Issues of Halal Supply Chain Management: Suggestion for Korean Traders*

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Abstract

Purpose – The purpose of this paper is to suggest countermeasures to reduce the damage of manufacturers in halal industries and to increase the transparency of the halal market along with raising some problems of halal supply chain management (HSCM).
Design/methodology/approach – To achieve to the aim of this research, halal supply chain is categorized as a green zone or a red zone according to the possibility of cross-contamination, and the study introduces 2 examples in Malaysia and Indonesia regarding cross-contamination.
Findings – More than 70% of the companies producing halal-certified products are, ironically, non-Muslim suppliers under the halal certificate system and by using halal supply chain. Most Muslim countries do not exercise control over the completed halal supply chain. In most Muslim countries which do not exercise control over halal supply chain properly, there is always a possibility of cross-contamination of products during the processes of distribution.
Research limitations/implications - This research has been conducted by accessing cases in halal supply chain. These cases are found in some Muslim countries, not all Muslim countries. Nevertheless, the authors found the possibility of these cross-contaminations in all Muslim countries, and it will damage the halal market.
Originality/value – While existing studies have focused on protecting Muslim consumers by ensuring the integrity of halal products in halal supply chain, there is no research on how to protect halal product manufacturers as another important axis of halal SCM.

Keywords: Halal, Halal Certification, Halal Products, Halal SCM, Halal Transparency
JEL Classifications: L66, Q56, R41, Z10

1. Introduction

Halal is an Arabic term that bears the meaning of permissible according to Shariah, or Islamic law (Riaz and Chaudry, 2003). Islamic dietary law prohibits the consumption of alcohol, pork, blood, dead meat, and meat which has not been slaughtered according to Islamic rules. These laws are binding and must be observed at all times. Meat is the most strictly regulated of all foods in Islam (Bonne and Verbeke, 2008). Nevertheless, the term is also used for various goods and services (Randeree, 2019) such as halal pharmaceutical, halal

cosmetics and halal tourism in the halal economy (Thomson Reuters, 2018/19), beyond the narrow context of Islamic dietary laws regulating the consumption of meat and poultry (Al-Qaradawi, 1999) and banning the drinking of alcohol.

With the growth of the halal market, the number of research studies regarding halal has increased. However, most of those studies focus on how halal products should be made and how they can be provided safely to Muslims (Ali, Tan and Ismail, 2017; Omar and Jaafar 2011) according to the concepts of halal, halal standards (Wan-Hassan 2007), and halal supply chain management. In contrast, there has been little research conducted on how the transparency of halal supply chain could be enhanced (Lever et al., 2010; Zailani et al., 2010). Most halal supply chain management (HSCM) studies have focused on the transparency and traceability of management from the production of halal products to the process of reaching consumers (Lever et al., 2010; Zailani et al., 2010). Despite efforts to manage halal in the field and these diverse halal researches, research on control and management of the distribution process of halal products—which is one of the most important aspects of the distribution process—is insufficient. Issues regarding management and control of these SCM systems are likely to emerge as an important part of the management of halal products in the future.

Today's fierce competition in the global market, the introduction of short life cycle products, and high customer expectations have forced companies to focus on and invest in SCM. The purpose of supply chain is maximization of profits (Hise, 1995; Nelson and Toledano, 1979). Surely supply chain management leverages external firm relationships to develop interfirm coordination resulting in increased operational performance and shareholder value maximization (Christopher and Ryals, 1999). Changes to the supply chain are accompanied by continued advances in communications and transportation technologies, along with innovations in technology to effectively manage these systems (Sell, 1999). Businesses are preparing for uncertain environments by strengthening the trend of global sourcing and focusing on accurate schedules and quality-based competition. The globalization of these supply chains has led companies to seek more effective ways to adjust the flow of materials within and outside of the companies (Mentzer et al., 2001). This advantage of SCM was defined by Porter (1985) as two types of competitive advantage—cost advantage and differentiation—and Giunipero and Brand (1996) demonstrated that companies can secure competitive advantage and improve profitability resulting from the advancement of customer satisfaction through SCM.

