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The Root Causes Analysis of Indonesia's Fishery Products Rejection in the United States of America and European Countries during 2010 – 2020

Analisis Akar Masalah Penolakan Produk Perikanan Indonesia ke Amerika Serikat dan Eropa Tahun 2010 – 2020

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Abstract

This study aimed to determine the number of cases, causes, and main rejection factors of Indonesia's fishery products by the USA and European markets. Data were obtained from the websites of USFDA (USA) and RASFF (Europe) from 2010 to 2020. Pareto analysis and fishbone diagram were used for analyzing data that informants validated from selected exporters and experts. Within the observed period, there were 2,318 cases of rejection in the USA and 79 in Europe. The highest case was in 2011 in the USA and 2012 in European markets. Based on Pareto analysis of rejection cases, the main factors that accounted for more than 80% of rejections in the USA were filthy and Salmonella; meanwhile, in Europe, were mercury, poor temperature control, Salmonella, histamine, and cadmium. The fishbone diagram result with validation from fishery product exporter shows that human factor, such as the lack of coordination and communication between business actors, especially at the supplier level when selecting raw materials, was considered the cause of rejection (filthy). Establishing well-managed cooperation among business actors within an integrated fish supply chain management is essential to ensure the quality of fishery products.

Keywords: Europe, fishery product, rejection, root causes, United States of America

Abstrak

*Penelitian bertujuan untuk mengetahui jumlah kasus, penyebab dan faktor utama penyebab penolakan produk perikanan Indonesia di Pasar Eropa dan Amerika. Data diperoleh dari website USFDA (Amerika) dan RASFF (Eropa) dalam kurung waktu 2010 – 2020. Analisis data yang digunakan yaitu analisis pareto dan diagram tulang ikan, yang divalidasi oleh informan dari eksportir terpilih dan ahli. Hasil penelitian menunjukkan penolakan produk ekspor perikanan Indonesia di pasar Amerika berjumlah 2.318 kasus dan 79 kasus di Eropa dalam kurun waktu penelitian. Penolakan tertinggi terjadi pada tahun 2011 di pasar Amerika dan pada tahun 2012 di Eropa. Hasil analisis data dengan diagram pareto menunjukkan bahwa produk kotor dan Salmonella menyumbang 80% penolakan produk perikanan di Amerika, sedangkan mercury, pengendalian suhu yang tidak bagus, Salmonella, histamine, dan cadmium di pasar Eropa. Hasil analisis diagram tulang ikan dan validasi dengan eksportir menunjukkan bahwa penyebab penolakan untuk pasar Amerika Serikat (*yaitu produk kotor*) adalah faktor manusia, seperti kurang koordinasi dan komunikasi antar pelaku usaha, khususnya di tingkat supplier. Kerjasama antar pelaku usaha dalam pengelolaan rantai pasok ikan terintegrasi dapat menjamin kualitas produk perikanan yang sesuai standar yang dipersyaratkan.*

***Kata kunci**: akar masalah, Amerika Serikat, Eropa, penolakan, produk perikanan*

INTRODUCTION

Fishery products from capture and aquaculture are the most traded commodities for domestic and export markets (Anderson et al., 2018; Crona et al., 2016; Freitas et al., 2020). Indonesia's fishery products export always increases yearly, both in value and volume. Compared to 2019, the export increased by 5.7% in 2020 and reached 5.2 billion USD, even when this period was the beginning of the Covid-19 pandemic. The essential exported fish commodities included tuna, skipjack, squid, cuttlefish, octopus, crab, seaweed, and shrimp, which reached the most significant value of 2.4 billion USD. Export destinations include the

United States of America (USA), Japan, China, the Association of Southeast Asian Nations (ASEAN), Europe, and Australia. According to the Indonesian Ministry of Marine Affairs and Fisheries, the USA was the leading destination country with an average export value of 2.3 billion USD, which was the highest compared to Japan and China, which amounted to 1.5 billion USD and 1.3 billion USD, respectively (Kementerian Kelautan dan Perikanan, 2020).

Such an increasing export trend of fishery products needs to be balanced with the ability to meet food safety requirements and achieve product competitiveness. Fisheries industry actors along the supply chain must handle product quality issues because they might be linked to several health problems (Love et al., 2021). The producers of exported fishery products must have a License of Feasible Processing, Good Manufacturing Practice (GMP) certification, Good Handling Practice, Best Aquaculture Practice, Health Certificate, and Hazard Analysis Critical Control Points (HACCP) certification related to product quality that authorized institutions issue. Other requirements must follow the standards given by the importing countries, such as Europe, which require sustainability certification, ISO 22000, GLOBALGAP, and traceability (Sabrina et al., 2019).

