Halal Supply Chain: A Preliminary Study of Poultry Industry

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Abstract
Nowadays the market of halal products is widely distributed throughout the world. This has caused an increase in the demand for halal products not only by Islamic countries but also by non-Islamic countries. Hence, as halal is applicable not only to the Muslim people but also to the others, this causes the products to become well known globally as well as emphasizes the need for a halal supply chain. In view of that, a halal supply chain is vital in ensuring that the concept of Halal is not only applicable for the food itself but also for the entire supply chain starting from the farm to the customer.

Keywords: halal supply chain, poultry industry

1. Introduction
The halal concept is increasingly receiving a wide attention nowadays. This is because the demand for halal food consumption is increasing annually due to the increasing of Muslim population globally, which is approximately 1.8 billion people. Yousef (2010) highlighted that the halal food market constitutes about 16 percent of the world food trade in which the trade value has been estimated at US$547 billion in the global halal market (Anonymous, 2010a). Consequently, the trend has attracted the attention of all countries to generate more halal food producers.

In a largely Muslim country such as Malaysia, the halal concepts is apprehended through various activities to the public and industry players such as awareness of halal concept, training of personnel, offering facilities and also encourage foreign direct investment. This notion is not only for the food sector, it is also including for non-food sectors such as pharmaceuticals, cosmetics and financial services. Therefore, Malaysian government had designated particular area in every state known as
halal hub or halal park as to inspire halal products enhancement. Facilities provided at the halal hub for the halal manufacturers and industry players stimulate local and foreign investors to invest in Malaysia which can boost the international market of the halal industry.

Nonetheless, recently Muslims realize that the halal concept is not only confined to food on the other hand it is also including the process of distribution, handling, packaging and storage. The concept of halal and also toyyiban as ‘wholesome’ as stipulated in Islam covers nutritious, quality, cleanliness and safety for everyone and not meant only for Muslim society which can be practice in a production of food product. For instance, the halal authentication of food products must cover from the source of raw materials to the consumers. Accordingly, any activities along the supply chain such as handling, storage and distribution must be syariah compliant which halalan toyyiban concept can be applied. Any halal products cannot be mixed with haram products and must be segregated (Jaafar et al., 2011a). This has formed halal supply chain significantly broadly accepted and acquired by the consumers that also will increase demand for halal supply chain within the halal food industry players.

In addition, recently consumers are not only concerns on the halal of the product itself but also the processes that are involved with it. Consumers chose to buy the particular halal products as the product has went into halal process. Therefore, the main issue which can be seen today are the issues related to halal logistics where the industry players do not clearly understood the concept of halal logistics and frequently is being misunderstood by the industry players. For them halal logistics means adding extra cost such as compartmentalized the warehouse, food segregation according to its nature and others. So, company will reluctant to apply halal logistics and this is will create barrier of implementing halal logistics in the halal food industry. Furthermore, awareness of halal logistics needs to be informed and exposed to the industry players and as well as to the public.

Previous studies on halal had looked into aspects of intention on halal purchase (Shaari and Arifin, 2009); satisfaction towards halal products (Danesh et al., 2010); institutional issue (Othman et al., 2009); quality aspects of food industry (Talib et al., 2009); and (Omar et al., 2008); traceability in the meat chain (Gellynck et al., 2002); slaughtering influence product quality (Petracci et al., 2010) and consumption of halal food (Hamlett et al., 2008). Whereas in the area of food research, studies have been done on effective management of food safety and quality (Manning and Baines, 2004); quality assurances in the food supply chain (Manning et al., 2006); the traceability data management for food chains (Folinas et al., 2006); agri-food (Da Xu, 2011) and (Hobbs and Young, 2000). Halal logistics research focus on information technology (Bahrudin et al., 2011); applying halal in the supply
chain management (Tieman, 2011); integration of supply chain (Nik Muhammad et al., 2009) and halal processed food (Kamaruddin et al., 2012); halal logistics innovation (Jaafar et al., 2011b); human resource (Pahim et al., 2012a, Pahim et al., 2012b); and halal supply chain focusing on food (Omar and Jaafar, 2011). As a result, this research differs from other studies on halal and other food and agri-food chain which has been identified previously.

