

Supply Chain of Tuna Product in Vietnam

Author's Details:

⁽¹⁾Thi Thai Thuy Nguyen ⁽²⁾Thi Diep Uyen Doan

⁽¹⁾⁽²⁾University of Economics - Technology for Industries, Vietnam

Correspondence: Thi Diep Uyen Doan, 456 Minh Khai, Hai Ba Trung, Ha Noi

Abstract:

The article has an overview of the tuna product supply chain in Vietnam. From there, analyze the activities of the tuna supply chain in Vietnam. Analyzing world experiences in tuna supply chain management in Vietnam. Finally, we offer lessons and solutions to improve the operational efficiency of the tuna product supply chain in order to improve business performance for Vietnamese enterprises.

Keywords: Tuna product supply chain, Vietnam

1. Introduction

Implementing the policy of proactively and actively participating in international integration, Vietnam has intensified the signing of Free Trade Agreements (FTAs) with countries and regions in the world. In trade relations with Japan, Vietnam, as a member of ASEAN, has signed the ASEAN-Japan Comprehensive Economic Partnership Agreement (AJCEP). AJCEP is considered as a comprehensive Free Trade Agreement (FTA) in many fields, including trade in goods, services, investment and economic cooperation. After that, Vietnam and Japan also signed the Vietnam - Japan Economic Cooperation Agreement (VJEP) which took effect from the end of 2009. Besides, Japan and Vietnam are both members of the Agreement. Comprehensive and progressive partnership across the Pacific (CPTPP). The CPTPP Agreement is a new-generation free trade agreement, signed on March 8, 2018 and officially entered into force on December 30, 2018 for the first group of 6 countries to complete the approval procedure. Standard Agreement. For Vietnam, the Agreement takes effect from January 14, 2019.

With the two previous free trade agreements (FTAs), Vietnam - Japan and ASEAN - Japan, a number of Vietnamese seafood products exported to Japan have been eliminated tariff barriers. With the CPTPP, Japan commits to immediately eliminate tax on 86% of tariff lines, equivalent to 93.6% of Vietnam's export turnover to Japan, and nearly 90% of tariff lines after 5 years. In particular, many seafood products will enjoy 0% tax when exported to Japan, in which, some tuna items currently subject to tax of 3.5% or more will be exempted from tax immediately or according to the route. progress to 0% by year 6 or 11.

With the elimination of tariff lines for Vietnamese goods under previous FTAs and the CPTPP Agreement, many products exported to Japan have increased sharply. According to Customs statistics, Vietnam's export turnover to the Japanese market in 2018 reached more than 18.8 billion USD, of which seafood accounted for 7.4% with many high growth items such as mollusks. Head legs, assorted fish and tuna. Tuna product has now become the third seafood export item of Vietnam after shrimp and basa fish. At the same time, Vietnam's tuna exports to Japan also occupy the 3rd place after two key import markets, the EU and the US.

However, the increase in tuna exports to the Japanese market is under great pressure of competition. According to VASEP, Thailand, Indonesia, the Philippines, Vietnam and China are 5 sources of canned tuna for the Japanese market, respectively, but Vietnam only accounts for 5% of the market share in this market segment, Thailand. accounting for 58%, Indonesia 19% and the Philippines 17%. In the frozen tuna loin / fillet segment, Vietnam is currently ranked 14th out of 28 countries exporting this product line to Japan.

For Vietnam, for many years, seafood has always been the main export product. In particular, tuna is considered one of the commodities with great potentials and advantages, because our country has more than 1 million km² of exclusive economic waters. However, the current status of Vietnam's tuna exports is not commensurate with the potential, especially with the Japanese market. This is a large-capacity market, Vietnam - Japan also signed free trade agreements VJEP, AJCEP and CPTPP. However, Vietnamese tuna products only account for a small market share in this market. The reason for this limitation is that the supply chain of Vietnamese tuna

products to the Japanese market is not appropriate, and has not yet linked Vietnamese producers with Japanese customers.

Competitive advantage in the market of enterprises in the trend of globalization, especially small and medium-sized enterprises will not only depend on the capacity of each enterprise but increasingly depend more link, cooperate with other businesses in a value chain, product supply chain. Completing the supply chain for tuna products will help businesses in the chain have stable revenue and profit growth, increase the competitiveness of Vietnamese tuna products in the Japanese market. . Since then, Vietnamese tuna products can easily meet other demanding markets.

From the above researches at home and abroad, there are many talented domestic and foreign researches on the supply chain for agricultural and aquatic products. On the other hand, the research topic on chain model for tuna products: "Organizing the exploitation, collection, processing and consumption of tuna by chain" - The Ministry of Agriculture and Rural Development focuses on chain direction to link the stages of exploitation - purchasing - processing - consumption, but not analyzing activities in the chain and for specific markets.

