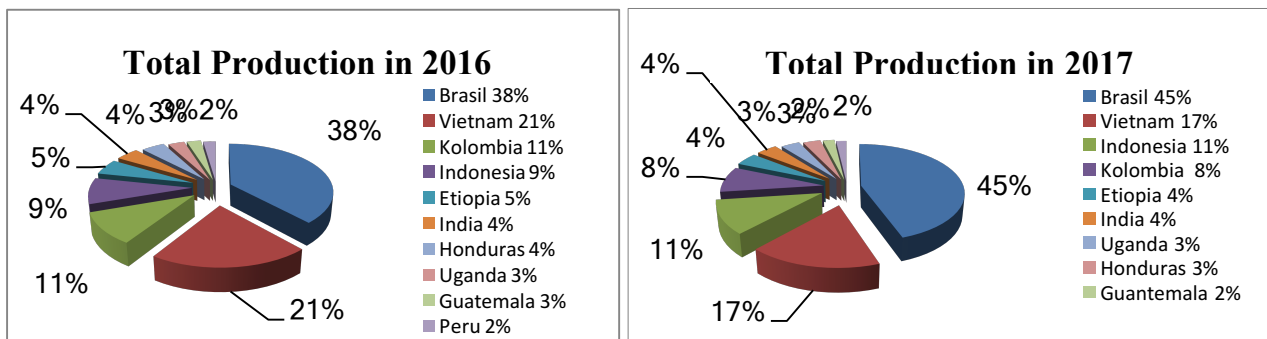

Figure 1. Top 10 largest coffee producing countries in the world in 2015-2017

TABLE 1
TOP 10 LARGEST COFFEE PRODUCING COUNTRIES IN THE WORLD
IN 2015-2017

Country	Total Production/Year (Ton)	
	2016	2017
Brazil	3.000.000	4.520.000
Vietnam	1.650.000	1.750.000
Colombia	840.000	858.000
Indonesia	691.000	1.120.000
Ethiopia	402.000	426.000
India	350.000	390.000
Honduras	324.000	325.000
Uganda	240.000	349.000
Guatemala	198.600	210.000
Peru	189.000	189.000

Source: International Coffee Organization (2017)

Coffee in Indonesia comes from various provinces and influences the world's coffee supply. One of the coffee producing provinces is Central Java (as seen in table 2).

TABLE 2
COFFEE PRODUCTION DATA IN INDONESIA

Province	2013	2014	2015	2016	2017	GROWTH
Sumatera	478.402	442.241	435.215	436.552	436.306	-13,43
West Java	19.262	20.043	20.012	18.995	19080	1,19
Central Java	21.049	25.324	23.231	22.174	22.096	-8,39
East Java	56.986	58.135	65.961	67.189	67.614	-70,16
Bali	17.331	15.920	17.345	17.234	15.293	-70,87
Nusa Tenggara	26.113	26326	25.961	25.707	25.666	260,22
Kalimantan	7.416	6.243	6.992	6843	6835	1130,29
Sulawesi	46.899	46.907	42.062	41.990	42.030	679,1
Maluku	829	816	581	576	571	356,3
Papua	1.600	1.899	2.015	2.045	2.049	-98,14

Source: Directorate General of Plantation of Indonesia, 2017

Based on the existing phenomenon, this research aims to find the best model for supply chain and marketing channel of coffee commodity in Central Java with case study in Semarang regency, Temanggung regency, Boyolali regency and Magelang regency. By finding the right supply chain model and marketing channel, it is expected to increase the ammount export of coffee products and make Indonesia the second largest coffee exporter in the world.

REVIEW OF LITERATURE
Value Chain and Value Delivery System
According to Porter in Kotler (2009), value chain is a company tool to find ways in generating more customer value. The value chain found 9 important activities consisting of 5 main activities (logistics entry, operations, outgoing logistics, marketing, service), 4 supporting activities also took place in the main activities (corporate infrastructure, human resource management, technology development, services). Company's success is determined from each division that works together and coordinates with each other by emphasizing key business processes: The process of embodiment of new products, iinventory management process, order process to delivery of goods, and ccustomer service process

In improving value delivery systems, companies must have an edge beyond the supply chain by creating partnerships with multiple suppliers. For example; Procter and Gamble assign duties to 20 employees to Wal Mart headquarters to accelerate and lower the cost of supplying goods from P&G to the store and Campbell's Soup qualifies with high quality standards on some suppliers. In addition, they also commissioned his experts to improve their performance together. In a new marketing, it is responsible for designing and managing a better value delivery system in order to reach the intended market segment.