On the other hand, halal SCM requires all processes from origin to consumer to be consistent with Islamic law (Shariah); this includes warehouse management, transportation, sourcing, product handling, inventory management, procurement, and order management (Omar and Jaafar, 2011). Halal SCM can be efficient and effective through combination of halal related components that comprise the suppliers, operation and logistic plus the certification bodies (Hassan et al., 2016). According to Zailani and Ahmad (2010), there are eight main players in halal supply chain of live stocks e.g. feed millers, growers, slaughterhouses, producers, storages, transporters, wholesalers and retailers, and their proper activities are very important to complete halal supply chain. However there is currently no clear guidance for the logistics business process for halal food supply chains (Tieman and Ghazali, 2012). The main target of the introduction of halal supply chain is to provide confidence and satisfaction with respect to the consumption of halal products for Muslim consumers at every level (Fathi et al., 2016). But some requirements in halal SCM such as rules, orders, and certification have a strong influence on structure and expenses of the supply chain (Manuj and Mentzer, 2008). Previous studies on halal SCM consider the concepts of halal supply chain (Anuar and Ab Talib, 2014; Omar and Jaafar, 2011; Tieman, 2011; Tieman, Van Der Vorst and Ghazali, 2012; Zulfakar, Anuar and Ab Talib, 2014), issues concerning

halal supply chain, and its success factors (Ab Talib, Abdul Hamid and Zulfakar, 2015; Jaafar et al., 2011), consumer awareness of halal supply chain (Fathi et al., 2016; Kamaruddin, Iberahim and Shabudin, 2012; Tieman, Ghazali and Van Der Vorst, 2013; Verbeke et al., 2013), and transparency and traceability of halal supply chain (Bahrudin, Illyas and Desa, 2011; Kadir et al., 2016; Nasir et al., 2011; Van Der Spiegel et al., 2012; Zailani et al., 2010). Most of the research is from a consumer perspective and is focused on protecting Muslim consumers by ensuring the integrity of halal products in halal supply chain. However, there is no research on how to protect halal product manufacturers as another important axis of halal SCM. If the verification of halal certified products by the nation's authorized verification agency of the importing country goes wrong, the manufacturer may suffer unintentional damage. Because information can spread around the world within days due to the development of social network services, verification of halal certified products and national announcements about them need to be undertaken with caution. Thus, protection for companies which produce halal products is an important part of maintaining the transparency and reliability of the halal market. This research proposes to protect manufacturers participating in the halal industry by reconsidering transparency in halal SCM.

2. Critical Issues of Halal Supply Chain and Halal Products

The characteristics and problems of halal supply chain are as follows. First, more than 70% of halal food and beverage products are produced by non-Muslim countries or companies (Salaam Gateway, 2009). Second, most global food companies receive halal raw materials from around the world (Opara and Mazaud, 2001). Third, the verification of halal raw materials is dependent on certificates provided by suppliers as well as consumers in the market (Zakaria, 2008). Fourth, halal standards of halal certification organizations in the world are different slightly between certification organizations (Khan and Haleem, 2016). Fifth, most of the halal certification organizations consist of religious institutions or nongovernmental organizations; in fact, more than 95% of all halal certification organizations worldwide do not have the scientific verification capability to certify products (Van der Spiegel et al., 2012). Sixth, the global supply chain is potentially facing delay points and high uncertainty regarding its operation, so it needs adjustment, communication and monitoring to work more organically (Manuj and Mentzer, 2008). Nonetheless, most halal certification organizations do not carry out regular verification of certified products after they issue the halal certificate. Seventh, to promise halal assurance in the halal industry, all process participants have to comply with halal standards not only in manufacturing but also in transportation, storage, wholesale, and display in retail shops. However, most Muslim countries do not have a halal logistics system (Ngah, Zainuddin and Thurasamy, 2014). In the same vein, prior research has defined trust in halal supply chain as a willingness to depend upon trusted trading partners (Kwon Ik-Whan and Suh Tae-Won, 2005) and defines trust as a key factor in success—mutual trust and long-term community are essential to success, given the mutual transparency of halal supply chain partners (Gundlach and Cannon, 2010). Thus, it is clear that building trust in halal supply chain could be a key element for the expansion and development of the halal market.

The halal integrity of products is the result of various activities in the supply chain. Therefore, it is important for halal certified companies to look beyond their products and ingredients, and extend halal concept to the entire supply chain by ensuring that transportation, storage, and handling are in compliance with Shariah and meet the requirements of the Muslim market (Tieman, 2011). That is why halal transportation plays a

key role in protecting the halal status of any given product through proper transportation, storage, and handling within the supply chain until it reaches its final destination (Tieman, 2013). In addition, the core of halal logistics is how to separate halal and non-halal products completely during the procedure (Omar and Jaafar, 2011). In that respect halal supply chain could be separated into two stages: within the first stage manufacturers receive raw materials, produce goods and then transport them in containers to their final destination. At the second stage importers distribute imported goods and sell them to consumer after quarantine. However, if all raw materials supplied are halal, produced through a certified process after obtaining a halal certification at the manufacturing plant and are shipped in a separate container, it can be determined that the halal product has no chance of being cross-contaminated until it arrives at the port of the importing country and is unloaded at the warehouse of the importer. In this study, this process is defined as the "green zone". There is also a high possibility of contamination through various channels in the distribution process, from importers to consumers, and this is defined as a "red zone" in SCM—i.e., having the chance for cross-contamination (Fig. 1).