2. Literature review

2.1. The role and characteristics of the tuna product supply chain

The role of the tuna product supply chain

- Increasing the satisfaction of consumers when buying and using products. Through the supply chain.

Satisfying the needs of consumers is always the goal of every business. However, the quality of products and goods in line with the needs of the market depends not only on the supply capacity of each business unit, but also on input factors, input suppliers, output distribution activities, intermediaries involved in distributing products to consumers. Therefore, in order to achieve the highest level of satisfaction with the buyers of the company's products, it is necessary to have a close connection between stakeholders, forming a chain, sharing a common goal. From there, it is possible to increase buyers' satisfaction. This is reflected in that is, to satisfy products, goods, right time, right quantity and type, right in quality, and at the right price.

- Cut the cost

Cost is one of the factors of business activities, also the first basis to determine the selling price of products. Closely linking in the supply chain compared to traditional forms is an important factor in reducing the cost per unit of product, on the basis of minimizing the level of inventory in the product. production, in circulation, reducing the failure rate of products ... is the basis for reducing costs, product costs thereby reducing the price of products and goods supplied to customers.

- Increase the competitiveness of products and goods

The supply chain increases the competitiveness of products and goods compared to products of the same type that are supplied in the market. Information in the supply chain is transparent and timely, including information about the market, about products, about barriers, market characteristics, etc., helping chain members to adapt to the situation. market change, thereby improving quality, attractive selling prices compared to other products. On that basis, to satisfy the increasingly high requirements of the market.

- Adapting the new management model in business operations of enterprises

With the development of science and technology, as well as the need for management, there is an evaluation and analysis of business activities, including inputs, internal factors, enterprises and outputs. Should it be necessary to implement a close linkage between stages, a closer link between business units, on the basis of information sharing, information transparency, support, and identification of common goals, and benefit sharing. Therefore, new modern management models can be effective, help reduce risks, and threats to business operations.

Features of the tuna supply chain

- Strict quality management is required right from the exploitation stage for tuna

- The fishing method for tuna products is a specific product, different from other fishing methods, in order to ensure the quality of sashimi and processed products. .

- Requires cold chain to meet standards, uniformity, strict management of temperature, cooling method, cooling time to minimize loss of quality at the lowest level.

- The linkage between the chain members must be tight to minimize supply time, costs in the chain and have good prices for consumers. [42]
- It is greatly affected by regulations for fishing, such as: harvest season, fishing area, regulations on environment, regulations on fishermen, fishing methods and traceability of products.

2.2. Contents of tuna supply chain activities

2.2.1. Production-Processing

Manufacturing refers to the supply chain's ability to manufacture and store products. Manufacturing facilities such as workshops and warehouses. The basic problem of a manager when making production decisions is: how to strike a balance between responsiveness and efficiency. If the workshop and warehouse are built with high excess capacity, the ability to flexibly and quickly respond to large volumes of product needs.

2.2.2. Place

Location is related to the location, the activities performed in parts of the supply chain. The main choice here is responsiveness and efficiency. Decisions will focus on working in a number of areas to achieve efficiency and economies of scale. Decisions will reduce focus on operations in areas near customers and suppliers for more timely responsiveness.

Manufacturing location is one of the key elements in the supply chain. Site management aims to make the best use of available capacity and relates to these issues:

- The role each facility performs
- How capacity is allocated per production facility
- The distribution of the music supplied and the market for each production facility

The capacity allocated depends on the role played by each facility in the chain. The determination of capacity would require equipment and labor related factors for that production facility. Therefore, the decision to allocate capacity for each production facility will have a strong impact on supply chain performance and profitability. If the allocation is lower than the capacity, the production facility will lack the ability to meet the demand and the revenue. Conversely, if the allocation exceeds the facility's capacity, it results in inefficiencies of scale, and supply chain costs will be high.

Second, the distribution of the supplier and the market to each facility is influenced by two factors (the role of each producer and the capacity of each producer). Therefore, depending on the role of each producer, some types of suppliers, certain types of products, and the number of products produced will be asked. The decisions about the supplier - the market for the producer will affect the costs associated with transporting raw materials and supplies to the establishment and transporting from the premises to the customer. These decisions also affect the supply chain's ability to respond to customer needs.

2.2.3. Inventory

Inventory includes raw materials, semi-finished products, finished products stocked by manufacturers, distributors and retailers throughout the supply chain. However, the presence and stocking of inventory creates a substantial cost and to be efficient the inventory costs should be as low as possible.

There are 3 basic decisions to create and store inventory: Cyclic inventory, Safe stock, Seasonal inventory.

