

Supply Chain System of Tea Industry in West Sumatera

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Abstract

This study discusses one of the existing tea supply chain systems in West Sumatra especially involving PTPN VI Danau Kembar Solok. The study aims to look at the flow of the tea industry supply chain in West Sumatra, and the performance of the supply chain. This research uses SCOR method. The results showed that the actors of the tea industry supply chain in West Sumatra are farmers, cooperatives, PTPN VI Danau Kembar Solok, Joint Marketing Office (KPB), exporters and local consumers, and end consumers. There is a flow of material, information and money to each of the supply chain actors. Supply chain performance can be concluded through supply chain reliability performance attributes, supply chain responsiveness, supply chain agility, supply chain cost and supply chain asset management..

Keywords: tea industry ; supply chain ; SCOR method

1. Introduction

Tea supply in Indonesia is generally produced by (1) independent farmers, (2) large private plantations and (3) state plantations known as PT. Perkebunan Negara (PTPN). PTPN produces black tea which will be sold in Jakarta Tea Auction through auction process. The tea that sold during the auction will be exported or further processed by the downstream products industry such as fast tea beverage factory and so on. Furthermore, in Indonesia there are also many independent tea farmers who produce tea leaves with longer flow chains (through small collectors, large collectors) to be processed into more downstream products. In addition to PTPN and independent farmers, there is also a large private plantation where they own a green tea or black tea processing factory. PT. Perkebunan Nusantara VI Tea Garden Danau Kembar Unit is a company which is a State Owned Enterprise (BUMN) having its address at Jorong Street Kayu Jao Kenagarian Batang Barus, Gunung Talang Subdistrict, Solok Regency with an area of about 569.18 Ha. According to the organizational structure of the company, this company is one unit of production of PTPN VI based in Jambi. The company produces black tea with Orthodox system through the process of picking, forging, rolling, fermentation, drying, sorting to packing. The raw materials of tea processed in PTPN VI come from own plantation (core garden) and plasma plantation.

As partner of PTPN VI Danau Kembar Unit (hereinafter referred to as PTPN VI) plasma farmers sell tea leaves to PTPN VI at a price set by PTPN VI Center in this case PTPN Jambi. Tea produced by PTPN will be auctioned at Jakarta Tea Auction organized by PT. Kharisma Marketing Bersama (KBP) which is also a subsidiary of PTPN in Indonesia. In the tea product auction process, PTPN VI Danau Kembar Unit is represented by PTPN VI Jambi will follow the auction every Wednesday every week. Further information on the auction results (tea and purchase quantity) will be delivered to PTPN VI Danau Kembar where in this case the buyer will pick up the tea directly through the fleet organized by a third party. Meanwhile, the flow of tea purchase money will be delivered to PTPN VI Jambi so that in this case PTPN VI Danau Kembar Unit only manage the finance associated with production activities. As the actors in the tea flow supply chain described above, farmers, PTPN VI Danau Kembar and PTPN VI (Jambi) should be together so as to generate mutual benefits and produce a steady supply of good performance. Based on the above problems research aims to see the flow of tea supply chain in West Sumatra, and the performance of the supply chain.

2. Method

This research activity is centered on PTPN VI Danau Kembar Unit as one of the actor of supply chain besides also doing research on entity related to PTPN VI Danau Kembar Unit which is farmer and PTPN VI Jambi. The study was conducted from December 2016 to July 2017. Data collection was conducted using two methods namely secondary data collection method and primary data collection method. Description of the flow of the tea supply chain includes tea planting system, tea purchasing system to farmers, tea sales system and tea delivery system to consumers. The supply chain performance is measured using Supply Chain Operation Reference (SCOR) method. With SCOR method, the performance of a supply chain is measured from 5 (five) aspects or attributes, namely supply chain reliability, supply chain responsiveness, supply chain agility, supply chain cost, and supply chain asset management.