Fig. 1. Halal Supply Chain Hazard Category
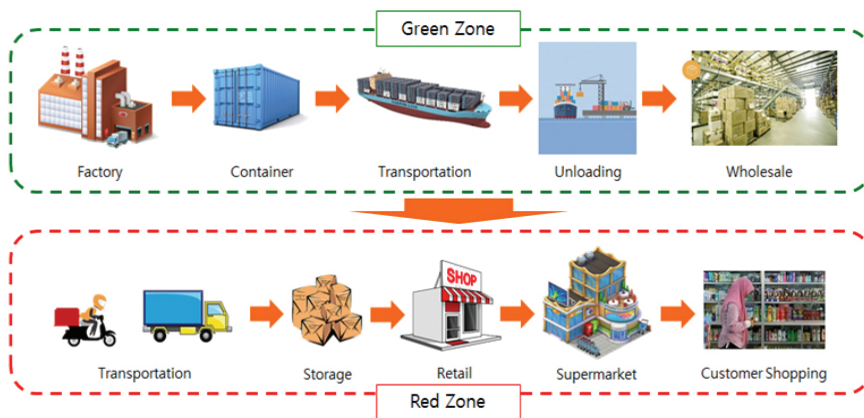
Source: Authors' creation for easy understanding.

First of all, in the case of the green zone, halal manufacturing facilities mostly produce halal products through a halal dedicated manufacturing line, so we can say that halal products could be separated from non-halal products completely from the stage of raw materials and storage. In the case of raw materials, we can trace them through certificate documents on the basis of 6 factors of traceability within supply chain such as ① product traceability, ② process traceability, ③ genetic traceability, ④ input traceability, ⑤ disease and pest traceability, and ⑥ measurement traceability, as defined by Opara (2003). Additionally, the halal certificate organization can verify whether a product is halal or not, and manufacturers can find some errors easily in the production line should this happen. Accurate and speedy inspection equipment in the food industry also helps these processes these days. In the export process, halal products are usually transported with dedicated packing and container especially in FCL (Full Container Load). Therefore, it can be said that the possibility of cross-contamination between halal and non-halal products is almost nonexistent until the warehousing of goods after customs clearance by the importer.

Generally, halal products should keep their halal condition at every stage of halal supply chain (Bahrudin, Illyas and Desa, 2011), and the halal integrity of food has to be protected. To avoid cross-contamination, every party related to halal supply chain has to perform all the required steps (Zulfakar at al., 2014).

In the case of the red zone, unfortunately there is the possibility of cross-contamination during transportation, storage, and display because many Islamic countries do not build up halal logistics systems perfectly, except a few Islamic countries that ban the import some non-halal products at source.

Even in Malaysia, which has halal logistics standards, halal logistics companies only give assurances for the products stored in the warehouses. This means that halal products released from the warehouse are not completely under halal control and management for cross-contamination for most of the process (Jaafar et al., 2011). In fact, there is no halal transport in most countries, and the fact that even Malaysian manufacturers decline to adopt halal transport is problematic (Ngah, Zainuddin and Thurasamy, 2014). Muslim consumers lack information about the supply chain and have little conviction that halal products have not been cross-contaminated in the process of transport and storage (Bonne and Verbeke, 2008).

Moreover, research to date has claimed that the halal SCM is complete if a supplier-centric system can be established and safely delivered to end consumers (Ab Talib, Abdul Hamid and Zulfakar, 2015; Lodhi, 2009; Omar and Jaafar, 2011; Tieman, Van Der Vorst and Ghazali, 2012; Zulfakar, Jie and Chan, 2013). However, we also need to consider the possibility of cross-contamination by end users. In general, Muslim consumers check products in stores to see if they are halal. During this process, consumers unconsciously come into contact with halal and non-halal products; this is likely to cause cross-contamination. In particular, the possibility of cross-contamination by end-users has never been studied, even during the halal SCM process when the system can control over cross-contamination. In fact, even in Malaysia, where halal logistics standards are available, halal and non-halal products are not displayed separately except for meat in stores. Moreover, in Indonesia, a famous large supermarket displayed products containing pork right next to halal products (Fig. 2).

