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Analysis Of Supply Chain Performance And Value Added Of Robusta Coffee At PT. Bondowoso Coffee Distributor

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Abstract: A supply chain is the interrelationship between the flow of materials or services, the flow of money, and the flow of information from suppliers, manufacturers, distributors, warehouses, retailers, and end customers. PT Bondowoso Coffee Distributor is one of the agro-industrial PTs engaged in the coffee sector located in Bondowoso district. So far, PT Bondowoso Coffee Distributor, which has a fairly large supply chain, has never measured supply chain performance. Of course, one of the impacts of activities in the supply chain is the addition of product value to robusta coffee. The amount of balanced added value greatly affects the sustainability of a supply chain activity, so it is very beneficial for all actors in the coffee agro-industry supply chain. So the objectives of this research are to analyze the robusta coffee supply chain structure at PT Bondowoso Coffee Distributor, to measure the robusta coffee supply chain performance at PT Bondowoso Coffee Distributor, to analyze the added value of robusta coffee products at PT Bondowoso Coffee Distributor. This research uses the SCOR-AHP and Hayami methods for added value. The results of this research are the robusta coffee supply chain mechanism starts from farmers, collectors, PT Bondowoso Coffee Distributor and costumers. The activities that occur in PT Bondowoso Coffee Distributor are Plan, Source, Make, and Delivery. The performance analysis of PT Bondowoso Coffee Distributor amounted to 85.606 which is included in the average category. Value added of agro-industry from farmers obtained the greatest added value is ground coffee which is 82.22%, the second is roasted coffee at 66.03% and coffee beans at 42.64%. While the value added of agro-industry from collectors obtained the greatest added value is ground coffee at 72.55%, roasted coffee at 40.33% and coffee beans at 35.67%

Keywords: Supply Chain, Value Added, Coffee Robusta

INTRODUCTION

According to the United States Department of Agriculture, in 2022/2023 coffee production increased to 165.37 million bags, an increase of 2.8% from the previous period. The office also mentioned that in 2022 the total coffee production will be dominated by East Java at 45 thousand tons, followed by Central Java and West Java. Bondowoso Regency is one of the centers of smallholder coffee plantations in East Java. One of the agro-industrial PT engaged in coffee is PT Bondowoso Coffee Distributor. The coffee produced has even been exported abroad and is widely marketed domestically. Nowadays, in order to improve competitiveness through product customization, quality improvement, cost reduction, and speed of response to the market, companies need to work hard. Seeing the many market demands, good collaboration is needed from upstream to downstream. In this case, supply chain management plays an important role in creating the effectiveness of a supply chain (Nasrudin & Rivana, 2019).

So far, PT Bondowoso Coffee Distributor, which has a large supply chain, has never measured supply chain performance. In obtaining the results of supply chain performance, the right method is needed so that all activities in the supply chain at PT Bondowoso Coffee Distributor can increase productivity. Of course, one

of the impacts of activities in the supply chain is the addition of product value to robusta coffee. Added value is one of the company and supply chain performance (Aji et al., 2018). The amount of balanced added value greatly affects the sustainability of a supply chain activity, so it is very beneficial for all actors in the coffee agro-industry supply chain. Thus, a supply chain performance analysis will be carried out using the Supply Chain Operation Reference (SCOR) version 11.0 and Analitycal Hierarcy Process (AHP) methods and value-added analysis using the Hayami method on Robusta Coffee.

The objectives of this study are (1) To analyze the robusta coffee supply chain structure at PT Bondowoso Coffee Distributor (2) To measure the robusta coffee supply chain performance at PT Bondowoso Coffee Distributor (3) To analyze the added value of robusta coffee products at PT Bondowoso Coffee Distributor.

METHOD

2.1 Place of Research

The research will be conducted at PT Bondowoso Coffee Distributor located in Sumber Gading Village, RT 33 RW 04, Sumber Wringin Sub-district, Bondowoso Regency, East Java 68287. The village is approximately 27 kilometers from the town of Bondowoso Regency and is located at the foot of Mount Raung Ijen. The location is at an altitude of 700 meters above sea level and rainfall is 200-300 mm. The research will be conducted from March to May 2024. Tools used; (1) Handphone (2) Book (3) Pen (4) Questionnaire (5) Microsoft Excel (5) Laptop.

2.2 Stages of Research

As for the stages of this research, as follows:

1. Robusta coffee supply chain identification

The analysis of the robusta coffee supply chain conditions discussed in this study includes the chain structure and supply chain management. The discussion carried out is carried out descriptively to provide a clear description of the actual conditions that occur in the robusta coffee supply chain of PT Bondowoso Coffee Distributor.

2. SCOR matrix assessment

At this stage is to create a supply chain mapping. Mapping is determined through the 4 main attributes of SCOR, namely reliability, responsiveness, agility, cost, and asset management.

3. Determination of supply chain indicators

After determining the attributes to be assessed, the next step is to determine the supply chain indicators to create the SCOR matrix. After creating the SCOR matrix, what will be done is to assess the performance of the supply chain.

4. Supply chain weighting

After assessing the SCOR matrix, the next step is to weight the supply chain performance using AHP. The step taken is to compare indicators with one another based on a priority scale.