Now, food safety is a concern in international trade. It has become a global problem in free trade. Many exported foods are rejected in importing countries because they fail to meet-global food quality and safety requirements targets. Indonesia is one of the food exporter countries that experience product rejections in America and Europe, recorded by the Food and Drug Administration (FDA) and Rapid Alert System for Food and Feed (RASFF). The most rejection cases (around 80%) of Indonesia's products in America are food (Hariyadi, 2008). Few reports have identified fish product rejection from Indonesia, China, and India in the global fish market due to quality-related issues (Rinto, 2011; Prabhakar et al., 2020; Wen et al., 2018). For the Indonesian case, Rinto (2011) reported that Indonesia experienced 699 rejections of exported fishery products by the US market between 2005 – 2014, in addition to 49 cases of rejection by the European market (Irawati et al., 2019). According to FDA data, there were 146 cases of rejection in 2010 and 381 cases from 2002-2013. The rejections of exported food were 239 in 2009. Overall, contamination rejection dominated Indonesia's product rejection (33-80%). The product can generally be interpreted as filthy, containing contaminants that should not be present in food, e.g., hair, metal, plastic, animal waste, dust, nails, or other contaminants. The filthy cause is that the handling principles have not yet been implemented or are poorly implemented. Indonesian food manufacturers still need socialization and monitoring to implement best practices (Hariyadi, 2008).

In 2020, the export value of Indonesia's fishery products was 3 billion USD, and America is the highest destination country with a value of 1 billion USD. America is the largest fish importer and the primary market of Indonesia's seafood products, reaching 38% of total Indonesia's fish exports globally (Comtrade, 2020). Europe is also a significant global market for Indonesia, consisting of 27 member countries, where each country needs a high food supply. The value of European imports in 2020 reached 187 billion USD and contributed 5% of total global imports (Comtrade, 2020). Based on Trademap (2022), the United States of America and Europe account for a large portion of Indonesia's export earnings. For instance, exports from Indonesia for commodities with Harmonized System (HS) code 03 (live, fresh, chilled, or frozen fish and crustaceans, mollusks, and other aquatic invertebrates) to the US totaled 1.4 million USD or 40.1% of the country's total exports. Meanwhile, for the same HS code category, imports from Indonesia account for around 3%, 0.7%, and 0.6% of total imports in some European nations, including Italy, France, and the Netherlands. Finding the reasons for the rejection and its underlying causes can help to prevent the rejection of fishery export products. The study aimed to identify the causes, contributing factors, and underlying reasons why European and American markets reject Indonesia's fishery products. The rejection root causes analysis of Indonesia's fisheries product exports may be made easier using Pareto analysis and Ishikawa diagrams (fishbone diagrams).

METHODS

Data Collection

This study used the USFDA (USA) and Rapid Alert System for Food and Feed (RASFF) (Europe) databases accessible online on the respective Institute websites. It covered the period starting from 2010 to 2020 for the USA market, meanwhile for the European market starting from

2011 – 2020 because the data of 2010 was no longer available.

The data collection includes rejected companies and locations (only available in the USFDA database), rejected products, and rejection reasons. Based on the data, the number of rejected cases is grouped by product/category. The rejection tendency is graphed based on the results of grouping rejection cases during the survey period. (Raw data is attached or can be accessed at the following link https://bit.ly/3gfNNYT).

Data Analysis

Data were analyzed using the Pareto and fishbone diagram to determine fishery product rejection's causes and primary factors. A Pareto chart orders data from most significant to most minor frequency and shows between important and less important problems that require immediate solving. It describes that 80% of problems are caused by one or two problems (Evans & William, 2008). This method was applied to determine the root cause of the fishery products rejection by the USA and European markets. The fishbone diagram analysis was used to analyze the causing factors of product rejection. This method describes a hypothesis about a chain of causes and effects, identifies potential causes, and coordinates the relationships between variables depicted in a diagram that resembles a fishbone (Evans & William, 2008). The fishbone diagram was created using Qi Macros Excel software. The fishbone diagram development was based on a literature review and validated by experts, including academicians, the seafood industry, and authorized institutions for seafood quality monitoring. The obtained fishbone diagram was used as the guideline for an in-depth interview with the selected exporter experiencing rejection in the USA market to analyze the root cause of product rejection. This key informant may describe as persons who, because of their social positions in a study setting, have access to knowledge about other people, processes, or events that is more broad, thorough, or privileged than that of the general public and who are thus beneficial sources of information to a researcher (Payne & Payne, 2004). The exporters of the European market were omitted since the data of exporters were not available. Information on companies that have been rejected is not available on the RASFF website, and consequently, the most important comes from one key informant. The interview was conducted using a list of questions regarding people (6 questions), environment (5 questions), materials (5 questions), methods (5 questions), machines (2 questions), and measurements (3 questions).

RESULTS AND DISCUSSION

Production and Rejection of Indonesia's Fishery Products by the USA and European Markets

Fishery production has an essential role in economic development. Fishery products are fish or aquatic animals, fresh or processed products, that come from especially capture fisheries. The global demand for fishery products is increasing, so there is an even greater trade to meet the market demand (Khatimah et al., 2021). It requires high production to meet domestic and foreign needs (exports). Indonesia's exported fishery products growth based on trade value and net weight fluctuates yearly. Figures 1 and 2 show that the highest trade value of Indonesia's fishery products in the USA and European markets occurred in 2018, which reached 3,609,728 USD and 2,996,895 USD, respectively. The highest net-weight value in the USA market was 453,920 kg in 2011, while the European market was 347,651 kg in 2013.

