# ANALYSIS OF SHRIMP SUPPLY CHAIN MANAGEMENT AT PT INDOKOM SAMUDRA PERSADA LAMPUNG PROVINCE OF INDONESIA

(Bachelor Thesis)

By

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## ABSTRACT

## SHRIMP SUPPLY CHAIN MANAGEMENT ANALYSIS AT PT INDOKOM SAMUDRA PERSADA LAMPUNG PROVINCE OF INDONESIA

**By**

**WIDYA NURHASANAH**

*This study aims to (1) analyze the shrimp supply chain and (2) measure its performance of the shrimp supply chain. This research is a case study at PT ISP, Lampung Province. Data for the analysis was collected from December 2022 to January 2023. Objective 1 was analyzed using the Food Supply Chain Network framework. Objective 2 was analyzed using the Supply Chain Operation Reference model. The respondents of this study consisted of six shrimp farmers, three suppliers, and one employee of PT ISP. The results showed that the supply chain consists of shrimp farmers, suppliers, PT ISP, and buyers. Supply chain targets consist of local and international market targets with development targets to improve the chain members' coordination system. Supply chain management includes partner selection, contractual agreements, transaction systems, and government support that has been running well. Supply chain resources include physical, technological, human, and capital resources. The supply chain business process is based on distribution patterns, risk aspects, and trust-building. Supply chain performance measurements for the perfect order fulfillment and cash to cash cycle time attributes for shrimp farmers, suppliers, and PT ISP are at superior criteria. The order fulfillment cycle time and flexibility attributes of shrimp farmers and suppliers are also in the superior category, while PT ISP is not in the category or uncategorized.*



*Keywords: shrimp, supply chain, supply chain performance,*

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**Bachelor Thesis**

**As One of the Requirements to Achieve the Title of**
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At this moment declare that in this bachelor thesis, there are no other people's works that have been submitted to obtain a bachelor's degree in a university, and to the best of my knowledge there are no works or opinions that have been written or published by other people, except in writing referred to from the source, and the reference list stated.

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# BIOGRAPHY

The author was born in Bandar Lampung City, Lampung Province on August 14, 2001, as the third of three children of Mr. Ir. Akmad Rizal and Mrs. Endang Widyastuti, S.T. The Kindergarten Education was completed at Bina Balita Kindergarten in 2007, Elementary School Education at Al-Azhar 1 Elementary School in 2013, Junior High School Education AT Madrasah Tsanawiyah Negri 2 Bandar Lampung in 2016, and High School Education at Madrasah Aliyah Negri 1 Bandar Lampung in 2019. The author was accepted to the Department of Agribusiness, Faculty of Agriculture, University of Lampung, in 2019 through the Joint Selection for State University Entrance (SBMPTN) program.

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Bandar Lampung, April 10th 2023
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# I. INTRODUCTION

## A. Background of the Research

The fisheries sector is one of the agricultural subsectors that has an important role in the Indonesian economy. The role of the fisheries subsector in national development can be seen from its function as a provider of raw materials for agro-industry drivers, increasing foreign exchange through the provision of fishery product exports, increasing fishermen's income and increasing the sustainability of fisheries resources and the environment. Based on statistical data from the Ministry of Marine Affairs and Fisheries (2022), shrimp is one of the primary commodities of the fisheries sector with the fourth largest production in Indonesia. The shrimp aquaculture business has a total production of 188,325 tons in 2021 and 193,875 tons in 2022 with a volume growth of 2.95 percent.

Shrimp is the main commodity of the fisheries sector which contributes significantly in terms of foreign exchange earnings from freshwater, marine and brackish water fisheries sectors. Shrimp is also one of the seafood products known in the world and is one of the fishery commodities that have high economic value in international trade. The export value of shrimp fishery products in Indonesia in 2021 was 526,788 million USD and increased to 621,924 million USD in 2022 with an increase in growth of 18.06 percent (Ministry of Marine Affairs and Fisheries, 2022). The performance of shrimp export value in the first quarter of 2022 can be seen in Figure 1.

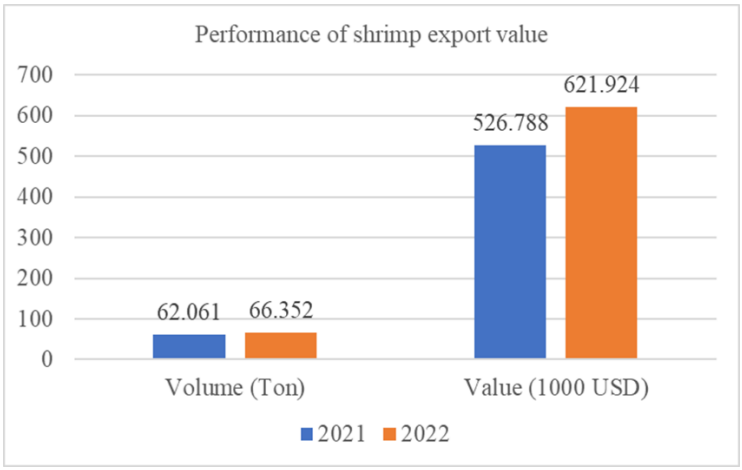


Figure 1. Performance of shrimp export value in the first quarter of 2022
Source: Ministry of Marine Affairs and Fisheries (2022)

Lampung Province is one of the production centers of shrimp aquaculture with the fourth largest production in Indonesia. Shrimp production by the ten largest shrimp producing provinces in Indonesia can be seen in Table 1.

Table 1. Shrimp production by the ten largest shrimp producing provinces in Indonesia

| No | Province | Production (ton) | Share of Production(%) |
|---|---|---|---|
| 1 | Jawa Barat | 178.199,85 | 23 |
| 2 | Nusa Tenggara Barat | 177.514,07 | 22 |
| 3 | Jawa Timur | 118.956,06 | 15 |
| **4** | **Lampung** | **64.625,22** | **8** |
| 5 | Aceh | 60.303,75 | 8 |
| 6 | Sulawesi Selatan | 54.887,12 | 7 |
| 7 | Sulawesi Tenggara | 46.472,94 | 6 |
| 8 | Jawa Tengah | 33.227,08 | 4 |
| 9 | Sulawesi Tengah | 28.101,02 | 4 |
| 10 | Kalimantan Timur | 26.711,12 | 3 |
| | Total | 788.998,23 | 100 |

Source: Ministry of Marine Affairs and Fisheries (2022)

According to the Ministry of Marine Affairs and Fisheries data statistics, shrimp production in Lampung Province in 2021 reached 64,625.22 tons with a production share of 8 percent. This shows that Lampung Province has several fishing industries that contribute a large amount of shrimp production in Indonesia. These industrial companies include PT Central Pertiwi Bahari, PT

Central Protein Prima, PT Bumi Menara Internusa Tbk, PT Phillips Seafoods Indonesia, and PT Indokom Samudra Persada.

PT Indokom Samudra Persada is an industrial company engaged in fisheries with shrimp as the main raw material. The raw materials used are vannamei and tiger shrimp obtained from company-owned ponds and from shrimp farmers in Lampung Province. The products produced by PT Indokom Samudra Persada are raw frozen shrimp and cooked frozen shrimp. The products made are mostly to fulfill export needs. The high demand for frozen shrimp requires PT Indokom Samudera Persada to produce every day. The successful management of such demand will depend on how the system and associated institutions work in harmony to form an efficient distribution flow that fulfills consumer satisfaction.

The supply chain is a sequence of activities that carry out the distribution of supplies of goods or services from the place of origin to the place of buyers or customers and to the final consumer with better and more favorable conditions (Assauri, 2017). The supply chain involves the relationship between goods, money, and information to meet consumer needs (Apriani, Erliana, dan Zakaria, 2019). The success of the supply chain can be achieved when the activities from the supply of raw materials to the product to the final consumer are well managed. This is known as supply chain management (Syahputra, Susanti, dan Hakim, 2018).

Supply chain management is a sequence of approaches used to efficiently integrate suppliers, manufacturers, warehouses, and other inventory places so that a product can be produced and distributed to consumers in the right amount, place, and time to minimize costs incurred and meet customer satisfaction (Indrajit dan Djokopranoto, 2022).

Companies in their operation have important aspects, namely performance management and sustainable improvement. Supply chain management also

requires measurement of supply chain performance information. This must be done because in supply chain management it not only involves internal parties of the company, but also involves external parties such as suppliers and shrimp farmers who are also involved and demanded to have a good performance in order to run well, by choosing the right supplier, the company will avoid vacancies or damage to goods(Indrajit dan Djokopranoto, 2022).

This research was conducted at PT Indokom Samudra Persada with the consideration that this company has considerable potential in agroindustry-based processing businesses, especially frozen shrimp products. PT Indokom Samudra Persada obtains about 70 percent of the shrimp raw materials from shrimp farmers and suppliers and the rest comes from company-owned ponds, therefore PT Indokom Samudra Persada has quite a number of farmers and suppliers who contribute to raw materials. The farmers and suppliers cannot always meet the quality standards set by the company. This can be overcome by accuracy in the selection and management of raw materials to become product results, timeliness in the production process, and timeliness in the distribution process to consumers through supply chain management.