Supply Chain
Supply chain is a system where the organization distributes its products and services to customers. This means that logistics problems are seen as a broader problem ranging from basic materials to finished goods and end consumer use. According to Simchi (2000) there are major players who are companies that have the same interests as suppliers, manufacturers, distribution, retail outlets, customers, as follows:

Chain 1	: suppliers
Chain 1-2	: suppliers – manufacturer
Chain 1-2-3	: suppliers – manufacturer – distribution
Chain 1-2-3-4	: suppliers – manufacturer – distribution – retail outlets
Chain 1-2-3-4-5	: suppliers – manufacturer – distribution – retail outlets – customer

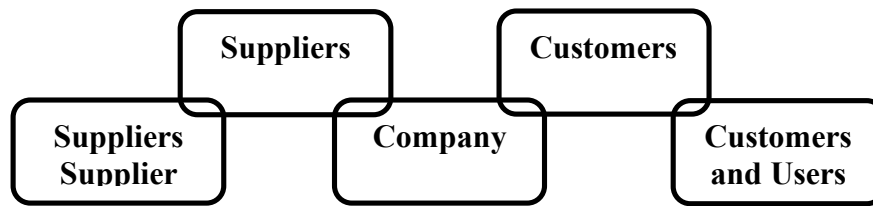Supply chain model according to A. T. Kearney (1994):

Figure 2. Model Supply Chain

Supply Chain Management

Simchi (2000) defines that supply chain management as an approach is used to achieve efficient integration of suppliers, manufacturers, distributors, retailers, and customers. This means that the goods are produced in the right quantities, at the right time, and at the right place with the goal of achieving a minimum system cost as well as achieving the desired service level. Heizer and Render (2015) describe that the coordination of overall supply chain activities, is starting from raw materials and terminated by satisfied customers. Thus the supply chain includes suppliers; a manufacturing company or service provider; distributor companies, wholesalers or retailers who deliver products or services to end consumers.

According to Jacob, F.Robert, and Chase, Richard (2015) supply chain is a process that moves information and raw materials from and to the manufacturing and service processes of a company. These processes include logistics processes that move products physically and storage process that set the position of the product. So it can be sent to consumer quickly. Fitzsimmons, James A and Mona J. Fitzsimmons (2011) state that supply chain management is a total approach system to deliver products to end consumers using information technology to coordinate all supply chain elements from supplier to retailer, and then reach the next level which is competitive advantages that are not available in traditional logistics systems. Supply Chain Management covers the activities of managing the flow of information, products and services throughout the network whether it is customers, companies to suppliers. Based on various opinions on the definition of supply chain management, Pujawan (2005) conveys further coverage of supply chain management as follows:

TABLE 3
SUPPLY CHAIN MANAGEMENT COVERAGE

Part	Activity Coverage
Developing Product	Conducting market research, designing new products, involving suppliers in the design of new products
Procurement	Selecting suppliers, evaluating supplier performance, purchasing raw materials and components, monitoring supply risk, fostering and maintaining relationships with suppliers
Planning & Controlling	Demand planning, demand forecasting, capacity planning, production planning and inventory
Operation/oduction	Production execution, quality control
Distribution	Distribution network planning, shipping scheduling, searching and maintaining relationships with shipping service companies, monitoring service levels at each distribution center

Source: Pujawan (2005)

Supply Chain Management for Agricultural Commodity

In relation to agricultural commodities, there are several opinions on supply chain management (Supply Chain Management), among others: Heizer and Render (2015) which says that supply chain management is agricultural commodities distributed from farmers, distributors, and retailers to consumers is the whole chain coordination activity supply, ranging from farmers to consumers. The supply chain consists of farmers, distributors (e.g. wholesalers), brokers, and retailers, who then distribute their commodities to consumers.

There are other opinions about the supply chain according to Gaonkai and Viswanadhain in Jaffee et al (2008); there are three major weaknesses that have the potential to bring negative impacts on the supply chain. The three major weaknesses are irregularities, disturbances, and temporary or permanent. Deviations are caused by fluctuations in key parameters such as cost, demand, and logistics, which can differentiate value. While the disruption occurs due to changes in supply chain structure due to misuse of production, marketing, or distribution facilities, caused by natural or human factors. Temporarily or permanently related to the defects of some or all of the- supply chain, inside or outside the company.