5. Analysis

After assessing the supply chain performance and weighting with AHP, the weights that are below the standard will be obtained and improvements will be made.

6. Value-added analysis

The concept of added value is an increase in value that occurs due to the treatment of robusta coffee. This analysis uses the Hayami method.

2.3 Data Collection Method

Data collection methods by direct observation at the research location and conducting interviews. Literature studies are obtained from books, articles, previous research, journals related to the supply chain.

2.4 Data Analysis

Robusta Coffee Supply Chain Identification

Robusta coffee supply chain analysis is conducted by identifying four basic elements of the supply chain (Vorst 2006). These four elements can describe the supply chain in a structured manner, like **Figure 1**.

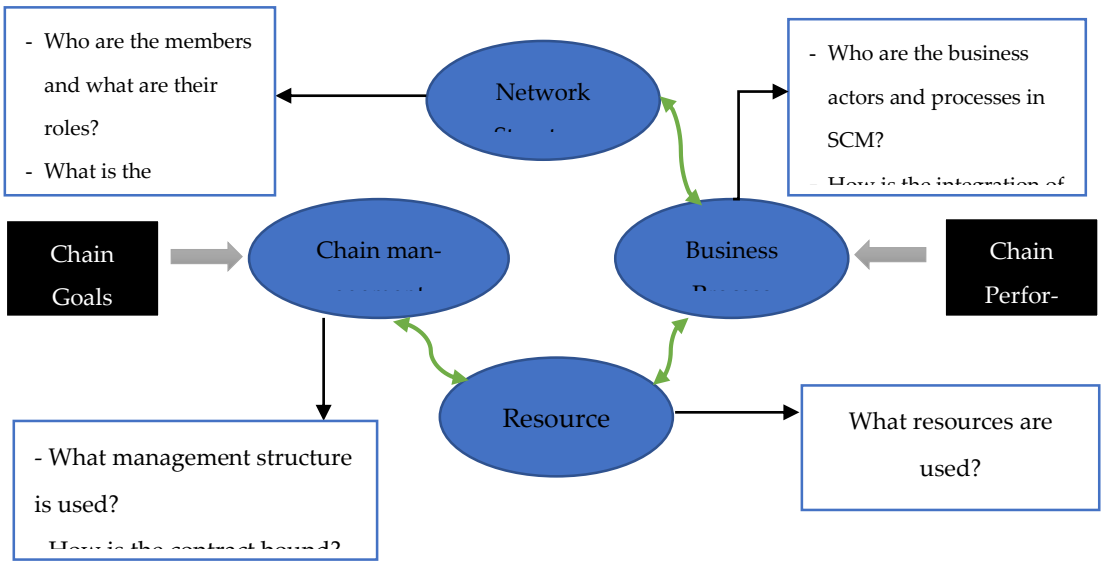


Figure 1. Supply Chain Analysis Framework (Lathifah, 2017)

Supply Chain Performance Measurement

Supply chain performance measurement based on the SCOR model version 11.0 (SCC 2012) uses a level-1 matrix. In this study, the level-1 matrix will present the calculation of coffee supply chain performance indicators at PT Bondowoso Coffee Distributor. The following are the formulas for calculating the SCOR matrix:

1. Plan

1). Reliability

$$Accuracy\ Forecasting = 100\% - \frac{(\text{Forecasting} - \text{Demand})}{\text{Demand}}\ x\ 100\%$$

2). Responsiveness

Planning Cycle Time: Time taken to develop a production schedule

2. Source

1). Reliability

a. Perfect Condition:

$$100\% - \frac{(\text{defective product})}{\text{Arrival count}}\ x\ 100\%$$

b. Correct Quantity Deliveried:

$$100\% - \frac{\text{Arrival count}}{\text{Order quantity}}\ x\ 100\%$$

a. Receive Product*:* The amount received is in accordance with the order amount and on time

2). Responsiveness

Source Leadtime: The time required to order raw materials until receipt of goods.

3). Agility

Source Flexibility: Number of substitute suppliers if the main supplier cannot fulfill the order

3. Make

1). Reliability:

Yield: Comparison between raw materials processed and products/outputs after the process.

2). Responsiveness

Make Item Responsiveness: Out-of-order requests

3). Agility

Production Item Flexibility: Production quantities that can meet changes in demand

4). Cost

Production Costs: Costs required in the production process

4. Deliver

1). Reliability

Order Delivery Full: Number of delivery requests to customers

2). Responsiveness

Delivery Leadtime: Time taken by the company to send/pick up goods

The calculation of performance value is done through the assessment of performance metrics. The weighting is based on a hierarchy of prioritization of supply chain performance measurement indicators. The hierarchical structure consists of objectives, performance attributes and performance metrics. AHP will produce priority values at each level of the hierarchy based on the level of importance and objectives synthesized from expert opinion. Experts who will be involved in this research consist of practitioners and academics, namely:

1. Robusta coffee farmers
2. Owner of PT Bondowoso Coffee Distributor
3. Mr. Afan Bagus Mananda, S. TP., M. SC., as lecturer of Agricultural Industrial Technology Study Program, Faculty of Agriculture, Universitas Muhammadiyah Jember.
4. Bondowoso District Office of Cooperatives, Industry and Trade 4.