Although Indonesia's fishery production experienced high growth trends, a sizable number of rejections have been received. Figure 1 depicts the rejection in the United States market, with a total number of cases are 2,318 cases during 2010 – 2020. The highest number of rejections was 480 cases (Figure 1) in 2011, allegedly due to the implementation of FDA Regulation Number 21 CFR 123 FDA about the guidance of dangerous fishery product control that became effective in April 2012. The regulation has tightened import requirements for fishery products. The total number of global imported fishery product refusal cases in the USA was 9,685 from 2002 – 2013, as reported by Fahmi et al. (2015). The USA rejected Indonesia's fishery products in 3,249 cases from 2002 – 2013 (Fahmi et al., 2015). There were 79 cases of Indonesia's fishery products rejection in the European market during 2011-2020, with the highest number of 14 cases (Figure 2) in 2012.

Figure 2 illustrates an example of Indonesia's seafood product rejection in the European market. The rejections number is still relatively high, notwithstanding fluctuations. Rahayu et al. (2020) reported that the global rejection of fishery

products in Europe was 100 cases from 2014 to 2016. Another study by Irawati et al. (2019) reported that from 105 cases of Indonesia's fishery products rejected by Europe during 2007 – 2017, the highest number of cases were found in 2007, with 17 cases. This finding illustrates that there are still problems with the quality of Indonesia's fishery products to meet the standard of global markets, as rejections occur every year regardless of the case number fluctuation. Identifying the root cause of rejection becomes essential to overcome this problem.

Types of Rejected Fishery Products

According to the Indonesian Ministry of Marine Affairs and Fisheries, fishery products of Indonesia are in the form of raw materials and final products, which include handling, processing, and producing into final products such as fresh fish, frozen fish, and other processed products (Kementerian Kelautan dan Perikanan, 2021). Essential commodities from Indonesia's international fishery trade that are profitable and have crucial economic value include shrimp, tuna, lobster, seaweed, and others. Indonesia's fishery products exported to the USA are diverse, ranging from tuna, shrimp, snapper, crab, mahi-mahi, and others. The most rejected fishery product from Indonesia within 2010-2020 in the USA market was tuna, with 416 cases (55%), followed by shrimp, with 135 cases (18%) (Figure 3). Tuna was also reported as the most rejected fishery product in the USA in 2014 – 2016 and followed by shrimp, with a rejection amount of 340 and 35 cases, respectively (Rahayu et al., 2020).

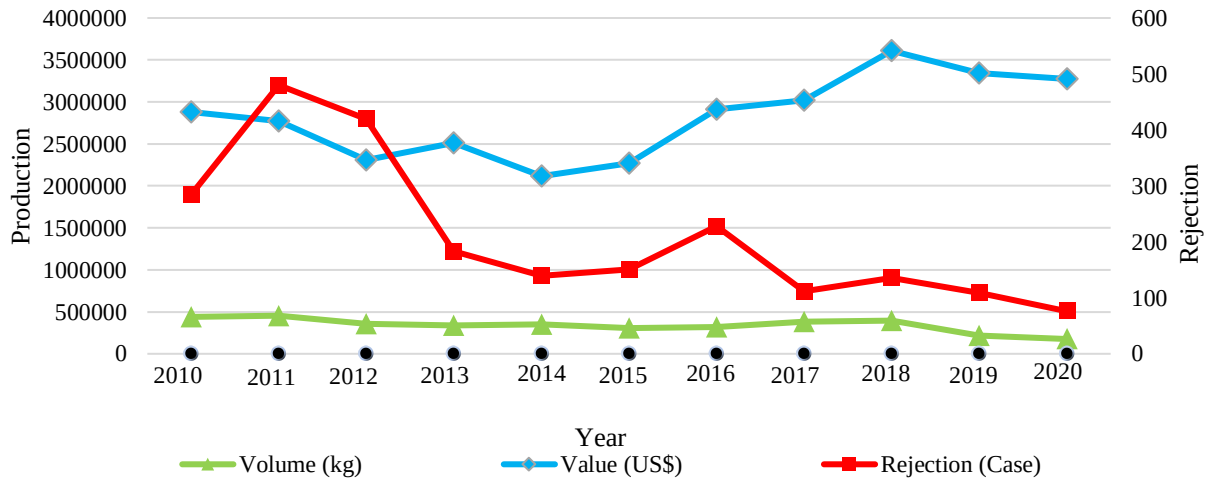

Figure 1. Trends of Production Value and Rejection of Indonesia's Fishery Products by USA Market during 2010 – 2020 (Nurkhasanah et al., 2022)