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3. Results and Discussion

3.1. Flow Chain of Tea Supply in West Sumatra

Supply chain system at PT. Nusantara VI Danau Kembar Unit, it is necessary to know the mapping of the supply chain from upstream to downstream. The mapping of the supply chain starts from farmers to consumers. Figure 1 is a mapping of the tea supply chain of PT. Perkebunan Nusantara VI Danau Kembar Unit. The supply chain process is a process whereby the product is still raw (in the form of wet leaves), semi-finished products and finished products (in black tea) are obtained, packed and sold through various facilities connected by the chain along the flow of products and materials. It shows that the supply chain system is the coordination of the material flow, the flow of information and financial flows among the participating supply chain actors. The description of the material flow, the flow of information and financial flows in the supply chain system of the tea industry in West Sumatra are as follows:

1. Material flow

a. Farmers

Farmers of plasma at PT. Perkebunan Nusantara VI Danau Kembar Unit supplies raw materials (fresh shoots), where the company needs farmers as their pickers. The picking done by the farmers is found in two places, namely in the core garden and plasma garden. In the process of picking the farmers go to the garden at 07.00 and come home at 16.30. The picking is performed twice, the morning picking for fresh shoots weighing at 11.00 and the second picking shoots for weighing at 15.30. Picking done by farmers can be with machines and scissors. The comparison of the speed between machines picking and scissors is 1 person to 25 people. Before the picking, farmers need to be given guidance how the picking procedures that meet the standards and quality that have been set. Then the tea that has been picked up by the farmer then sold through the cooperative.

b. Cooperative

Tea that has been picked by the farmers is then collected to the cooperative. The cooperative conduct transactions with PT. Perkebunan Nusantara VI Danau Kembar Unit.

c. Factory

Afterwards, from the cooperative then the tea leaves are transported to PT. Perkebunan Nusantara VI Danau Kembar Unit, then will be processed at the factory through the production process from the process of receiving shoots to the packaging and storage process before it is finally marketed. Processing of tea shoots can be up to two days, because the several processing station that must be passed, the fresh shoot receiving station, shrivelled station, drop station, rolling station, fermentation station, drying station, sorting station, quality analysis and last packing station.

d. Joint Marketing Office (KPB)

The results of tea processing will be sold by auction system or also called the auction market system in KPB (Joint Marketing Office) in Jakarta. The auction process is done in order to give impact to the improvement of efficiency, orderly administration and transparency (transparency). management of natural resources. Usually, the process of auction of tea result of PTPN VI Danau Kembar Unit is held every Wednesday every week of local exporter / buyer. Tea marketing destinations are Germany, UK, Australia, United States, Middle East, Singapore, and countries of the former Soviet Union. Nowadays export capacity is 80-85 percent. For export products shipments is performed through Belawan and Tanjung Periuk Ports, while tea for local delivery is delivered via Teluk Bayur Port.

e. Consumer

After the delivery of tea products both export and local to the consumer, then the consumer can use as they need.

2. Information Flow

One of the key factors to optimize supply chain is to create an easy and accurate flow of information among supply chain actors. With the achievement of coordination of supply chain between actors, each supply chain practitioner will not experience shortage of goods and will not have excess goods too much. The flow of information that occurs in the supply chain is described in Table 1.

Table 1. Flow of information available on the Tea Supply Chain

Supplier Chain	Information Flow
Farmers	<ul style="list-style-type: none"> Need tea price information from cooperatives Provide information on the amount of tea supply to the cooperatives
Cooperative	<ul style="list-style-type: none"> Need info of tea price from PT. Perkebunan Nusantara VI Unit Danau Kembar Provide information on the amount of tea supply to PT. Perkebunan Nusantara VI Unit Danau Kembar
PT. Perkebunan Nusantara VI Danau Kembar Unit	<ul style="list-style-type: none"> Provide tea price information to cooperatives Requires information on the quantity of tea auction proceeds to be delivered to domestic and overseas consumers from the Jakarta Joint Marketing Office (KPB)

Joint Marketing Office (KPB) Jakarta	<ul style="list-style-type: none"> Requires previous PO information Requires information on where to send tea
Local consumer (domestic tea packaging factory)	<ul style="list-style-type: none"> Requires information on the amount of tea auction proceeds to be sent by the expedition Requires price information on auction results
Non-local consumers (Exporters)	<ul style="list-style-type: none"> Requires the tea PO information to be sent abroad Requires information on where to send tea

3. Financial Flows

In addition to material flow and information flow, the flow that occurs in the supply chain system is the flow of money. In Table 2 describes the flow of money that occurs in the supply chain system.