Fig. 2. Halal Products Are Displayed next to Products Containing Pig Meat at a Major Indonesian Supermarket

Source: Authors took this photo in Indonesian Supermarket.

3. Problems with Product Verification

As previously explained in the concept of the green zone, if the manufacturer produces a halal product with halal certification and exports it in a container, it is highly unlikely that the product will be cross-contaminated until it arrives at the logistics warehouse of the importer. However, in most Islamic countries, there is no control over the distribution process of halal products, and, in some countries where the standard for halal logistics exists, there is a shortage of logistics companies that can completely sort and transport halal products (Ab Talib et al., 2014). Thus, the red zone does not have complete control over or verification of cross-contamination protection in most Islamic countries, despite the potential for cross-contamination at each stage of the distribution process such as transportation, storage, logistics, and display. In particular, it is likely that verification errors will occur when the verification agencies of importing countries collect and inspect products from the red zone; in this context, cross-contamination is likely to occur without proper verification particularly because of the possibility of cross-contamination by consumers. Even if some problem occurs with the products, we need to verify whether it happened during production process itself or with raw material supplier. Also, we cannot say that there is no possibility of numerous errors that could occur during the product inspection process conducted by major national agencies. Therefore, announcing the results of the inspection without verification of the various potentials can deal a huge blow to a manufacturer's corporate image and is also an important issue that influences corporate survival.

In some countries that implement halal certification systems, a sample of goods was taken from the red zone, and lab tests were conducted; the results of these were announced without verification. The announcement spread around the world within a few days via social network services and the Internet, resulting in a situation where manufacturer did not have the opportunity to verify the test result. As a result, the company's credibility will be lost.

In this study, a first case relates to product verification (the 2014 Malaysia Cadbury Chocolate incident) and a second case (the 2017 exclusion of the Indonesian Food and Drug Administration (BPOM) of four types of ramyeon exported from Korea due to pig DNA detection) are given as examples.

3.1. Cadbury Chocolate in Malaysia and Pig DNA

On February 27, 2014, a regular inspection of the national public health laboratory under the Malaysian Ministry of Health discovered two kinds of pig DNA in Dairy Milk Hazelnut and Dairy Milk Roasted Almond, produced by Cadbury in Malaysia (Kok Blok, 2014), but this result was not officially reported. The issue was revealed to the public on May 24 only through social media sites, which was not an official website. Although the samples were analyzed on the day of the test, the result was concealed for three months, resulting in Muslims unintentionally eating chocolates containing haram, and Kok Blok (2014) posting a note questioning the reliability of the halal brand.

In response to this, Cadbury promptly asserted that all locally made products were halal-certified by JAKIM - the Department of Islamic Development Malaysia. This triggered hundreds of responses, overwhelmingly negative (Jaques, 2015).

Immediately, the Malaysian Ministry of Health confirmed that these two products tested positive for porcine DNA, but other products were manufactured within the halal standards (Malay Mail, 2014).

Health Minister Datuk Seri Dr. S. Subramaniam said that the tainted products were discovered during "random surveillance", and three months were needed to thoroughly test

the products. He said that the public has "every right" to seek legal action against the Health Ministry for its "alleged delay" in detecting the porcine DNA, according to the New Straits Times (Huffpost, 2014). "They have betrayed us Muslims by putting 'haram' elements through the foods we consume in our body, to weaken us Muslims," declared Abu Bakar Yahya , former chief of Selangor Perkasa, according to Malay Mail Online(2014).

At a news conference, groups including the Muslim Consumers Association of Malaysia (PPIM), Perkasa, Pertubuhan Kebajikan Darul Islah Malaysia (Perkid), Ikatan Muslimin Malaysia (Isma), and the Halal Muslim Entrepreneurs' Association (Puhm) claimed that Cadbury had "crossed the line" by selling its porcine-tainted chocolates and that swift action was needed (Malay Mail Online 2014). Another spokesman, Ustaz Masridzi of Perkid, even called for jihad, which literally means "struggle", against Cadbury. "We need to unite; we must declare jihad!" he said at a conference (Huffpost, 2014).