The supply chain plays an important role in the production of PT Indokom Samudra Persada related to the relationship between shrimp farmers, suppliers and companies to jointly create a product that has value and quality to compete in the market. Farmers and suppliers can make or break the company through the procurement of shrimp raw materials. Shrimp that have low quality can make the company's operations stop and suffer losses. Determining the supply chain in an industry is necessary so that the industry has good control over its supply chain which has an influence on company performance(Frohlich dan Westbrook, 2001).

The continuity of raw material supply is needed so that the company can operate throughout the year. Raw material availability is one of the important indicators used in measuring supply chain performance. The availability of

sufficient raw materials at the right time can affect supply chain performance. Supply chain performance measurement will provide a great opportunity to fix what needs to be fixed and develop what needs to be developed in supply chain management in all industries (Bolstorff dan Rosenbaum, 2003). Measuring and evaluating the supply chain management performance of PT Indokom Samudra Persada needs to be done so that the system in the supply chain that connects the company with suppliers is able to work more optimally and achieve the effectiveness of supply chain management. The effectiveness of supply chain management will help PT Indokom Samudra Persada in achieving industry-wide goals, namely to excel in global competition with good quality products.

## B. Formulation of the Problem

The dynamic and rapid development of the industry encourages many companies to maximize their potential to excel in the increasing market competition, as well as for PT Indokom Samudra Persada as an agroindustry that also has the opportunity to participate in wider market competition. PT Indokom Samudra Persada in this competition is how the company is able to be in a broad market by creating good quality and high selling value products. The quality of raw materials will certainly help determine the quality of the product. PT Indokom Samudra Persada in creating products requires a supply of raw materials with quality standards set by the company.

Shrimp raw materials obtained by PT Indokom Samudra Persada are 70 percent from farmers and suppliers. Suppliers and farmers in supplying shrimp raw materials to PT Indokom Samudra Persada are required to meet shrimp quality standards such as quality and grading set by the company. PT Indokom Samudra Persada classifies shrimp raw materials into four quality classes, namely First Quality (FQ), Second Quality (SQ), below standard and aval or broken. The company will buy shrimp of a certain size from farmers and suppliers and then select the quality of shrimp received. However, the quality standards that have been set cannot always be met by farmers and suppliers.

The number of farmers and suppliers involved also affects PT Indokom Samudra in managing effective supply chain management. Based on the description that has been explained, the problem formulation of this research are:

1. How is the condition of the shrimp supply chain at PT Indokom Samudra Persada?
2. How is the performance of the shrimp supply chain at PT Indokom Samudra Persada?

## C. Objective of the Research

Based on the formulation of the problem, the objective of the study are:

1. To analyze the shrimp supply chain condition at PT Indokom Samudra Persada.
2. To measure the performance of shrimp supply chain at PT Indokom Samudra Persada.

## D. Significance of the Research

The benefits of research for various parties are:

1. For PT Indokom Samudra Persada

   The results of this research are expected to be useful for companies as an evaluation of company policies that have been implemented so far and are able to provide information to create improved supply chain management that leads to better company conditions.

2. For shrimp farmers and suppliers

   The results of this research are expected to be information or reference material for shrimp farmers and suppliers to evaluate their supply chain performance.

3. For other researchers

   The results of this research are expected to be library material and references as well as comparisons for researchers in the future.

# II. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

## A. Literature Review

### 1. Shrimp

#### a. Vannamei Shrimp

Vannamei Shrimp (*Litopenaeus vannamei*) is a shrimp native to Latin American waters. This shrimp is cultivated from the west coast of Mexico southward to Peru. The body part of vannamei shrimp consists of a head that is connected to the chest (*cephalothorax*) and stomach (*abdomen*). The head of vannamei shrimp consists of antennae, 7 antennae, mandibles and a pair of maxillae. The head of vannamei shrimp is also equipped with 5 pairs of walking legs (periopods) consisting of 2 pairs of maxillae and 3 pairs of maxilipeds. The abdomen consists of 6 segments and there are 5 pairs of swimming legs (*pleopod*) as well as a pair of uropods (tail-like) forming a fan together with the telson (DZ. Chusnul, J. Januar, 2010).

#### b. Tiger Shrimp

Tiger Shrimp (*Penaeus monodon*) is a shrimp native to Indonesian waters that is still cultivated. The tiger shrimp's body consists of two parts: head and thorax. (*cephalothorax*) and stomach (*abdomen*). The cephalothorax consists of 13 segments, namely 5 head segments and 8 thoracic segments. The head consists of antennae, antenulle, mandible and two pairs of maxillae. The head is equipped with 3 pairs of maxillipeds and 5 pairs of walking legs *(periopods*). The abdomen or abdomen consists of

6 segments arranged like precarious. The abdomen contains 5 pairs of swimming legs (pleopods) and a pair of uropods (tail-like) that form a fan together with a telson that functions as a steering tool. The tiger shrimp body is formed by two branches (biramous), namely exopodite and endopodite. The tiger shrimp has a body with books and the activity of changing the outer skin or exoskleton perodically which is commonly referred to as moulting (Mujiman dan Suyanto, 2003).

## 2. Shrimp Agroindustry

Agroindustry is an activity that utilizes agricultural products as raw materials, designs and provides equipment and services for these activities. (Soekartawi, 2001). Viewed from the agribusiness system, agroindustry is a part (subsystem) of agribusiness that processes and transforms agricultural products (foodstuffs, wood and fiber) into semi-finished goods that can be consumed directly and industrial goods or materials used in the production process such as tractors, fertilizers, pesticides, agricultural machinery and others.

Agroindustry consists of three main activities, including raw material procurement, processing, and marketing. According to Saragih (2004), Agro-industry is an activity that is interconnected with the production of processing, transportation, storage, funding, marketing, and distribution of agricultural products. Agroindustry is an activity or business of processing raw materials derived from plants or animals through a transformation process using physical and chemical treatment, storage, packaging, and distribution.

Agroindustry is an integrated processing between the agricultural sector and the industrial sector so that added value will be obtained from agricultural products. Agroindustry is an effort to increase the efficiency of agricultural factors to become highly productive activities through the process of agricultural modernization. Through modernization in the agro-industrial

sector on a national scale, income and value added can be increased so that export profits will be even greater. (Saragih, 2004).

Shrimp agroindustry is an industry that processes shrimp as its main raw material into various processed products (*derived product*). In general, the shrimp agro-industry uses shrimp meat as raw material for its products but shrimp shells and heads can also be used in the industry. The shrimp industry tree can be seen in Figure 2.

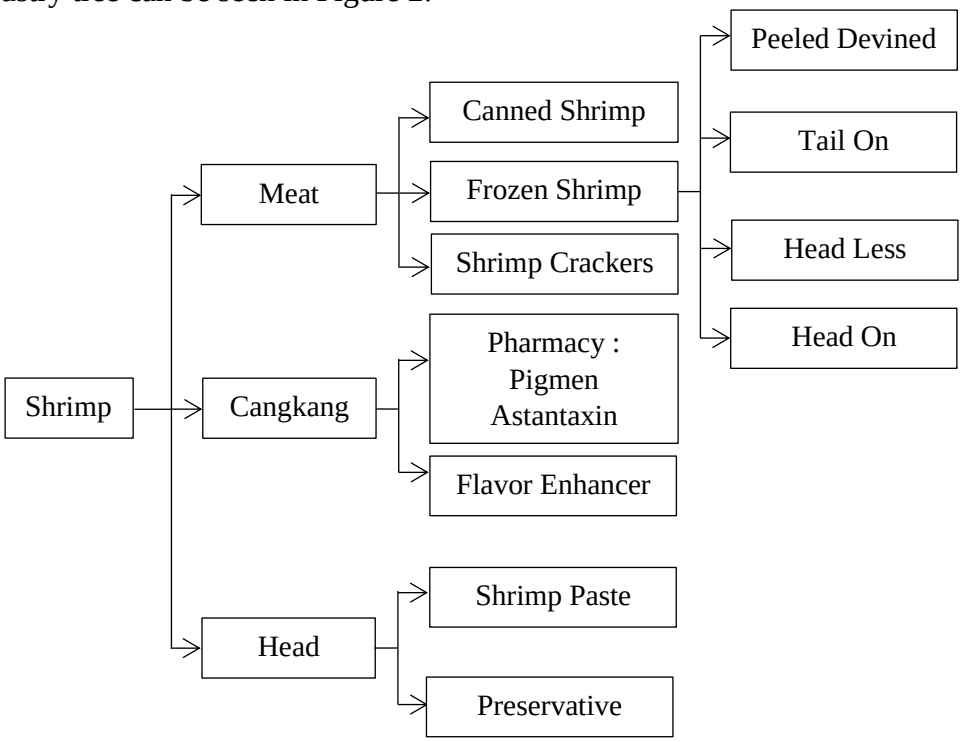


Figure 2. Tree of shrimp industry
Source: Sismaraini, 2015

**3. Supply Chain**

Supply chain is a network of companies that work together to create and deliver a product to the end user. These companies typically include suppliers, manufacturers, distributors, stores or retailers, as well as supporting companies such as logistics service companies (Pujawan dan ER, 2010). The goal of the supply chain is to ensure that products are at the right place and time to meet consumer demand without creating excessive

stocks or shortages and to maximize the overall value generated. An integrated supply chain will increase the overall value generated by the supply chain.