Multi-stage stocking system: Uses two fixed-order models (economical order quantity), Fixed-time period model (can be called periodic system, inspection system periodic warehouse, fixed-time order system).

With a fixed order model that applies in cases where the remaining stock level falls to or below a predetermined order level (R), the remaining stock level must be monitored continuously. Therefore, the inventory and inventory activities must be promptly updated to assess whether the re-order has been reached.

Fixed-time phase model: Generates phased order quantities, depending on frequency of use. The model requires a high level of safe inventory levels. If the fixed-order model regularly tracks inventory and orders immediately when it's time to re-order. But the fixed time period model determines the amount of inventory at a particular point in time. To ensure safe inventory, the model will be based on the probabilities of a possible spike in order volume and demand bias during inventory and waiting times. From there, determining the quantity of orders needed, taking into account the average demand over time, the amount of safe inventory and available

inventory. In which indicators on demand, waiting time, inventory stage ... can be applied based on unit: day, week, year

2.2.4. Carriage

Transport involves the movement of raw materials, semi-finished products and finished products in the supply chain. The balance between responsiveness and efficiency manifests itself through the choice of transport mode. The fastest mode of transport is by plane because it is the fastest responding but also costs the most. Slower modes of transport such as ships and trains are very cost-effective but cannot be responded promptly. Transportation costs can be 1/3 of the supply chain's operating costs so the decision to choose is very important here.

There are 4 modes of transport that the contemporary tuna product supply chain can choose from:

Ship: Very cost effective but the slowest mode of transportation. It limits the use of locations suitable for ships and boats such as rivers, seas and canals. . .

Train: also very cost effective but slow. It also limits use between places with train traffic.

Truck: is a relatively fast and very flexible mode of transportation. Trucks can go almost anywhere. The cost of this form is volatile because the cost of fuel varies and the road changes.

Airplane: is a very fast transportation, very timely response. This is also the most expensive form and is limited by shipping capacity.

2.2.5. Supporting information systems in the supply chain

Information is an important decision-making issue for the four supply chain drivers. It is the connection between all activities in a supply chain.

Data collection and contact information

With the function of exchanging data, recording data at high speed, it helps businesses to solve problems in the chain in a timely manner. Currently, the main tools used are: Internet, broadband, fiber optic cable, EDI (Electronic data interchange), XML (eXtensible Markup Language).

Data storage and retrieval

This activity is performed using database technology. A database is an organized group of data stored in an electronic format. A database is a model of business processes that it collects and stores. This model is determined by the level of detail in the data collected. The design of each database must strike a balance between highly aggregated data at one data pole and many details at the other extreme. Events occurring during the business process are stored in a database. Database models will define the transactions stored in the database. Transactions are logged as soon as they happen and updated in real time, or transactions can be recorded periodically in batches - called a "batch update".

Analysis and reporting

Different supply chains have different ways of combining and processing data. In particular, the analysis and data processing is done by communication technologies, data storage and retrieval. There are many types of supply chain support systems

- Enterprise resource planning (ERP)
- Shopping system
- Advanced planning and planning (APS)

This is an advanced analytical application, with the aim of assessing plant capacity, material availability and customer needs. The system will determine the schedule for each factory's to-do tasks, a specific timeline. The APS system is implemented based on transaction data obtained from the ERP system.

- Transport planning system
- Planning needs
- Supply Chain Management (SCM)

The system has the function of scheduling, advanced planning, transport planning, demand planning and inventory planning. Supply chain management system is based on the data source of the enterprise resource planning system or the business data of the business for analysis and planning.

- Inventory management system

This system is based on data on the supply activity of the business. From there, track inventory levels for different products, calculate economical order quantities, safe inventory levels for each product. The system helps businesses manage reserve expenses, cost of inventory.

- Production management system (MES)

The system implements short-term production scheduling, allocation of raw materials and production resources in a single production plant.

- Transport planning system

The system focuses on day-to-day operations, scheduling of transport, creating short-term shipping and delivery schedules.

- Warehouse management system (WMS)

Supports day-to-day operations of the warehouse, the system continuously evaluates and analyzes the performance of the warehouse system. In particular, WMS tracks inventory levels, storage locations in a warehouse, assists in receiving, packaging and delivering products according to orders.

3. Content to complete tuna supply chain

From the fact that the export activities of tuna products of Vietnam over the past 10 years and the experiences of countries such as Thailand, the Philippines, Japan ... It is necessary to have a good product supply chain to meet to meet market requirements. To complete the product supply chain, it is necessary to focus on the following main contents:

- Flexibility of the chain

The flexibility of the tuna product supply chain is reflected in:

+ Easily adaptable to modern management applied in chain

+ If there is a fluctuation in demand in the market, the product supply chain may change accordingly or be able to respond to other markets.