The total value of supply chain performance is calculated by multiplying the performance attributes of each level metric by the metric weight value obtained from the weighting results based on the AHP method. The value of each attribute is then summed up, so that the performance value is obtained.

Table 1. Performance Standard Score Classification

Performance Score	Criteria
95-100	Excelent
90-94	Above Average
80-89	Average)
70-79	Below Average
60-69	Poor

<60	Unacceptable

Source: Lathifah (2017)

Value-Added Analysis with the Hayami Method

Table 2. Hayami Value Added Calculation

No	Variabel	Value
Output, Input and Price		
1	Output (Kg)	(1)
2	Raw material (Kg)	(2)
3	Direct labor (HOK)	(3)
4	Convention Factor	(4) = (1) / (2)
5	Direct labor coefficient (HOK/Kg)	(5) = (3) / (2)
6	Output price (Rp/Kg)	(6)
7	Labor wages (Rp/HOK)	(7)
Revenue and Profit		
8	Raw material price (Rp/Kg)	(8)
9	Other input prices (Rp/Kg)	(9)
10	Output value (Rp/Kg)	(10) = (4) x (6)
11	Value-added (Rp/Kg)	(11a) = (10) - (8) – (9)
	Value-added ratio	(11b) = (11a) / (10) x 100
12	Direct labor income (Rp/Kg)	(12a) = (5) x (7)
	Direct labor share (%)	(12b) = (12a) / (11a) x 100
13	Benefits (Rp/Kg)	(13a) = (11a) – (12a)
	Profit Level (%)	(13b) = (13a) / (10) x 100
The remuneration of the owner of the factor of production		
14	Margin (Rp/Kg)	(14) = (10) – (8)
	Direct labor income (%)	(14a) = (12a) / (14) x 100
	Contribution of other inputs (%)	(14b) = (9) / (14) x 100

Source: Lathifah (2017)

RESULTS AND DISCUSSION

Company Profile

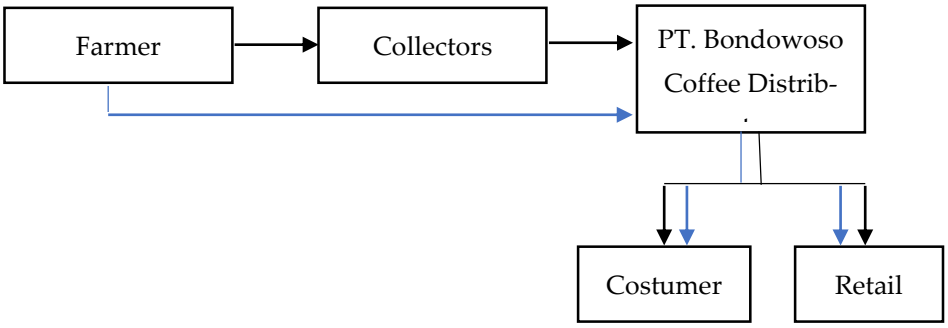
PT Bondowoso Coffee Distributor is a coffee processing company located on Jl. Kawah Ijen, Sumber Gading village, Sumber Wringin sub-district, Bondowoso district, East Java province. This village is about 27 KM from the city of Bondowoso Regency. The boundaries are Sukosari village to the north, Wringin village to the south, Sukosari Kidul village to the west and Rejoagung village to the east.

PT Bondowoso Coffee Distributor was founded in 2018 by a man named Rikiyan Ades Zulkarnain. Initially, PT Distributor Kopi Bondowoso only sold tens of kilograms of robusta and arabica coffee beans from its own plantations. Then in 2019, market demand began to increase and began producing ground coffee and opening coffee roasting services. In 2020, market demand increased to the point of exporting overseas. Bondowoso Coffee Distributor continues to grow in terms of marketing, production, costumers, and products. In 2022, Bondowoso Coffee Distributor officially became PT.

3.2 Supply Chain Conditions at PT Bondowoso Coffee Distributor

Structure of Supply Chain

The robusta coffee supply chain structure starts with the farmer as the main member of the robusta coffee producer. Farmers sell coffee cherries directly to the industry or collectors. PT. Bondowoso Coffee Distributor gets raw materials from farmers and collectors. Products produced by PT. Bondowoso Coffee Distributor will be sold directly to costumers or retailers such as cafes. The robusta coffee supply chain network structure identified at PT. Bondowoso Coffee Distributor can be seen in **Figure 2.**



Description:
: Channel 1
: Channel 2

Figure 2. Supply Chain Structure

It can be concluded that in general, the robusta coffee supply chain flow at PT Bondowoso Coffee Distributor is as follows:

1) Channel 1: Farmers - PT. Bondowoso Coffee Distributor - Retail - Costumers
2) Channel 2: Farmers - collectors - PT Bondowoso Coffee Distributor - Retail - Costumers

Supply Chain Members

The robusta coffee supply chain is composed of various parties with the aim of satisfying customers and supporting each other for the sustainability of the coffee industry. The members of the supply chain have their own roles in the sectors covered by the chain members. The following is a breakdown of the roles of robusta coffee supply chain members:

Table 2. The Role of Robusta Coffee Supply Chain Members at PT. Bondowoso Coffee Distributor

Member	Market Objective	Role
Farmer	Collecting traders Wholesalers PT. Bondowoso Coffee Distributor	Robusta coffee pro-duction
Collector	Wholesalers PT. Bondowoso Coffee Distributor	Marketing Distribution
PT. Bondowoso Coffee Distributor	Retail Consumen Ekspor	Processor Marketing Distribution

Supply Chain Entity

1. Product

The products discussed in this study are green beans, roasted coffee, and ground coffee. PT Bondowoso Coffee Distributor purchases raw materials in the form of cherries which will later be processed. PT Bondowoso Coffee Distributor in the coffee processing process uses the fullwash method.