The supply chain according to Pujawan & ER (2010) has three kinds of flows that must be managed, namely:

a. Flow of goods from upstream to downstream.
   An example is raw materials that are shipped from suppliers to factories. Once the products are manufactured, they are shipped to distributors, then to retailers, then to end users.
b. Flow of money and the like that flows from downstream to upstream.
c. Information flow that can occur from upstream to downstream or vice versa. Information about product inventory still available in each supermarket is often needed by distributors and factories. Information on the availability of production capacity owned by suppliers is also often needed by factories.

According to Chopra & Meindl (2004), supply chains involve variations of the following stages:

a. Chain 1: Supplier
   The first chain is the source as the initial material provider where the chain of goods distribution begins. This first material can be in the form of raw materials, raw materials, auxiliary materials, merchandise, mergers and so on..
b. Chain 2: Manufacture
   The first chain is connected to the second chain, which is manufacturing that has the task of doing factory work, assembling and completing goods to become finished products..
c. Chain 3: Distributor
   Goods that have been manufactured will be distributed to warehouses or distributed to warehouses owned by distributors or wholesalers in large

quantities and in time the wholesalers will distribute in smaller quantities to retailers.

d. Chain 4: Retailer

Retailers function as a supply chain that exists between distributors who are generally large traders to small traders (retailers). Retailers are in the form of outlets such as shops, stalls, department stores, cooperatives, club stores, and so on.

e. Chain 5: Customer

After the distributor, the goods are offered directly to the customer as the user of the goods. When the customer or consumer uses the product, it can be said that this is the end of the supply chain.

**4. Supply Chain Management**

Supply chain management is a series of approaches applied to integrate cooperation and control in all production processes and all activities in a supply chain ranging from supplying raw materials, processing into finished products, to reaching the final consumer. Supply chain management is more emphasized on the flow of materials and information and on efforts to integrate a collection of supply chains (Vorst 2006). The functions of supply chain management are: planning, organizing, coordinating and controlling all supply chain activities (Indrajit dan Djokopranoto, 2022).

Supply chain management involves managing the flow of products, information, and the flow of money to maximize the total profitability of the supply chain itself, thus the goal of the supply chain should be to maximize the overall value obtained, not just the individual stages involved in it (Chopra dan Meindl, 2004). Supply chain management integrates the activities of procuring materials and services, converting them into semi-finished goods and final products, and delivering them to customers, which includes purchasing and outsourcing activities as well as relationships between suppliers and distributors (Tunggal, 2009).

## 5. Supply Chain Performance

According to Hertz (2009), the term performance refers to the output results and something that results from the process of a product that can be expressed in financial and non-financial terms, performance can be evaluated and compared relatively with goals, standards, past results and other organizations. Performance measurement is comparing the actual results obtained with those planned in other words, the targets that have been targeted must be examined to what extent the achievements have been carried out to achieve the objectives (Ruky, 2001).

Supply chain management performance measurement is used to determine what will be measured and monitored and create a match between supply chain strategy and measurement metrics. Each measurement period is conducted to determine how important one measure is relative to another, who is responsible for a particular measure is an asset and of the questions that must be answered when developing a supply chain performance measurement system (Pujawan dan ER, 2010).

Performance evaluation in business will affect the habits and progress of supply chain performance, supply chain performance measurement and evaluation system is divided into two categories: effectiveness and efficiency. Effectiveness refers to the achievement of goals through the management of a series of activities that have been carried out, while efficiency refers to the relationship between the expected sacrifices for achieving goals and the actual sacrifices made (Monczka et al., 2009).

The measurement of supply chain performance at PT Indokom Samudra Persada is carried out using the model Supply-Chain Operations Reference (SCOR) 12.0. SCOR is a model developed by Supply Chain Council (SCC) which is a free and non-profit supply chain council in the United States. Performance measurement with the SCOR model is done with performance

attributes. Performance attributes are supply chain criteria that make it possible to analyze and evaluate supply chains against other supply chains with competitive strategies (Monczka et al., 2009).

Based on SCOR 12.0, The performance attributes used to measure supply chain performance at PT Indokom Samudra Persada include reliability, responsiveness, flexibility, and assets. Each of these attributes has metrics to measure supply chain performance in more detail. After obtaining the actual data from the calculation of the supply chain performance attributes at PT Indokom Samudra Persada, benchmarking is needed.

Benchmarks are used to determine target performance and provide an overview of the magnitude of the gap between the performance of PT Indokom Samudra Persada and the performance of the organization or company that is the reference in the benchmark data. The benchmark data used is data collected by iCognitive. iCognitive is an international consulting company in the field of supply chain management optimization.

**6. Food Supply Chain Network (FSCN)**

Chopra & Meindl (2004) stated that the supply chain generally consists of all parties that are directly or indirectly involved in fulfilling the needs of consumers. The supply chain not only includes manufacturers and suppliers, but also includes transportation companies, warehouses, retailers, and consumers themselves. Supply chain management in agribusiness and agro-industry is defined as a cooperative relationship between producers in the field, processors and wholesale or retail traders to provide assurance and to minimize production costs.

The supply chain model of agricultural commodities and products can be discussed descriptively using the perishable agricultural product supply chain development method launched by the Asian Productivity Organization (APO) (Marimin, Maghfiroh, dan Nurul, 2010). The description of the

current supply chain condition uses the Food Supply Chain Network (FSCN) framework where there are five elements that can be used to explain, analyze or develop the specifications of the supply chain, including chain structure, chain management, chain business processes, chain resources and supply chain goals. The five elements used to describe, analyze and develop the specifics of the supply chain are shown in Figure 3.

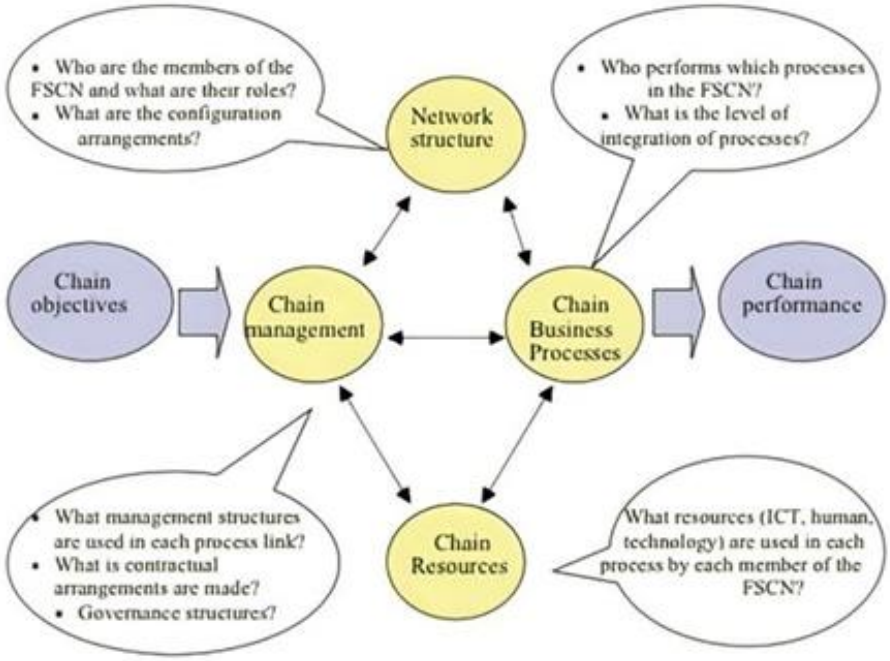


Figure 3.Framework of Food Supply Chain Network (FSCN)
Source: Vorst, 2006

In the FSCN framework, there are one-way and two-way dashes that contact each element. One-way dashes indicate that one element affects another. A two-way dash indicates that there is a mutual influence relationship between the two. The stages of analysis using the framework start from analyzing the goals, structure, management, resources, and business processes of the supply chain (Sari, 2015). The description of each FSCN element is as follows.

a. Chain Structure

The chain structure describes the members or parties involved in the supply chain and their respective roles. The flow of commodities from upstream to downstream and their distribution to various locations is explained and linked to the existence of supply chain members and the forms of cooperation that occur between the various parties.

b. Chain Target

1. Market Target

The market target explains how the supply chain model works for the product being marketed and the market objectives are clearly described, such as who the customers are, what they want and need from the product.

2. Development Target

The development target describes the target or object in the supply chain that is to be developed by several parties involved in it.

c. Chain Management

1. Partner Selection

Partner selection explains how the partnership process is formed. What criteria are used to select cooperation partners and how it is practiced in the field.

2. Contractual Agreement and Transaction System

This explains the form of contractual agreement agreed upon in establishing a cooperative relationship accompanied by a system of transactions carried out between the various cooperating parties.

3. Government Support

Government support describes the government's role as a policymaker in regulating and supporting processes along the supply chain.

d. Chain Resources

Reviewing the potential resources owned by supply chain members is essential to determine the potential that can support supply chain development efforts. The resource aspects discussed include physical resources, technology, human resources and capital.

e. Chain Business Processes

The chain business process describes the processes that occur in the supply chain to determine whether the entire supply chain flow is integrated and running well or not and explains how through certain strategic actions it is possible to realize an established and integrated supply chain. The chain business process is reviewed based on aspects of business process relationships between members, supply chains, distribution patterns, risk aspects and trust building.

