Supply Chain of Tuna Fishery Resources (*Thunnus* sp) in Maumere District, Sikka Regency, East Nusa Tenggara Province

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Abstract

Capture fisheries production in Sikka Regency is still significant, with substantial pelagic fish such as tuna and skipjack. The advancement of the fisheries sector in the Sikka Regency is inseparable from the role of PT. Karya Cipta Buana Sentosa (KCBS) in its support of supporting facilities, including landing facilities for fishing fleets on the coast of the city of Maumere and other facilities that support the fish marketing process to improve the welfare of the people of Sikka district, especially people who make a living as fishermen. The Flores Sea, especially in the waters of Maumere, is a tuna fishing area for anglers in the Sikka district. The type of tuna that fishers mainly produce in the Sikka district is yellowfin tuna. This study is 1) to identify the form of marketing channels in PT. KCBS 2) to analyze the value of tuna marketing margin at PT. KCBS. The method used in this research is a mixed-method combining qualitative and quantitative methods. This research results in the form of a tuna marketing channel at PT. KCBS starts from fishers who go directly to suppliers, from suppliers to PT. KCBS then to retailers and consumers as end-users, Tuna fish supply chain management at PT. KCBS is still not optimal due to uncertain ship berthing schedules and the absence of trust to build long-term cooperation and relationships or partnerships between fishers and suppliers; the tuna fish supply chain is directed at optimizing the management of auction activities in terms of developing information systems, fulfilling more demanding demands. Responsive, strengthening sustainable fisherman partnerships whose results will support supply chain performance and the value of tuna marketing margins at PT. Karya Cipta Buana Sentosa (KCBS) is Rp. 37,000 with a farmer's share value of less than 50%, and it can be concluded that the marketing margin is inefficient.

Introduction

One factor that plays an essential role in determining the quality control process in the supply chain is distributing goods, starting from fish production on ships until the company receives the product. The handling of the product at each stage is a critical point that will determine the quality of the tuna loin product when the product arrives at the

company. A quality sorting (grading) process is carried out (Jati et al. 2014). Capture fisheries production in Sikka Regency is still significant, with giant pelagic fish such as tuna and skipjack. Tuna fishing fishers are scattered in several places: Wiring, Nangahure, Wolomarang Village and Hewuli Village, West Alok District. In Maumere, Sikka Regency, there are around 600 tuna anglers and every year, the government helps 20 units of vessels measuring one to two gross tons (GT) for tuna fishers. One boat can be used by 2 to 3 anglers. For tuna production in 2019 in Maumere, Sikka Regency, as much as 2,500 tons and skipjack tuna as much as 3000 tons out of the total output of 18,000 tons of captured fish.

Maumere, Sikka Regency, located in East Nusa Tenggara (NTT) Province, is one of the income sources for capturing fisheries products in eastern Indonesia. In 2019, marine fish production in Sikka Regency reached 19,287.3 tons with a value of Rp. 351.8 billion. In addition to being sold in the Sikka district, fishery production is also sold to several communities on the island of Flores, such as in East Flores district, Ende district, Nagekeo district, Ngada district, and even sold to West Manggarai district (Labuan Bajo). Tuna fish in 2019 was 1930.5 tons with a value of 86.87 billion, and skipjack fish of 3150.75 tons with a production value of 44.11 billion.

Especially for tuna and skipjack, the products are sold outside the province of East Nusa Tenggara (NTT), such as on the islands of Bali and Java. They are exported abroad to export destination countries, namely Japan, South Korea, China, Vietnam, Malaysia and Singapore. GRDP of Sikka Regency is 12% of the value of fish produced by fishers in Sikka Regency, Also contributing to PAD of around 1.9 billion. As a strategic partner in efforts to improve the community's productive economy, anglers from the Sikka district government will always support every step by the company in developing fisheries in the Sikka Regency area so that with the existence of PT. Karya Cipta Buana Sentosa (KCBS) Maumere can help improve the economy of fishers in Sikka Regency. The Flores Sea, especially in the waters of Maumere, is a tuna fishing area for fishers in the Sikka district. The type of tuna that fishers mainly produce in the Sikka district is yellowfin tuna.

Materials and Methods

This study uses a mixed-method, which is a combination of qualitative and quantitative descriptive methods. The qualitative descriptive analysis provides an overview of marketing channels, while quantitative research determines costs, profits, margins and marketing efficiency.