- The cost of the chain

Reducing the cost of the chain is a requirement not only for the product supply chain in general, but also for the supply chain of tuna products in particular. Cost is the factor that sets up the price of the product, if related costs can be reduced: exploitation; transport; Processing; export; Distribution will contribute significantly to the development and competitiveness of the tuna supply chain. Therefore, apply technology; strengthening membership relationships; reduce the cost of investment capital; study carefully the market demand; Logistics are issues of concern.

- Minimize time to deliver products to consumers

The quality characteristics of tuna products are subject to a great impact on time. That is the shorter the time period from extraction to consumption or processing, the higher the product quality. In which, the requirements for chain members need to have close coordination, information: exploitation time; quantity, fishing grounds must be updated promptly. Logistic services are used effectively, in order to minimize the time from harvesting to processing or selling to consumers. Logistic services are not only at ports but also fishing grounds are needed. In addition, the transit time from the export market to the consumer market should also be considered and the use of suitable means of transport. Not only that, the continuous information exchange and close linkage with product distributors in consumer markets.

- Human Resources

Always improving the quality of human resources in the chain is an increasing requirement of the tuna product supply chain. This will help the chain in applying new technology and modern management methods in the chain become easier. Awareness of members in the chain is enhanced in exploitation and organization of the product supply chain. It is necessary to pay attention to improving professional knowledge, social awareness, language, in order to create conditions for workers in the chain to have access to new knowledge.

In particular, the stages in the chain that need to focus on are exploitation and processing. These are the two stages that are often applied with new methods in exploitation and processing. At the same time, the skills and skills of labor will help change the quality of products after tuna exploitation and processing.

- Information system

The information system creates a link between chain members. For the tuna product supply chain, the information system helps the processing stage determine the quantity and quality of products at each point in order to meet customer needs. Not only that, but also helps the traceability of tuna products, meeting the requirements of the fastidious market. On the other hand, the change of technology in the transmission, storage and processing of information, also requires the tuna product chain to receive and apply new technologies to enhance the connection between members. in chain.

- Logistics

Focusing on fishing logistics, helping to prolong the tuna fishing time, increasing the catch. On the other hand, good logistics will help tuna quality at the highest level, reducing the tuna time from harvesting to landing and reaching customers.

- **Cold chain**

Including the system of cold storage, cold cellar, cold box, and reefer container of the product supply chain. The cold chain affects the maintenance of tuna quality after catching, minimizing the unsatisfactory products for processing and the requirements for fresh products supplied to the import market. The system requires refrigeration in the body and outside of the fish, not to use unsafe storage materials and contain harmful microorganisms that adversely affect the quality of the product.

4. Factors affecting supply chain of tuna products

Relationship between channel members

One of the reasons causing this impact is that the supply chain is slow or does not recognize the changing market demand, so that there is a change in accordance with the environmental conditions. The coordination in the chain through the following activities is a factor causing the slow change of the supply chain to the needs of the market, that is:

- Demand forecast: Demand forecasting based on received orders will be inaccurate. Data requirements must be identified in demand from suppliers directly to the customer. In order to fulfill this requirement, it is essential to have point-of-sale sharing of all members of the supply chain.

Order Quantification: Minimize demand distortion and reduce order processing and shipping costs required to identify smaller batch sizes and orders are executed more frequently. On the other hand, the cost of ordering can be reduced by applying electronic ordering technology. Shipping costs can be reduced by using third-party logistics providers, receiving many small shipments from suppliers and delivering small orders to many customers.

- Product pricing: Incorrect product pricing can cause fluctuations in demand for the product supplied to the customer. Therefore, for this activity, it is necessary to have the exact determination of the customer's needs, the factors that make up the product price, thereby building the price in accordance with the actual situation.

Market

The market is both a target and a requirement for each supply chain to have an adaptation. The market requires each member and product in the supply chain to change and the whole supply chain to change accordingly. Market fluctuations will affect not only producers but also suppliers and operations of the chain. This can increase chain costs (inventory costs, depreciation costs due to excess goods, costs of losing customers due to insufficient stockpiles ..).

Technology

One of the problems of the supply chain such as: deviation in forecasts of market demand, production capacity not being exploited effectively, inventories, cost and time to deliver products to hand. customer. Therefore, the application of technology in the supply chain is becoming more and more popular. Especially information technology, automation technology for activities in the chain. Technologies such as: Enterprise Resource Planning (ERP); Advanced planning and planning (APS); Customer relationship management (CRM) and sales force automation (SFA); Supply Chain Management (SCM); Production management system (MES); Warehouse management system (WMS).