**7. Supply Chain Operations Reference (SCOR)**

Supply Chain Operations Reference (SCOR) is a model developed by the Supply Chain Council (SCC) which is a free and non-profit supply chain council in the United States. The Supply Chain Operations Reference (SCOR) Model is used to measure and improve the total performance of a company's supply chain. The model includes assessment of delivery and demand fulfillment performance, inventory and asset management, production flexibility, assurance, process costs, and other factors that affect the overall performance assessment of a supply chain (Supply Chain Council, 2017).

As a reference model, the SCOR Model is basically based on three main pillars, namely:

a. Process Modelling

Reference to identify the model of a supply chain process for easier translation and analysis.

b. Performance Measurement

Reference to measure the performance of an enterprise's supply chain as a measurement standard.

c. Application of best practices

References to determine the best practices required by the company.

Supply Chain Operations Reference (SCOR) assumes but does not explicitly address the non-SCM areas of training, quality, information technology and administration (Chopra dan Meindl, 2004). Supply Chain Operations Reference (SCOR) is a management tool that covers the entire supply chain from suppliers to consumers. The scope of the SCOR Model is presented in Figure 4.


Figure 4. Scope of SCOR Model
Source: Supply Chain Council, 2017

Supply Chain Operations Reference (SCOR) The model divides the supply chain management process into five core processes, namely planning (plan), sourcing (source), production (make), distribution (deliver), and return. Supply Chain Council (2017) explained the different functions for each process, namely :

a. Planning process

The planning process is one that balances demand and supply to determine the best course of action to meet procurement, production and delivery needs.

b. Procurement process

The process of procuring goods and services to fulfill demand that includes scheduling deliveries from suppliers, receiving, checking, and authorizing payment for goods delivered by suppliers, selecting suppliers, and evaluating supplier performance.

c. Production process

The production process is the process of transforming raw materials into products that customers want. This process includes scheduling

production, performing production activities and performing quality checks, managing semi-finished goods, maintaining production facilities.

d. Delivery process

This process handles orders from customers, selects shipping services, handles finished product warehousing activities, and sends bills to customers.

e. Reverse flow process

The reverse flow process is the process of returning or accepting the return of products for some reason. This process includes identifying the condition of the product, receiving authorization, returning defective products, scheduling the return and making the return.

According to Supply Chain Council (2017), The stages of supply chain performance are modeled in 4 levels, namely:

a. Level-1

Level-1 defines the scope and content of the SCOR Model. In addition, this stage also sets the company's performance targets to compete.

b. Level-2

Level-2 is the configuration level and is closely related to process categorization. At Level-2, categories are defined for each process at Level-1. At this level, processes are organized in line with the supply chain strategy.

c. Level-3

Level-3 This is the stage of decomposing the processes in the supply chain into elements that define the company's ability to compete. This stage consists of the definition of process elements, inputs and outputs of information about the process elements, metrics of process performance, best practices and system capabilities required to support best practices.

d. Level-4

Level-4 is a level that describes in detail the tasks within each activity required at Level-3 to implement and manage daily-based supply chains

and define behaviors to achieve competitive advantage and adapt to changing business conditions.

Performance attributes are supply chain criteria that make it possible to analyze and evaluate a supply chain against other supply chains with competitive strategies. Based on SCOR 12.0, Supply chain performance attributes include reliability, responsiveness, flexibility, and asset management. In these performance attributes there are one or more metrics at Level-1. Metrics are measures that can be implemented by organizations to measure success in obtaining the desired positioning in market competition. Supply chain performance attributes with SCOR Model Level-1 metrics can be seen in Table 2.

Table 2. Supply chain performance attributes with SCOR metric model Level-1

| **Atribut** | **Definition** | **Metric Level-1** |
|---|---|---|
| Reliability | The ability to perform a task as expected. Reliability focuses on the predictability of the outcome of a process. Common metrics for reliability attributes include on time, on quantity, on quality. | Perfect Order Fulfillment (POF) |
| Responsiveness | The speed at which the supply chain provides products to customers. Examples include cycle-time metrics. | Order Fulfillment Cycle Time (OFCT) |
| Flexibility | The average time taken to respond when there is a change in order either adding or reducing the quantity without any penalty fee. | Flexibility |
| Management Assets | Ability to utilize assets efficiently. Asset management strategies in the supply chain include inventory reduction and in sourcing vs outsourcing. | Cash-to-Cash Cycle Time (CTCCT) |

Sumber: Supply Chain Council, 2017

## B. Previous Research Review

Research on supply chain management has been carried out by many previous researchers. Researchers must know similar research that has been done before as reference material to support the research to be carried out. The review of

previous research shows the differences and similarities with this research. The equation of this research with previous research lies in the topic and method of analysis, while the difference lies in the commodity studied and the research location.

Research on Rice Supply Chain Performance in Karawang Regency conducted by Nurmahdy et al. (2020) using the analysis method of Food Supply Chain Network (FSCN) and Supply Chain Operation Network (SCOR). The results show that the members of the rice supply chain start from farmers, intermediary traders, and rice mills. The value of performance metrics on farmers that are still not in line with expectations include the metrics of orders delivered intact, perfect conditions, production costs, range of payment of debts and receivables. The value of performance at the intermediary traders who still do not meet expectations includes the right amount of metrics, order fulfillment cycle time, procurement flexibility, delivery flexibility and shipping costs.

Zahrah et al. (2022) also uses the analysis method of Food Supply Chain Network (FSCN) and Supply Chain Operation Network (SCOR) in his research entitled Measuring the Performance of the Vegetable Supply Chain System to Meet Hotel Demand in Bali. The results showed that the level of achievement of the performance of the vegetable supply chain system studied, namely Perfect Order Fulfillment (POF), Standard Fulfillment (SF), Flexibility, Order Fulfillment Cycle Time (OFCT), Lead Time (LT) vegetables fall into the superior category. Cash to Cash Cycle Time (CTCCT) obtained a value of 13.80 days. The level of achievement of the performance of the vegetable supply chain system studied is classified as having superior performance or is included in the excellent category.

Then the research conducted by Mawangi & Supriono (2021) is about the Measurement of Canned Sardines Supply Chain Performance of PT Sumber Yalasamudra. The data analysis method used is descriptive method to analyze

the flow and SCOR method for performance measurement. The results obtained are PT Sumber Yalasamudra has 3 main supply chain flows, namely, the flow of canned sardines products starts from fishermen - PT Sumber Yalasamudra - Retail - End consumers, Financial flow flows from downstream to upstream and is paid in cash with a certain period of time, and Information flow flows in two directions, namely from upstream to downstream and vice versa. PT Sumber Yalasamudra's supply chain performance on external performance consisting of reliability, flexibility, and responsiveness is on superior criteria while internal performance consisting of costs and assets is on superior criteria.

Muhammad Yuslidar (2014) also used the SCOR method in his research entitled Evaluation of Supply Chain Performance Management with the SCOR Model Approach at Asiamart Lhokseumawe Supermarket. The results obtained are the performance of the supply chain with a focus on Asiamart's business objectives is considered less efficient. The value of the four metrics representing business objectives is below parity or media among companies in the industry globally. Opportunities in the gap analysis can increase revenue if POF and COGS are able to reach the set target of the company's total revenue.

Lalu Saptiadi & Koesdiningsih (2022) The research on Supply Chain Performance Analysis at PT Bimandiri Agro Sedaya also uses the SCOR model as its analysis method. The result of this research is that the supply chain activities carried out at PT Bimandiri Agro Sedaya are still considered not optimal. Based on the benchmark results, the POF and COGS values cannot be said to have reached the target. The opportunity and requirement gap analysis shows that PT Bimandiri Agro Sedaya incurs a lot of costs due to inefficiency and ineffectiveness in its operational activities.

Furthermore, the research on Supply Chain Performance Evaluation using the SCOR Analysis Method conducted by Febryansyah & Baldah (2022), The analysis method used is SCOR. The results of this study are two attributes

have not reached the target, namely reliability and agility. Based on the benchmarking results, the company is between the advantage and superior categories at the responsibility attribute, meaning that the company is able to compete in business competition.

Then Setiadi et al. (2018) conducted research on Tilapia Supply Chain Performance Analysis at Sriandoyo Bandar in Tugumulyo District, Musi Rawas Regency. The analysis method used is SCOR for performance measurement and DEA (Data Envelopment Analysis) for efficiency analysis. The results of this study are some performance attributes have reached the superior status target, for the performance attributes of order fulfillment lead time, order fulfillment cycle, cost, cash to cash cycle time, and order fulfillment. Meanwhile, the performance attributes of delivery and conformance to standards reached the target of advantage status. The results of measuring the efficiency of supply chain performance show that partner farmers have achieved technical efficiency.

Fauziah & Vaulina (2020) also conducted research on the Performance of the Frozen Patin Fish Fillet Supply Chain in Koto Mesjid Village, Xiii Koto Kampar District, Kampar Regency (Case Study at CV. Graha Pratama Fish). The data analysis methods used are hayami value added, SCOR Model and DEA. The results obtained are frozen catfish fillets provide added value. The performance of the CV frozen catfish fillet supply chain. Graha Pratama Fish seen from the SCOR patin fish supply chain on external performance as a whole has not reached 100%.

