



HALAL HORIZONS: REVOLUTIONIZING SUPPLY CHAINS AT INDONESIA'S FISHERY PORT

**Abdurrahman Faris Indriya Himawan¹, Mohamad Hazeem Sidik², Md Zaki Muhamad Hasan³,
Irma Sonya Suryana⁴, Wan Muhammad Azim bin Wan Abdul Aziz⁵**

Faculty of Economic and Business, Universitas Muhammadiyah Gresik, Indonesia¹

Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Malaysia^{2,3}

Faculty of Economic and Business, Institut Teknologi dan Bisnis Ahmad Dahlan, Indonesia⁴

Faculty of Language Studies and Human Development, Universiti Malaysia Kelantan, Malaysia⁵

Email: faris@umg.ac.id, hazeem.a18e031f@siswa.umk.edu.my, zaki.mh@umk.edu.my,

irmasonyasuryana@gmail.com, e21e050p@siswa.umk.edu.my

ABSTRACT

KEYWORDS

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The purpose of this study is to examine the supply chain management process carried out by fishermen in their search for fish at a Fishery Port in East Java, Indonesia. In this study, the researcher directly observed the supply chain management process at the port. Additionally, the researcher analyzed how this process aligns with Islamic Sharia, ensuring that the supply chain activities are considered halal (permissible) and toyyib (wholesomeness). This study employed a qualitative case study method using the Miles and Huberman analysis technique (data reduction, data display, and data verification). The processes involved all stages from the sea and to the end of the supply chain where the catch was being sold to customers. Based on the objective of examining halal supply chain management, the researcher found that the activities performed by the fishermen at the port can be considered halal and toyyib. As this study is only focusing on upstream, future researchers could focus on the full-scale supply chain.

INTRODUCTION

Indonesia is a country located between the continents of Australia and Asia, as well as the Indian Ocean and the Pacific Ocean, making it a highly strategic nation. With a total area of 7.9 million square kilometers, it consists of 1.8 million square kilometers of land, 3.2 million square kilometers of territorial waters, and 2.9 million square kilometers of exclusive economic zone waters. According to data from Kementerian Hukum dan Hak Asasi Manusia (2023), Indonesia is stated to be the world's largest archipelagic state, with the maritime area of 6.1 million square kilometers accounting for 77% of its total area, meaning that Indonesia's marine area is three times the size of its land area. With a coastline length of over 81,000 kilometers and a marine area of approximately 2.7 million square kilometers, Indonesia's coastal and marine regions are renowned for being the country with the largest marine biodiversity and wealth in the world. Aside from its waters, Indonesia also popular with the title as an island nation due to a lot of islands in the nation. Currently, Indonesia has a total of 17,504 islands, consisting of both large and small islands. Due to the vast number of islands and the extensive maritime area, many people in Indonesia rely on fishing as their bread and butter (Kementerian Hukum dan Hak Asasi Manusia, 2023). The government of Indonesia gives special attention to fishermen in order to create skilled and competent fishermen where it would contribute to the country's economy. The government provides support to fishermen through the establishment of the Ministry of Maritime Affairs and Fishery.

The Ministry of Maritime Affairs and Fishery oversees several fishery ports in Indonesia. There are four types of fishery ports in Indonesia, namely: (1) Ocean Fishery Port; (2) Archipelago Fishery Port; (3) Coastal fishery Port, and (4) Fish Landing Base. These types of fishery ports are differentiated based on the intensity of fishery activities conducted at each port. One of the types of ports located in East Java is the Nusantara Fishery Port (PPN) in Brondong-Lamongan. It is one of the major fishery ports in Indonesia. PPN Brondong-Lamongan is classified as a level II fishery port among the types of fishery ports. It is also the largest fishery port in East Java, as evidenced by the intensity of fishery activities carried out by the fishermen there. The port is primarily designed to serve fishery vessels with a size of 15 to 16 gross tons. It also caters to fishery vessels operating in Indonesian Exclusive Economic Zone waters and national waters. The number of fish landed at the port is approximately 40 to 50 tons per day, or around 8,000 to 15,000 tons per year. It is known that the port experiences an increase in fish caught every year. Table 1 illustrated the data of capture fishery production in Indonesia, East Java, and PPN Brondong-Lamongan.