2. Market

Domestic robusta coffee consumption can be divided into coffee consumption (powder, beans) and instant sachet coffee. Based on data from the Central Bureau of Statistics, in Bondowoso Regency coffee consumption (powder, beans) is decreasing. In 2021 it was 0.336 grams/capita, in 2022 it was 0.282 grams/capita, and in 2023 it was 0.315 grams/capita. Meanwhile, sachet instant coffee increased from 2021 by 0.35 grams/capita, in 2022 by 0.318 grams/capita, and in 2023 by 0.478 grams/capita. The graph of coffee consumption can be seen from **Figure 3**.

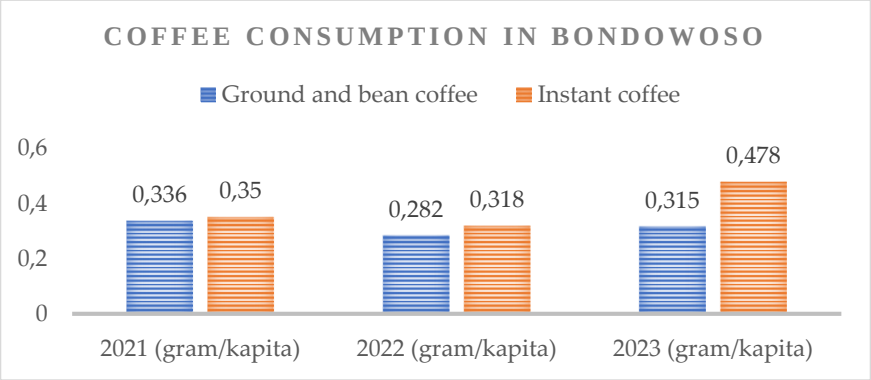


Figure 3. Graph of Coffee Consumption in Bondowoso
Source: Central Bureau of Statistics, 2024

3. Main Actor
   All those involved in supply chain activities are indirectly members of the robusta coffee main supply chain. Upstream business actors are coffee raw material suppliers, namely farmers and collectors. Meanwhile, the downstream business actors are PT Bondowoso Coffee Distributor.
4. Competition
   The competition and delivery of robusta coffee products in the industrial market certainly does not only come from one particular company. Not only that, suppliers of coffee raw materials also do not only send their raw materials to one company. This makes the level of competition for robusta coffee sales very tight. In addition, the competition that occurs is not only the availability of raw materials, but the ability to meet the needs of costumers who are right and according to taste. Sometimes problems also arise from costumers who order in a short time when they are out of stock. However, PT Bondowoso Coffee Distributor always has a ready time in delivering robusta coffee and a good grade.

Business Process

According to Lathifah (2017), successful supply chain management requires an integrated system. Each member of the supply chain must be a unit, not stand alone. Supply chain operations require a continuous flow of goods, information, and money to produce good and appropriate products according to consumer needs. According to Lathifah (2017), business processes in the supply chain can be viewed through a push/pull view, where processes in the supply chain are carried out in response to or in anticipation of consumer orders. The push process occurs in anticipation of consumer orders and the pull process occurs due to consumer orders. The following business process can be seen in **Figure 4**

