

Study of Mishandling Factors for Dangerous Goods and Perishable Items in Achieving Halal Cold Chain Assurance in Line 1 Consolidation Warehouse

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Abstract. The Objective of the research is to analyze and determine the cause factors of dangerous and perishable goods mishandling during handing at import cold warehouse at Soekarno Hatta International Airport, with descriptive-explorative method using a quantitative-qualitative sourced from the secondary data of shipment volume which has been recorded from January-December 2018 compared with import cold warehouse at Tanjung Priok Port area. The research is using 4 (four) dimensions (Equipment, Man Power, Environment, and Method/Procedures). Data analysis is Fishbone continues with five why keys to find out the solution of root cause and to get the best result to continue with Focus Group Discussion (FGD). Based on the result the warehouse operator still needs to improve the way of warehouse handling and storage that shipment in storage as well to comply with halal cold logistics by more coordination with other institution concerned to ensure shipment handling properly during acceptance, breakdown, storage, and delivery.

1. Introduction

The increasing growth of trade between countries and the level of a country's need for raw materials to perfect finished products, the flow of shipments in this case imported goods which ultimately uses warehousing services and advanced transportation modes that will be sent to the owner of the goods, and in contrary if export goods from the producer side sending to warehousing. And in previous studies, it was found that warehouse operators still need to improve the way of handling and storing and delivery cargo with more coordination with other related institutions. (1)

In the storage process things can happen that are not desired and disrupt the flow of goods traffic, where the imported and exported goods stored are not placed with rules that refer to the halal logistics rules that have been sought by stakeholders such as Halal Product Guarantee Organizing Agency (BPJPH), Assessment Institution of Food, Drugs and Cosmetics Indonesian Council Ulama (LPPOM MUI), because of the lack of training related to handling dangerous goods according to the halal principle of logistics for warehousing or transportation mode owners or agents who place goods in special warehouses and special containers, and also lack of socialization of the regulations that have been implemented, coupled with still not there is an evaluation and study if there are still deficiencies in the technical guidelines for implementing the regulation. Transportation of dangerous goods and perishable goods is an important part of the logistics system. Logistics is a service product, where the service product is more detailed in a Halal Product Process (PPH) in Chapter III of the second part of Article 21 PPH locations, locations and tools must be separated from location, place, and slaughter, processing, storage, packaging, distribution, sale, and presentation of non-halal Products. The location, place, and tool of PPH as referred to in paragraph (1) must: a. maintain cleanliness and hygiene; b. free from unclean; and c. free of non-halal materials (2)

Because of the characteristics of high risk, the management of the risk of transporting

dangerous goods is more attention in the country and abroad. The Risk Analysis of Dangerous Goods' transportation at the macro level, studies of risk is not investigated in nature. This paper discusses environmental risks during the transportation of dangerous goods using system analysis methods(3). The process of integrating existing business activities, including specific activities for the conservation of perishable goods along the value chain, where more suppliers of certain raw materials or more certain semi-product production cells appear to create value for end-users. (4)

Based on Law No. 33 of 2014 concerning Halal Product Assurance, further submitted to Articles 4 and 26, that "Halal is mandatory for all product (article 4), except for Haram Product (article 26)". Likewise, the product definition in article 1.1, that "Product: goods and/or services related to food, beverages, pharmaceutical, cosmetics, chemicals, biological and GMO, as well as the goods to be used or utilized by the community (article 1.1)". Then on the article 67 "Mandatory of halal certification will come into force after 5 years since this law was enacted. Before mandatory halal is enforced, the Government has a right to implement mandatory halal gradually through Government Regulation (article 67)". In practice, this has not been fully implemented for the placement of dangerous goods, namely (Dangerous Goods are articles or substances which are capable of posing" risk to health, Safety, Property or the environment which are shown in the list of Dangerous Goods or which is classified according to the IATA DGR) (5) Goods or substances that can endanger health, safety, property and the environment (6) and Perishable goods. i.e. any item which if not stored under certain conditions, elements or criteria as determined by its life cycle, loses its innate nature or essential quality components thereof and as a consequence it can no longer function as intended as its original (7) which is stored and transported in the refrigerated warehouse of PT JAS Tbk.