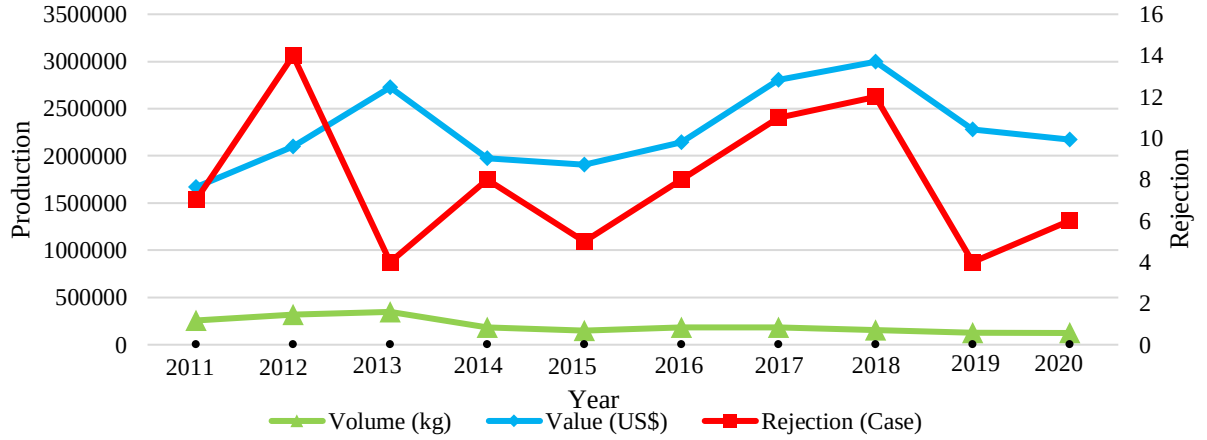

Figure 2. Trends of Production Value and Rejection of Indonesia's Fishery Products by the European Market during 2011 – 2020 (Nurkhasanah et al., 2022)

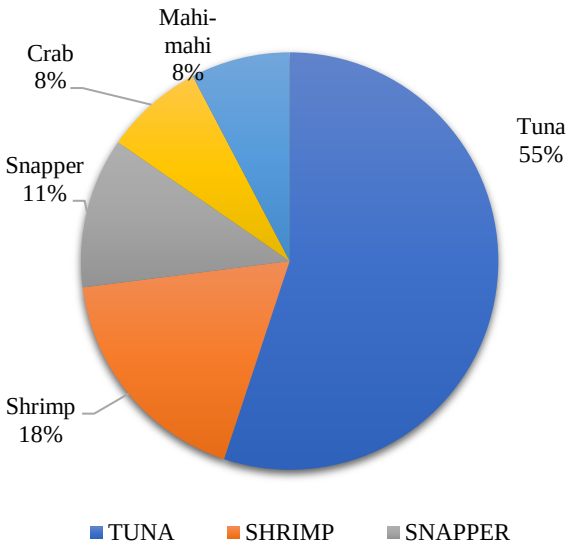

Figure 3. Rejected Fishery Products from Indonesia Exported to the USA (Nurkhasanah et al., 2022)

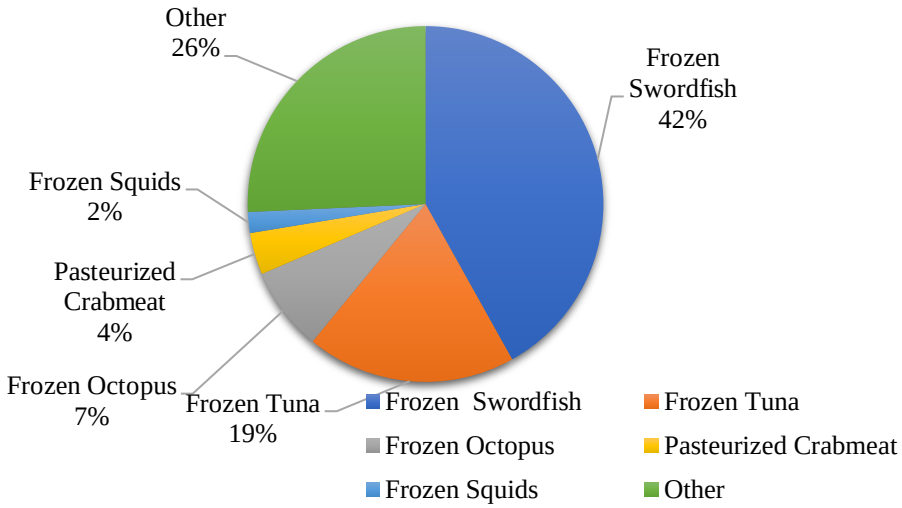

Figure 4. Rejected Fishery Products from Indonesia Exported to Europe (Nurkhasanah et al., 2022)

Indonesia's fishery products exported to Europe are diverse, from frozen swordfish, frozen tuna, frozen octopus, pasteurized crabmeat, frozen squid, and others. The products were exported in frozen or canned form. Figure 4 describes that most rejected products within 2011-2020 in the European market consisted of 44 cases (42%) of frozen swordfish, followed by 20 cases (19%) of frozen tuna. Irawati et al. (2019) reported that during 2007 – 2017 the most rejected products from Indonesia's fishery in the European market were tuna (27 cases) and followed by oil fish (21 cases). This finding reveals that the Scombridae fish products, such as tuna and swordfish, were the essential species of Indonesia's fishery, facing problems in the USA and European markets. The quality issue of these species needs to be addressed seriously.