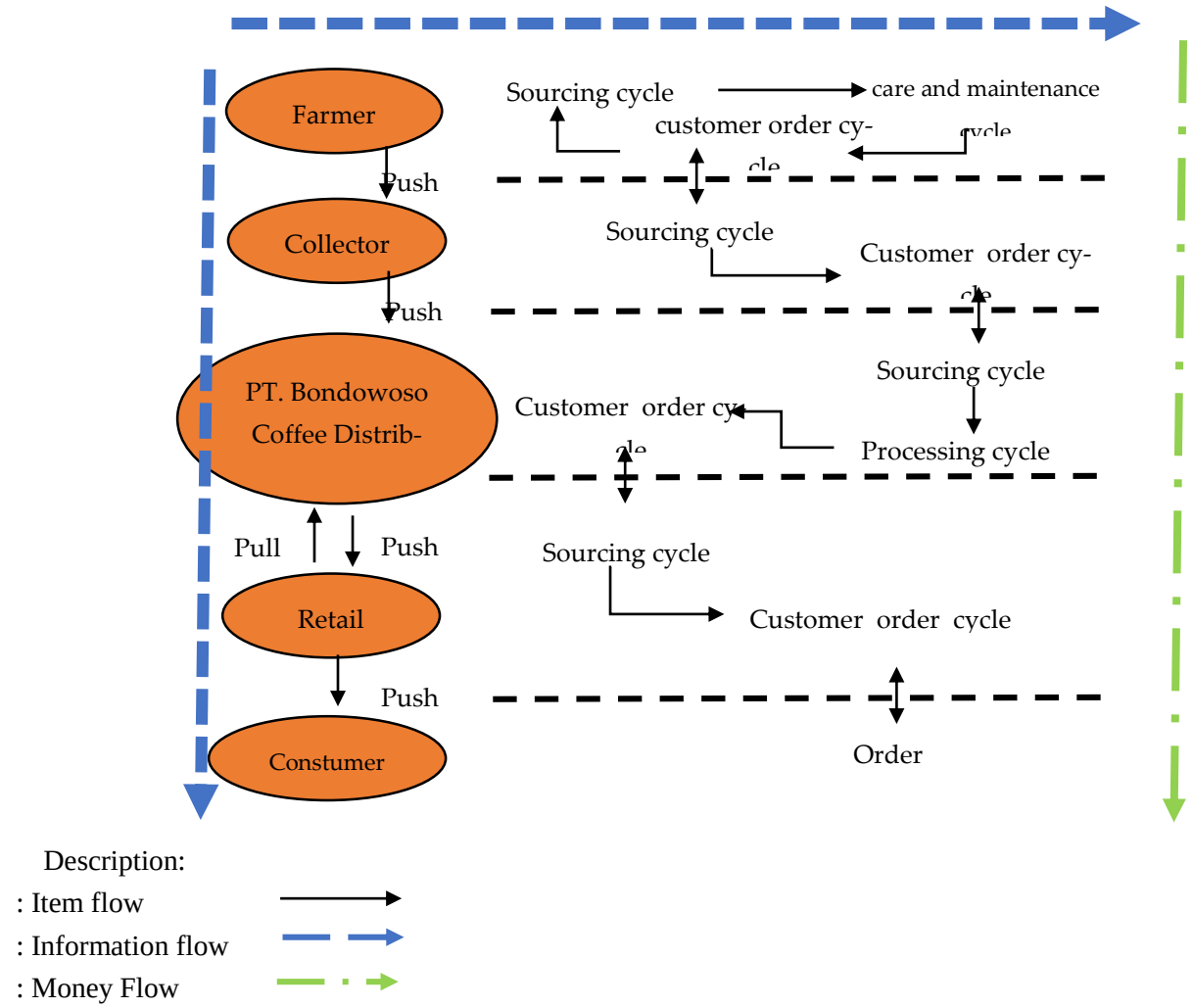


Figure 4. Robusta coffee supply chain business process

Farmers' coffee cherries are usually bought directly by collectors, wholesalers, and PT Bondowoso Coffee Distributor. Collectors will sell them to wholesalers and PT Bondowoso Coffee Distributor in free quantities. The business process of collectors and PT Bondowoso Coffee Distributor is a pull process. This is because the number of coffee cherries sold is based on the farmers' uncertain harvest. Collectors and PT. Distributor of Bondowoso Coffee will buy coffee cherries from farmers in unspecified quantities. The industry or PT Bondowoso Coffee Distributor conducts two business processes based on the intended business unit. At the business unit level in the form of industry, the industry will produce goods according to orders (push/push). Meanwhile, at the retail business unit level, the industry will implement a pull system.

In the robusta coffee supply chain, information flow is very important, including information about the price of robusta coffee in the market. Fluctuating coffee prices mean that market players must keep up to date with the latest information on prices so as not to be disadvantaged in transactions. Based on the direction of flow, information dissemination in the robusta coffee supply chain system can be divided into two, namely vertical and horizontal information dissemination. Vertical information dissemination occurs between chain members at different levels, while horizontal information dissemination occurs between chain members at different levels.

The limited availability of market information causes farmers and traders to obtain information from each other from other supply chain members. This word-of-mouth flow of information poses high risks such as miscommunication, negative competition, an information fraud. This can lead to mistrust between robusta coffee supply chain members. For this reason, good relationships between members need to be maintained.

The flow of money in the robusta coffee supply chain is the payment for the sale and purchase of robusta coffee. The payment from the sale can be used as capital to re-procure robusta coffee. In general, the payment system from prospective buyers to sellers is done in cash.

Supply Chain Resource

1. Physical

The physical resources of the robusta coffee supply chain at the farm level include plantation land, drying land, plantation equipment, and storage warehouses. Meanwhile, in the downstream sector, there are pulpers, roasting machines, and grinders. The area of coffee plantations in Bondowoso Regency in the last 2 years can be seen in Table 3.

Table 3. Coffee Plantation Area and Production in 2022-2023

Year	Areal (Ha)	Production (Ton)
2022	18.150,38	7.744
2023	18.885,38	8.271,96

Source: Bondowoso Central Bureau of Statistics 2024

Based on Table 4.3, the area of coffee plantations is increasing, this makes coffee production also increase. According to the Central Bureau of Statistics of Bondowoso Regency in 2024, the highest coffee plantation area in SumberWringin Subdistrict was 9,845 ha in 2022 and 9,975 ha in 2023. This is due to the location of the sub-district at the foot of Mount Raung-Ijen.

2. Technology

The application of technology in the upstream sector still does not exist. However, the downstream sector includes production technology such as pulpers, roasting machines, grinders, storage technology, packaging and transportation in shipping. The application of these technologies is expected to increase the productivity and quality of robusta coffee products.