Data collection technique

Data collection techniques used by researchers in the research process are:
1. Observation

Observation is a direct visit to the research location, namely at PT. Karya Cipta Buana Sentosa (KCBS) Maumere Sikka Regency aims to determine the shape of the tuna marketing channel directly and to determine the factors that influence the amount of tuna marketing margin in Sikka Regency.
2. Interview

Interviews are used as a data collection technique if the researcher wants to conduct a preliminary study to find problems that must be investigated. In-depth interviews were conducted with key informants, namely people with extensive knowledge of tuna supply chain management at fish auctions, especially at PT. Karya Cipta Buana Sentosa (KCBS) Maumere.

3. Documentation

According to Arikunto (2019), the documentation method is looking for data on things or variables in the form of notes, transcripts, books, newspapers, magazines, inscriptions, meeting minutes, research journals and so on related to research.

Data analysis

Data analysis is simplifying data into a form that is easier to read and interpret. In this study, researchers used the data analysis method of the Miles and Huberman model in Sugiyono (2016) interactively, which was divided into three steps, namely:

Data Reduction

The reduced data include all data regarding research problems. The reduced data will provide a more specific picture and make it easier for researchers to collect further data and look for additional data if needed. The longer the researcher is in the field, the more the amount of data will be, and the more complex and complicated it will be. Therefore, data reduction needs to be done so that the data does not accumulate so as not to complicate further analysis.

Data Presentation

Data presentation can be done through narrative descriptions, charts, relationships between categories and flow charts. The presentation of data in this form makes it easier for researchers to understand what is happening. In this step, the researcher tries to compile relevant data so that the Information obtained is concluded and has a specific meaning to answer the research problem. Good presentation of data is an essential step toward achieving accurate and reliable qualitative analysis.

Draw Conclusions

This stage is the stage of concluding all the data that has been obtained as a result of the research. Conclusion drawing or verification attempts to find or understand the meaning, regularities, patterns, explanations, causal paths or propositions.

After the verification, conclusions can be drawn based on the research results presented in the form of a narrative. Drawing conclusions is the final stage of data analysis activities. Drawing this conclusion is the final stage of data processing. The data analysis used is descriptive analysis technique and quantitative analysis. The descriptive analysis provides an overview of marketing channels, while quantitative analysis is used to determine costs, profits, margins and marketing efficiency is as follows:

1. To find out the marketing channels by using descriptive analysis.

2. To find out the costs, benefits and marketing margins of each marketing agency in various marketing channels, namely:

a. Marketing fee

Marketing costs are the sum of the marketing costs of each agency. Marketing costs include transportation costs, loading and unloading costs, user fees and storage costs. So marketing costs can be calculated using the formula:

$$Bp = Bp_1 + Bp_2 + ... + Ben$$

Information :

☐ Bp = Yellowfin tuna marketing costs (Rp/head/kg).

☐ $Bp_1, Bp_2, ..., Ben$ = Marketing costs of each marketing agency (Rp/head/kg).

Marketing advantage

The advantages of each marketing agency involved in tuna marketing are formulated as follows:

Kp = Mp – Bp

Information :

☐ Kp = Yellowfin tuna marketing profit (Rp/head/kg)

☐ Mp = Yellowfin tuna marketing margin (Rp/head/kg).

☐ Bp = Yellowfin tuna marketing costs (Rp/head/kg).

Marketing profit is the sum of the profits received by each marketing agency, formulated:

Kp = Kp1 + Kp2 + ... + Kpn

Information :

☐ Kp = Yellowfin tuna marketing profit (Rp/head/kg)

a. Kp1+Kp2+...+Kpn= Profit of each yellowfin tuna marketing agency (Rp/head/kg).

b. Marketing margin

Marketing margin is the difference between the Price paid by consumers and the Price received by anglers, which can be formulated as follows:

Mp = Pr – Pf

Information :

☐ Mp = Yellowfin tuna marketing margin (Rp/head/kg).

☐ Pr = Price at the consumer level (Rp/head/kg).

☐ Pf = Price at producer level (Rp/head/kg).

To determine the economic efficiency of tuna marketing, margin analysis and farmer's share were used. The margin analysis formula has been described above, and for the farmer's share, using the following formula:

$$F = (Pf/Pr) \times 100\%$$

Information :

Ø F = Share of Price received by fishermen (%)

☐ Pf = Price at fisherman level (Rp/head/kg).