Coffee Agricultural Commodity

Coffee is a type of tropical plant; economically the growth and production of coffee plants are highly dependded on climatic conditions and soil. In Central Java, coffee grows a lot. In various regions coffee grows in the soil which has a layer of soil topped in the friable or fertile which lot contains humus (Susanto, 2010). Various types of coffee can grow well according to the growing requirement that certain altitudes such as Robusta coffee at an altitude of 300 - 700 meters above sea level (masl) with temperatures 20 - 30 ° C rainfall, Arabica coffee at an altitude of 1000 - 1850 masl with 17 - 24 ºC temperature, and Liberica coffee can grow at an altitude of 750 - 11 masl, with an average rainfall limit of at least 1000 - 2000 mm per year up to 1750 - 2500 mm per year. The three types of coffee is a commodity with high economic value, so that the farmers are a lot of destructive plantation as well as the ggovernment in the container State-owned by PTPN (PT. Perkebunan Nusantara; National Plantation Limited Company) the three types of coffee commodities have been cultivated nationally (Setyo, 2012).

Management of coffee cultivation in Central Java in particular and in Indonesia is done by starting to prepare the coffee seed taken from the choice tree of Liberica type of coffee, to be prepared as under stump, the nursery starts at the beginning of the rainy season or after the harvest season in order to obtain seed material (seeds) is good. After 3 months the seedlings grow by grafting taken from buds, spliced on seed coffee seedlings, expected next three months continuous seedlings have managed to grow well. The purpose of grafting seeds to improve the quality of fruit, increase the volume of coffee, and speed up the production (Rukmana, 2012). After 1 year old seedlings are planted in the garden, intensive maintenance is carried out, with fertilization, a yearly irrigation done twice before the rainy season and before the dry season so that the nutrient reserves can be guaranteed well to support the growth of vegetation and provide intake for branching and process production (Aak, 2009).

Other maintenance is also important to prune unproductive branches such as water buds, back branches, reproduction branches in addition to increase production as well as the physical formation of coffee plants. Plant pest control is done intensively to secure production by breaking the pest and disease chain so that its production is always increasing and can prevent loss grade. To maintain the quality and volume increase, coffee harvesting is done by picking the coffee fruit on time and carefully marked with red coffee-free fruit pest, after knitting and mass-tailing (Somantri, 2017). Processing coffee beans to be used as coffee beans by removing the skin of the fruit to clean and dry is called rice coffee or coffee beans, with water content of 10 to 11% to meet the desired requirements on trading coffee beans in the national market and world markets.

PREVIOUS RESEARCH

Previous research conducted by Widyarto in 2012, is a literature study that aims to determine the role of supply chain management in production systems and operations within the company useful to provide value to consumers in terms of availability and speed of service. The conclusion from this research, that the benefits of supply chain management serves as a market mediator. It ensures that supply-supplied supply chain reflects the aspirations of the customer or the end customer. The study also found that in order to implement supply chain management efficiently, the company must be able to provide and manage adequate (complete and accurate) related databases as well as build partnerships with selected suppliers and distributors. Supply chain management can thoroughly create synchronization and coordination of activities related to material flow both inside and outside the company.

Rasyid (2015) had researched in supply chain analysis of public coffee in Jember regency and he declared that there are six coffee supply chain group that have product flow pattern, financial flow and information flow i.e.: public coffee supply chain with primary processing (wet) method to exporter, public coffee supply chain with primary processing (wet) method to powdered coffee agro-industry, public coffee supply chain with primary processing (dry) method to exporter, consumer, and powdered coffee agro-industry; and also public coffee supply chain with secondary processing.

Prihadianto & Vanany (2016) tried to look at waste that occured in Food Supply Chain Coffee using Value Chain Analysis method by taking into account the critical performance indicators. In Value Chain Analysis Method, that described Current State Value Stream Mapping (CSM) and eliminated waste captured from CSM map and continued with Future State Value Stream Mapping (FSM) depiction. The conclusions of this study indicated that plasma land required to reduce waiting in the process of waiting for a minimum capacity of production process and prevent loss of profit due to production does not meet the target.