Then in the research of Shrimp Supply Analysis in Sidoarjo Regency (Case Study of UD Ali Ridho Group) conducted by Untsayain et al. (2017), The analysis method used is the value added of hayami and the concept of marketing efficiency. The results obtained are the handling of Tiger Shrimp and Vannamei shrimp supplies in the April 2017 period is able to provide positive added value and the level of marketing efficiency of tiger shrimp and

Vannamei shrimp supplies in the April 2017 period obtained marketing efficiency value to retail consumers is more efficient than the marketing efficiency value to exporters..

In the research on Supply Chain Analysis and Transportation Costs of Vaname Shrimp at Processing Units in North Jakarta conducted by Kristikareni et al. (2021), The analysis method used is descriptive analysis with the results obtained, namely there are three business actors who provide raw materials for vaname shrimp to UPI in North Jakarta, namely hatchery units, farmers, and collectors/suppliers. In its distribution, the percentage of transportation costs to the selling price of vaname shrimp seeds is the highest, namely delivery from Tanggamus to Indramayu or Cirebon. The highest percentage of transportation costs to the selling price of vaname shrimp is shipping from Pesawaran to North Jakarta.

Then the research conducted by Yusuf et al. (2020) is about the Vaname Shrimp Supply Chain and Logistics System in Pinrang Regency, South Sulawesi Province. The data analysis method used was descriptive analysis and shift share. The results obtained in this study are the supply chain system of vanname shrimp commodities in Pinrang Regency has three types of supply chains. The three supply chains have an efficient farmer share value. In the commodity logistics system, the distribution cost of vaname shrimp is still high due to the limited availability of supplies and not optimal logistics infrastructure such as infrastructure, transportation equipment which causes high distribution costs of shrimp in Pinrang Regency.

Yusuf et al. (2021) also conducted a research on Supply Chain Performance and Logistics Management of Shrimp Commodities in Indramayu Regency, West Java. The data analysis method is descriptive and supply chain performance is calculated using indicators of supply chain effectiveness as seen from the availability criteria and supply chain efficiency as seen from the disparity indicator. The results obtained are the performance of shrimp

commodity supply chains in Indramayu Regency, West Java can be seen with 2 (two) indicators, namely effectiveness and efficiency. Effectiveness indicators show that the performance of the shrimp supply chain in West Java Province has improved. Efficiency indicators are seen from price disparities over time and price margins. The largest price disparity occurs in shrimp size S100 and the smallest price disparity occurs in shrimp size S70.

## C. Conceptual Framework

Shrimp commodity is one of the seafood that is widely traded in the community both domestically and abroad. Its considerable development potential needs to be supported by strong competitiveness in the supply chain implementation mechanism. The shrimp supply chain needs to pay attention to several aspects that can affect the smooth distribution process to the final consumer. The form of regulation in the shrimp supply chain also aims to benefit each link involved so that an approach to the supply chain system is needed in the form of an approach to determine the flow of products, financial flow, information flow, because it will affect decision making in each link in the chain. PT Indokom Samudra Persada is an industrial company engaged in fisheries with shrimp as the main raw material. The company gets 70% of its raw materials from suppliers. The number of suppliers involved in product processing encourages companies to pay more attention to effective supply chain management.

Efforts to improve competitiveness through a supply chain management approach are important to overcome the problems that occur in the field. Implementation of an inefficient supply chain can cause inventory continuity to be less stable. Supply can flow smoothly if there is good cooperation between suppliers and companies, therefore it is necessary to know the condition and performance of the supply chain in the company.

A description of the current state of the supply chain using a framework of Food Supply Chain Network (FSCN) modified by Vorst (2006) with five

elements including chain objectives, chain structure, chain management, chain business processes and chain resources. The five elements are used to explain, analyze and develop the specifics of the supply chain. Meanwhile, to see the performance of the supply chain can be measured using the method Supply Chain Operational Reference (SCOR) which consists of two work attributes, namely internal (as monitoring of internal capabilities) and external (dealing with customers).

Supply chain performance can be known by taking measurements and then comparing them with predetermined standards. Performance measurement will be carried out descriptively and quantitatively. Performance measurement descriptively describes the important parts that must be qualitatively analyzed in the supply chain to determine its state. Problem identification and improvement can be done by making decisions from literature studies. Qualitative performance measurement is carried out using the SCOR method. The SCOR method facilitates analysis based on factors that affect supply chain performance. Attributes in the SCOR method are quantitative by calculating Level-1 metrics. The conceptual framework of this research can be seen in Figure 5.

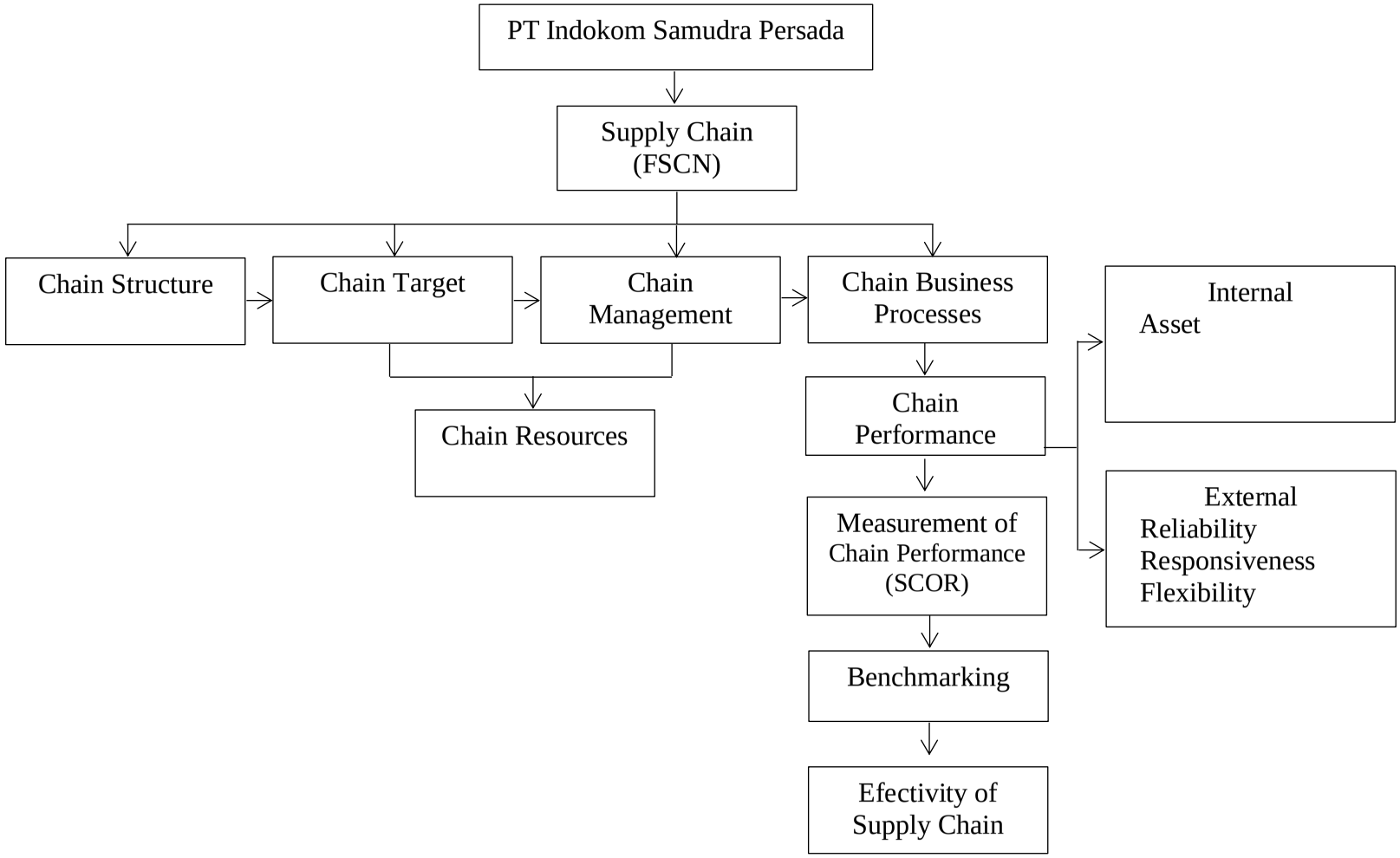


Figure 5. Conceptual framework of analysis of shrimp supply chain management at PT Indokom Samudra Persada Lampung Province of Indonesia

# III. RESEARCH METHODOLOGY

## A. Method, Location, Time of Data Collection

The method used in this research is a case study method with the research objectis PT Indokom Samudra Persada. The case study method is a comprehensive explanation relating to various aspects of a person, a group, an organization, a program, or a social situation that is researched, sought and examined as deeply as possible. (Yin, 2009).

This research will be conducted at PT Indokom Samudra Persada which is engaged in fisheries. PT Indokom Samudra Persada is a frozen shrimp processing industry company and is one of the largest frozen shrimp exporting companies in Lampung Province. The selection of the research location was carried out purposively with the consideration that Lampung Province is one of the production centers of shrimp aquaculture commodities with the fourth largest production in Indonesia and PT Indokom Samudra Persada is a company that produces large quantities of frozen shrimp in Lampung and is also a potential frozen shrimp provider in Lampung.