☐ Pr = Price at the end consumer level (Rp/head/kg).

Provisions: The marketing system is said to be efficient if the farmer's share value is more than 50%, and if the farmer's share value is less than 50%, then it is inefficient. The larger the marketing margin, the more inefficient the marketing system is.

Results

Overview of Research Site

PT. Karya Cipta Buana Sentosa (KCBS) Maumere is located on Don Slipi Street, Wailiti Village, West Alok District, Sikka Regency. PT. Karya Cipta Buana Sentosa (KCBS) Maumere began to be built in the 1994 fiscal year by PT. Central Jakarta KCBS. On the way with domestic shareholders in 2015, it was taken over by Foreign Capital Owners (PMA) until now.

Initially, PMDN (Domestic Shareholder) KCBS, as a marine product management company, made domestic sales. Since being taken over by PMA, sales have become 90% of exports. PT. Karya Cipta Buana Sentosa (KCBS) Maumere is a company processing tuna and skipjack tuna into ready-to-eat products such as sashimi, pocket, katsuobushi, negitoro, and several times sells whole or logs.

PT. Karya Cipta Buana Sentosa (KCBS) Maumere is currently led by Mrs Masayuki Takaku, director Theodorus E. U. Hon, and commissioner Yeung Oi Siong. Currently PT. Karya Cipta Buana Sentosa (KCBS) Maumere exports to several destination countries: Japan, Korea, Vietnam, Singapore, Malaysia, Hong Kong and China. There are 114 employees at KCBS, consisting of 50 daily employees, PT. Karya Cipta Buana Sentosa (KCBS) Maumere employs all local sons and cooperates with nearby SMEs such as animal feed processing. PT. Karya Cipta Buana Sentosa (KCBS) Maumere has partner fishermen of 24 pole handline boats and 200 handline fishing boats. KCBS is a member of AP2HI (Indonesian Pole and Handline Fisheries Association). Athaillah et al. (2018) asserted that tuna processing companies are highly dependent on the catches of anglers, while the yields of fishermen themselves are highly dependent on climatic and weather conditions, the success of the net, and the presence of tuna. The company only obtains raw materials for tuna from fishers.

Description of Interview Results

Based on the analytical method used in this study, namely qualitative, quantitative and descriptive techniques, the researcher carried out the stages: data collection, reduction, data display and conclusion drawing. In the research process, the researchers interviewed (data collection) 10 supply chain actors or critical informants consisting of 3 anglers who own large boats, two collectors and five retailers. Interviews were conducted by asking several questions that had been systematically arranged. In the end, the answers from each of these informants were processed (data reduction) as a collection of data which were then presented (data display) to describe (conclusion drawing) the tuna supply chain at TPI PT. Karya Cipta Buana Sentosa (KCBS) Maumere.

The Information obtained from the informants consisted of several points, including the informants' background, the scope of work, work processes, operating costs and selling prices, and problems in the tuna supply chain at PT. Karya Cipta Buana Sentosa (KCBS) Maumere.

Based on the results of interviews with three key informants described previously, it can be seen that the tuna supply chain at PT. Karya Cipta Buana Sentosa (KCBS) Maumere, namely acceptance or purchase through two doors, namely:

Fishers directly sell to PT. Karya Cipta Buana Sentosa (KCBS) Maumere

Fishers who work on tuna sell the fish they catch directly to PT. Karya Cipta Buana Sentosa (KCBS) Maumere participates in the auction process because they already have a price agreement. PT. Karya Cipta Buana Sentosa (KCBS) Maumere bought tuna from fishers at a price of Rp. 18.000/kg and then PT. Karya Cipta Buana Sentosa (KCBS) Maumere packs for export outside the Sikka district, such as in Japan, Korea, Vietnam, Singapore, Malaysia, Hong Kong, and China, for Rp. 35,000 to 50,000/kg.

Fishermen sell to suppliers

From fishers selling to suppliers, suppliers are selling them to retailers, and retailers are selling them to final consumers. The supplier buys tuna from fishers at a price of Rp. 20,000 / kg. then the supplier sells to the retailer at a price of Rp. 35,500/kg up to Rp. 40,000/kg. if there are still remaining sales to retailers, the supplier sells to PT. Karya Cipta Buana Sentosa (KCBS) Maumere with a price per kilogram of Rp. 18,000; in accordance with the Price that has been determined/agreed upon. Retailers sell them to consumers as end-users at different prices, namely Rp. 55.000/kg up to Rp. 60,000/kg.