Despite the challenges of monitoring global operations and supply chains, there are steps businesses can take to manage these risks. All companies that work with global suppliers should adopt a Global Supplier Code of Conduct and ensure it is effectively communicated. Additionally, companies should encourage compliance and procurement employees to work together to find ethical suppliers at reasonable costs. Those in procurement are concerned with

the costs of obtaining materials for the company. As a result, supply chain and procurement managers must work together to make operational decisions to ensure the selection of the best suppliers from an ethical and cost-effective standpoint. Businesses must also work to make sure that their supply chains are diverse. Having only a few suppliers in one area can disrupt operations and will be a disaster strike in the future. During the COVID-19 pandemic, consumers quickly changed consumption patterns, disrupting supply chains. Food going to restaurants was not needed, yet grocery stores had shortages. It was difficult to quickly shift operations, supplies, packaging, and transportation to serve these two markets. These conditions illustrated the importance of supply chains in the economy and the need for contingency planning. Finally, companies must perform regular audits of their suppliers and act against those found to violate company standards.

The export rejection of fishery products can come from not using product traceability. Traceability is essential to ensure food quality products and is needed in food safety. If traceability is implemented correctly, when there is a product change, it can be easily tracked where the product came from, the way of handling it, and the logistics of delivery. The traceability process must be appropriately considered, so there is no labeling error because it will cause many problems related to food safety (Leal et al., 2015). Product management is needed to prevent those conditions by implementing the correct supplier selection process and auditing the supplier selection to produce the products according to the buyer's requirements (Ferrell et al., 2022).

Rejection Causes Analysis using Pareto Analysis and Fishbone Diagram

The Pareto analysis principle describes the rule of 80/20, where 80% of rejection problems are due to 20% of causes. Thus, rejection causes reaching a cumulative of 80% were selected, assuming that 80% was representative of the occurring rejection. Figure 5 presents the rejection causes of Indonesia's fishery exported products in the USA. Filthiness and Salmonella were two dominant causes, accounting for 83% of causing the problem, which required further observation to reduce the cases of Indonesia's fishery products rejection in the USA market.

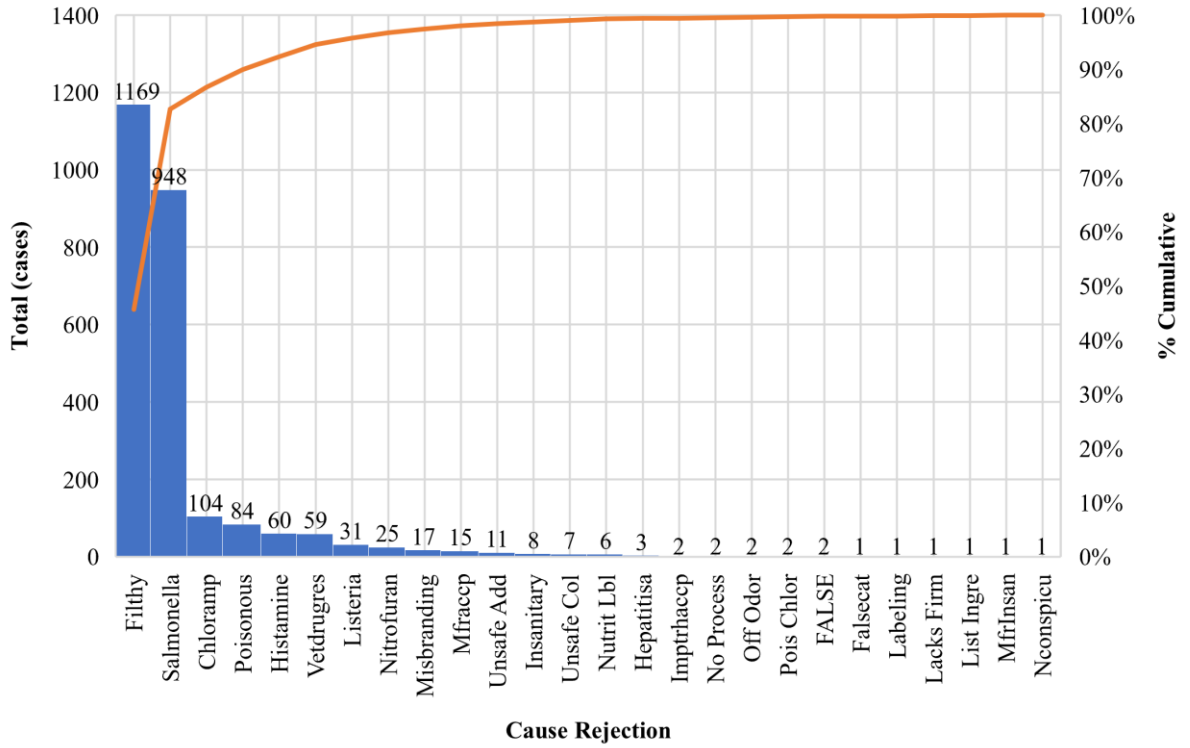

Figure 5. Pareto Chart of Rejection Causes of Indonesia's Fishery Products by the USA Market during 2010 – 2020 (Nurkhasanah et al., 2022)

Filthy was a significant reason for rejection in the supply chain (Love et al., 2021). Filthy is physical contamination from foreign objects in the product, such as hair, metal, plastic, animal waste, dust, nails, and others. Fresh fish and its products containing this contamination are unfit for consumption because they are hazardous to health based on HACCP and applicable laws in several countries, including the USA (Mansur et al., 2021). Lack of knowledge about filthy, low hygiene practices, inaccurate packaging, and product layout can cause filth (Mansur et al., 2021). China also had 1,161 cases of rejected seafood due to being filthy (Wen et al., 2018).