Table 1. The data of capture fishery production in Indonesia, East Java, and PPN Brondong-Lamongan

Years	Ton (t)		
	Indonesia	East Coast	PPN Brondong
2000	3.807.191	298.068	-
2001	3.966.480	296.418	-
2002	4.073.506	394.586	-
2003	4.383.103	414.653	-
2004	4.320.241	320.691	-
2005	4.408.499	322.292	-
2006	4.512.191	375.620	-
2007	4.734.280	382.877	60.769
2008	4.701.933	394.262	52.249
2009	4.812.235	395.510	57.198
2010	5.039.446	338.918	46.432
2011	5.345.729	362.624	49.278
2012	5.435.633	367.922	57.763
2013	5.707.012	378.329	58.145
2014	6.037.654	385.878	71.626
2015	6.204.668	402.569	64.812

Source: PPN Brondong-Lamongan (2018)

It is known that there has been an increase in fish caught at this fishery port. Therefore, the study is interested in examining the supply chain management process within PPN Brondong-Lamongan. Figure 1 Showed the supply chain processes of fish distribution in the respective fishery.

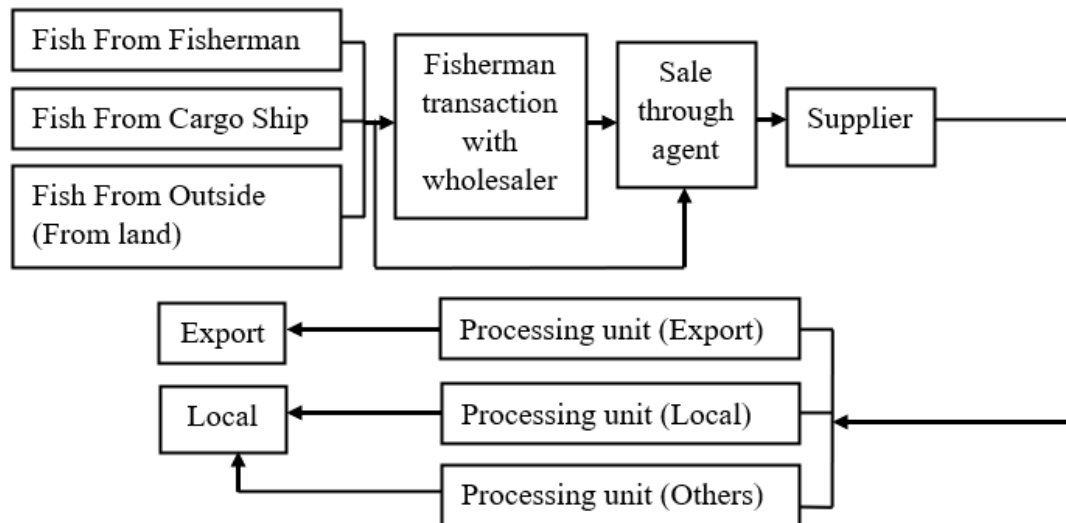


Figure 1. Supply chain processes of fish distribution in PPN Brondong-Lamongan

Source: PPN Brondong-Lamongan (2018)

It can be seen that there are a lot of processes in the supply chain from the beginning where the fish are being landed to the end of supply chain. The movement of goods itself is referred as the supply chain, which is a series of activities involving coordination, scheduling, and control of procurement, production, inventory, and delivery of products or services to customers, including daily administration, operations, logistics, and information processing from customers to suppliers (Heizer & Render, 2006). The supply chain consists of three components: (1) Upstream supply chain, (2) Internal supply chain, and (3) Downstream supply chain (Rozar et al., 2020). The upstream supply chain includes the activities of a manufacturing company and its distributors (which can be manufacturers, assemblers, or both) and their connections to their own suppliers (Chin et al., 2015). The relationships with suppliers can extend to multiple tiers, all the way from raw materials to finished goods ready for distribution outside the company. According to Hayati (2014), there are a few key players in the supply chain which are supplier, manufacturer, distributor, retailer, and customer.