Technology influences demand prediction: If technology is not applied, order determination of demand can be inaccurate, causing a virtual effect compared to real demand. To minimize these factors, the supply chain can apply many different tools in planning, defining needs, and associated with real needs from customers. As a result, it will impact inventory costs, stocks, sales, and revenue losses due to not predicting demand properly.

Technology impacts on time to supply to customers: Time to order to deliver products is shortened in the distribution chain if information technology and automation is applied in chain management, warehouse, sale. goods, customer relations. From there, increase customer satisfaction supply but capacity of the chain.

Technology increases the linkage between chain members: The application of technology will help the linkage among chain members more closely. First of all, it is the sharing of information between producers and suppliers, between production with distributors and retailers, thereby reducing inventory and cost of distributing goods to customers. Not only that, but technology increases the profits for the chain members from better customer satisfaction. In the opposite direction, suppliers, supply production requires better interconnection through the application of new technologies to the chain, and operations of the chain.

Government policies

The impact of export - import policies, financial and monetary policies, and support policies for the industry - commodities will affect the supply chain in the following aspects: exploitation, farming, processing, product consumption, logistics services, product consumption markets, raw material prices.

Exploitation: Having an impact on the orientation of selecting the tuna product exploitation areas, meeting international requirements on fishing areas, buying fishing crops and species. From there, minimizing risks for tuna fishing activities, as well as minimizing negative impacts on the marine environment.

The policy also focuses on fishing means, types of fishing means, types of fishing means, design patterns and housing support for fishermen's choice of means. Ensuring the requirements of offshore fishing, changing fishing capacity and exploitation costs.

The policy also has an impact on product quality when caught through training courses for fishermen on new methods in tuna fishing.

Consumption markets for products: The impact of the import-export policy will affect the market, giving products a good chance to enter and develop markets, especially foreign markets. Through information mechanisms, promoting promotion activities, supporting links with distributors, helping businesses' products more opportunities to penetrate and expand the market.

Logistics services: The policy of importing and exporting tuna products not only affects the fishing activities, the market of the chain, but it also affects the logistics services. Spending out necessary services for activities of exploiting, storing and supplying products. The development of logistics services will indirectly affect product quality, quantity of exploited and processed products, product prices, and benefits of chain actors.

Product price: Impact on the cost of exploitation, changes the cost of exploiting the product. The impact of the operator's total initial investment cost, the impact on the cost of the extraction, and the benefit of a chain actor.

Criteria for evaluating the tuna product supply chain

Requirements for a product supply in general and tuna product in particular need to ensure issues such as product quality, cost, time and price. Therefore, the criteria for evaluating the supply chain of tuna products need to be assessed on the following aspects: (Appendix 5)

- Performance of the tuna product supply chain: Evaluated through the following criteria: Revenue, cost, profit and return on investment.
- The flexibility of the chain: Allows the chain to be flexibly changed in the supply of products: quality, quantity, price in accordance with market conditions
- Quality of goods: Sensory, physical and chemical properties, reliability, convenience of products when consumed, traceability, preservation, reserve, extraction method ..

5. International experience in tuna product supply chain

Indonesia is one of the Asian countries that export many seafood products to the world market. In the aquaculture and fishing sector, in addition to focusing on improving quality and diversifying products, Indonesia also pays special attention to environmental protection and conservation of natural resources. Indonesia has many strong and synchronous policies and measures to manage aquaculture and seafood processing activities, minimizing the level of environmental pollution to improve the ability and reputation of exported seafood products.

In order to meet the requirements of Japanese seafood import markets, Indonesia has implemented (i) closely and unified management of aquaculture and seafood processing from central to local; (ii) Strictly control the import of food, chemicals, antibiotics for aquaculture production, especially environmental pollutants; (iii) Invest in modern equipment equivalent to EU standards; (iv) Training and improving the qualifications of examiners; (v) Develop good farming practices (GAP) and apply widely throughout the country; (vi) Research and breed aquatic breeds with high productivity and quality, creating clean aquatic breeds; (vii) The fishery promotion work promotes the dissemination of the EU's environmental regulations on imported agricultural and aquatic products to aquaculture households; training and technology transfer on clean aquaculture, preliminary processing and raw material preservation for farmers and fishermen; (viii) Establish environmental warning monitoring centers in farming areas.

Members in the supply chain of aquatic products such as fishermen, traders, processing enterprises, distributors, retail systems and customers. Businesses and members of the fisheries supply chain are strictly regulated, through meeting standards for fishing, harvesting, processing, and other regulatory authority regulations. Thereby, ensuring the interests of customers, protecting the country's aquatic resources, avoiding negative impacts by unfair competition activities in the market. For Indonesia, the seafood supply chain needs

to be properly managed. In which, the risks in the chain must be minimized through specific steps: Identifying risks; risk analysis; risk assessment and risk treatment.

