

DESIGN OF COLD CHAIN THIRD- PARTY LOGISTICS (3PL) FOR HALAL FOOD IN INDONESIA

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ABSTRACT

Indonesia is an archipelago rich in agricultural and marine resources has a potential market opportunities in consumer services, agriculture and fisheries resources and education now is facing a difficult challenge on how to distribute raw materials or value-added products evenly. Having an 80% Muslim population obliges Indonesian food manufacturer to produce Halal labeled products that are a safe for Muslim consumption. In the 2015 cold chain logistic role has become an important factor in order to maintain product's added value, hence the loss from the disability to release fresh agricultural or fisheries product can be reduced. The involving public-partnership between of cold chain logistic by the Third-Party Logistics (3PL) companies in Indonesia. The suggested frames of this plan are to apprehend the potential agricultural and fisheries product from each region and the role oleh Supervisory Agency of Halal Food Product of Indonesian Ulama' Board (LPPOM MUI) through audited certification given in each region. This paper also discuss about ICT role to integrate Cold Chain 3PL simply.

Keywords: Cold Chain, Third-Party Logistic, Halal Food.

1. INTRODUCTION

As reported on the Mc Kinsey Global Institute Archipelago Economy: Unleashing Indonesia's (2012) potential the marine and fisheries sector will crucial to Indonesia's economic growth, occurring the live hood of millions of Indonesians, and enhancing the food security of a nation that to day relies on fish for more 60 percent of its protein meals. The government recently set an ambitious target to double the sector's share of GDP from 3 percent to day to 6 percent by 2014, while achieving this specific target will be very challenging, the overall 2030 goal of improving the performance of the sector and capturing as many gains as possible is important for Indonesian's food security and overall economic development; it will require considerable effort to increase the productivity of the fisheries industry. Maintaining the long term sustainability of marine ecosystems and fish sector is also important to achieving the productivity target set by the government.

The increasing population and prosperity of Asia will mean that demand for food and agricultural items is set to increase sharply. The productivity of Indonesia's farms need

to increase by move 60 percent for just over three tons of crops per farm to day to five tons in 2013. The goal agriculture sector has been entering a new phase of tightening supply and increasing demand over the past few years. Globally, the physical agriculture commodity market is highly local, and only 12 percent of the total cereals produced are trade internationally. The growing trends of global food production, processing, distribution and preparation create the need for food safety studies to improve the global food supply chain.

Muslims living around the world generate demand for Halal products. In response there has been a rapid global expansion of the Halal industry over the last decade. According to Muslim dietary law: there are four important terms used in food permitted or prohibited in Islam: Halal, in an Arabic Term designating any object or an action which is permissible to use according to Islamic Law.

Halal means permissible and lawful for Muslims according to Islamic Law (Sharia). Halal Food is not just permitted for Muslims it is perceived as wholesome, pure and good for human consumption. Halal food is

gaining world wide recognition as healthy and hygienic food.

Al Quran Surah Al-Baqarah: “O ye people! Eat of what is on earth, Halal and good; and do not follow the footsteps of the Evil One, for he is to you an avowed enemy.” (Verse 168).

Not-Halal/Haram Food In Islam: Haram is a Quranic term which means prohibited or unlawful. Haram foods and drinks are absolutely prohibited by Allah. Eating Haram is forbidden for every Muslim.

Following are the different Haram food items: Pork/swine and its by-products, Animals improperly slaughtered or dead (carrion) before slaughtering, Animals killed in the name of anyone other than Allah (GOD),

Lawful animals not slaughtered according to Islamic rites. (Fish Exempted from slaughtering), Carnivorous animals and animals with fangs (tigers, lions, cats etc.),

Birds with talons by which they catch their prey (owls, eagles etc.) Land animals

without external ears, Animals which Islam encourages to kill (scorpions, centipedes, rats etc.), Animals which Islam forbids to kill (bees etc.).

Animals which have toxins, poison or produce ill effects when eaten such as some fish etc., Amphibian animals (crocodiles, turtles, frogs etc.). Almost all reptiles and insects, considered ugly or filthy (worms, lice, flies etc.),

Blood and blood by-products, feces, urine and placental tissue.; Wine, ethyl alcohol, spirits and intoxicants such as poisonous and Intoxicating plants.