Data collection was conducted from December 2022 to January 2023.

## B. Basic Concepts and Operational Limitations

### 1. Basic Concepts

The basic concepts and operational definitions include the notions used to obtain data and conduct analysis in relation to the research objectives. The basic concepts and operational definitions in this study are

A supply chain is a network of companies that work together to create and deliver a product to the end user.

Supply chain management is a series of approaches applied to integrate cooperation and control in all processes and activities in a supply chain starting from the supply of raw materials, processing into finished products, to the final consumer.

The supply chain pattern is a pattern formed from business activities in the supply chain, starting from the procurement of raw materials, processing, distribution, until the product reaches the final consumer.

Supply chain performance refers to the output of PT Indokom Samudra Persada's supply chain process which can be expressed in financial and non-financial terms.

Models are abstractions of reality, representations of a number of real-world phenomena that is simplified.

Food Supply Chain Network (FSCN) is a supply chain model of commodities and agricultural products discussed descriptively using the supply chain development method and modified by Van der Vorst so that it has five important elements namely chain objectives, chain structure, chain management, chain resources, and chain business processes.

Supply Chain Operation Reference (SCOR) is a model developed by the Supply Chain Council (SCC) that is used to measure and improve the total performance of a company's supply chain.

Performance attributes are supply chain criteria that make it possible to analyze and evaluate the supply chain against other supply chains with competitive strategies.

A metric is a verifiable measure, realized in quantitative or qualitative form, and defined against a specific reference point..

Benchmarks are benchmark data determined by iCognitive as a benchmark for supply chain performance, where in the benchmark there are three classifications, namely parity, advantages and superior.

Parity is the lowest classification of target effectiveness of a supply chain performance.

Advantage is an intermediate classification of targets for the effectiveness of a supply chain performance.

Superior is the highest classification of target effectiveness of a supply chain performance.

**2. Operational Limitation**

Table 3. Operational limitations of supply chain management analysis

| No | Variable | Operational Limitation | Unit |
|---|---|---|---|
| 1 | Total Perfect Order | Perfect fulfillment of PT Indokom Samudra Persada's processed product requests includes accuracy in the type of product ordered, delivery time, delivery quantity, delivery location, and data documentation. | Kg |
| 2 | Total Order | The number of requests for processed products with specific prices, times and quantities that have been agreed upon. | Kg |
| 3 | Cycle Time Shipping | The amount of time it takes from the time a customer orders a product until the order is ready to be shipped. | Day |
| 4 | Daily Inventory | Time of availability of products that are able to meet the needs of consumers if there is no continuous supply of products. | Day |
| 5 | Supply Inventory Time | The number of products sold in one day versus the amount of inventory in the warehouse. | Day |
| 6 | Ordering Cycle | The time required from payment of raw materials to suppliers to payment or settlement of products by consumers. | Day |
| 7 | Cash to Cash Cycle Time | The company's financial turnaround time from payment of raw materials to suppliers, to payment or settlement of products by consumers.. | Day |

**C. Types and Data Collection Technique**

The data used in this study consisted of two types, namely primary data and secondary data. Primary data is obtained through observations and interviews. Observations were made by directly observing the handling of shrimp raw materials at PT Indokom Samudra Persada while interviews were conducted by asking questions to company employees related to the handling of shrimp raw materials, regular suppliers of PT Indokom Samudra Persada, and farmers. Secondary data is supporting data obtained from literature materials such as documents and reports and other literature related to the shrimp supply chain at PT Indokom Samudra Persada.

The population in this study amounted to 21 people consisting of 10 shrimp farmers, 10 suppliers, and 1 employee of PT Indokom Samudra Persada. Determination of respondents used in the shrimp supply chain management research of PT Indokom Samudra Persada is a purposive sampling technique with the number of respondents in the study were 10 respondents consisting of one employee of PT Indokom Samudra Persada Quality Assurance section with the consideration that this division handles the quality and quality of shrimp from the reception process until the product of the shrimp is stored, three regular suppliers of PT Indokom Samudra Persada located in Lampung Province, and six shrimp farmers who supply directly at PT Indokom Samudra Persada.

The data collection methods used in this research are:

1. Questionnaire

   Questionnaire is data collection by using a list of questions submitted to respondents to be answered by providing questionnaires related to Supply Chain Management Analysis at PT Indokom Samudra Persada.

2. Interview

   Interview is a data collection technique by asking directly to the company, distributors, retailers and consumers about the purchase price, selling price and marketing costs and also to employees/companies related to supply chain management activities at PT Indokom Samudra Persada, regular suppliers of PT Indokom Samudra Persada, and farmers. Interviews were intended to obtain extensive information related to the objectives of this study.

3. Observation

   Observation is a data collection technique by directly observing and studying activities related to supply chain management at PT Indokom Samudra Persada.

4. Literature Study

   The literature study used in this research is the use of data as a basic theory obtained and studied in shrimp supply chain management.

5. Documentation

   Documentation is a data collection technique by studying books and journals related to supply chain management at PT Indokom Samudra Persada.

## D. Data Analysis Method

The data analysis method used in this research is the method of descriptive' qualitative' and quantitative analysis methods. The following is the method data analysis method used for each research objective, namely:

### 1. Supply Chain Condition Analysis Method

The data analysis method used to analyze the condition of the supply chain is a qualitative descriptive method using the Food Supply Chain Network (FSCN) framework which is a supply chain framework developed by Vorst. This analysis is an analysis that is usually used to analyze a supply chain in agricultural products. In a supply chain, there is an integrated and well-coordinated supply chain system. The condition of the supply chain can be known by analyzing the supply chain elements consisting of chain structure, chain objectives, chain management, chain resources, and chain business processes as presented in Table 4.

Table 4. Supply chain condition framework based on Food Supply Chain Network (FSCN)

| No | Elements | Scope |
|---|---|---|
| 1 | Chain Structure | Chain members involved in the supply chain network and the role of each chain member that can drive business processes. |
| 2 | Chain Target | Chain goals are divided into market goals and development goals. Market goals explain how the supply chain model takes place for marketed products while development goals explain the targets to be achieved in the supply chain that are to be developed by several parties involved in it. |
| 3 | Chain Management | A form of coordination and management structure within a network that facilitates the decision-making process and process execution by members in the supply chain, utilizing the resources available in the supply chain with the aim of realizing supply chain performance objectives. Supply chain management includes partner selection, contractual agreements, transaction systems, government support and supply chain collaboration. |
| 4 | Chain Resources | Resources of each supply chain member to support supply chain development efforts. The resources in the supply chain studied include physical, human, technological and capital resources. |
| 5 | Chain Business Processes | Business activities that occur in the supply chain in order to find out the entire supply chain flow is coordinated with one another. Supply chain business processes include business processes, distribution patterns, risk aspects and the process of building trust. |

**2. Supply Chain Performance Measurement Method**

The SCOR Model is used to determine the performance of supply chain management implemented by PT Indokom Samudra Persada. Supply Chain Operation References (SCOR) is one of the models that can be used to measure supply chain performance. Supply chain management performance measurement has several predetermined attributes and metrics. Some of the

attributes in the SCOR Model that are of concern for supply chain management include reliability, responsiveness, flexibility, and supply chain asset management.

Each attribute has metrics to measure supply chain performance in more detail. PT Indokom Samudra Persada's supply chain performance is measured using SCOR metrics. After obtaining the actual data from the calculation results, benchmarking is needed. Based on the SCOR Model, how to calculate the supply chain indicators in Paul (2014) are:

**a. Reliability**

At the reliability attribute, the indicator used is Perfect Order Fulfillment (POF). This indicator explains the company's ability to fulfill consumer requests. Perfect demand fulfillment includes the accuracy of the type of product ordered, the accuracy of delivery time, the accuracy of the number of shipments, the accuracy of the delivery location, and the accuracy of shipping data documentation with the formula :

$$\text{POF} = \frac{\text{Total Order}}{\text{Fulfilled Orders}} \times 100\ \%$$

**b. Responsiveness**

At the attribute of responsiveness, the indicator used is Order Fulfillment Cycle-Time (OFCT). The indicator of the order fulfillment cycle time is the time it takes for a customer to order a product until the order is received with the formula:

$$\text{OFCT} = \frac{\text{Actual Total Cycle Time for All Orders Shipped}}{\text{Total Order Quantity Shipped}}$$

**c. Flexibility**

The flexibility attribute is the average time required to respond when there is a change in order either adding or subtracting quantities without

any penalty fee. Systematically flexibility can be written with the formula:

Flexibility = Cycle of Searching for Goods + Cycle of Packing Goods + Cycle of Delivering Goods

**d. Management Asset**

At the assets attribute, the indicator used is Cash to Cash Cycle Time (CTCCT). The cash to cash cycle indicator explains the company's financial turnover from payment of raw materials to suppliers, to payment or settlement of products by consumers with the formula:

CTCCT = Daily Inventory + Time it takes Buyer to Pay Company - Time it takes Company to Pay Farmers or Suppliers

Benchmark is used to compare the performance of PT Indokom Samudra Persada with the performance of the organization or company that is the reference in the benchmark data to determine the classification of PT Indokom Samudra Persada's supply chain performance. The benchmark data used is data collected by iCognitive. iCognitive is an international consulting company in the field of supply chain management optimization. Benchmark data can be seen in Table 5.