2. Methods

2.1. Research Method

2.1.1. Secondary and Primary Data

This study uses secondary data through quantitative recording of the number of imported goods in 2018 compared to the number of imported goods in 2010, In 2010 imported cargo that entered the line 1 Warehouse was 85 thousand tons, while in 2018 the entry was 233 thousand tons, the increase in this 18 year period more than 100%, which of course will affect the flow of goods handling as a whole and specifically

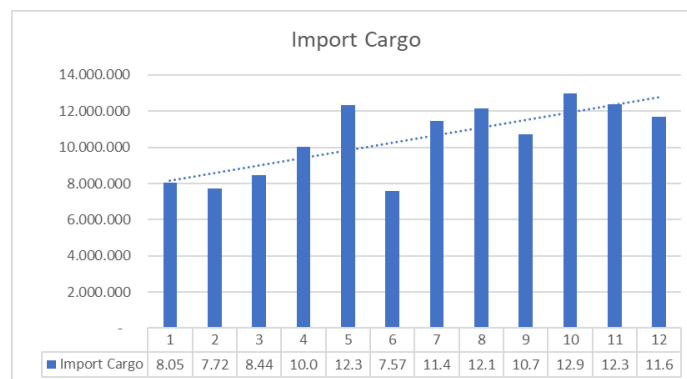


Figure 1. Graph of Goods entered in the Import Warehouse of PT. JAS Tbk in 2018

When referring to the extensive capacity in 2012 above, the total capacity of imported warehouses is 5,360 cubic meters for all goods, while for dangerous goods and refrigeration warehouses for perishable goods the area is $33 + 1011 + 54 = 1098$ cubic meters. So the total area for dangerous and perishable goods has a total facility availability of 20.49% or 1/5 of the total warehouse area. Mathematically 20% of this capacity should be adequate considering that the total chargeable weight or volume weight of dangerous and perishable goods handled in 2018 is only 5.28% or only. meaning that there is still 15% space in placing the item. So in terms of capacity, there are no problems. In the flow or flow of goods, it is necessary to pay attention to the layout of the placement of dangerous goods and perishable goods opposite In our opinion as researchers and references from the IATA DGR segregation table or table of separation of dangerous goods with food or ingredients that are potentially contaminated, it is good. However, when receiving the two types of large commodities, where dangerous goods are 0.24% while perishable goods 5.04% can cross each other when or cross receiving, where this can affect the process of halal guarantee in the Refrigeration Warehouse, especially Perishable Goods. Fast-damaged items, such as fruits, vegetables, yogurt, and fresh milk that are quickly damaged, must take into account the perishable phenomenon even at the operational level of production and distribution planning, which has a span of time from 1 week to 1 month. Usually, these products start to deteriorate since being produced. Therefore, without proper maintenance, inventories can be quickly damaged before their final use. will result in the stakeholders bear costs which can be avoided (8)

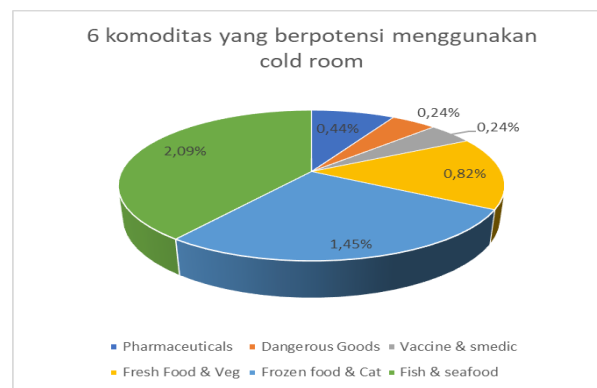


Figure 2. Potential Commodities which use a cold room in the PT JAS Tbk Import Warehouse 2018

Not yet when the process of dispensing goods where the door is opened or accessed is only one, so that the potential of cross dispatching can occur between the two types of commodities, not to mention the absence of a process of separating products from raw materials which have potential as illicit goods in this case pork or ham or derivative of the product. While as an example of a comparison of large warehouses in ports that have handled perishable goods in accordance with halal standards in Indonesia, especially in the logistics sector, there is only one halal warehouse, namely PT. Multi Terminal Indonesia Halal Logistics & Cold Storage (MTI). Guaranteed Halal Logistics is very important, especially in the area of halal guarantee. This is to ensure that products/services have obtained halal integrity which will become brand equity of halal products. (9)