Salmonella is a bacterium that originates from the digestive tract of animals and humans. Its presence in food is associated with poor sanitation and hygiene practices during production. When microorganism contamination occurs in the product, it will not pass the quality standard and become unsafe for consumption. Salmonella contamination in fishery products can be caused by contamination of workers who neglect to wash their hands after handling fish, dirty equipment due to poor and unstandardized equipment maintenance, and water usage that does not meet the quality of clean water standards (Pasue et al., 2016). According to Indonesian National Standard (SNI), the limit of Salmonella in food is negative (Gunawan et al., 2021).

Figure 6 presents the rejection causes of Indonesia's fishery exported products to European countries. Mercury, poor temperature control, Salmonella, histamine, and cadmium were the leading causes of rejection, contributing 86% of rejection causes. Salmonella was also the rejection cause in the European market, the same cause as in the USA. These five essential issues must be considered a severe concern to reduce the rejection cases of Indonesia's fishery products in the European market.

The cause of Indonesia's fishery products rejection in Europe was the presence of heavy metals, including mercury and cadmium. Mercury is a dangerous metal found in contaminated air, soil, and waste disposal water. Organic mercury, specifically monomethyl mercury (CH3Hg+ or MeHg), is the most toxic form of mercury commonly found in the environment, and contaminated fish consumption is the most common human exposure to MeHg (Zillioux, 2015). Cadmium is a white metal carcinogenic and the most commonly found toxic metal in the natural environment (Winiarska-Mieczan et al., 2018). Mercury and cadmium contamination in the water leads to bioaccumulation in fish bodies. Migratory and predatory fish will accumulate a

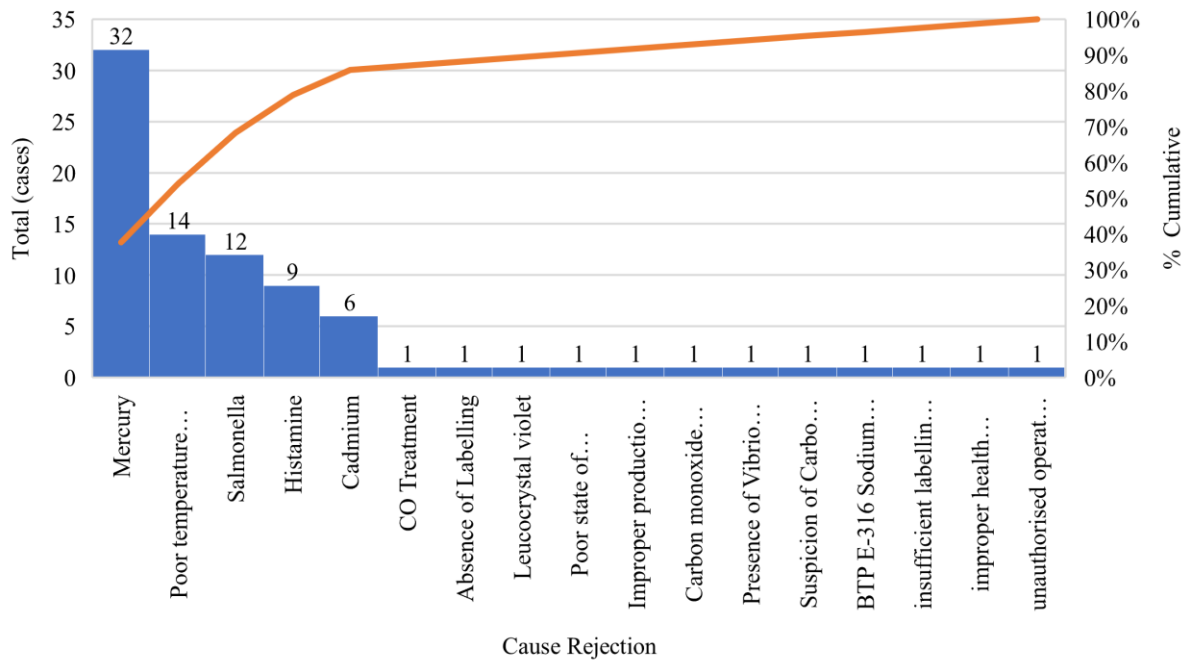

Figure 6. Pareto Chart of Rejection Causes of Indonesia's Fishery Products by the European Market during 2010 – 2020 (Nurkhasanah et al., 2022)

large amount of heavy metal in their bodies depending on their levels in the food chain (Jinadasa et al., 2013). Top predator fish accumulate the highest amount of heavy metal (biomagnification). The mercury threshold in fish products permitted by the Indonesia Food and Drug Administration, which is called *Badan Pengawas Obat dan Makanan* (BPOM), is 0.5 ppm, while in Europe, based on the European Commission (EC) standard No. 466/2001 is 0.5 ppm wet weight. According to World Health Organization (WHO), the tolerable mercury level in the human body is 0.005 ppm/week (Suratno et al., 2017). The European limit of cadmium contamination in food products is 0,05 – 1,0 mg/kg (ppm) (European Commission, 2021), while in Indonesia, it is allowed in the range of 0,1 - 1 mg/kg (ppm) (Marwah et al., 2015).