Table 5. Benchmark data

| SCOR Level 1 Metrics | Parity | Advantage | Superior |
|---|---|---|---|
| Perfect Order Fulfillment (%) | 80.00-84.00 | 85.00-89.00 | ≥ 90.00 |
| Order Fulfillment Cycle Time (Days) | 7.00-6.00 | 5.00 | ≤ 3.00 |
| Flexibility (Days) | 30.00-23.00 | 24.00-21.00 | ≤ 20.00 |
| Cash-to-Cash Cycle Time (Days) | 70.00-54.00 | 55.00-28.00 | ≤ 27.00 |

Source: iCognitive, 2019

The benchmark data consists of three classifications, namely superior, advantage and parity. Data in the superior category is obtained from the 90

percent of organizations with the best scores for each metric. Data in the parity category is obtained from the average company value at the median position, while data in the advantage category is the average value between the superior and parity categories.

# IV. GENERAL DESCRIPTION OF RESEARCH LOCATION

## A. General Description of South Lampung District

### 1. Geographical Location

South Lampung Regency has a port located in Penengahan District, namely the Bakauheni Crossing Port which is a transit point for residents from Java to Sumatra and vice versa. Bakauheni Port is the gateway to the southern part of Sumatra Island. The distance between the port of Bakauheni (South Lampung) and the port of Merak (Banten Province) is approximately 30 km with a crossing boat travel time of about 1.5 hours.

Administratively, the government of South Lampung Regency is divided into 17 sub-districts consisting of 284 villages and 3 sub-districts. The islands in South Lampung Regency include Krakatau Island, Sebesi Island, Sebuku Island, Rimau Island and Kandang Island (Central Bureau of Statistics, 2022).

### 2. Demographic Condition

Based on the South Lampung Central Bureau of Statistics (2022), the population in South Lampung Regency according to the projection results in 2021 amounted to 1,071,727 people. The male population is 548,197 people and the female population is 523,530 people. The population density in South Lampung Regency in 2021 reached 508 people/km$^2$. Population density in 17 sub-districts is quite diverse with the highest population

density located in Kecamatan Jati Agung with a density of 787 people/km² and the lowest in Kecamatan Rajabasa at 249 people/km². The total population of South Lampung Regency based on sub-districts in 2021 can be seen in Table 6.

Table 6. Total population of South Lampung Regency by sub-district in 2021

| No | Subdistrict | Population (%) |
|---|---|---|
| 1 | Natar | 18,02 |
| 2 | Jati Agung | 12,08 |
| 3 | Tanjung Bintang | 7,72 |
| 4 | Tanjung Sari | 2,99 |
| 5 | Katibung | 6,82 |
| 6 | Merbau Mataram | 5,31 |
| 7 | Way Sulan | 2,29 |
| 8 | Sidomulyo | 6,13 |
| 9 | Candipuro | 5,41 |
| 10 | Way Panji | 1,70 |
| 11 | Kalianda | 8,84 |
| 12 | Rajabasa | 2,33 |
| 13 | Palas | 5,72 |
| 14 | Sragi | 3,35 |
| 15 | Penengahan | 3,97 |
| 16 | Ketapang | 4,99 |
| 17 | Bakauheni | 2,30 |
| | South Lampung | 100 |

Source: South Lampung Central Bureau of Statistics, 2022

### 3. Climate Condition

South Lampung Regency is a tropical area in Lampung Province. South Lampung Regency has an average rainfall of 161.7 mm/month and an average number of rainy days of 15 days/month. The temperature ranges from 21.3ºC to 33ºC. The climate in South Lampung Regency is influenced by the low pressure and high pressure centers that alternate from the Asian Continent and the Australian Continent in July to January. South Lampung Regency does not experience the transition season or the transition from the dry season to the rainy season (South Lampung Central Bureau of Statistics, 2022).

## B. General Description of Tanjung Bintang Subdistrict

### 1. Geographical Location

Tanjung Bintang Sub-district is one of the sub-districts in South Lampung Regency. Tanjung Bintang sub-district is a plain area that is slightly hilly. Tanjung Bintang sub-district has an area of 11,863.45 ha, which consists of 1,524.5 ha of rain-fed rice fields, 4,826.25 ha of dry land, 1,441.45 ha of yards and 4,071.25 ha of moorland or gardens. The boundaries of Tanjung Bintang Sub-district are as follows.

a. The West is bordered Jati Agung Sub-district, South Lampung Regency.
b. The East is bordered by Waway Karya Sub-district, East Lampung Regency.
c. The South is bordered by Merbau Mataram Sub-district, South Lampung Regency.
d. The North is bordered by Tanjung Sari Sub-district, South Lampung Regency.

### 2. Demographic Condition

Based on the South Lampung Central Bureau of Statistics (2022), the population in Tanjung Bintang Sub-district is 77,410 people. The male population is 39,366 people and the female population is 38,044 people. The population density in Tanjung Bintang sub-district in 2021 reached 607 people/km$^2$. The population of Kecamatan Tanjung Bintang based on village can be seen in the Table 7.

Table 7. Total population of Tanjung Bintang subdistrict by village

| No | Village | Population |
|---|---|---|
| 1 | Kali Asin | 3.672 |
| 2 | Lematang | 3.089 |
| 3 | Sabah Balau | 5.787 |
| 4 | Sukanegara | 6.610 |
| 5 | Galih Lunik | 2.296 |
| 6 | Serdang | 9.849 |
| 7 | Sinar Ogan | 1.975 |
| 8 | Budi Lestari | 3.966 |
| 9 | Jati Baru | 10.741 |
| 10 | Jati Indah | 3.799 |
| 11 | Trimulyo | 2.948 |
| 12 | Sindang Sari | 5.598 |
| 13 | Purwodadi | 4.751 |
| 14 | Way Galih | 7.420 |
| 15 | Rejomulyo | 2.186 |
| 16 | Sri Katon | 2.723 |
| | Total | 77.410 |

Sources: South Lampung Central Bureau of Statistics, 2022

The majority of the people of Tanjung Bintang sub-district were originally local migrants or transmigrants from Java and quite numbers were also newcomers who later settled. In general, the people of Tanjung Bintang sub-district are a pluralistic society consisting of various ethnic groups and cultures, including Javanese, Sundanese, Lampungese, Semendo and several other tribes. The diversity of these ethnic groups brings diverse cultural patterns, however, it can still go hand in hand with one another and in the end these conditions also create diverse customs and patterns of community life, but still respect each other and are conducive. Religiously, the community of Kecamatan Tanjung Bintang also consists of five religions, namely Islam, Christianity, Catholicism, Hinduism and Buddhism. This diversity is still imbued with a high spirit of tolerance in carrying out daily religious life.

## C. General State of Agroindustry

### 1. Brief History of The Company

PT Indokom Samudra Persada is a company that focuses on freezing shrimp for export to various countries, such as the United States, Japan, and several countries in continental Europe. PT Indokom Samudra Persada is located at St. Ir. Sutami Km. 12 Kemang Village, Tanjung Bintang sub-district, South Lampung Regency. PT Indokom Samudra Persada was established on August 16, 2001 by Mr. H. Usman Saleh. The company stands on an area of 29,053 m2 with a building area of 14,215 m2 and has a registration number 252/HO/2000, trade license number 59/07-01/PM/IX/2000 and IUP number 503/0255/523/BTNL/2000.

Since 2002, the company has started the production of frozen shrimp with the destination country of Japan. Since its establishment, PT Indokom Samudra Persada has received raw materials in the form of vannamei and black tiger shrimp from its own ponds and shrimp farmers around Lampung Province. PT Indokom Samudra Persada also participates in reducing the number of unemployment in the surrounding area because the majority of PT Indokom Samudra Persada workers are residents around the company's neighborhood.

In 2002 PT Indokom Samudra Persada received a certificate of good manufacturing practices (GMP) with a basic eligibility score of "A" with Number 022/PPSKP/PB/1/1/02. This is prove that the company has implemented a good basic feasibility system. In addition to GMP, PT Indokom Samudra Persada has also implemented the concept of Hazard Analysis Critical Control Point (HACCP) which is realized by providing a certificate of HACCP implementation and has received a pre-requisite grade of "A" with Number 558/DPT.DS/IK.360.DS/II/02. This indicates that PT Indokom Samudra Persada has been able to develop and implement an excellent HACCP system.

## 2. Company Profile

Limited Liability Company (PT) Indokom Samudra Persada is located on St. Insiyur Sutami Km. 12.5 Sukanegara Village, Tanjung Bintang Sub-District, South Lampung Regency. Tanjung Bintang Sub-District is known as one of the industrial areas in Lampung Province, this can be seen by the presence of many large companies in this area. The distance between PT Indokom Samudra and the provincial capital is approximately 15 km. In addition to the company, PT Indokom Samudra Persada also has three shrimp ponds located in Ketapang, Ngaras, and Gebang. The three ponds cultivate vannamei shrimp (Litopenaeus vannamei) which is the main raw material in the frozen shrimp processing industry.