3. Human Resources

Human resource development in the field of coffee supply chain, especially by the government, companies, through counseling (Lathifah, 2017). Counseling includes how to cultivate and process coffee properly to improve the quality and processed coffee products. The workforce at PT Bondowoso Coffee Distributor has not participated in counseling but has only been trained by the owner of PT Bondowoso Coffee Distributor.

4. Capital

The capital required for robusta coffee plantation and processing is quite large. Capital is still mostly done independently by supply chain actors. The government needs to provide financial assistance through cooperatives with production facilities or funds.

1.3 Supply Chain Management Robusta Coffee

Supply chain management is the process of planning, monitoring, organizing, and implementing the robusta coffee supply chain. The supply chain structure starts from suppliers, namely farmers, collectors who act as robusta coffee producers and will send them to PT Bondowoso Coffee Distributor according to availability. PT Bondowoso Coffee Distributor plays an important role in the robusta coffee production process until it is ready to be sent to costumers.

In the supply chain business process, there are contractual agreements and transaction systems. Contractual agreements contain mutual agreements between parties involved in cooperation both formally and informally. The function of a contractual agreement is to provide an overview of the obligations and limitations that must be carried out by the parties involved and can function within a predetermined period of time (Lathifah, 2017).

The contractual agreement between the supplier and PT Bondowoso Coffee Distributor has an unwritten contractual agreement. The sale and purchase agreement can be done verbally over the phone and can be written in the form of a purchase order letter to the robusta coffee supplier and is not bound by time. Likewise for direct costumers. However, retailers with a good market share have a written contractual agreement with PT Bondowoso Coffee Distributor. Initially, the sale and purchase agreement is carried out verbally and then a purchase order will be given by calling PT. Bondowoso Coffee Distributor, which later costumers will drop off a contract letter containing the amount of coffee and fees paid within the applicable contract period. However, there are also non-contractual agreements from costumers to PT Bondowoso Coffee Distributors where costumers only make verbal sales and purchases and are not bound by time.

1.4 Robusta Coffee Supply Chain Performance Measurement

The supply chain implemented in the company is of course different. In this performance measurement, it is adjusted to the conditions of PT Bondowoso Coffee Distributor. Based on the calculations that have been

carried out, it can be seen that each indicator has a different weight. Therefore, parameter equalization is carried out by normalization. If the normalization score value has been obtained, then the next step is to weight the level of importance at each level using the AHP method.