According to Figure 1, there is a lot of room for corruption in each of the supply chain processes. This is due to the increasing supply chain complexity making it easier for its integrity to be breached and making it harder to trace (Ab Talib et al., 2015; Abdul et al., 2009; Tieman et al., 2012). It was also found that cost reduction is among the main issues in the supply chain (Wilson & Liu, 2010). This is supported by previous scholars who pointed out that it is more expensive than ever to remediate the impacts of halal supply chain integrity problems (Zakaria & Abdul-Talib, 2010). According to the interviews with the supply chain players in PPN Brondong-Lamongan, there are issues in the field where the fresh fish supply chain activities in several ports in Indonesia are still tainted by various forms of fraud, such as the addition of preservatives (formaldehyde), artificial coloring agents, bleaching agents, and similar substances. It is widely known that the use of these harmful substances can jeopardize consumer health by causing leukemia and cancers. Secondly, there are also fraudulent practices occurring in the movement process of the fish supply chain, such as the lack of clarity regarding the quantity of the catch directly purchased by fish collectors without proper documentation of the actual quantity of fish. This results in one disadvantage in the transaction and movement process. All the fraudulent practices mentioned are considered impermissible or Haram in

Islamic Sharia law. This is in accordance with the divine decree in the Quran (the holy book of Islam) in Surah An-Nisa, verse 29:

يَا أَيُّهَا الَّذِينَ ءَامَنُوا لَا تَأْكُلُوا أَمْوَالَكُمْ بَيْنَكُمْ بِالْبُطْلِ إِلَّا أَنْ تَكُونَ تِجَارَةً عَنْ تَرَاضٍ مِّنْكُمْ وَلَا تَقْتُلُوا أَنْفُسَكُمْ إِنَّ اللَّهَ كَانَ بِكُمْ رَحِيمًا

The translation: *O you who believed, do not consume one another's wealth unjustly but only [in lawful] business by mutual consent. And do not kill yourselves [for one another].*

Indeed, Allah is to you ever Merciful.” In the mentioned verse, it is clearly stated that in a business's transaction and processes there are prohibition from Allah to not commit unfair trade practice and falsehood. It is also encouraged for Muslim to consume halal food:

وَكُلُوا مِمَّا رَزَقَكُمُ اللَّهُ حَلَالًا طَيِّبًا وَاتَّقُوا اللَّهَ الَّذِي أَنْتُمْ بِهِ مُؤْمِنُونَ

Translation: *And eat of what Allah has provided for you [which is] lawful and good. And fear Allah, in whom you are believers.* (Quran, Surah Al-Ma'idah, verse 88)

From these verses, it is clear as day that Islam prohibits its believers from doing injustice to others. Also, it is emphasized that a Muslim should consume halal (lawful) food, both in terms of the food itself and the entire process of food preparation, including the movement of food from raw ingredients to being served to consumers. Muslims globally are thorough in checking the halal and toyyib status of the food or product they bought daily (Forum, 2009).

Thus, halal supply chain refers to the process of managing the procurement, movement, storage, and handling of halal raw materials, components, semi-finished and non-food items, and related information and documentation throughout the supply chain in accordance with the general principles of Sharia law (Bahrudin et al., 2011; Khan et al., 2018; Soon et al., 2017). This is supported by Tieman et al. (2012), Wilson and Liu (2010) and Tieman (2011) whose pointed out that the concept of halal requires an approach that encompasses the entire supply chain, ensuring complete alignment between the value chain and its supply chain.

The supply chain management with a Halal accreditation is a new field that is still in its infancy. Also, there has not been much scholarly study done on the phenomena surrounding the halal supply chain (Ab Talib et al., 2015; Kurniawati & Cakravastia, 2023; Zulfakar et al., 2012, 2013). According to the past studies, research on the halal supply chain have shown an upward tendency since 2011. Yet, Malaysia produces the majority of publications, with Indonesia coming in second despite having the world's biggest Muslim population (Kurniawati & Cakravastia, 2023). Therefore, there is a need for this study to be done in order to differentiate what is permissible and impermissible in Islam. Thus, the objective of this study is to examine and further understand the condition of the halal supply chain management at an Indonesian's Fishery Port.