With regards to that, this on-going study is aimed at identifying each control point of the halal products along the supply chain process so as to ensure the halalness of the food product supplied to the consumer. This is known in the industry as the concept of ‘from farm to fork’ or ‘from farm to table’. Therefore, the study will be focusing on the poultry industry in the Klang Valley, Malaysia.

2. Background of Study

2.1 Understanding the Concept of Halal

Halal is an Arabic word which means lawful or permissible by Islamic laws. By definition, halal includes anything that is free from any component that Muslims are prohibited from consuming. The opposite word for halal is haram meaning prohibited or forbidden in Islam. In cases where people are unsure whether the food is halal or not (i.e., referred to as ‘Syubhah’) they have to avoid taking it. The Prophet (peace be upon Him) has a provision guideline concerning Syubhah, which is reported by Bukhari, Muslim, Abu Daud, Ibn Majah and Darimi:

*What is Halal is clear. And what is Haram is also clear. And in between those two is a dubious area in which many people do not know about. So whoever distanced himself from it, he has acquitted himself (from blame). And those who fall into it, he has fallen into a state of Haram.*

Therefore, anything that is halal to eat or consume which is considered by Islamic laws can give good impact to the human body and life, as anything that we eat will portray our attitudes and behavior.

As stated in a verse from Surah Al-Maidah (88):

*‘And eat of what Allah has provided for you [which is] lawful and good. And fear Allah, in whom you are believers’*. This means that all Muslims need to eat halal food and avoid prohibited food as prohibited food will give bad impact to the human body and life.

2.2 The Implementation of Halal Concept

According to Yousef (2010) the world food trade makes up 16 percent of the halal food market. With 1.8b number of Muslims population in the world, with an increase of about 140 percent Muslims in Europe over a decade and 1.0b Muslims living in Asia, it shows that the Muslim population is
increasing and the halal market is widening as well. From this population, about $66.6bn value of halal food are consumed annually in Europe which is the highest compared to India $23.6b and China $20.8b and the least is North America $16.1b as illustrated in Figure 1.

![Figure 1: The Halal Food Market (Yousef, 2010)](https://example.com/halal-food-market)

Lanigan (2010) states that the halal market value is about €4.5 billion and €1 billion is for food service usage. Here, the figure has increased twenty times over the last five years and at the same time various halal choices have been initiated by the top French brands such as Fleury Michon, Herta, Liebig and Maggi in order to capture the halal market. The French halal market also is bigger four times than organic market of France.

Malaysia is aiming towards success in the halal industry and the aim is to become a global hub in term of production and trade of Halal products and services; this has been outlined in the Third Industrial Master Plan 2006-2010 (IMP3). In the IMP3, the halal industry covers food, non-food products including pharmaceuticals, health products, medical devices, cosmetics and toiletries; and services including logistics, packaging, branding and marketing, printed and electronic media and travel and tourism (Anonymous, 2006). As a result, nowadays the halal concept has been implementing in various subsectors of the industries in the market.

2.3 Development of poultry industry

Development of poultry industry can also be seen from the poultry consumption of a region or country according to human population in those particular areas. Accordingly as the population increases, the market for poultry consumption will also be increasing broadly.

In Asia, the population of Malaysia was about one third the population of Thailand in 2000 but Malaysia is expected to equal the population of Thailand by 2015. The poultry consumption in Malaysia in 2000 was 31.6 per kilogram per person per year and had increased to 35.6 in 2005. For the next two years, the number of chicken taken per kilogram per person per year increased by 1 percent and more less slightly decreased by 1 percent from the year 2008 to 2010.
Since the Asian population is almost half of the world population from the year 2000 to forecast the same in 2015, the world poultry consumption is almost double the size of Asia poultry consumption during the year 2000 to 2005 (Table 1).

Table 1: Asian population and poultry meat consumption.