The supplier will pack the tuna in a vehicle for distribution to retailers; the supplier usually already has a retailer subscription so that the supplier will contact the retailer if the supplier carries out the sales process; the amount of tuna supplied is usually 50 to 100/kg transactions, regular suppliers selling tuna to retailers with an average price of Rp. 35,000/kg to Rp. 40,000/kg. The supplier's income for a week is around Rp. 4,000,000; up to Rp. 6,000,000, depending on the number of fish catches purchased from fishers. The problem is that when the Price of tuna from fishers rises, it will affect the supplier in terms of initial capital, considering that the supplier has to pay for the labour that helps during the packaging and delivery process to retailers in the market.

Catching tuna usually requires assistants (fishers) of about 5 to 10 cultivators. The fishing gear used is FADs and nets, which are legal fishing gear. The length of the tuna fishing process is usually two days to 3 days, and the longest is up to 5 days with a distance of 5 miles to 10 miles. The acquisition of tuna in one trip is usually 3 tons to 5 tons.

The operational costs incurred in the capture process are around Rp. 750,000 to Rp. 1,000,000, and anglers who own large boats for tuna earn around Rp. 1,000,000 to Rp. 2,000,000/day, while for small anglers, it is around Rp. 250,000 to 400,000 / person.

Research result

Based on the results of interviews and direct observations that researchers did during the research process at PT. Karya Cipta Buana Sentosa (KCBS) Maumere, found the tuna supply chain at PT. The work of Cipta Buana Sentosa (KCBS) Maumere can be seen in the following image:
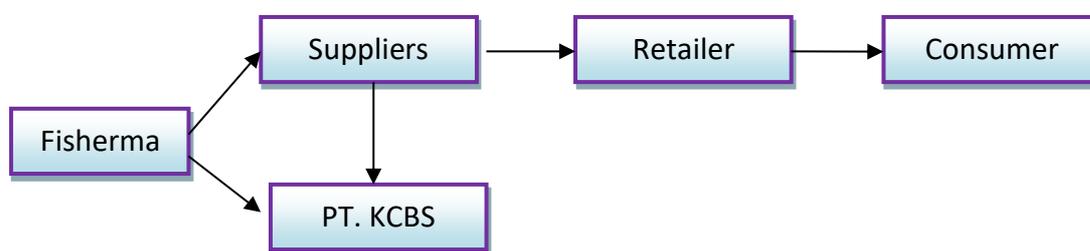

Figure 1. Tuna Supply Chain at PT. KCBS Maumere

Information :

> ———▶ : Product Flow
> — ...▶ : Financial Flow
> ◀ .....▶ : Information Flow

Supply chain actors include fishers working on tuna, landing and selling tuna to PT. Karya Cipta Buana Sentosa (KCBS) Maumere, or anglers, sell to TPI suppliers, and then the supplier sells them to PT. Karya Cipta Buana Sentosa (KCBS) Maumere or suppliers sell them to retailers, then retailers sell them to consumers. There are three types of flow in the supply chain: product flow, financial flow and information flow.

Product Flow

Product flow in the tuna supply chain at PT. Karya Cipta Buana Sentosa (KCBS) Maumere is a stream that flows from upstream to downstream and through two doors, namely:

1. Tuna fish is cultivated by fishers and then landed at TPI for auction to suppliers. The following flow is from suppliers to retailers, suppliers buy tuna fish from fishers and then resell it to retailers in the market, the final product flow from retailers to final consumers, and tuna supplied from suppliers is then sold directly to final consumers come to the market. Meanwhile, tuna which the supplier does not sell out can be resold to PT. Karya Cipta Buana Sentosa (KCBS) Maumere.