RESEARCH METHOD

Research Design

The research approach used in this study is qualitative research. According to Moleong (2021) qualitative research aims to understand phenomena, such as behavior, perceptions, actions, and others, experienced by the research subjects, in a holistic manner and through

descriptive forms using words and language, within a specific natural context, and utilizing various natural methods. The focus of this research is on the Upstream supply chain management at the PPN Brondong-Lamongan. The Upstream supply chain involves activities related to supplying needs, shipping, storing catches, buying, and selling fish, wage distribution, and fish processing. The selected event, referred to as the case, is an actual and ongoing situation, not something that has already occurred in the past. The researcher used three data collection techniques for this study: observation, interviews, and documentation (Creswell, 2021). This involvement includes participating in activities such as fish sales transactions, fish distribution processes, and engaging in various aspects related to the subject being researched. It is expected that the data obtained will be more comprehensive and insightful as the researcher gains a firsthand experience by personally witnessing, interviewing, and documenting the real-time events happening at the PPN Brondong-Lamongan. The unit of analysis of the study are individuals who have a deep understanding of the issues being studied including ship owners and investors, fishermen at the PPN Brondong-Lamongan, wholesalers or buyers of the fish catch at the same port, and fish sorters. Non-key informants are individuals considered knowledgeable about issues related to Islamic Sharia law, such as Islamic scholars or religious leaders. Also, the sampling method used in this study is snowball sampling and purposive sampling.

Data analysis technique

Miles & Huberman techniques proposed that the effectiveness of qualitative data analysis is achieved interactively and continuously until saturation is reached (Sugiyono, 2015). In this research, the data analysis technique follows Miles & Huberman's interactive model, which classifies data analysis into three steps:

- (1) **Data Reduction:** In this step, the researcher selects, focuses, simplifies, and transforms the raw data to make it manageable for further analysis.
- (2) **Data Display:** The second step involves organizing and presenting the reduced data in a way that facilitates the identification of patterns, themes, or trends.
- (3) **Conclusion Drawing/Verification:** In the final step, the researcher draws conclusions based on the data displayed and verifies them to ensure the accuracy and reliability of the findings.

The interactive model allows for a thorough and iterative analysis process, leading to comprehensive insights and a deeper understanding of the research topic.

Data Validity Testing

According to Moleong (2021), data validity testing was done to ensure that each situation or data fulfills the acceptable criteria for a study. Therefore, the data used for analyses would demonstrate true value, providing a basis for application, and allowing external judgments. The data validity testing used in this study is the data Triangulation method. In this study, data triangulation method was done by asking the same questions but to different sources. From the results of these data sources, the researcher then categorizes and describes which perspectives are similar, different, and specific to generate conclusions. Next, this study also asks for another researcher or observer to check the degree of confidence in the data. Utilizing another observer helps reduce bias in data collection. After the triangulation method analysis, the study used member checking method to ensure data credibility. The purpose of member checking is to ensure that the information obtained and used in the report aligns with the intentions of the data sources and informants (Sugiyono, 2019).

RESULTS AND DISCUSSION

Based on the observations and interviews with respondents, it was found that the processes occurring from one stage to the next are in accordance with religious principles, thereby allowing us to conclude that the supply chain activities taking place at PPN Brondong-Lamongan are considered as Halal Supply Chain Management. A halal product is not only judged by its physical appearance but also by the processes involved in its production. A product is considered halal when it meets specific requirements in accordance with Islamic law, such as:

- 1) Halal in its substance/nature,
- 2) Halal in the way it is acquired,
- 3) Halal in its processing,
- 4) Halal in its storage,
- 5) Halal in its transportation,
- 6) Halal in its presentation/serving.