Research conducted by Dawam (2017) which aimed to know the flow pattern of robusta coffee supply chain included the flow of goods, money, and information, and know the marketing margin in every marketing channel. The result of this research are three flow pattern, i.e.: flow pattern 1 from farmer to small trader then to wholesaler, flow pattern 2 from farmer to wholesaler then to exporter and flow pattern 3 from farmer directly to trader. The money flow pattern started from the consumer to the merchant exporter then the wholesaler or the collector went to the small trader and the last to the farmer. While the flow of information were in two directions between the parties in the supply chain.

According Nguyen and Sarker (2018), there were some key factors influencing the sustainable coffee supply chain management in Vietnam since coffee is major agricultural export commodity of Vietnam with the export value accounts for 3% of national GDP. They confirmed that although farmer's productivity was high and they had good experiences in this sector, sustainability issues were emerging. For example, farmers had experienced soil erosion and water shortages and are thus now better prepared to incorporate sustainability initiatives in production and processing.

METHODOLOGY

This research tries to understand the phenomenon experienced by the research subjects thoroughly, so that this study uses a qualitative approach. This study choose Central Java province as case study because it has a significant contribution to the production of coffee commodities in Indonesia. In addition, Central Java became one of the oldest coffee producing areas in Indonesia. The areas that are central to coffee commodities in Central Java are Magelang regency, Semarang regency, Temanggung district, and Boyolali regency.

This study uses secondary and primary data. Secondary data were collected from International Coffee Organization, Directorate General of Plantation of Indonesia, National Plantation Limited Company, Kompas Newspaper, World Bank, Ministry of Agriculture, and Ministry of Commerce. Primary data were collected through questionnaires, in-depth interviews and focus group discussions. Questionnaires were collected from 50 coffee farmers living in the four districts that became the study area (to obtain primary data related to product flow, information flow-Vertical and Horizontal flow-as well as financial flows). In-depth interviews are used to determine the actual conditions in the field. The key persons involved in in-depth interviews were 4 farmer coordinators representing farmer groups in the four districts; field extension officer in those 4 districts; National Plantation Limited Company office's staff; and big collectors. The last method is focus group discussion. Focus group discussions were

used to compare data from policymakers and farmers' opinions to make the data more valid and reliable. The subjects and object of the research are based on the following parameters: having knowledge of the distribution channels of coffee, engage directly as a field worker in the coffee supply chain, having knowledge of the activities undertaken from the start of the planting process to the sale of coffee to consumers, participate in coordination with relevant agencies in terms of policy determination.

ANALYSIS
Product Chain
The supply chain model for Semarang is similar with supply chain model for Boyolali and Temanggung regencies. Where the Farmer as a coffee producer sells in the form of dried coffee logs to Large Traders/Wholesalers, then Large Traders/Wholesalers sell coffee in the form of rice (broken skin) to Traders in Local Market. However, in Temanggung regency other than the supply chain model, Farmer as a coffee producer also sells in the form of dried coffee logs to Large Traders/Wholesalers, which then by Large Wholesalers/Coffee Wholesalers sold in the form of rice (broken skin) directly to Traders in Central Market.

The supply chain model in Magelang regency is different when compared to farmers in 3 other regencies (Semarang, Temanggung and Boyolali). Farmers as coffee producers sell in the form of dried coffee to Large Traders/Wholesalers, and then Large Traders/Seller Traders sell coffee in the form of rice (broken skin) to small industries/SMEs in the area. The rise of small industries/SMEs in Magelang regency is the impact of large coffee factories that have been closed, so that the ability to process their coffee beans are motivated to open their own business. As done by Mr. Nugroho with Coffee Gloria products. The supply chain and distribution of coffee in Central Java, is shown in table 4 as follows:

TABLE 4
SUPPLY CHAIN AND DISTRIBUTION CHANNELS IN CENTRAL JAVA COFFEE

Regency	Supply Chain Model
Semarang	Farmers- Large Traders/Collectors-Local Market
Temanggung	Farmers- Large Traders/Collectors-Local Market/Central Market
Boyolali	Farmers- Large Traders/Collectors-Local Market
Magelang	Farmers- Large Traders/Collectors-Small Enterprise/SME

Source: Secondary Data Processed, 2017

Information Flow–Horizontal
The average land ownership of farmers in Semarang regency is 2,933.3 m^2 with the average coffee planting population of 733.3 trees produces dried coffee logs as much as 586.6 kg for Robusta coffee. Average land ownership in Temanggung regency each farmer 1,320 m^2 with a coffee planting population of 330 trees produces 264 kg coffee consisting of 90% Robusta coffee and 10% Arabica coffee. The average ownership of coffee farmers' land in Boyolali regency is 541.7 m^2 with plant population of 135 trees, producing 108.8 kg of coffee beans with Robusta coffee. The average ownership of coffee farmer's land in Magelang Regency is 1,800 m^2 with a population of 450 coffee trees and 360 coffees with 90% Robusta and 10% Excelsa coffee.