Foods contaminated with any of the above products. Foods not free from contamination while prepared or processed with anything considered Najjis (filthy). Foods processed, made, produced, manufactured and/or stored using utensils, equipment and/or machinery that have been not cleansed according to Islamic Shariah Law. (Ali. Sakhawat, et.al. 2012)

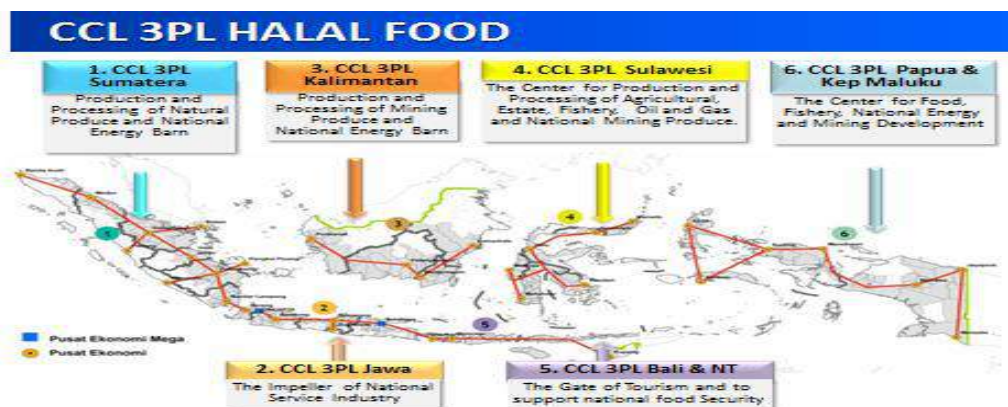


Figure 1. Developing Six Cold Chains 3PL in Indonesia

2. BACKGROUND

2.1. Perspective Of Halal Food In Indonesia

Indonesia to day is the 16th largest economy in the world, 45 million members of the consuming class, 53% of the people in the cities producing 74% of GDP, 35 million skilled needed and \$ 0.5 Trillion market opportunity in consumer services, agriculture and fisheries, resources, and education. In the 2030 Indonesia will be the 7th largest economy in the world, 135 million members of the consuming class, 71% of the people in the cities producing 86% of GDP, 113 million

skilled woks in the Indonesia economy and \$ 1.8 Trillion market opportunity in consumer services, agriculture and fisheries, resources, and education

Indonesia has majority Muslim and the people concerns to follow Islamic rules especially food. Global World's concepts are creating problems in export and import of food. Peoples are using food items prepared as ordered in Quran, Sunnah and Hadits. But there is question about the certification of meat sold in market. Halal or Non Halal? Supervisory Agency of Halal Food Product of Indonesian Ulama' Board

(LPPOM MUI) recognize halal certificate issued by approved halal body only for product in the country where the halal certification body located, except produced in Europe can be used halal certificate by any approved halal certification body located in Europe. There are still possibilities for LPPOM MUI to ask supporting document to clarify the critical counts of certain certified products. The MUI degree regarding list of approved foreign halal certification body id effective for 2 (two) years as of the date it is stipulated and it will be monitored and evaluated once a year. There are 39 Halal approved by LPPOM MUI from 23 country, contain 31 bodies approved for (cattle) slaughtering category, 32 bodies approved for food processing category, 14 bodies approved for flavor category.

2.2. Government Has Supported Laws And Regulation In Long-Term.

Regulations regarding Halal products

1. Religious Affairs Minister Decision No. 518 of 2001 on the Guidelines for the examination and determination of Halal Food.
2. Religious Affairs Minister Decision No. 519 of 2001 on the Implementation of Halal Food, Ministry of Religious Affairs of the Republic of Indonesia
3. Decree of the Minister of Agriculture N 413 / KRPS / Th.3107 / 1992 on meat slaughtering and such.
4. Law No. 7 of 1996. About Food Products
5. Law No. 8 of 1999 on Consumer Protection

2.3. The Halal Regulation And Certificate Of Halal Food Has Established By LPPOM-MUI.

LPPOM MUI Regulations:

1. Information on The Terms Of Use of Halal Certificate
2. Letter of the Director's decision LPPOM MUI About Cerol-SS23000 Registration Regulation
3. Decree of LPPOM Director MUI About List of Non-Critical Ingredient (Halal Positive List Materials)