Meanwhile, on June 2, 2014, the Department of Islamic Development Malaysia (JAKIM) reissued the halal certificate for two Cadbury chocolate products when the results of a new test showed that there was no pig DNA in the product, and the product was deemed appropriate for Muslims. The department said that the health ministry had tested products taken from shops and that the products could have been exposed to porcine DNA after leaving the factory (BBC, 2014).

3.2. Ban of Four Types of Ramyeon Exported from Korea

According to local media on June 19, 2017, the Food and Drug Administration in Indonesia canceled the previous day's approval of the import and ordered a recall of all retailed products in the market of four kinds of Korean ramyeon: Samyang U-dong, Samyang Kimchi Ramyeon, Nongshim Shin Ramyeon Black, and Ottogi Ryeol Ramyeon. "We found pig's DNA on some Korean ramyeon retailed in Indonesia," said Penny K. Lukito, the head of BPOM (The Jakarta Post, 2017). He also mentioned that, "The products didn't have any information saying that the product contains pork (Mengangdung Babi), which causes harm to Muslim consumers." He also added, "In order to protect the consumers, we recalled all applicable products from the market." (Yunhap News, 2017).

The National Agency of Drugs and Food Control (BPOM) stated that these products did not follow the rules of the Head of POM Control Number 12 of 2016 that processed foods containing certain ingredients derived from pigs must include a special sign. This should be in writing and say: "Mengandung Babi (containing pigs)", along with a red image of a pig in a red box on a white base. As a result, the agency pulled the instant noodles containing pig DNA off the shelves and removed the products' permits (CNN Indonesia, 2017).

The brand Nongshim has its own dedicated halal food production facilities at its plant in Busan, South Korea; these were built to produce halal-certified Shin Ramyeon and Yukejang Noodle Soup. Furthermore, the major Korean food distributor Korea Malaysia Trading Sdn Bhd previously received halal certification from the Department of Islamic Development Malaysia (JAKIM) for its food products (Nongshim, Paldo, Hanil, etc.) imported from South Korea (Hype, 2017).

As presented above, the announcement of verification needs to be undertaken with great caution because social media can quickly spread such news to the entire Islamic population. In addition, some Islamic countries use such measures as a means of protectionism for their specific industries. In order to protect the safety of their citizens, all countries around the world allow imports via thorough verification of the imported products and conduct inspections of the imported products. In this process, safety-related information is shared between countries to prevent the spread of compromised products through systems such as

the Rapid Alert System for Food and Feed (RASFF) in the EU (European Commission, 2014). However, in the case of halal products, certain products can be inspected by designating them, and, in the process, there is the possibility that certain countries may use the inspection of imported halal products to protect domestic industries; there is no way for other countries to prevent this.

4. Problems of Product Verification and No Counterplan against Corporate Damage

In the above cases, it was found that most of the samples used for product inspection were from the red zone of the importing country. The differences between the two cases are: first, Malaysian Cadbury Chocolate had a chance to reverify its products while the Korean ramyeon producers had no chance of reverification in Indonesia. Second, Cadbury endured strong protests and bans of its products by Islamic religious leaders in both Indonesia and Malaysia, while there were no protests or bans regarding the Korean ramyeon.

If Cadbury chocolate had obtained certification from a third country rather than from JAKIM, it is highly likely that a recall executive order could have been issued without the company receiving an opportunity to re-examine the product. In Indonesia, the announcement was made without sharing information about the sample selection process, inspection process, and test results of the product, and there was no verification of problems and management in the distribution process. In addition, unlike Malaysia, Indonesia did not provide the Korean government or manufacturers with an analysis of test results or a chance to re-examine them.

Unlike Malaysia, the Indonesian government does not manage halal certification; with no government-level standards and controls for halal logistics, it is certainly problematic to publish findings without accurate verification of where and how cross-contamination occurred in products sampled from the red zone. Coconuts Jakarta (2017) mentioned:

> …..“PT Koin Bumi [a food distributor in Indonesia] has not made a public statement on the matter. It's also not clear why BPOM immediately ordered their permits to be pulled instead of simply making the company place pork stickers on their instant noodles. It's a shame for fans of the now-banned noodles, but since Indonesia is lucky enough to be the land of Indomie (not a paid endorsement – it's just a well-known fact that Indomie, which frequently feature in lists of world's best ramens, dominates the Indonesian ramen industry), there are still plenty of other options out there. But this incident is likely to increase Indonesian consumer paranoia about non-halal products which is already fueled by frequent hoaxes shared on social media.” (Coconuts Jakarta, 2017)

The media also criticized the fact that some government actions are for the protection of their countries' interests.