The ratio of the production of coffee crops in Central Java (Semarang regency, Temanggung regency, Boyolali regency and Magelang regency) is able to produce 0.79 - 0.80 kg of coffee. In this case, the constraint is the ideal density of plants with the size spacing of 2x2 m^2. Based on the standard production of old coffee per plant reaches 1.4 to 1.7 kg of dried coffee beans. The complete data can be seen in the following table:

TABLE 5
DATA TYPE AND COFFEE PRODUCTION VOLUME IN CENTRAL JAVA

Regency	Land Ownership Data for Coffee Planting (m^2)	Number of Coffee Plants (pcs)	Production Volume (Kg)	Coffee Variant
Semarang	2.933,3	733,3	586,6	ROBUSTA
Temanggung	1.320	330	264	ROBUSTA, ARABIKA
Boyolali	541,7	135	108,8	ROBUSTA
Magelang	1.800	450	360	ROBUSTA, EXELSA

Source: Secondary Data Processed, 2017

Information Flow–Vertical
The Government's support to coffee farmers in Central Java is weak, especially in supporting of technical counseling, such as coffee planting techniques, coffee plant maintenance techniques, pest control techniques, superior seeding techniques that can increase the productivity of coffee en masse. The existing assistance from the government is limited to the provision of seeds incidental and subsidized fertilizers are getting fewer and fewer. Boyolali regency is not noticed by government assistance specifically for the development of coffee crops. Government support in Boyolali Regency is allocated to forestry crops, such as "*sengon*" trees (*Albazia Falcata*).

TABLE 6
AVAILABILITY OF SUPPORT FROM THE GOVERNMENT

Regency	Availability Of Support	Type Of Support
Semarang	Exist	Seed
Temanggung	Exist	Fertilizer
Boyolali	Nothing	-

Magelang	Exist	Fertilizer	

Source: Secondary Data Processed, 2017

Financial Flow

Based on the questionnaires and in-depth interviews, the result shows that farmers earn small income, the burden of raising the price of manure, chemical fertilizers, coffee seeds, the most serious pests of seed diseases, namely pest of white flea (*pseoducocus citri*) and fruit powder (*hypothenemus hampei*) so that farmers pay a high enough cost; reaching 1,000,000 rupiahs/treatment.

TABLE 7
PRICE AND COFFEE PAYMENT SYSTEM IN CENTRAL JAVA

Regency	Price Of Dried Coffee In Farmers (Rp/Kg)	Price Of Dried Coffee In Collectors (Rp/Kg)	Coffee Price "Rice Shape" In Market/Small Medium Enterprise (Rp/Kg)	Payment System	Profit (Rp/Kg)
Semarang	5.000	7.000	25.000	CASH	2.000-18.000
Temanggung	5.500	7.500	27.000	CASH	2.000-19.500
Boyolali	4.000	6.000	23.000	CASH	2.000-17.000
Magelang	6.000	8.000	25.000	CASH	2.000-17.000

Source: Secondary Data Processed, 2017

Table 7 shows that there is a price gap between coffee farmers and wholesalers/collectors amounting to 2,000 rupiahs and price gap between farmers and traders in the local market/SME amounting to 19,000 – 21,000 rupiahs The low price enjoyed by coffee farmers is reflected in the coffee farmers' income exchange rate against agricultural production facilities in general that are increasingly soaring. The high consumer price is the opportunity to trade coffee commodities whose profits are only enjoyed by traders in the local market and the main market.

RESULTS AND DISCUSSION

The results of the research for product flow indicate that there are differences in supply chain model, especially in Magelang regency, indicating the specific thing which is known by the last consumer that is in small enterprise (processing coffee beans into ready-made coffee). While in the other 3 regencies of Semarang, Temanggung and Boyolali regencies have an inefficient supply chain model because the last consumer is unknown. Based on the results of research on the flow of information, especially the horizontal flow can be seen that the production of coffee crops have not reached national production standards, which should be 1.4 - 1.6 kg dried planting (4.2 - 4.8 kg wet coffee bean).