Tuna, shrimp and crab are Indonesia's top three fishery products. Tuna is considered to be one of the world's popular products with high economic value. The majority of tuna species in the international market are skipjack (*Katsuwonus pelamis*), bigeye (*Thunnus obesus*), yellowfin tuna (*Thunnus albacares*), skipjack (*Thunnus alalunga*), and bluefin. North Atlantic (*Thunnus thynnus*), Pacific bluefin tuna (*Thunnus thynnus* *directionalis*) and Southern bluefin tuna (*Thunnus maccoy*). Tuna is supplied by more than 70 countries. Indonesia's location, surrounded by the Indian and Pacific Oceans, has a suitable environment for tuna. Therefore, helping Indonesia have conditions to become the largest tuna-producing country. Most of the tuna caught in Indonesia is from the Pacific Ocean and the rest from the East Indian Ocean. In 2014, Indonesia exploited tuna with the largest production for more than 600,000 tons, followed by Japan and Taiwan. Skipjack and yellowfin are the two main species of tuna caught mainly in Indonesia. Most of the tuna caught in Indonesia is processed into products, such as: frozen or smoked, dried and salted. A small amount of tuna caught in fresh form is supplied to the domestic market and the smallest portion is exported.

As a country with the largest volume of tuna catches and an important product of the fisheries sector, Indonesia has researched and developed strategies for Indonesia's tuna supply chain. In particular, the identification of potential risks to the tuna product supply chain is guided by MMAF (Indonesian Ministry of Fisheries), as well as measures to cope with risks. Risk analysis focuses on 3 main groups: Potential risks; risks in management activities; information risks. To minimize these risks, the exploitation, processing and supply should focus on quality management standards such as: GMP / GHP (Good Manufacturing Practices / Good Hygien Practices); HACCP, TQM and Quality Management System.

In the seafood supply chain in general and the tuna product supply chain in particular, the government agencies must strengthen fisheries management and improve the working conditions for fishermen. Besides, the support for businesses and fishermen to access new standards as required by the market. At the same time, the regulator carries out activities, such as: preventing illegal, unreported and uncontrolled fishing, intensifying the implementation of data recording, traceability, and sustainable fisheries development and effective supply chain management.

Indonesian tuna products: Frozen tuna, tuna fillet, whole tuna for Japanese market are classified into 4 categories:

- (1) The fish meat must be red, have a firm texture, with little or no fat, and meet the high standards for sashimi products in the Japanese market.
- (2) Fish meat must be red, with firm texture, translucent and fat-free to meet Japanese grade A standards of frozen tuna. These products can be processed with sashimi products or processed dishes in restaurants.
- (3) Tuna with red or brown meat, not translucent, with firm texture, which meets the Japanese market's B grade frozen product standard.
- (4) Brown and gray tuna, fleshy texture, not translucent, and fat free for processed products.

The Indonesian tuna product supply chain is organized as follows:

- Unprocessed products, after being caught and transported ashore, will be gathered and classified by buying businesses by product groups: Whole, fillets, suitable products. for processing.

- For group of fresh tuna products, transported by air to the Japanese market by exporters.

- In the Japanese market, tuna products are continued to be distributed by importers through the auction center, to restaurants, retail supermarkets.

Organization of cold storage chain for Indonesian tuna products:

Functionally complete cold chain system, there are three elements integrated in the cold chain system:

- Product. Factors affecting product quality: specificity of physical properties, specific temperature and humidity conditions (perishability and fragility of the product; setting requirements on processing construction of cold chain). The process of handling cold chain products must be consistent with the product characteristics that are the deciding factor for the quality of the products.

Origin / destination. Transport distance is considered the factor affecting the quality of tuna products. The long distance transported to the point of destination will pose many complex requirements for the cold chain.

- Distribution. Depending on the type of product that determines the appropriate method of distribution, the product must be transported at the most appropriate temperature, the storage environment must be controlled during transport (containers, trucks and warehouses, etc). Therefore, the refrigeration transport operator must control the cooling temperature in order to maintain product quality during transport (packaging, refrigeration, etc.). In the distribution activities, the good implementation of the cold chain process has become a strict requirement for Indonesia's tuna product supply chain.

For businesses, consumers' interests are guaranteed when using safe or quality products. Therefore, the enterprises in the chain need to comply with the policy and build a plan. In the business aspect of the chain, there is a need to develop accountability processes and manage input resources; perform rotation and training; building information systems; performance evaluation and continual improvement. In the exploitation and processing of products, it is necessary to assess the limitations, opportunities and other factors to ensure the quality requirements and safe products when supplied to the market. Applying quality management standards required by state management agencies and relevant to the market.