First Step: Halal Preparation Stage

In this stage, the boat owner along with the fishermen/crew will prepare the necessities for the journey. This stage falls under the category of halal processes because the items prepared are halal, and the way they are acquired is also halal. The items prepared include everyday necessities such as cleaning tools, water, and simple and halal food. This is in accordance with the content of Surah Abasa verse 24, which emphasizes the necessity for humans to always pay attention to the food and items they consume and use:

فَلْيَنْظُرِ الْإِنْسَانُ إِلَى طَعَامِهِ

Translation: *Then let mankind look at his food*

From this verse, Allah emphasizes to all humanity that we must pay attention to everything we consume and our other needs. Moreover, we must also be mindful of what we use so that it does not lead to something that becomes forbidden

Second Step: The Sailing Stage

This sailing stage is the core phase in the long supply chain that takes place at PPN Brondong-Lamongan. A person can be considered a fisherman if they sail out to catch fish in the sea. Despite the apparent risks, this profession as a fisherman is solely undertaken to meet needs and responsibilities. The sacrifices made by a fisherman align with the content of Surah At-Taubah verse 105, which emphasizes that work is a necessity for every human being to fulfill their livelihood needs:

وَقُلْ اَعْمَلُوا فَسَيَرَى اللَّهُ عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ وَسَتُرَدُّونَ إِلَىٰ عِلْمِ الْغَيْبِ وَالشَّهَادَةِ فَيُنبِّئُكُمْ بِمَا كُنْتُمْ تَعْمَلُونَ

Translation: *Work, and Allah will see your deeds, as well as His Messenger and the believers. Then you will be returned to the Knower of the unseen and the witnessed, and He will inform you of what you used to do.*

Although there is a command to work through the phrase “Work” as obedient servants, we must still pay attention to the types of work that are permissible and allowed. From the

explanation about the types of work prohibited by Allah SWT, fishing does not fall into that category. Therefore, in this sailing stage, it can be considered a Halal Supply Chain Management because its purpose is purely for work to meet the needs of one's family. Additionally, evidence of its halal nature can be seen in the types of fish caught during this sailing stage. In that essence, all types of fish in the sea are halal for consumption, even if they are dead. This aligns with Allah's words in Surah Al-Maidah verse 96:

اجِلْ لَكُمْ صَيْدُ الْبَحْرِ وَطَعَامُهُ مَتَاعًا لَكُمْ وَلِلسَّيَّارَةِ ۚ

Translation: *It is lawful to you the creature in the sea and its use for food as a provision for you and for travelers.*

In the mentioned verse, it refers to sea creatures. Sea creatures are animals that live in the water and cannot survive outside of it. The saying of Prophet Muhammad PBUH also states that the carcass of a fish is considered permissible (halal) to consume.

أُجِلَّتْ لَكُمْ مَيِّتَتَانِ وَدَمَانِ فَأَمَّا الْمَيِّتَتَانِ فَالْخَوْثُ وَالْجُرَادُ وَأَمَّا الدَّمَانِ فَالْكَبِدُ وَالطَّحَالُ

Translation: *Two kinds of dead meat and two kinds of blood have been permitted to us. The two kinds of dead meat are fish and locusts, and the two kinds of blood are the liver and spleen. (Sunan Ibn Majah: 3314)*

From the evidence, it can be concluded that all sea creatures are halal to consume, regardless of their state, whether they are obtained while still alive or as carrion. This applies to all types of sea creatures, and it doesn't matter whether the one catching them is a Muslim or a non-Muslim. Allah has granted His servants the freedom to consume all sea creatures without prohibiting anything from them, and no specific ritual or process is indicated for their slaughter, similar to how other animals are treated (Qardhawi & Radikal, 2013). In addition to the creatures' captured, the permissibility of this stage can also be observed from the tools used to catch the fish. The appropriate tools used for fishing are those that are safe. Safety here means that they do not harm the surrounding environment and do not pose a threat to the consumers of the fish.

As mentioned in the previous section, the tools used for fishing are nets or seine nets that are safe for the environment and do not leave harmful substances in the fish that could harm the people consuming them.