4. Letter of the Director's decision LPPOM MUI About Terms Grouping of Products with MUI Halal Certificate
5. Decree of LPPOM Director MUI About New Usage of Raw Materials / Alternative and Alternative Fuel.
6. Decree On the Establishment of Director LPPOM MUI MUI SBRC Office in China
7. Decree of LPPOM Director MUI About Company Product Categories Apply MUI Halal Certificate and Halal Certification Process MUI Based On Critical Levels Materials and Difficulty of tracing the halal source.
8. Decree on Information Director LPPOM MUI Halal Certificate
9. Decree of LPPOM Director MUI About Financing Halal certification
10. Decree of LPPOM Director MUI About Rules Registration Halal Certification Company located in China
11. Decree of LPPOM Director MUI About elimination Fiscal Costs and Changes in Foreign Audit Honor
12. Decree of LPPOM Director MUI About Status "In Process" Halal Certification Bodies Overseas
13. Decree of LPPOM Director MUI About Halal Certification Regulations proposed by Distributor
14. Decree of LPPOM Director MUI on the legalization of MUI Halal Certification
15. Decree of LPPOM Director MUI About Terms Minimum Value of Halal Product's Guarantee Status
16. Decree of LPPOM Director MUI Halal Logo
17. Witness Audit & Translate
18. Letter of the Director's decision LPPOM About List of Materials Halal MUI (English Version)
19. Decree of LPPOM Director MUI About Registration Certificate Based Halal For Goods Produced in China
20. Decree of LPPOM Director MUI About Terms of Halal Assurance System
21. Decree on Criteria Director LPPOM MUI Halal Assurance System in Manufacturing

3. RESEARCH FRAMEWORK

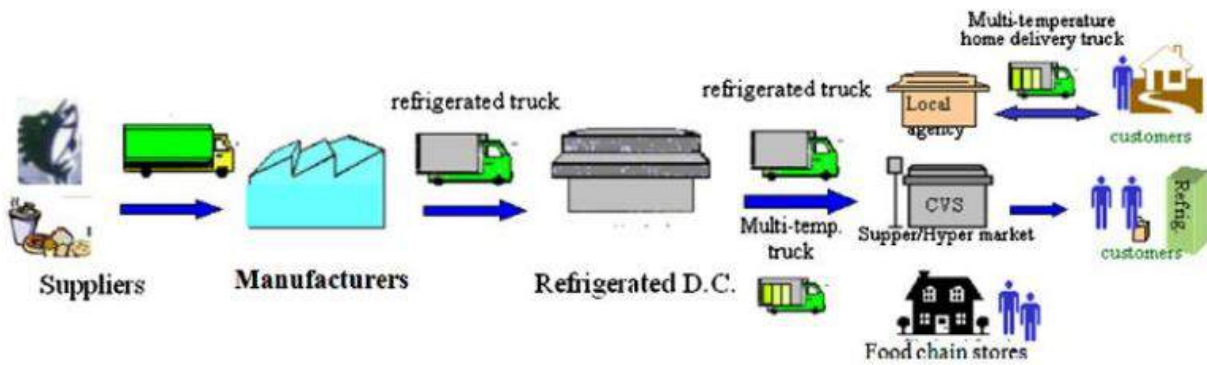


Figure 2. Cold Chain Management

4. RESULTS

Currently, Indonesia loses close to 30 million tons, or about 20 percent of agriculture crops and almost 1.8 million tons, or about 30 percent fisheries product (Jenny Gustavsson et.al, 2011). Losses occur both at the post-harvest stage and along the value chain as the product makes its way to the consumer. Losses are highest—at about 50 percent—in the case of perishable commodities such as fruit and vegetables. Improved harvest and post-harvest techniques are necessary to cut losses, as is investment in infrastructure including cold supply chain. One potential solution would be to form public-private partnership between provincial governments and leading Indonesian food companies to develop pilot projects that test how best to facilitate investment in key areas such as silos and roads. Obtaining better information on losses and measuring impact of such initiatives.