HALAL LOGISTIC & COLD STORAGE



Figure 3. Halal Cold Storage of PT MTI



Figure 4. Cold Storage of PT JAS

Halal Logistic & Cold Storage (HLC) at Tanjung Priok Port managed by PT Multi Terminal Indonesia (MTI) or IPC Logistics Service has been overwhelmed by the demand for commodity cooling services. Even though it is only a year old, 19 chambers with a capacity of 1,500 tons are always fully filled (100%). The commodities that use the most HLC cooling services are fruits and vegetables. While the commodities that require halal certificates such as meat are only at the time such as before Eid Al-Fitr. To fulfill the demand for pedestrian services is quite high, he added, in this year there will also be a new 4-chamber cooling room with a capacity of 230 tons. One of the business units also provided by IPC LOGISTIC is Halal Logistics & Cold Storage. This facility is located on Jl. Sulawesi No. 1 Tanjung Priok - Jakarta. Equipped with infrastructure such as a warehouse with an area of 3,600 m² and a field of 12,000 m² and loading and unloading equipment such as Reach Stacker, Side Loaders, Forklifts, Trucking, Reach Truck (Cooled Box Cars), Dry Warehouse covering an area of 1200 m², 2400 m² Cold Storage Warehouse with 19 chambers (14 for Freezers, 4 Chiller Units, 1 Cool Room) Operation of Halal Logistic & Cold Storage in collaboration with LPPOM MUI which issues halal guarantee systems (SJH). In the initial stages of operation, Halal Logistic & Cold Storage will serve handling and distribution of consumer goods for halal products such as fish, beef, fruits, and vegetables as well as Reefer Plug service activities. The prospect of the refrigeration business today is still promising. This is observed from the quite high demand for services in the field. At present PT MTI is building a partnership with PT Perikanan Nusantara (Perinus) which will utilize HLC services to export fish. It is planned to build Halal Trading Jakarta which will facilitate a meeting place between commodity sellers and buyers using HLC services, he added.

On Warehouse Line 1, the airport handling per month is based on 2018 amounting to 526 tons. Because the temporary difference between the large warehouse at the port and airport is 1500 tons/526 tons, the result is about 2.8, almost 3 is the capacity of the Refrigeration Warehouse needed in line 1 Warehouse of the airport is 1/3 of the Refrigeration Warehouse in the Port, where this is considered reasonable because the volume of goods entering the port and airport is also not comparable where the volume of port goods 3 to 4 times greater than at the airport. Further research by conducting interviews with senior staff that are directly related to handling Import warehouses, uses a qualitative descriptive method with a quantitative approach. Interviews were conducted on 7 senior employees of the Imported goods storage section who were also Warehouse Operators in the Cargo area in Soekarno-Hatta.

2.1.2. Fishbone Analysis

The second step is analyzing the problems encountered in the field causing errors in handling dangerous goods and perishable goods in achieving the halal cold logistic guarantee process in line 1 warehousing, based on the Ishikawa or fishbone diagram with 5 (five) dimensions, namely 1). Environment 2). Method, 3) Man, 4) Procedures, and 5) Equipment. Fishbone diagram (also known as Ishikawa diagram) was created with the goal of identifying and grouping the causes which generate a quality problem. Gradually, the method has been used also to the group in categories the

causes of other types of problems which an organization confronts with (10).