The organizations that affect the Indonesian supply chain of tuna products:

Government agencies (Ministry of Fisheries and Fisheries [MMAF], Ministry of Trade); Research Institute (Fisheries and Fisheries Research and Development Agency, SFP); Production and Exporters Association [Association of Longuna Tuna Indonesia / Asosiasi Tuna Longline Indonesia (ATLI), Indonesia Tuna Association / Asosiasi Tuna Indonesia (ASTUIN), Fish Marketing and Processing Association, Companies in Indonesia / Asosiasi Pengusaha Pengolahan dan Pemasaran Perurean Indonesia AP5I]]; Other influential departments [Fisheries Products Laboratory, Development and Testing, ice plants, Central and Western Pacific Fisheries Commission (WCPFC)) and Ocean Tuna Commission (IOTC)].

6. Conclusion

Vietnam is considered as one of the leading suppliers in the world seafood market in the past decade, Vietnam seafood industry is still only in the segment of raw material production and processing. export of raw products. In the tuna product chain, concept products, brands and distribution, the high added value links still belong to foreign enterprises. Under the macro-level approach from the success and failure of major tuna exporting

countries in the world such as Indonesia, the Philippines, some lessons can be drawn to complete the chain. Seafood products exported to enterprises in Vietnam are as follows:

a. On the business side

First, the cold chain: It is necessary to develop a good storage system for tuna and tuna products, to ensure the temperature requirements, to maintain the freshness of the product, to prevent chemical residues and possible contamination. microbiological, prevent environmental pollution, set modern standards for cold chain in accordance with world requirements and trends.

Second, in terms of production and export processing: Vietnamese tuna processing and export enterprises need to closely link all stages in the supply chain, the stages in the chain can use exploiting, controlling quality, information systems, management standards according to international standards, achieving high efficiency to ensure products competitive in the world market. Accessing new technology and advanced production system, meeting food safety standards, maintaining on the one hand traditional markets, on the other hand continuing to expand other potential markets. Focusing on increasing quality, cutting costs to ensure the cost of export products.

Thirdly, on developing export markets and building brands: Vietnamese tuna processing enterprises need to pay attention to export promotion activities. In particular, there is a need to diversify promotion activities for the Japanese market. Meet export, processing, market expansion and training standards; help seafood exporters explore the market.

b. On the State side

Firstly, the Vietnamese seafood industry needs to build links and closely manage the supply chain of seafood for export, especially for tuna products. Work has to start with extraction, transportation, processing, packaging and exporting. The stages in the chain must apply scientific methods focusing on the production of products with high added value and efficiency to ensure competitive products on the world market to raise prices. value added for businesses are actors in the chain.

Secondly, establishing the Department of Quality Control and Fishery Inspection to unify seafood quality management and certify export products with food hygiene and safety quality. Manage the quality of exported seafood products from the exploitation, production, processing, and export processing enterprises.

Third, build a common brand for Vietnam's exported seafood, private brand for Vietnamese tuna products, build on quality. All actors participating in the tuna supply chain must comply with quality standards.

Fourth, the Government needs to manage the quota of farming and exploitation: Management of quota exploitation is the best management tool in protecting resources, avoiding uncontrolled exploitation, meeting the requirements. to protect marine resources and comply with traceability requirements.

Fifth, control the environment: Vietnam's seafood export industry should apply better control methods of tuna fishing; changing producers' behavior towards sustainable exploitation and environmental protection; promulgating appropriate legal regulations to manage; technology development and establishment of quality standards for tuna products in accordance with international standards.

References

- i. *Ministry of Agriculture and Rural Development (2015), Promulgating the plan for management of tuna fisheries in Vietnam, No. 3562 / QD-BNN-TCTS (1)*