Improper temperature control at all stages during the entire cold chain of seafood distribution may increase the product's temperature. During transportation to the destination country, temperature fluctuation may occur. Ndraha et al. (2018) reviewed several reports that seafood products (cold loin and haddock fillet) experienced an increase in temperature higher than the recommended for 17% – 36.1% of the total time required for delivery by air and sea transportation. Microbial development will be affected by a rise in fish temperature above 3 °C. Monitoring the container's temperature during transportation to ensure that it remains constant at -20 ℃ is crucial for preventing microbial growth (Abdullah & Tangke, 2021).

In addition to Salmonella, heavy metal, and improper temperature control, histamine is another issue in Indonesia's fishery products, as it is included in the top five rejection cause in the USA and European markets. Histamine is a critical parameter for determining the quality of fishery products, especially Scombridae fish such as tuna, skipjack tuna, and swordfish. Histamine is known as a low molecular weight biogenic amine. It is heavy and bioactive. Histamine level is suggested as a quick indicator of fish spoilage. Scombroid poisoning is a toxicity caused by ingesting spoiled dark-flesh fishes, mainly of the scombroid family (Hassan et al., 2020). The maximum histamine standard in Indonesia's tuna products, according to Indonesia National Standard (SNI), is 100 ppm (Badan Standardisasi Nasional, 2021), meanwhile in the USA is 50 ppm (Food and Drug Administration, 2022), and in Europe is 100 ppm (Debeer et al., 2021). The nature of histamine accumulation in fish made the complexity of its measurement. The variability of histamine between individual species and the difference in histamine distribution in the fish body part could cause analysis results differences. Therefore, the lot sampling plan, sample collection, and the number of samples must be considered to accommodate this variability (Food and Drug Administration, 2022).

Understanding the root cause of rejection using cause and effect diagrams (fishbones diagram) helps to know the factors that may (have a chance) cause problems to arise (affect the results). The fishbone diagram is based on the Pareto diagram results so that the most significant cause of rejection is known. The reasons for rejection in the USA market were filthy and Salmonella (83%). The fishbone diagram preparation was based on the literature review results and validated by the practician (the practitioner has 18 years of expertise in the fishing industry, particularly in quality control, and is the general manager of a fish exporting business) and academician (lecturer and researcher in fish quality) to determine the factors causing rejection, which consist of 6 elements: environment, machines (equipment), materials, measurement, methods, and people (Liliana, 2016). The fishbone diagram development is summarized in four steps: identifying the problem, looking for the main factors involved, identifying the possible causes, and analyzing the diagrams made (Liliana, 2016). The root cause of the rejection case in the USA market was presented in the cause-and-effect diagram shown in Figure 7.

The obtained fishbone diagram was then used to interview one of the seafood companies that experienced rejection in the USA market (company XYZ). The company XYZ was in an industrial centralization established in 2001. Frozen tuna was one of the products from this company. This company had a share of 95% of the export market and 5% of the domestic market. XYZ's food safety and quality management system has been certified as GMP, SSOP, and grade A HACCP. The water and ice used along the production line have met the requirement of clean water quality by the Ministry of Health No. 32 – 2017. Standardized waste management has been conducted by appropriate processing of liquid waste. Storage of materials has been handled with good care by constantly checking the temperature