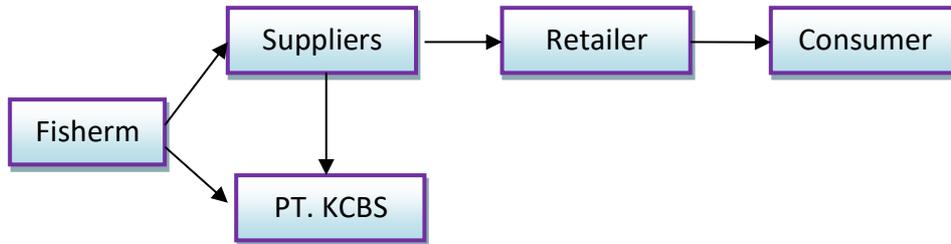The first product flow can be described as follows:

Figure 2. Tuna Supply Chain at TPI Maumere

Information :
———→ : Product Flow
— ... → : Financial Flow
◄.. .....► : Information Flow

2. Tuna fish is cultivated by fishers and then landed at KCBS to be sold to PT. Karya Cipta Buana Sentosa (KCBS) Maumere, sometimes even the sales process takes place in the middle of the sea before landing because at PT. Karya Cipta Buana Sentosa (KCBS) Maumere has a particular motorboat to buy or pick it up in the middle of the sea before landing at a mutually agreed price.

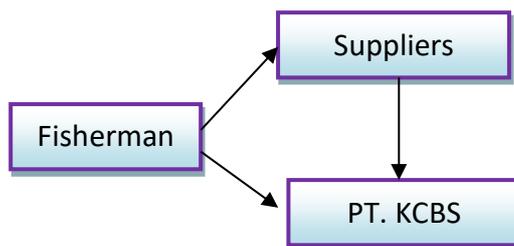The second product flow can be described as follows:

Figure 3. Tuna Supply Chain at PT. KCBS Maumere

Keterangan :
———→ : Product Flow
— ... → : Financial Flow
◄.. .....► : Information Flow

Financial Flow

Financial flows flow from downstream (downstream) to upstream (upstream). The final consumer buys tuna from retailers for Rp. 55,000 up to Rp. 60,000/head/kg, then retailers buy tuna from suppliers for Rp. 35,000 up to Rp. 40,000 / kg/head, and finally, the supplier buys tuna fish products from fishers at a price of Rp. 20,000 / kg / head, and PT. Karya Cipta Buana Sentosa (KCBS) Maumere bought tuna at a price of Rp. 18.000/kg total. The financial flow in this supply chain uses cash transactions.

Information Flow

Information flow in the tuna supply chain at PT. Karya Cipta Buana Sentosa (KCBS) Maumere is a flow that flows from two directions, namely from upstream to downstream and from downstream to upstream. Between supply chain actors, the Information provided is Information about product prices, product quality, product inventory and the number of purchases. Supply chain actors from upstream will provide Information about product prices, product quality and product inventory, while supply chain actors from downstream directions will provide feedback such as price negotiations, appreciation or complaints about product quality, number of orders and purchases.

Supply Chain Evaluation
Product Development

The total production of tuna at PT. Karya Cipta Buana Sentosa (KCBS) Maumere in 2019 was 24 tons or equal to 24,000 kg. (Data Source Before the 2019 Corona Virus Outbreak). The catch of superior fish landed at PT. Karya Cipta Buana Sentosa (KCBS) Maumere is tuna and skipjack tuna. Tuna fish production during the 2019 coronavirus pandemic decreased by 20 tons or equal to 20,000 kg from the total fishery production of PT. Karya Cipta Buana Sentosa (KCBS) Maumere in 2019.

This happens because there are many fishermen whose primary market for their product, namely tuna, is the local market. Many fishing boats are not operating for fear of the 2019 coronavirus outbreak. Fishers determine the selling price based on the Price of the fish caught the previous day and compare it with the total yield. -the catch of the day of the transaction. If the catch is a lot, the Price will go down. On the other hand, if the catch is small, the Price of fish will increase. Fulfilment of customer aspirations is carried out by maintaining the quality of fish to keep it fresh for consumption and export.