Third Step: Halal Storage

Storing is one way to keep a product to be in a good condition. This is also done in the supply chain management activities that take place at PPN Brondong-Lamongan. After the sailing stage, the next step is the storage of the fish caught, which is carried out in the holds of the fishing boat. The fish caught are stored while maintaining a low temperature. Observations indicate that the fish storage process in the supply chain management at PPN Brondong-Lamongan fulfills the criteria of being halal and toyyib (wholesome). As mentioned in the previous section, the fish storage process in the boat's storage involves the use of dry ice, which keeps the caught fish at a low temperature and helps inhibit spoilage.

Fourth Step: Halal Fish Trading Transaction

After fishermen return from their trips and obtain their catch, they proceed to sell their catch. There are two different transaction processes based on the type of fishing trip. The fish caught is usually sold directly to the fish auction market at the port by weighing the catch directly. This type of transaction is considered halal as the sale and purchase agreement is clear with regards to the quality and quantity of the goods. On the other hand, there are also that sell their catch in bulk. This kind of transaction could potentially lead to ambiguity, as the buyer may not have a precise understanding of the quality and quantity of the fish being purchased. Generally, for this type of transaction, the sale and purchase agreement is made on the boat while the fish are still in the hold.

In Islamic law, such ambiguous transactions are referred to as "gharar." It involves deception, as there is uncertainty about the existence, size, or condition of the object of the agreement. Gharar in a sale and purchase transaction occurs when a seller deceives a fellow Muslim by selling goods with hidden defects, which the seller knows but does not disclose to the buyer. Such transactions are not allowed in Islam as they involve deception, forgery, and betrayal, effectively consuming others' wealth unjustly. However, a closer examination reveals that the bulk sale and purchase process carried out by ship captains and merchants at PPN Brondong-Lamongan does not involve ambiguity. This is because before the agreement is made, there are steps taken to inspect the quality and accurately count the quantity of the fish caught, followed by determining the price of the fish. The sale and purchase agreement is then conducted, including the delivery of the fish, and concluded with payment. Additionally, prior agreements are usually made, detailing the steps to be taken in case any unwanted issues arise after the agreement, such as discrepancies in weight or fish type. These measures ensure both parties feel comfortable and can continue their ongoing cooperation in fish trading transactions.

Fifth Step: Halal Fishing and Fair Wage Distribution.

The final stage of the supply chain management activities at PPN Brondong-Lamongan is sorting and dividing the catch and wage distribution. Sorting and dividing is carried out by specialized workers and is a follow-up action from the bulk transaction process mentioned earlier. If there are discrepancies found compared to the agreed-upon agreement, the previously agreed-upon arrangements will be implemented. Another stage is the payment of wages, which is a form of responsibility from the ship captain to the workers, as mentioned in the saying of the Prophet Muhammad PBUH:

أَعْطُوا الْأَجِيرَ أَجْرَهُ قَبْلَ أَنْ يَجْفَأَ عَرَفُهُ

Translation: *Give the worker his wages before his sweat dries. (Ibnu Majah: 2443)*

The meaning of this hadith is that as a boss or leader, one is expected to promptly give the workers their wages after they have completed their responsibilities. It is also meant to provide wages according to the agreed-upon time and amount.

This wage system must be accompanied by principles of fairness and the use of a proper system to avoid any disappointment on either side. Islamic Shariah, therefore, sets conditions for such cooperation. The experts in Islamic jurisprudence call it partnership, meaning that both parties should share the profit when successful in their work and bear the loss together in case of failure. Both parties can agree on the terms according to their mutual understanding. This approach aligns with the Islamic principles of building every form of social interaction on

justice and clear wisdom (Qardhawi & Radikal, 2013). A similar approach is seen in the wage distribution process within the supply chain management activities at PPN Brondong-Lamongan. Wages are given to workers in accordance with the agreed-upon amount. If the catch of fish is small, the wage distribution will be relatively low, but if there is an abundant catch during the fishing trip, the wages given will be higher.