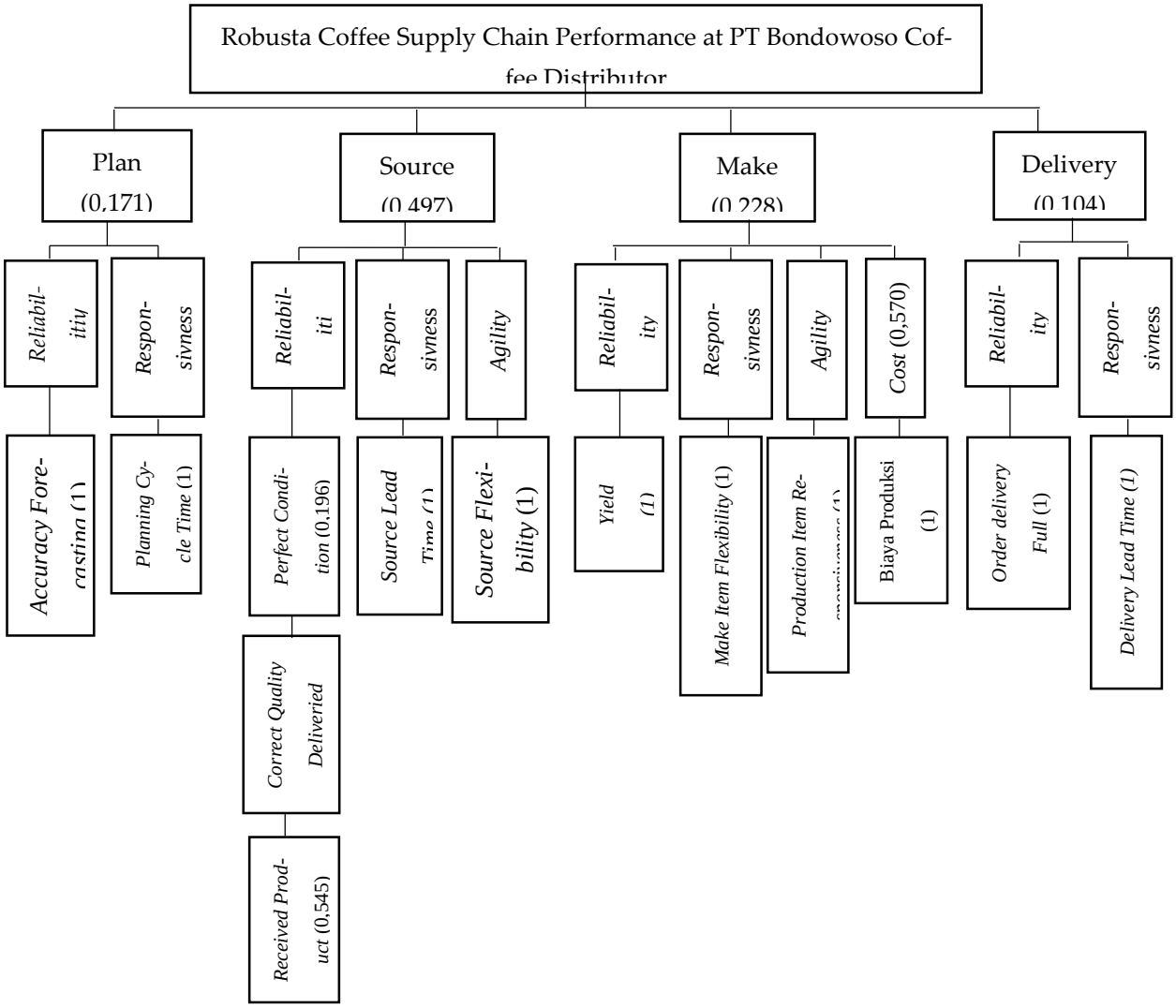


Figure 5. Results of Weighted Performance Matrix with AHP

Based on the calculation, the highest weight for the process at level one is the Delivery process with a score of 97.535. The second priority is Make with a score of 85.775. Furthermore, the third priority is the Plan process with a score of 87.628. And the fourth priority is the Source process with a score of 83.763. The data can be seen in Table 6. Calculation of Performance Measurement Value of PT Bondowoso Coffee Distributor. In performance measurement, it is obtained by multiplying the normalization score by the respective weights using AHP. The following are the results of weighting the performance matrix of PT Bondowoso Coffee Distributor by organizing four experts. The following results of weighting the performance matrix with AHP, can be seen in **Figure 5**.

The results of the weighting will be multiplied by the results of the performance matrix. The matrix with the highest score is between 80-100. Meanwhile, matrices with scores below 80 are at the level of less and need to be improved. The following matrices have scores between 80-100, as follows:

Table 1. High Scoring Matrix

No	Aspect	Matrix	Performance Value
1	Plan	Accuracy Forecasting	97
2	Make	Production Item Flexibility	100

3	Delivery	Order Delivery Full	100
4		Delivery Leadtime	83

Tabel 5. Low Scoring Matrix

No	Aspect	Matrix	Performance Value
1	Plan	Planning Cycle Time	67
2		Perfect Condition	19,404
3		Correct Quantity Deliveried	25,9
4	Source	Receive Product	54,5
5		Source Leadtime	67
6		Source Flexibility	67
7	Make	Yield	75
8		Make Item Responsiveness	60

Based on the table above, there are 12 performance matrices available at PT Bondowoso Coffee Distributor. There are 4 high-scoring matrices consisting of Accuracy Forecasting, Production Item Flexibility, Order Delivery Full¸ Delivery Leadtime. While there are 8 low-scoring matrices consisting of Planning Cycle Time, Perfect Condition, Correct Quantity Delivered, Receive Product, Source Leadtime, Source Flexibility, Source Flexibility, Yield and Make Item Responsiveness. The value of this matrix is also influenced by the weights obtained from AHP.

Table 2**.** Calculation of Performance Measurement Value of PT Bondowoso Coffee Distributor

No	Level 1	Total of each aspect	Weight	Performance
1	*Plan*	87,628	0,171	14,984
2	*Source*	83,763	0,497	41,630
3	*Make*	85,775	0,228	19,556
4	*Delivery*	97,535	0,104	10,144
	Total			**86,315**

As a result of the recapitulation, PT Bondowoso coffee distributor produced a total supply chain performance of 86.315 on a scale of 0-100. According to Lathifah (2017), this figure shows the results of the supply chain performance of PT Bondowoso Coffee Distributor at the Average level.

1.5 Value-Added Analysis of Robusta Coffee at PT. Bondowoso Coffee Distributor

The concept of value-added is an increase in value that occurs due to the treatment of a commodity. This treatment can be in the form of providing quality and sustainable raw materials in the upstream sector and processing commodities in the downstream sector. The calculation of added value in this study is focused on activities that occur in coffee beans, roasted coffee, and ground coffee at PT Bondowoso Coffee Distributor.

Tabel 3. Agro-industry Value Added from Farmers

	Variabel	Formula	Green Bean	Roasted Coffee	Grand Coffee
I.	**Output, Input and Price**				
	1. Output (Kg)	1	100	80	90
	2. Input (Kg)	2	500	100	100
	3. Labor (HOK)	3	12	12	12
	4. Conversion factor	(4) = (1)/(2)	0,2	0,8	0,9
	5. Labor coefficient (HOK)	(5) = (3)/(2)	0,024	0,12	0,12
	6. Output price(Rp/Kg)	6	70.000	180.000	425.000
	7. Direct labor wages (Rp/HOK)	7	100.000	100.000	100.000
II	**Revenue and Profit**				