Procurement
Fisherman to Supplier

Based on interviews, fishers establish partnership relationships with suppliers, a short-term transactional relationship. Fishers and suppliers do not have definite plans such as schedules and purchase volumes with anglers. Due to the uncertain anchoring schedule for ships, suppliers must come directly to TPI to check which vessels. Who has landed to make purchases shows that fishers do not carry out intense communication with suppliers? There is no regular discussion about problems in the tuna supply process, such as tuna quality assurance, which must be to the fishers' constraints and guarantee issues—the availability of tuna fish products that are adjusted to the anglers' capacity in producing tuna fish. Anglers and suppliers also do not have a policy to minimize the intensity of tuna supply. In terms of solving problems such as the availability and quality of tuna fish products that do not match or meet

market demands, it only involves one party and is not integrated with the customer. Nelayan ke PT. Karya Cipta Buana Sentosa (KCBS) Maumere

Based on the interview, the fishers established a partnership relationship with PT. Karya Cipta Buana Sentosa (KCBS) Maumere, but fishermen are not required to sell their catch to PT. Karya Cipta Buana Sentosa (KCBS) Maumere and the existing agreement is only regarding the Price set by PT. Karya Cipta Buana Sentosa (KCBS) Maumere so that PT. Karya Cipta Buana Sentosa (KCBS) Maumere does not participate in the auction process anymore.

Supplier to Retailer

The relationship between suppliers and retailers is a short-term transactional relationship; suppliers do not have definite plans with retailers, such as schedules and purchase volumes. Besides that, suppliers and retailers also do not regularly discuss what problems occur in the tuna supply, such as quality assurance problems and product availability. Tuna that must be by market demand.Pengecer ke Konsumen Akhir. On certain occasions, retailers provide discounts and take simple approaches such as asking for needs and offering tuna fish products to potential buyers who pass through their stalls in an effort to create good relationships with their customers.

Planning and Control

Based on its shape, tuna is a finished product. Based on its function, it is called transit inventory; tuna fish supplies arise because the lead time for shipping from the sea is worked on for 3 to 7 days and then landed at PT. The work of Cipta Buana Sentosa (KCBS) Maumere will decrease when it lands and is auctioned to suppliers at TPI. Then from TPI, the collectors will make purchases and packaging in approximately 2 to 3 hours and distribute to retailers in about 41 minutes. This inventory will be reduced if the collector prioritizes the supplier of the closer market, taking into account the consequences of postage, Price and quality. Then, the retailer will carry out the sales process for about 1 to 2 days until the tuna is sold out. Based on interviews, anglers do not plan with suppliers, so fishermen cannot control the production of tuna fish products. The planning process that is less collaborative between fishermen, and suppliers, causes fishermen and traders to be unable to control tuna fish production.
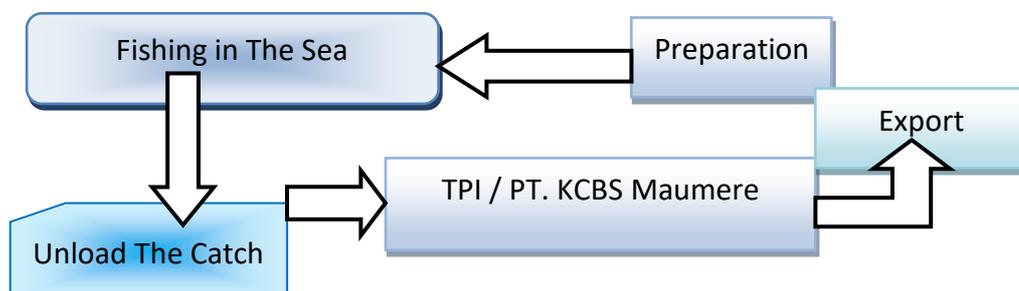
Production operation

Figure 4. Tuna Production Processes at TPI/PT. KCBS Maumere

Tuna fish production process at PT. The work of Cipta Buana Sentosa (KCBS) Maumere starts from the preparation process, namely the preparation of FADs, the preparation for capture, and the arrest process. After carrying out the process of catching anglers, they will then carry out the process of unloading the results at the PT. Karya Cipta Buana Sentosa

(KCBS) Maumere and the employees will clean and pack for further processing to be exported abroad. As for landing at TPI, fishers land tuna and carry out an auction process at TPI, and then the supplier will carry out the loading process to distribute tuna to retailers in the market for sale to final consumers.
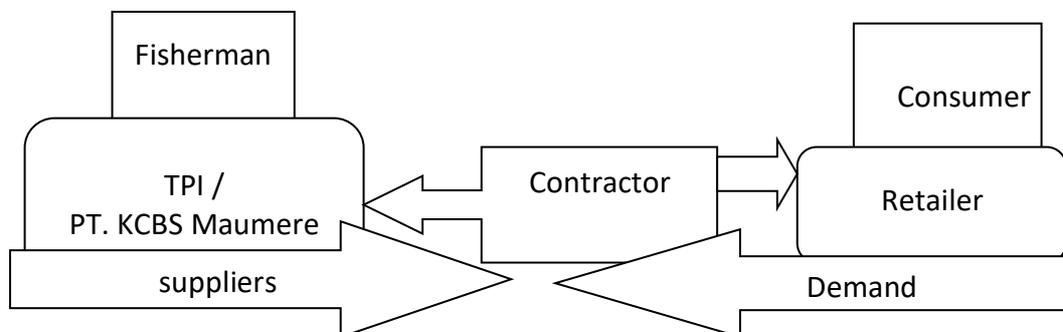
Shipping/Distribution