The vision and mission of PT Indokom Samudra Persada is that the company refers more to the era of global competition by producing value-added products. The motto of PT Indokom Samudra Persada is "Good Seafood for Good Life, Your Satisfication is Our Spirit" which means good seafood for good life, your satisfaction is our spirit. PT Indokom Samudra Persada prioritizes the quality and safety of the products it produces and places great importance on customer satisfaction.

PT Indokom Samudra Persada obtains 70 percent of its raw materials from farmers and suppliers and 30 percent from company-owned ponds. The types of shrimp used by PT Indokom Samudra Persada to fulfill the production process are L. vannamei shrimp and P. vonodon shrimp with a size range of 13-200. The final products produced by PT Indokom Samudra Persada are cooked frozen shrimp and raw frozen shrimp which consist of several types. The types of products produced include peeled deveined (PD), peeled cut deveined (PND), and peeled and deveined tail on (PDTO). The difference between the three products is the peeling method and the gut removal method. The final product produced by the company is ready for export. Currently, the frozen shrimp products are exported to several countries including the United States and Japan.

### 3. Organizational Structure of The Company

The organizational structure at PT Indokom Samudra Persada consists of leadership elements and leadership auxiliary elements. The leadership element consists of the board of directors and the plant manager. The plant manager directly supervises the finance and accounting manager, production manager, quality assurance manager, and marketing and purchasing manager, as well as the head of personnel and general. The duties of each element in the organization are as follows:

a. Plant Manager

The plant manager is responsible for leading the company's activities in accordance with predetermined objectives. Duties and responsibilities are to monitor production planning, procurement of raw materials to lead, control, coordinate and supervise the company in accordance with predetermined goals and maintain good relations with agencies, institutions, individuals outside the company for the smooth running and interests of the company. Plant managers have the authority to stop company activities if there are deviations in the implementation of daily activities while coordinating with the board of directors and representing the company in dealing with the government or related agencies.

b. Finance and Accounting Manager

The finance and accounting manager is in charge of organizing financial reports to the plant manager and is fully responsible for the company's finances.

c. Production Manager

The production manager is responsible to the plant manager for production performance from daily planning, work monitoring, evaluation of daily production realization, and reporting. The production manager has the authority to stop the production process if any irregularities are found in the course of the production process. The production manager is responsible for creating a production plan together with the planning production and inventory control (PPIC) department. In addition, they are responsible for the effectiveness of the production

process, to avoid errors in production results, and are responsible for distributing tasks to subordinates and competent production staff.

d. Quality Assurance and Quality Control Manager

Quality assurance and quality control manager has the responsibility to control the quality standards of raw materials or raw materials (shrimp and non-shrimp), control the production process from the receipt of raw materials to the final product and storage so that products are obtained in accordance with the standard specifications set by the buyer, develop products in accordance with the wishes of the factory, control the sanitation of the production process room, and control the sanitation and hygiene of employees.

e. Marketing and Purchasing Manager

Marketing and purchasing managers are in charge of meeting customer needs and making proposals, planning and promoting company products and obtaining sales contracts with buyers. In addition, marketing and purchasing managers are also responsible for controlling and supervising market-ready products.

f. Maintenance and Machinery Manager

This section manager has the responsibility of maintaining and repairing damaged equipment. This section is also in charge of the supervision and maintenance of the power plant machinery to activate all production facilities and infrastructure including production machinery.

g. Head of Personnel and General Affairs

The head of the personnel and general department reports directly to the personnel and general manager. This manager has duties and responsibilities in creating and maintaining harmonious industrial relations and supporting all operational activities of the company. The head of personnel directly supervises the HRD department. The HRD section is in charge of labor procurement, labor placement, conducting training for workers and conducting assessments of workers who will be promoted to a higher level.

h. The Head of PPIC and Logistic

The head of PPIC and logistics is responsible for providing and storing all needs related to operational needs. Once a month, he is responsible for conducting an internal audit of the raw material stock in the warehouse. In addition, the Head of PPIC. PPIC also has a role to assist the plant manager and production manager in planning and supervising the activities of the production department in carrying out the production process and the logistics department in carrying out the stock system. Logistics also acts as a temporary shelter for all types of products before distribution including the packaging process which includes equipment and work equipment, materials for packaging, and products including inner cartoon, master cartoon, polybag, and others. The company's organizational structure can be seen in Figure 6.

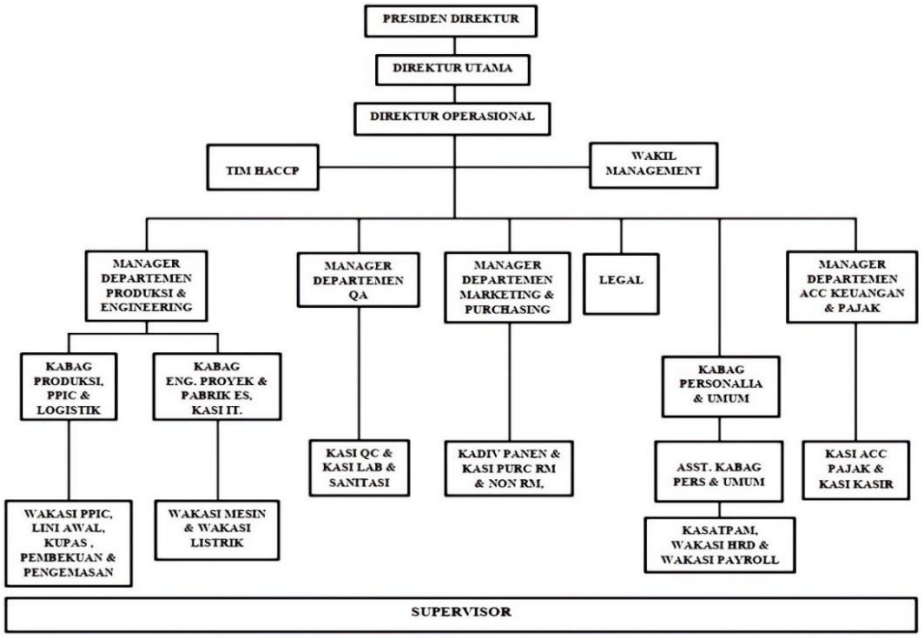


Figure 6. Organizational structure of PT Indokom Samudra Persada

**4. Employment**

PT Indokom Samudra Persada has 610 employees consisting of directors, permanent, contract, daily, piece-rate per kg, and hourly employees. Directors are employees who serve as president and director. Permanent

employees are employees who are appointed and can be dismissed by the board of directors, have a rank, class, and salary according to their position. Contract employees are employees who work under a contract that is renewed every six months. Daily workers are workers who are paid according to the number of days worked. Piece-rate workers are workers who work for the company based on the volume of work or units of work. Piece-rate employees are generally placed in the production department.

PT Indokom Samudra Persada applies the number of employee working hours for 40 hours a week. Employees work from Monday to Saturday with details of working hours Monday-Thursday from 08.00 - 16.00, on Friday from 08.00 - 16.30 and on Saturday from 08.00 - 14.00. The number of workers or employees at PT Indokom Samudra Persada can be seen in Table 8 below.

Table 8. Total employees of PT Indokom Samudra Persada

| No | Status | Amount (People) | Percentage (%) |
|---|---|---|---|
| 1 | Directors | 3 | 0,5 |
| 2 | Permanent | 106 | 17,3 |
| 3 | Contract | 159 | 26 |
| 4 | Daily | 7 | 1,2 |
| 5 | Piece-rate per kg | 324 | 53,2 |
| 6 | Hourly employees | 11 | 1,8 |
| | Total | 610 | 100 |

# VI. CONCLUSIONS AND SUGGESTIONS

## A. Conclusions

Based on the research that has been done, the conclusions that can be drawn are:

1. The condition of the shrimp supply chain at PT Indokom Samudra Persada includes a chain structure consisting of shrimp farmers, suppliers, PT Indokom Samudra Persada, and buyers with supply chain targets, namely local and international market targets and development targets in the form of improved coordination systems. The chain management consists of partner selection carried out by written contractual agreements, direct or delayed transaction systems, and government support provided to farmers. Chain actors maximize their activities by using physical, technological, capital, and human resources. The chain's business processes are based on distribution patterns, risk aspects, and trust building.
2. Measurement of shrimp supply chain performance at PT Indokom Samudra Persada is in the superior category or the highest classification of the target effectiveness of a supply chain performance. PT Indokom Samudra Persada is not classified in the category or uncategorized because it has a value below the parity category for the Order Fulfillment Cycle Time (OFCT) and flexibility attributes.

## B. Suggestions

Suggestions that the author can give through this research are:

1. PT Indokom Samudra Persada is expected to periodically conduct supervision or inspection of farmers regarding the cultivation methods

carried out by shrimp farmers, the use of feed and chemicals on shrimp, to the facilities and infrastructure available at the farm level in order to minimize the rejection of shrimp received.

2. Shrimp farmers and suppliers are expected to maintain their supply chain performance to create shrimp with quality following market demand.
3. Other researchers are expected to research shrimp supply chain risk management at PT Indokom Samudra Persada.

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