	8. Raw material price	8	8.000	8.000	8000
	9.Other input contribution	9	30	40.918,05	60.015,042
	10. Output Value	(10) = (4) x (6)	14.000	144.000	382.500
	11. a. Value Added (Rp/Kg)	(11a) = (10) - (9) - (8)	5.970	95.082	314.485
	b. Value Added Ratio (%)	(11b) = (11a)/(10) x 100 %	42,64%	66,03%	82,22%
	12. a. Direct labor income (Rp/Kg)	(12a) = (5) x (7)	2.400	12.000	12.000
	b. Labor share	(12b) = (12a)/(11a) x 100 %	40,20%	12,62%	3,82%
	13. a. Profit (Rp/Kg)	(13a) = (11a) - (12a)	3.570	83.082	302.485
	b. Profit Rate (%)	(13b) = (13a)/(11a) x 100 %	59,80%	87,38%	96,18%
III	**Services of Owners of Factors of Production**				
	14. Margin (Rp/Kg)	(14) = (10) - (8)	6.000	136.000	374.500
	a. Direct labor income (%)	(14a) = (12a)/(14) x 100 %	40%	9%	3%
	b. Other input contribution (%)	(14b) = (9)/ (14) x 100 %	0,50%	30,09%	16,03%
	c. Company owner's profit (%)	(14c) = (13a)/(14) x 100 %	59,50%	61,09%	80,77%

This calculation uses data from January to March. PT Bondowoso Coffee Distributor stated that the average production per day was 100 kg. There are two added values

Based on Table 7. Agroindustry Value Added from Farmers, calculated by the value of output minus the contribution of other inputs and minus the price of raw materials. So that the biggest added value is ground coffee which is 82.22%, the second is roasted coffee at 66.03% and coffee beans at 42.64%. In addition, there is profit, in coffee beans obtained at 59.80%, roasted coffee at 87.38%, and ground coffee 96.18%. Meanwhile, the company owner's profit, in coffee beans, was obtained at 59.50%, roasted coffee at 61.09% and ground coffee at 80.77%. Therefore, the more processing that occurs, the greater the added value obtained. Lathifah (2017) also mentioned that if there is no further processing, the added value obtained is not too high.

Table 4. Agro-industry Value Added from Collectors

	Variabel	Formula	Green Bean	Roasted Coffee	Grand Coffee
I.	**Output, Input and Price**				
	1. Output (Kg)	1	100	80	90
	2. Input (Kg)	2	100	100	100
	3. Labor (HOK)	3	1	12	12
	4. Conversion factor	(4) = (1)/(2)	1	0,8	0,9
	5. Labor coefficient (HOK)	(5) = (3)/(2)	0,01	0,12	0,12

	6. Output price(Rp/Kg)	6	70.000	180.000	42.5000
	7. Direct labor wages (Rp/HOK)	7	100.000	100.000	100.000
II	**Revenue and Profit**				
	8. Raw material price	8	45.000	45.000	45000
	9.Other input contribution	9	30	40.918,05	60.015,042
	10. Output Value	(10) = (4) x (6)	70.000	144.000	382.500
	11. a. Value Added (Rp/Kg)	(11a) = (10) - (9) - (8)	24.970	58.082	277.485
	b. Value Added Ratio (%)	(11b) = (11a)/(10) x 100 %	35,67%	40,33%	72,55%
	12. a. Direct labor income (Rp/Kg)	(12a) = (5) x (7)	1.000	12.000	12.000
	b. Labor share	(12b) = (12a)/(11a) x 100 %	4,00%	20,66%	4,32%
	13. a. Profit (Rp/Kg)	(13a) = (11a) - (12a)	23.970	46.082	265.485
	b. Profit Rate (%)	(13b) = (13a)/(11a) x 100 %	96,00%	79,34%	95,68%
III	**Services of Owners of Factors of Production**				
	14. Margin (Rp/Kg)	(14) = (10) - (8)	25.000	99.000	337.500
	a. Direct labor income (%)	(14a) = (12a)/(14) x 100 %	4%	12%	4%
	b. Other input contribution (%)	(14b) = (9)/ (14) x 100 %	0,12%	41,33%	17,78%
	c. Company owner's profit (%)	(14c) = (13a)/(14) x 100 %	95,88%	46,55%	78,66%

While in Table 8 Agroindustry Value Added from Collectors, the largest added value is ground coffee at 72.55%, the second is roasted coffee at 40.33% and coffee beans at 35.67%. The added value obtained is smaller than the added value obtained from farmers. This is because the price of raw materials from collectors is more expensive because the raw materials sent have been processed into coffee beans. While from farmers it is still in the form of coffee fruit.

In addition, there is profit, in coffee beans obtained at 96%, roasted coffee at 79.34%, and ground coffee 95.68%. While the profit of the company owner, the coffee beans were obtained at 95.88%, roasted coffee at 46.55% and ground coffee at 78.66%. In coffee beans, the results are greater because the labor required is only one person.

CONCLUSION

Based on the research that has been conducted, measuring supply chain performance and added value at PT Bondowoso Coffee Distributor, it can be concluded that;

1. The robusta coffee supply chain mechanism starts from farmers, collectors, PT Bondowoso Coffee Distributor and costumers. The activities that occur in PT Bondowoso Coffee Distributor are Planning (Plan), Procurement (Source), Processing (Make), and Delivery (Delivery).
2. The results of the performance analysis of PT Bondowoso Coffee Distributor amounted to 86.315 which is included in the average category.
3. The results of the added value of agro-industry from farmers obtained the greatest added value is ground coffee which is 82.22%, the second is roasted coffee at 66.03% and coffee beans at 42.64%. While the

value added of agro-industry from collectors obtained the greatest added value is ground coffee at 72.55%, the second is roasted coffee at 40.33% and coffee beans at 35.67%.

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