Figure 5. Distribution of Tuna in TPI/PT. KCBS Maumere

Tuna caught by fishers at sea is distributed to TPI/PT. KCBS Maumere also goes by sea by passing the fishing zone of PT. KCBS Maumere which has been determined, namely in the Flores Sea, then for collectors in terms of choosing the route the collector will determine the delivery route to the retailer to minimize transportation costs and time because the collectors consolidate demand and delivery, the collectors will prioritize delivery or sell directly to the ship owned by PT. Karya Cipta Buana Sentosa (KCBS) Maumere, whose sales transaction occurred in the middle of the sea.

Discussion

Marketing Channel

In this study, it is explained that the tuna supply chain network at PT. Karya Cipta Buana Sentosa (KCBS) Maumere started from fishers directly to PT. Karya Cipta Buana Sentosa (KCBS) Maumere and from fishers to TPI through suppliers, suppliers to retailers and finally to consumers as end-users. The existing supply chain flow is not too long, so it can provide advantages such as time, cost and effort problems. As in previous research conducted by Tivani Lowing et al., the skipjack supply chain management analysis at the Tumumpa Manadopada fish auction is not too long to save time, cost, and effort. Zaenab et al. (2020) emphasized that every fishery commodity has a supply chain value.

In this study, it was assessed that the tuna supply chain at PT. Karya Cipta Buana Sentosa (KCBS) Maumere is not optimal or not well integrated because there is no trust between fishermen and suppliers at TPI to establish cooperation and partnership relationships to achieve common goals to improve supply chains and supply chain actors' probability in terms of problem-solving such as quality assurance and product availability assurance only involve one party and are not integrated to the customer so that the supply chain at PT. Karya Cipta Buana Sentosa (KCBS) Maumere did not show significant development despite having the opportunity to expand the market.

The tuna supply chain bottleneck at PT. Karya Cipta Buana Sentosa (KCBS) Maumere based on observations of phenomena, these obstacles include the management of information flow at PT. The work of Cipta Buana Sentosa (KCBS) Maumere is not centralized, and policy support is less than optimal. The solution is obtained through an assessment of the

details of each activity in the tuna supply chain. Prayoga et al. (2018) say that the keys to success include trust-building (trust), coordination and cooperation.
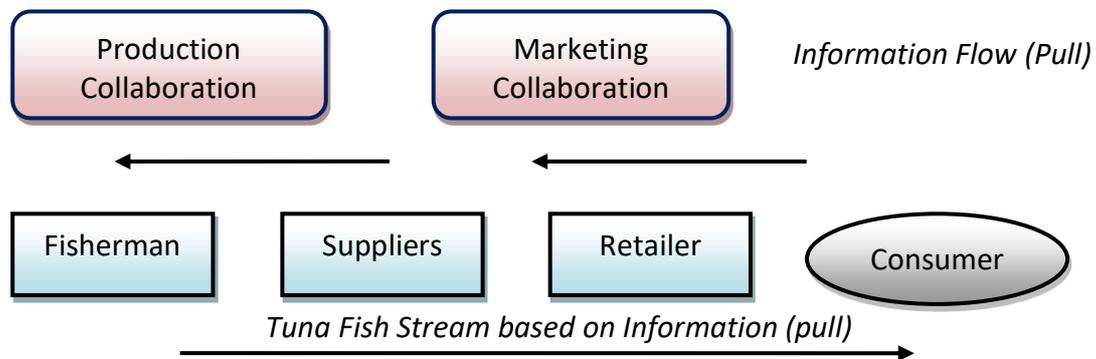