The results of research on the flow of information, especially the vertical flow, the current government supports from the side of knowledge and skills of coffee farming have not been touched. Most counseling still focuses on staple food crops (rice, corn, secondary crop, and other). The government should have started forming shelters for the development of field schools, to improve the knowledge of coffee farmers. For the financial flows it is necessary to form a group of coffee farmers and make coffee cooperative containers, with the aim of being able to market coffee commodities directly to consumers without intermediaries. It is also necessary to form a cluster of coffee industry by organizing the SME producers of powder coffee ready to accommodate the direct coffee production from farmers.

Based on questionnaires and in-depth interviews, the results of financial flow indicate that farmers have small incomes while the burden is high enough to cover the prices of fertilizers, coffee beans, and pest/disease control. The data shows that there is a price gap between farmers and wholesalers/collectors because the farmers only sell raw coffee. Especially when the distribution flow become longer, the price of coffee is higher; but farmers still can't get high income from it.

CONCLUSIONS AND RECOMMENDATION

The highlights of this study is that supply chain in several regions in Central Java is still inefficient, so the amount of production has not been optimized. Some farmer groups have developed a model of coffee garden management with sustainable agriculture system. With the model of coffee cultivation as conducted by farmers of Magelang regency is expected to be used as a model to increase the volume and quality of national coffee, as well as to improve the welfare of farmers. The cultivation model conducted by Magelang regency proves to increase the supply chain of coffee; this is supported by the fact that the amount of coffee harvest in Magelang regency is stable from year to year. From the Magelang regency coffee cultivation model, the research team can draw conclusions about the supply chain model run in the district. This model is expected to be applied in other regions so that in the end national coffee production can be increased.

Based on the results of the discussion, this study provides alternative recommendations related to supply chain model and marketing channel of coffee commodity. If this alternative supply chain model is implemented, it is expected that the supply chain management system in the coffee producing regions in Indonesia will be more efficiently, thus will be able to solve the problem of low coffee production in Indonesia; and Indonesia will be able to improve its position better than other countries in terms of the quantity of coffee production in the world. The alternative of supply chain model shown in figure 3:
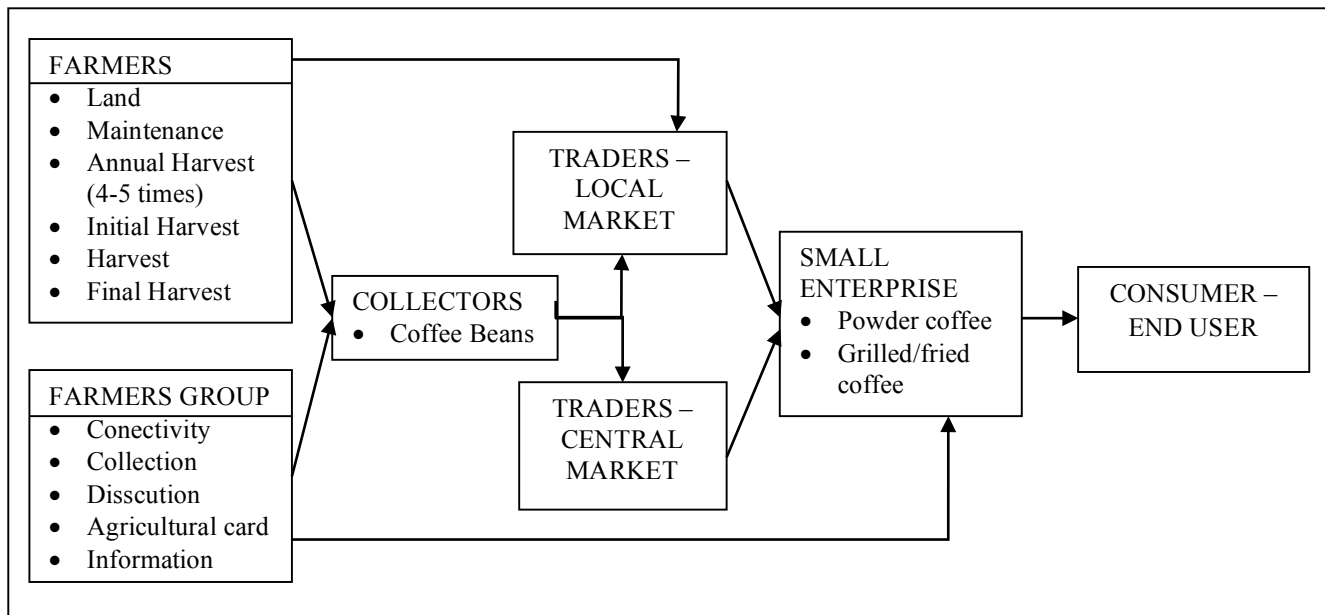
Figure 3. Alternatives of Supply Chain Model