Table 2. Flow of Currency in Tea Supply Chain

Supplier Chain	Financial Flow
Farmers	Sales proceeds based on realization price of selling tea
Cooperative	The proceeds of the sale based on the realization price of tea from the Joint Marketing Office (KPB)
PT. Perkebunan Nusantara VI Danau Kembar Unit	Purchase costs based on the realization price of tea purchase
Joint Marketing Office (KPB) Jakarta	<ul style="list-style-type: none"> Purchase costs based on the realization price of tea purchase Sales proceeds based on realization price of packaged tea
Local consumer (domestic tea packaging factory)	<ul style="list-style-type: none"> Purchase costs based on the realization price of tea purchase Sales proceeds based on the exported realization price of tea exported

The purchase price of tea by the factory from the cooperative is determined by PTPN VI which is around Rp 1,805 to Rp 2,205 / Kg (average Rp 2.050 / kg). The price tends to be constant (unchanged) and is not directly affected in real time by the price of tea at auction. When the price of tea supply in CDE decreases, it is possible PT. Perkebunan Nusantara VI Danau Kembar Unit suffered losses due to auction proceeds below production costs. However, because PT. Nusantara Plantation VI Danau Kembar Unit is a BUMN so losses have no effect on employee's salary, They just will not get a bonus if the company is losing money. The results of the auction winner, announced at the Joint Marketing Office (KPB) Jakarta which is adjusted to the desired demand for tea grade. KPB then issued a PO to PT. Perkebunan Nusantara VI Danau Kembar Unit to prepare tea delivery to the winner of the auction. Furthermore, the auction winner will send an expedition to transport tea which has been packaged by PT. Perkebunan Nusantara VI Business Unit Twin Lake.

3.2. PTPN VI Supply Chain Performance Analysis Using SCOR Attribute

Based on the system that has been described, it will be analyzed the performance of supply chain by using 5 (five) performance attributes that are supply chain reliability, supply chain responsiveness, supply chain agility, supply chain cost and supply chain asset management.

a. Supply chain reliability

PTPN VI is considered good enough in marketing its products because the system occurs in the flow of tea is a push system (push system) where the resulting tea is offered in an auction system so that the number of requests that come will not be higher than the offered tea. A challenge faced today is how to improve the quality of tea so as not to lose competition in the market and higher appreciated at the time of auction.

b. Supply chain responsiveness for order fulfillment

Tea sold at auction process will be delivered to the consumer through a third party. The third party will pick up tea to the factory. In this case PTPN VI is responsible for delivering the tea in accordance with the PO of the auction result

c. Supply chain agility and flexibility

In running the business process PTPN VI considered enough to solve the problems of production such as the implementation of production processes on schedule, supply management, to problems with other parties involved. For example, PTPN VI always maintains an inventory of finished materials as a precautionary measure if the goods are returned by consumers due to certain conditions.

d. Supply chain cost

The main cost that arises between farmers, PTPN VI Danau Kembar and consumers is the cost of purchase. PTPN VI issues the purchase cost of tea leaves to the farmers in accordance with the price set by PTPN VI. Meanwhile, PTPN VI is considered not able to optimize its profits considering the process of selling tea done by auction.

e. Supply chain asset management

The current asset management is done in organizational structure by PTPN Indonesia

4. Conclusion

Supply chain actors include farmers, cooperatives, tea processing plants, CDEs and end consumers. The supply chain flow of each actor consists of material flow, the flow of money and the flow of information. Based on the system that has been described, it has already conducted analysis of the performance of supply chain using 5 (five) performance attributes that are supply chain reliability, supply chain responsiveness, supply chain agility, supply chain cost and supply chain asset management. In general it can be concluded that the flow of tea supply chain in West Sumatra is considered sufficient for the five criteria of SCOR method.

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