Figure 6. Illustration of Tuna Supply Chain Recommendations at PT. KCBS Maumere

The recommendations for the tuna supply chain include optimizing the role of supply chain actors, centralizing and developing information systems, and good collaboration between parties. Business processes in collaborative relationships are directed to become a pull system. The goal is to make service actions more responsive. Through clear sales planning and careful production planning so as to reduce operational risks such as product absence, bullwhip, forecasting errors, and market risk. The purpose of supply chain management is to integrate all company operational processes from upstream (upstream) and downstream (downstream) to end-users through the provision of products, Information, and services to increase added value for consumers and other stakeholders (Setiawan et al., 2019). Furthermore, Fachry et al. (2021) say that stakeholders have an essential role in the development of a business if it is framed in the form of a partnership.

Marketing Profit and Margin
Marketing Fee

Cost is the value of all predictable economic inputs or sacrifices that can be measured to produce a product. While marketing is a product distribution of goods from producers to consumers. Producers are the first link, and consumers are the last link. (Fishery Business Management).

Marketing costs incurred at PT. Karya Cipta Buana Sentosa (KCBS) Maumere covers transportation costs, loading and unloading costs, user fees and storage costs. So marketing costs can be calculated using the formula:

$$Bp = Bp1 + Bp2 + ... + Bpn$$

Information :
Bp = tuna marketing cost (Rp/kg/head)
Bp1, Bp2,....Bpn = Marketing costs per agency
(Rp/kg/head)
So the process of calculating marketing costs using the above formula is as follows:

146.000 = 18.000+20.000+18.000+35.000+55.000

Profit Marketing

The Profit of each marketing agency involved in tuna marketing can be formulated as follows:

$$Kp = Kp1 + Kp2 + ... \ Ken$$

Information :

Kp = Marketing profit of tuna (Rp/kg/head)

Kp1+Kp2+.....Kpn = Fish marketing profit tuna per institution (Rp/kg/head)

So the process of calculating marketing profits using the above formula is as follows:

$$43.000 = 3.000 + 5.000 + 15.000 + 20.000$$

Margin Marketing

Marketing margin is the difference between the price at the consumer level (Pr) and the Price at the producer level (Pf). Tuna marketing can be formulated as follows:

$$Mp = Pr - Pf$$

Information :

Mp = tuna marketing margin (Rp/kg)

Pr = Price at the consumer level (Rp/kg

Pf = Price at producer level (Rp/kg)

So that the marketing margin calculation process using the above formula is as follows:

$$37.000 = 55.000 - 18.000$$

Margin Analysis and farmer's share

To find out the economic efficiency of tuna marketing, margin analysis and farmer's share were used using the following formula:

$$F = (Pf \ / \ Pr) \ 100$$

Information :

F = Share of Price received by fishermen (%)

Pf = Price at fisherman level (Rp/kg/head)

Pr = Price at the final consumer level (Rp/kg/head)

So the process of calculating the margin and farmer's share using the formula above is as follows:

$$12 \ \% = 18.000/55.000 \ x \ 100$$

The provisions of the marketing system are said to be efficient if the value of the farmer's share is more than 50%, and if the value of the farmer's share is less than 50%, then it is not efficient. The bigger the marketing margin, the more inefficient the marketing system is.

CONCLUSIONS

Based on the results of research at PT. Cipta Buana Sentosa (KCBS) Maumere, Sikka Regency, the following conclusions can be drawn:

1. Form a marketing channel for Tuna at PT. Karya Cipta Buana Sentosa (KCBS) starts from fishers who go directly to suppliers, from suppliers to PT. KCBS then goes to retailers and finally to consumers as end-users. The supplier does not follow the auction process because the supplier has set the selling price—tuna fish supply chain management at PT. Karya Cipta Buana Sentosa (KCBS) is still not optimal due to the uncertain anchoring schedule of ships and the lack of trust to build long-term cooperation and relationships or partnerships with fishermen and suppliers at PT. Karya Cipta Buana Sentosa (KCBS). The tuna supply chain is directed at optimizing the management of auction activities in terms of developing information systems, meeting demand more responsively, and strengthening sustainable fisher partnerships, which will support supply chain performance.

2. The value of the tuna marketing margin at PT. Karya Cipta Buana Sentosa (KCBS) is Rp. 37,000 with a farmer's share value of less than 50%, and it can be concluded that the marketing margin is not efficient.

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