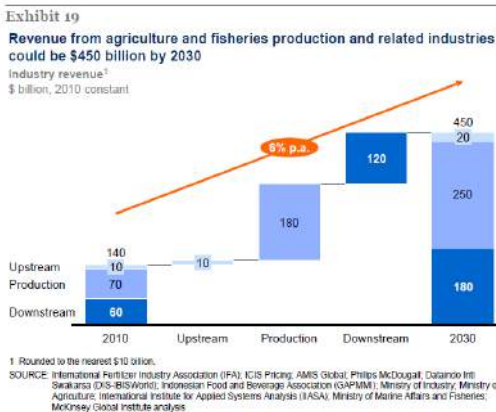


Figure 3. Revenue From Agriculture And Fisheries Production And Related Industries By 2030. (source: Mc Kinsey Report, 2012)

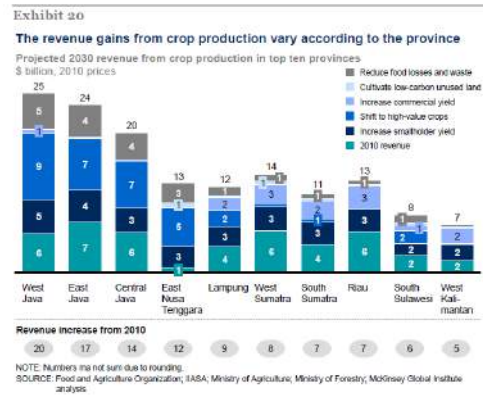


Figure 4. The Revenue Gains From Crop Production Vary According To The Province by 2030 (source: Mc Kinsey Report, 2012)

Agriculture and fisheries, revenue from these sectors, together with their related upstream and downstream industry revenue, could increase at a rate of 6 percent a year to reach \$450 billion by 2030. Increased agricultural production would stimulate growth in the agriculture input and downstream processing sectors. If both these sectors grow at the same rate as the agriculture and fisheries industry, they stand to gain \$130 billion a year from 2030. Within East, West, and Central Java, the largest revenue gains for Halal food can be achieved by shifting land to high-value crops. With the better connectivity and access to densely populated areas, Java is particularly attractive for cultivating fruits and vegetables. In total these provinces can increase revenue from crop production by about \$50 billion. Java would generate more than 30 percent of the combined revenue from production.

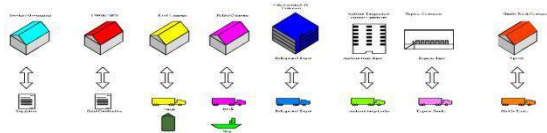


Figure 5. The Elements of Syariah Compliant Holistic Halal Supply Chain

A growing number of Third-party logistics (3PL) companies are developing in a context of increasing outsourcing logistic activities. 3PL companies have become the main carries of Cold Chain Logistics services and R&D Finance Human Capital Marketing Support services Hospitality and tourism Life sciences (Biotech /Medical /Wellness) Logistics Agro based industries Manufacturing industries.

Syariah Compliant Holistic Halal Supply Chain using the Cold Chain Management (CCM) in Halal Food in order to control perishable product's waste and foxily (Shuya Zhou, Li Zhang, 2013) and that refrigeration is considerable in maintaining food safety and Quality . Here the framework of the research.

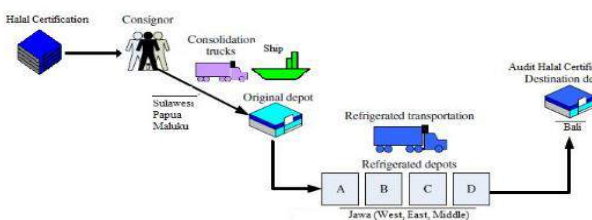


Figure 6. Syariah Compliant Holistic Halal Supply Chain

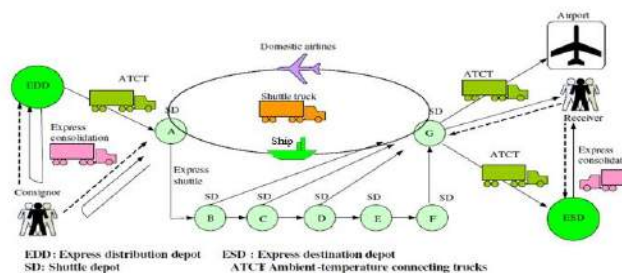


Figure 7. The service process of express at home delivery (adopted from E. Abad et.al. 2009)