Discussion

Based on the research findings and the case study conducted by researchers at PPN Brondong-Lamongan, it can be concluded that the procurement activities carried out by the ship captains and their crews can be considered halal since they obtain the necessary supplies for the voyage through legal and legitimate means. This conclusion is based on the fact that they get the gear needed for their journeys via legal and proper channels. The procurement of gears is deemed as complying with the halal criteria morally and legally. Moreover, it is nearly impossible to check the status of the legality of the fishing gear as nobody would admit that they are committing theft. Also, Islam encourage us to always “husdnuzon” (to be prejudiced towards the good side) with other people. Aside from that, if they really did commit a theft, they are the only one responsible for their action in the day of judgment as they commit an unknown crime. Consequently, the analysis demonstrates that PPN Brondong-Lamongan's procurement practices adhere to halal principles and satisfy the relevant moral and legal requirements. Moreover, during the sailing process, the fishermen and ship captains work honestly and legally in catching fish. They conduct fishing in permitted areas and avoid capturing fish in protected and prohibited zones. This is a responsible, ethical, and un-selfish act from the fishermen of PPN Brondong-Lamongan. This is in compliance with the halal principle and compliance with the relevant environmental and conservation regulations. Therefore, the fishing activity by fishermen is halal and also contributing to sustainable and responsible fishing practices. This is because the government has set up the areas and limitation for the fishermen. For example, it has passed the sovereignty of the nation, unsuitable for fishing as they might endangered themselves, conservation of fish stocks, preventing depletion, protecting endangered species, maintaining ecological balance, adhering to international agreements, avoiding overcapacity, and addressing climate change.

Next, the storage of the caught fish is done naturally and without using any harmful substances. The natural way of storing fishes without using any unsafe preservative is coherent with the teaching of Islam. By abstaining from using any chemical or additives, the fish stored would be safe to consumed and the halal integrity of the fish would remain intact. Additionally, correct handling and temperature control are often included into natural storage techniques, which are essential for avoiding spoiling and keeping the freshness of the fish. This increases the fish's marketability and customer attractiveness in addition to guaranteeing that it stays halal. Therefore, the storage process is considered halal as the quality of the fish is preserved and remains suitable for consumption. In addition, the buying and selling transactions conducted by both parties meet all the requirements prescribed in Islamic law. In Islamic business and finance, the contract agreement must be made without any ambiguity, exploitation and any elements that are forbidden. Also, it is vital to make sure and notice that the transaction status of the trade is in compliance with Islamic guideline and law. As a result, the ongoing dedication to transparency and adherence to Islamic standards in purchasing and selling operations helps to keep the supply chain at PPN Brondong-Lamongan's halal. Hence, the trade at PPN Brondong-Lamongan can be deemed halal, as both parties willingly accept and consent to the transactions. Lastly, The sorting and dividing process conducted at PPN Brondong-

Lamongan is considered as halal activity since it does not involve any elements that violate Sharia laws. To ensure justice and transparency in the distribution of the fish harvest among stakeholders, the sorting and division procedure should be carried out ethically and in accordance with Islamic principles. Moreover, the sorting and dividing processes in PPN Brondong-Lamongan takes into account the welfare of all of the peoples involves in the trade and this reflects a responsible and ethical approach that adhere with Islamic values.

CONCLUSION

Based on the research conducted by the researchers at the PPN Brondong-Lamongan, the focus was exclusively on the upstream supply chain management component. Therefore, future researchers can explore other components of supply chain management, such as downstream supply chain management and fish catch marketing. This comprehensive approach would provide a holistic understanding of the halal supply chain management of fish caught by fishermen, covering the entire process from upstream activities to downstream distribution and marketing. Moreover, this study employs qualitative data by means of observation, interview, and documentation. To suggest, future research could employ quantitative data collection methods; and therefore, the sampling could be enlarged to a larger population and be more representative. This would improve the findings statistical legitimacy and generalizability. As the humankind is approaching the Internet Revolution 4.0 (IR 4.0), there are a lot of potential significant to the HSCM. future researchers could inquire on sustainability, innovation, technology, and Performance of halal supply chain in order to moving forward and comprehend how these developments would be able to change the whole landscape of supply chain and fishery port industry. By implementing and considering these recommendations, a better understanding of HSCM and fishery industry can be attained, contributing to a sustainable growth of fisheries industry.

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