In addition, in the case of the "Megandung Babi (contains pork)" sticker, the importer has a duty to attach it to the package at the time of import, so it is not a problem for the exporters or manufacturers of ramyeon but the responsibility of importers. It is also problematic that exporters were forced to withdraw their products. In response, all three ramyeon companies said they did not use pork as a raw material so there was no need to make any indication. Such government announcements about pig DNA without accurate and transparent verification of halal certification can deal a heavy blow against the manufacturer because the target firm loses the confidence of consumers and must withdraw from the market without

an opportunity for clarification.

Currently, the halal industry does not have any complementary measures against corporate damage caused by wrong halal verification, and no formal measures have been taken to provide opportunities for re-verification.

5. Conclusion: Suggestions for Resolving Problems with Halal Product Verification

Every country has its own food-related laws to protect its nation. In particular, Islamic countries conduct tests to protect Muslims from food prohibited by Shariah; these fall under the country's own authority for regular inspections of such foods. However, announcing the results of a haphazard test, such as the one presented earlier, can have a social impact and decrease the credibility of the company. In particular, if these events are repeated, companies' confidence in halal certification may be compromised, and transparency and confidence in the halal market may also be hurt. Therefore, it is necessary to increase confidence in the issuance of verification results by verification agencies in order to increase confidence in the halal market. This is because the presentation of distorted findings can be exploited in a way that can increase the certification needs of the importing country's specific certification bodies.

In instances when a prohibited substance is detected in imported halal products, to prevent misinterpretation and enhance confidence in halal testing, first, related governmental organizations in Islamic countries should immediately notify and provide the relevant data to the Food and Drug Administrations of the exporting country based on Conformity with Technical Regulations and Standard (Article 5.6.3) of the WTO Technical Barriers to Trade (TBT) Agreement Article. This allows identification of the exact cause and provides transparency in the examination. Second, the food and drug administration should notify the manufacturer of the detected products, provide the analysis and data, and then cooperate with the manufacturer to conduct jointly an accurate inspection of the manufacturing processes and products. If a sample collection of products is performed at the red zone, the cause of contamination cannot be determined; because there is no guarantee that control of the product within the supply chain is complete, inspection of the manufacturer must be included. To avoid controversy over the possibility of cross-contamination, halal testing of the product should be conducted with samples taken from the production line in Green Zone. Islamic countries also need to adopt legislation to order halal products and non-halal products to be displayed separately on shelves in order to prevent cross-contamination by end-users. After these measures have been implemented, the importing country can pinpoint the real location of cross-contamination and present a transparent analysis to the halal market.

In addition, a third international organization and verification center, which would act as an arbitration committee to secure transparent verification and confidence in halal products, should be established. The credibility of halal products is not unique to a given nation if the products are exported worldwide. In addition, the issue of the reliability of global companies, which value the reliability of products for customers, can be a very important issue in terms of ripple effects. Therefore, a third-party verification agency and international organization should verify products and publish findings. If this agency plays a role additionally as an accreditation body for halal certification body, the reliability and soundness of halal industry will be strengthened.

Save some Islamic countries that prohibit importing specific non-halal products fundamentally,

most Islamic countries implement halal certification. But this system itself does not have the necessary legal restrictions. With the implementation of halal law in October 2019, Indonesia demands halal certification for all kinds of manufactured food and mandates the implementation of a halal supply chain (Food navigator-asia.com, 2019). But there is a lot of controversy over when even that will be carried out perfectly. In case of Malaysia and U.A.E. both have regulations for the construction of a halal supply chain. However, it is voluntary, not mandatory. So, countries implementing halal regulations have to make an effort to establish a halal logistics system. To complete a halal logistics system, Islamic countries pursue various support policies for halal logistics agencies like subsidies and tax benefits, and establish certification standards for wholesale and retail stores.

Finally, the authorization system of halal certification body by the Korean Ministry of Food and Drug Safety has been abolished since early 2019. As a result, anyone can act as a halal certification body in the halal industry, and the credibility of Korean halal certification can no longer be guaranteed. As a proposal for this, a halal certification body should employ food hygiene or food engineering experts and be equipped with international level laboratory equipment.

These systems will protect not only consumers but also companies participating in halal markets, and they will also increase halal market transparency. This will gradually build a perfect halal environment that will allow companies participating in the halal certification market to confidently focus on product development, and both Muslim and non-Muslim consumers will together be able to use halal products with confidence.

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142

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144

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