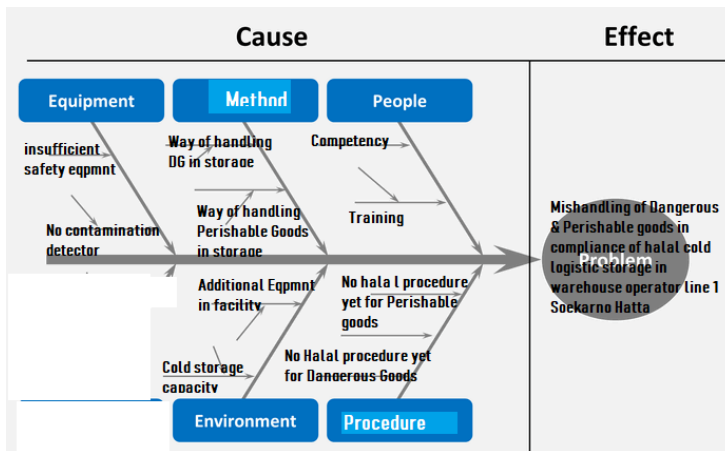


Figure 5. Fishbone Analysis Diagram.

Fishbone diagram (also known as Ishikawa diagram) was created with the goal of identifying and grouping the causes which generate a quality problem. (11)

Then from the results of the interview, the results show that the 4 dimensions' number 1 to 4 are considered important and even very important to be considered, so that if the warehousing does not have or already has but still not fulfilled the requirements, then this will certainly have an impact on future problems in handling storage of dangerous items also perishable. Whereas those that are not problematic because they are considered less important or have answers from respondents more than 20% of the indicators that are on the dimensions of the equipment, then this can be completed later or in other words not being a priority for repairs and solutions to the problematic factors. 5th dimension, namely equipment (equipment) in the form of computers and logbooks (books for recording data) are not included in the category of meaningful causes and are considered less important because each of the indicators in that dimension gets more than one or two less important responses. And the equipment in the field is in fact already available and always updated.

Table 2. Table of Solutions on the Root Problems Found in Handling Dangerous and Perishable Goods at PT. JAS Tbk in 2018

No.	Dimension	Root Cause	Solution
1	Method	The lack of supervision and assertiveness in tidying up the placement of these dangerous goods has resulted in problems with the storage method that should follow IATA regulations such as segregation based on table	Supervise when tidying up the goods, then urge the agent/sender to actually complete the document during clearance and include procedures for collecting & placing dangerous goods and professional perishable so that the goods avoid potential contamination

		9.3.A and figure 13.6.A. (IATA PCR) and halal guarantee procedures; incomplete documents when going to do clearance at customs; and the operational section has not yet ascertained the implementation of the procedure "the importance of carrying out data collection and placement of dangerous and perishable goods that have been stored improperly with potential contamination" during the briefing and control /daily data collection	and contamination
2	The environment for staging dangerous & perishable goods	The absence of planning for the procurement of Alarm equipment & temperature readers connected to computers including budgeting in guaranteeing the halal guarantee process and quality of perishable goods and the facilities provided are not fully optimized for use and also the absence of halal guarantee certification from the authorized institutions at the request of the relevant warehouse operators	It is necessary to plan the procurement of these facilities and facilities and the budget that supports in guaranteeing the halal guarantee process and the quality of perishable goods, as well as further optimizing the use of these facilities, then consider the need for halal guarantee certification from authorized institutions, which certainly supports the above process
3	Human Resources	The lack of socialization and safety campaign from the K3 section or quality control towards employee care so that they are skilled in responding to the staging of dangerous and perishable goods in accordance with halal guarantee procedures and processes, and the procedures have not been prepared by the quality control including regular, safe, guaranteed administrative processes lawful and continuous	Do a safety campaign at least once a year so that employees care and make security procedures and special placement of dangerous goods and perishable goods that have long been settled as well as when it will be in accordance with halal guarantee procedures and processes
4	Procedure	The quality assurance has not focused on the quality of security and safety in warehouses related to the deposition and destruction of dangerous goods and perishable goods, and the airport authorities have not emphasized the management of the importance of having halal guarantee procedures related to handling the placement	Quality assurance should focus on the quality of halal goods when settling and distributing them regulated in a halal standard procedure, and the ministry of airport authorities should require each flight, also warehousing manager to have procedures for guaranteeing halal security and safety for the process of placement and distribution of said goods adjusted to

		of dangerous and perishable goods on the premises or the proper warehouse	the authorized halal guarantor institution.
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3. Discussion and Result

The final step is perfecting or adding procedures as recommendations from the results of primary data analysis and fishbone diagrams