How to find and to maintain the right partner cold chain 3 PL (Hoshi et.al in Shuya Zhou, Li Zhang, 2013) provide a detailed framework to analyze the performance of

cold chain in a systematic way. The model as the follow:

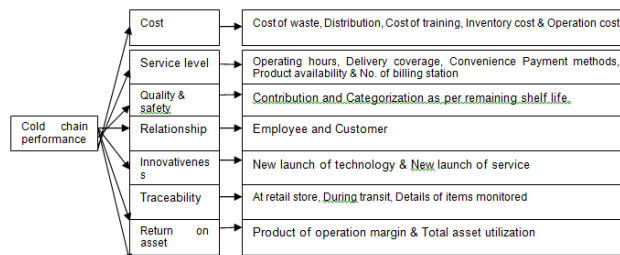


Figure 8. The Attributes That Contribute To Cold Chain Performance (Joshi et.al. in Shuya Zhou, Li Zhang, 2013)

Definition of attributes :

1. Cost represent the expenditure for running CCL, which spoilage cost, operation cost, maintenance cost of refrigeration system cost. The 3PL providers, needs to have high standards for maintenance and cleanliness, vehicle maintenance is a major of part of equation for achieving solid cold chain integrity.
2. Service level is the capability to satisfy customer needs. The 3PL providers could be features for which are distinguish from other service providers, such as boarder deliver coverage, various payment methods and longer opening hours.
3. Quality and safety is defined as customer requirements for safety, hygiene level, freshness and juiciness of the product, and there are progressively attentions paid on the quality and safety for food industry from the customer. The 3PL must be provide cleanliness to take care a great product no torn, no dented or no broken packaging.
4. Relationship means the connection between supplier, customer and employee. A harmonious relationship results in greater performance
5. Innovativeness can be explained as creative ideas and improvement for every aspect (service, technology and marketing) in cold chain, and continuously improvement
6. Traceability is the process of tracing product information throughout the chain, relevant information contains transaction information, condition

information like temperature, location, amount of good and shelf life

7. Return on assets stand for the ability to conduct production and make profit. Using refrigeration asset and human resources efficiently to achieve the goal for which is lower cost as well as stable quality (Aranyaman et.al, 2007). The 3PL providers must be consistent handling to reliable and maintain driver turnover, achieves high levels of employee retention and training have offer the employee outstanding competition and benefit packages, provide best driver, customer service representatives and technicians in the country.



Figure 9. Schematic representation of Cold Chain 3PL Selected for Sumatra, Sulawesi, Java, Kalimantan, Papua and Maluku, Bali and Lombok (adopted from E. Abad et.al. 2009)

The total amount of Halal Food consumed is growing due to population Indonesia sourcing of raw material, advances in food processing technology and healthy properties. In addition, the logistic chain for food is more complex every day, the origin is far away from the destination, involving on board handling in ships, air transport and more intermediate points in the logistic chain. As a consequence, the provinces government officials, the Indonesian Ulama' Board's Halal Food Supervision Agency (LPPOM MU) and leading food industry concerned with ensuring food safety and quality, are exploring means to provide more information and control on sourcing, processing and distribution of food products

within supply chains and ultimately to the consumers.

5. CONCLUSION

Facing the new economic challenges, Indonesia need to reduce losses from agricultural and fisheries product. It is crucial to ensure the products are certified Halal and audited by Indonesian Ulama' Board's Halal Food Supervision Agency to ensure that the food consumed by the largest Muslim community in the world is safe. Indonesian Ulama' Board 's Drug and Halal Food Supervision Agency and the stimulants for Supply Chain of Halal food were benefited from Halal Certificates in long-term. Government support is also need to ensure that the loss from agricultural and fisheries sector can be resolved by designing connectivity system in each step of the value chain until it reaches the consumer level. The development and infrastructure investment including cold supply chain has become very important; in some cases also involves 3PL from public-private partnership between provincial level Government and leading Indonesian food companies to develop pilot projects which able to test the best way to facilitate investment in key areas such as silos and roads. Obtaining better information on profit loss and measuring the impact of such initiatives requires a lot of approach and multiple types of technology.

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