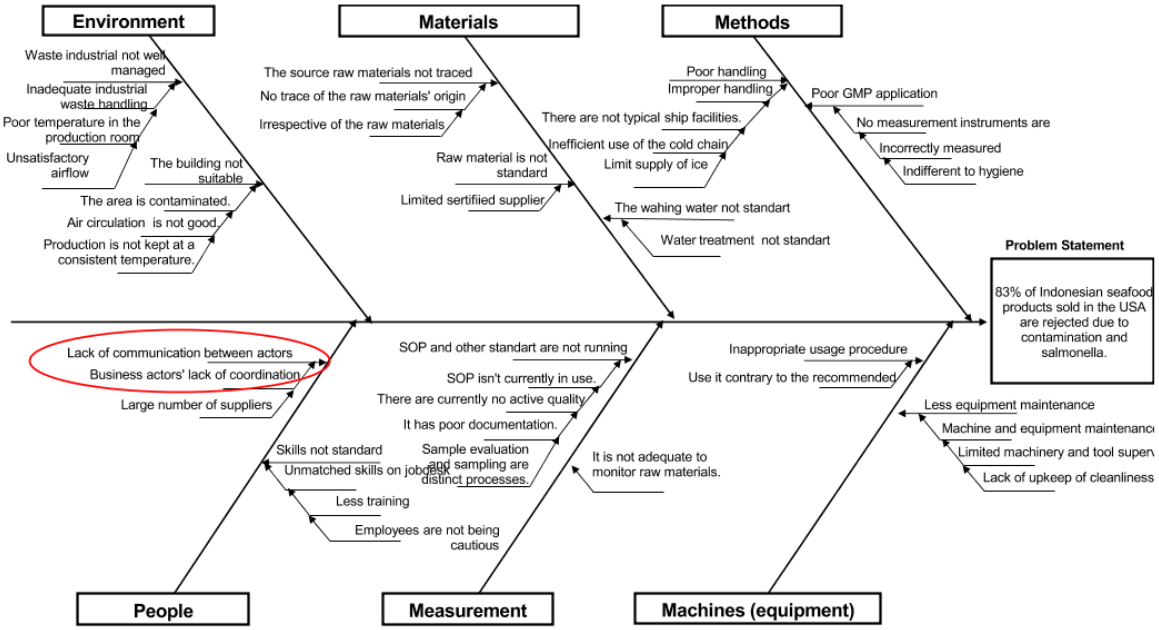

Figure 7. Fishbone Diagram (Nurkhasanah et al., 2022)

stability of lower than <5 °C. Overall, the company XYZ's food safety and quality management application was categorized as good. However, company XYZ is still experiencing product rejection. One crucial factor that was considered an obstacle in the company XYZ was people.

The Ishikawa diagram or fishbone diagram, as shown in Figure 7, illustrates the different causes that could result in the rejection of fishery products. Barsalou (2015) suggested that when the probable reason for a failure cannot be determined, it is helpful to encourage brainstorming through a cause-and-effect diagram using the six Ms concepts—man (people), measures, material, milieu (environment), methods, and machines. The diagram shows the connection between a specific issue or impact and all the variables that affect or contribute to the effect. For instance, we divided broad critical environmental issues related to the rejection of fish products into the environment in the plant, the environment surrounding the plant, and the water quality in the fishing ground. Such findings are similar to Saputra & Hariyadi (2011) who categorized the environmental-related issues for the seafood products rejection into three categories: around the factory, pest nests, and water quality at the fishing ground. This research identified numerous elements; thus, the researchers further highlighted essential factors. Masud (2021) suggested narrowing in on the most likely factors or causes and concentrating on taking corrective action. The interview revealed that company XYZ's rejection stemmed from the people issue. The result of this study is consistent with those of Saputra & Hariyadi (2011), who found that environmental and anthropogenic factors have a role in why food exports from Indonesia are rejected. Suppliers vetted by the local Fish Quarantine Agency for Quality Control and Safety of Fishery Products, which is called *Badan Karantina Ikan, Pengendalian Mutu dan Keamanan Hasil Perikanan* (BKIPM), gave the raw materials to company XYZ. When suppliers, industry, and BKIPM did not communicate and coordinate the requirements for the raw materials to be used in manufacturing, the buyer's specified product standards were not always reached. Quality assurance is required throughout production (Bimantara & Triastuti, 2020). The personnel in businesses involved in the production process lacked knowledge and training, which was another issue with the people element. The employees must be capable of handling raw materials and using machines safely. During the production process, the workers' cleanliness must be ensured to prevent contamination of the final

product. Workers are one of the sources of contamination, so it is essential to follow rigorous restrictions for wearing complete attributes and uniforms during production and thoroughly cleaning after usage, including using clean personal protection equipment (PPE) and workers' hygiene.

Training is crucial to guarantee that every worker knows the significance of sanitation and hygiene in all production processes. Regular training was provided, and one of the lessons covered customer satisfaction and product recall. Product rejection persists because some employees, such as in the fish sorting area, need more training. In addition, although Indonesia receives sensory examinations from the USFDA every year, only a few staff are available for the training because of the high expense. Therefore, training sessions must be held regularly to upgrade workers' abilities, including the supply chain actors. Training in GMP, Sanitation Standard Operating Procedures (SSOP), HACCP, and the most recent export destination country regulations is available. The final product quality may be suitably guaranteed for consumption. Then, product rejection can be avoided when all workers thoroughly comprehend and rigorously adhere to the specified processes throughout the process. In China, the rejection of seafood causing food safety issues can be primarily attributed to the imperfections of China's food processing system. Therefore, deploying the most recent technologies, aligning legislation across nations, and enhancing systemization and cooperation among corporate actors is essential. It requires precise regulation, just like in America. It is governed by three different sets of laws: national laws, industrial laws, and internal laws (Wen et al., 2018).

CONCLUSIONS

There were 2,318 rejection cases of the exported Indonesia's fishery products in the USA during 2010 – 2020 and 79 rejection cases in the European markets during 2011 – 2020. The number of rejection cases in the USA market fluctuated but has decreased tendency, while it increased in the European market. The rejection causes of exported Indonesia's fishery products by the USA market were filthiness and Salmonella, which accounted for 83% of the causes. While in the European market, the rejection was caused by mercury, poor temperature, Salmonella, histamine, and cadmium which contributed to 86% of the causes. One of the root problems of Indonesia's fishery products in the USA, caused by filthiness and Salmonella, was human factors, including the lack of coordination and communication between business actors, especially at the supplier level, in selecting raw materials.

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