Proposed System or New Method. To overcome this problem, the researcher proposes a system or method by tracking and detecting the position of supervision when tidying up the goods, then appealing the agent/sender to completely complete the documents on clearance and entering the hazardous data collection & placement procedure and perishable professionals so that goods avoid potential contamination and contamination. requires facilities that provide services to control the temperature from upstream to downstream to identify problems and reduce the risk of damage to goods that are susceptible to temperature changes by using the Internet of Things (IoT) that connects all stakeholders to control the temperature of their goods remotely. Because Muslim customers have a responsibility to ensure that any food or drink they consume or any activity in their daily lives is clean, hygienic, and does not endanger their health and well-being. (12)

The Procurement of Facilities and Infrastructure. It is necessary to plan the procurement of facilities and infrastructure and the budget that supports the process of deposition, removal, and destruction of dangerous goods and need better coordination between the sender and recipient of goods and if the government must send sanctions to the sender/agent whose shipment dangerous and perishable problem so that the placement is not too long and expedite the process of distribution of the goods to the line 2 warehouse or warehouse of goods recipient or directly to the customer. In order to conform with the definition of Halal Logistics, namely as the process of managing the supply chain in accordance with the general principles of sharia that manage goods ranging from the transfer, storage, handling that is not processed until the finished product, whether food or products meet Islamic sharia principles or not (13)

Safety Campaign. By carrying out a safety campaign at least once a year so that employees care and add security procedures and special placement of dangerous goods that have the potential to contaminate and have long been deposited as well as when it will be processed for destruction. Aiming to monitor and reduce the possibility of cross-contamination that may occur during the transportation process, the Halal tracer tracking system was developed using a combination of Global Positioning System (GPS) and algorithms (14)

Standard Operating Procedure (SOP) Making. Quality assurance focuses on the quality of safety and security of goods and halal guarantees when storage and distribution are regulated in an integrated standard procedure, and airport authorities require each flight, warehousing manager to have safety and security procedures supported by the Halal Product Guarantee Organizing Agency (BPJPH) of the Republic of Indonesia Under The Ministry of Religious Affair for the process of storing and distributing as well as halal guarantees for perishable goods which are also related to handling dangerous goods. warehousing managers still need to improve handling and storage methods as well as destroy the cargo by more coordinating with relevant institutions to ensure that safety can be fulfilled based on national and international regulations (15). This Halal procedure is not only limited to Muslims and is more of a religious problem. Halal is in the realm of business and commerce and is a global symbol for guaranteed quality and lifestyle choices (16)

4. Conclusion

PT. JAS Tbk has not fully implemented warehousing management in accordance with IATA DGR & IATA PCR regulations as well as Halal Guarantee Rules which integrally regulate the handling of dangerous and perishable goods to be safe and halal in accordance with Law 1 of 2009 seventh part Transport of Special and Dangerous Goods Article 138 paragraph 2 concerning warehousing business entities carrying out transportation activities of special goods and dangerous goods must provide a place of storage and stacking and are responsible for the preparation of systems and procedures for special handling/dangerous goods as well as Director-General of Civil Aviation Regulation Number KP 412 of 2014 concerning Technical Guidelines for the Transportation of Goods Harmful With Aircraft, Chapter 5.4 Security planning sub-section 5.4.1 and 5.4.2. and Law No. 33 of 2014 concerning Halal Product Assurance, further conveyed in Articles 4 and 26, also the management of dangerous and perishable goods warehouses in the import warehouse of PT. JAS Tbk has not been carried out systematically so that the level of storage and distribution has not been able to well monitored so that it can give a warning to decision-makers to prevent the product from being misplaced and contaminated can be reduced, as well as the guarantee process so that the placement in the temperature quality is maintained along with its placement. from the cause of crossing this process is one of the obstacles to achieving the procedure for a halal guarantee in handling perishable goods in the refrigerated warehouse in the Airport line 1 warehouse. And from the results of secondary data calculations and observations as primary data, namely the warehouse benchmark and the results of comparison of observations and secondary data, the airport line 1 warehouse has a capacity of 1/3 of the refrigerated warehouse in the port, where this is considered reasonable due to the volume of goods entering ports and airports are also not comparable, where the volume of port goods is 3 to 4 times the volume compared to those entering the airport.

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