To improve marketing channels of coffee commodities, three issues are to be concerned are strategic partnerships with government, continuous quality management improvement, and the ability to understand consumer needs and wants. The government should be able to connect farmers in the Semarang, Boyolali, and Temanggung regencies with end users who can buy at a higher price. In addition, farmers must also be able to understand consumer demand regarding the standard of processed coffee that they desire. It has been done by farmers in Magelang regency. If it can all be done, farmers will be better to run their coffee farms so that their coffee productivity will be increased. Increasing the number of coffee production from farmers will encourage the increase of national coffee production in Indonesia. This indicates that if it ismanaged properly, coffee farming in Indonesia will grow and become Indonesia's mainstay commodity.

Further research can be done in other areas in Indonesia, the aim is to find the cultivation model of coffee and supply chain management in other areas besides Central Java. By knowing the model of coffee plantation management throughout Indonesia, we will be able to create a more perfect model for the management and supply chain of coffee in Indonesia.

REFERENCES

Aak.2009.Cultivation of Coffee.Yogyakarta: Kanisius.

Dawam,Ali.2017.Supply Chain of Robusta Coffee Commodity at Farmers (case study in Srimulyo village, Sukodono and Batu Retno, Dampit, Malang regency).Publish thesis, Brawijaya University.

Fitzsimmons, James A and Mona J. Fitzsimmons.2011.Service Management: Operations, Strategy, Information Technology 7th edition, The McGraw Hill. International Edition.

Heizer, J. and Render, B.2015.Operation Management.Jakarta: Salemba Empat

Jacob, F.Robert, Dan Chase, Richard B. 2015.Operation Management and Supply Chain 14th edition. Jakarta: Salemba Empat.

Jaffee S., P. Siegel and C. Andrews.2008.Rapid Agricultural Supply Chain Risk Assessment, World Bank.

Kotler, Philip and Keller.2009.Marketing Management, 13th edition. Jakarta: Erlangga.

Nguyen, Giang N. T and Sarker, Tapan.2018.Sustainable coffee supply chain management: a case study in BuonMe Thuot City, Daklak, Vietnam. International Journal of Corporate Social Responsibility

Prihadianto, Rahaditya D. & Iwan Vanany.2016.Value Chain Analysis For Redesigning Supply Chain In Coffee Supply Chain. http://digilib.its.ac.id/public/ITS-paper-40741-ITS-paper-40741-2510100061-paper.pdf

Pujawan, I Nyoman.2005.Supply Chain Management.Surabaya: Guna widya.

Rasyid, Rizaldi, G. A.2015.Supply Chain Analysis of Public Coffee in Jember Regency. http://repository.unej.ac.id/bitstream/handle/123456789/73401/101510601014--Rizaldy%20Ghaffar%20Al%20Rasyid-1-75%20%281%29.pdf?sequence=1

Rukmana, Rahmat.2012.Coffee Cultivation with Intensification Cropping Pattern. Yogyakarta: Kanisius.

Setyo, Pitoyo.2012.Coffe Beans Processing with Broken Mills System. Jakarta: Agromedia.

Simchi-Levi et. Al,.2000.Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies. McGraw-Hill International Edition, Singapore.

Somantri, S.J.2017.Arsitek, Petani Kopi Dampit, Kompas newspaper

Susanto, FX.2007.Coffee Cultivation.Yogyakarta: Kanisius.

Widyarto, Agus.2012.The Role of Supply Chain Management Production And Operation Systems in Company.Benefit Journal of Management and Business, Volume 16, No.2, Desember, P. 91-98

Dyah Titisari Anugraheni, MM
Economic and Business Faculty
Soegijapranata Catholic University, Semarang, Indonesia
dyah@unika.ac.id

Veronica Kusdiartini, MSi
Economic and Business Faculty
Soegijapranata Catholic University, Semarang, Indonesia
vero@unika.ac.id

Ign. Supriyanto, Sp. Agr.
Economic and Business Faculty
Soegijapranata Catholic University, Semarang, Indonesia
ignatius.supriyanto@ymail.com