- ii. *Ministry of Agriculture and Rural Development (2013), "Project on organizing the opening, purchasing, processing and consumption of tuna chain", Project*
- iii. *Ministry of Industry and Trade (2019), Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), Website: <http://cptpp.moit.gov.vn/default.aspx?page=overview> & do Ministry of Finance (2013), Clause 7 Article 10, Circular, No. 219/2013 / TT-BTC (28)*
- iv. *Central Executive Committee (2007), Sea Strategy to 2020, Resolution, No. 09-NQ / TW*
- v. *Trade Promotion Agency (2016), Japan seafood market report, Report, Hanoi - 2016*
- vi. *Government (2014), Some fisheries development policies, Decree, No. 67/2014 / ND-CP (6)*
- vii. *Ngo Thi Huong Giang (2015), "Building the supply chain of Thai Nguyen tea", Doctoral thesis, Trade Research Institute*
- viii. *National Council (1995), Vietnam Encyclopedia, Vietnam Encyclopedia Compilation Center, volume 1*
- ix. *Le Huy Khoi (2014), "Increasing the added value of the coffee side in the global coffee value chain", Economic Doctoral thesis, Trade Research Institute*
- x. *Nguyen Huu Khanh, Ho Thi Bich Ngan (3/2011), "The situation of preservation and quality management of post-harvest aquatic products on offshore fishing vessels in some central provinces of Vietnam", Tap Journal of Science and Development, volume 9, number 5: 772-779*
- xi. *Vo Thi Thanh Loc (2006), "Improving the quality of shrimp in the supply chain of seafood enterprises in the Mekong River Delta", Rijksuniversiteit Groningen Research and Development Center, The Netherlands*
- xii. *Nguyen Van Lich, Phung Thi Van Kieu, Nguyen Thi Nhieu, Bui Huu Dao (2004), The European Union's Environmental Regulations on Agricultural and Fishery Imports and Vietnam's Responsibility , National Political Publishing House*
- xiii. *Huynh Thanh Lie, Do Thi Thanh Vinh (2014), 'Promoting export of tuna products to Europe - The case of Hai Vuong Limited Liability Company - Khanh Hoa Province ', Journal Fisheries Science and Technology, No. 2/2014, page 116-121*
- xiv. *Michael Hugos (2010), Principle of Supply Chain Management, Ho Chi Minh City Publishing House*
- xv. *Mentzer, Min, Nix, Smith and Zachia Min, Nancy W, Carlo D. Smith and Zach G. Xacharia (2001), "Defining Supply Chain Management", Business Logistics Journal*
- xvi. *Vietnam Association of Seafood Exporters (2015), Report of Vietnam Association of Fisheries Exporters, Vasep Trade Promotion and Training Center*
- xvii. *Nguyen Van Nen (2015), "Analyzing the linkages between actors in the coconut value chain in Ben Tre", University of Economics - Law, VNU HCMC*
- xviii. *Philip Kotler (2010), Basic Marketing, Labor and Social Publishing House*
- xix. *Do Thanh Phong (2015), "Research and application of supply chain management for seafood processing enterprises in Ba Ria - Vung Tau", Proceedings of S&T research and application, volume IX, period period 2013-2015, Ba Ria - Vung Tau University*
- xx. *Vietnam National Assembly (2005), Vietnam Civil Code, No. 33/2005 / QH11*
- xxi. *Rachel Wilshaw, Liesbeth Unger, Do Quynh Chi, Pham Thu Thuy (2013), Labor Rights in Unilever's Supply Chain: From Law Compliance to Practical Practice, Oxfam Research on Labor Issues in the supply chain of Unilever Vietnam*

- xxii. *Huynh Thi Thu Suong (2012), "Factors affecting cooperation in the furniture supply chain, case study: Southeast region", PhD thesis, University of Economics, HCMC. Ho Chi Minh*
- xxiii. *Prime Minister (2013), Master Plan on Fisheries Development to 2020, Vision 2030, Decision, No. 1445 / QD-TTg*
- xxiv. *The Prime Minister (2015), Approving the Strategy for International Economic Integration in the Agriculture and Rural Development Sector to 2030, Decision, No. 1684 / QD-TTg*
- xxv. *National Assembly (2006), Document of the Tenth Party Congress*
- xxvi. *National Assembly (2010), Law on Food Safety, No. 55/2010 / QH12*
- xxvii. *Dinh Van Thanh (2010), Strengthening the participation capacity of Vietnamese agricultural products in the global value chain, Industry and Trade Publishing House*
- xxviii. *Vo Toan Thang (2012), "Some thoughts on building linkages for value chain production development", Thai Nguyen University*
- xxix. *Directorate of Fisheries (2018), Report on fisheries sector 2018, VIETFIRST, No. 30/5/2018*
- xxx. *Doan Thi Hong Van (2008), "An Overview of Vietnam's Seafood Supply Chain", Institute of Fisheries Economics*
- xxxi. *VietNam Export (2014), Japan Market, No .: 04/06/2014*
- xxxii. *Trade Research Institute (2006), Solutions to increase the participation of Vietnamese businesses and products in the global production and distribution network after Vietnam's accession to WTO, Ministry-level project*
- xxxiii. *Nguyen Thi Van, Nguyen Thuan Anh, Tran Thi Bich Thuy (2016), "Proposing feasible fresh seafood supply chain model, suitable for the conditions of Khanh Hoa province", Journal of Science - Fisheries Technology, No. 4, pp. 153-161.*