<table>
<thead>
<tr>
<th></th>
<th>Human Population (millions)</th>
<th>Poultry Consumption (kg/person/year)</th>
<th>Chicken (kg/person/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>23</td>
<td>28</td>
<td>30</td>
</tr>
<tr>
<td>Thailand</td>
<td>62</td>
<td>68</td>
<td>70</td>
</tr>
<tr>
<td>Asia</td>
<td>369.8</td>
<td>416.7</td>
<td>439.1</td>
</tr>
<tr>
<td>World</td>
<td>611.5</td>
<td>690.9</td>
<td>730.2</td>
</tr>
</tbody>
</table>

Table 2 shows the projected production of major food commodities in Malaysia in 2010. Malaysia poultry consumption is larger than that of Thailand which is about 21 kilo grams per person per year in the 2005. From the year 2000 – 2010 rice, marine fish and poultry are projected to be the top three highest commodities produced (Anonymous, 2005). Therefore, as a result of poultry consumption being major world food consumption and also the top five food production commodities in Malaysia this study has been carried out and focused on the poultry industry in Malaysia.

Table 2: Projected Production of Major Food Commodities in Malaysia 2010

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Metric Tonnes ('000)</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Padi</td>
<td></td>
<td>2,141</td>
<td>2,400</td>
<td>3,202</td>
</tr>
<tr>
<td>Marine Fish</td>
<td></td>
<td>1,286</td>
<td>1,325</td>
<td>1,409</td>
</tr>
<tr>
<td>Aquaculture</td>
<td></td>
<td>168</td>
<td>250</td>
<td>662</td>
</tr>
<tr>
<td>Beef</td>
<td></td>
<td>17.5</td>
<td>28.5</td>
<td>45.0</td>
</tr>
<tr>
<td>Mutton</td>
<td></td>
<td>0.9</td>
<td>1.5</td>
<td>2.3</td>
</tr>
<tr>
<td>Pork</td>
<td></td>
<td>159.8</td>
<td>209.0</td>
<td>241.0</td>
</tr>
<tr>
<td>Poultry</td>
<td></td>
<td>714.3</td>
<td>980.1</td>
<td>1,295.0</td>
</tr>
<tr>
<td>Eggs</td>
<td></td>
<td>399.0</td>
<td>443.0</td>
<td>600.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4,887</td>
<td>5,637</td>
<td>7,456</td>
</tr>
</tbody>
</table>

Safie and Yunus (2008)

3. Research Methodology

The framework proposed in this study is based on two stages of data collection. First, four (4) preliminary interviews have been conducted whereby each interview took about an hour. The questions that have been asked covered the informant background, type of company and the
current state of poultry slaughtering process. Second, three (3) Muslim scholars, all experts in the syariah perspective were interviewed in order to identify whether the halal concept is being applied in the current process of halal supply chain of the poultry industry.

The first stage of interviews was to identify the current state of poultry processing in the small scale slaughter houses. As the existing process has been identified, the second stage of interviews needed to reconfirm whether the existing slaughtering process is carried out in accordance to syariah. Therefore, from the interviews that have been done, the researcher reached a saturation point as stated by Glase and Strauss (1967). As a result of the interviews and the saturation point which has been reached by the researcher the proposed framework is developed and confirmed.

Table 3: Background of Informants in the First Stage of Data Collection

<table>
<thead>
<tr>
<th>Position</th>
<th>Industry</th>
<th>Type of Company</th>
<th>Length of Experience in the industry</th>
<th>Slaughtering Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>Poultry</td>
<td>Abattoir</td>
<td>More than 15 years</td>
<td>*known</td>
</tr>
<tr>
<td>Owner</td>
<td>Poultry</td>
<td>Abattoir</td>
<td>More than 20 years</td>
<td>*known</td>
</tr>
<tr>
<td>Owner</td>
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<td>*known</td>
</tr>
<tr>
<td>Owner</td>
<td>Poultry</td>
<td>Abattoir</td>
<td>More than 20 years</td>
<td>*known</td>
</tr>
</tbody>
</table>

*known to the slaughtering process according to Syariah perspective

Table 4: Background of Informants in the Second Stage of Interviews

<table>
<thead>
<tr>
<th>Position</th>
<th>Industry</th>
<th>Type of Company /Sector</th>
<th>Length of Experience in the industry</th>
<th>Slaughtering Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muslim Scholars</td>
<td>Islamic Department</td>
<td>Public Sector /Government</td>
<td>More than 5 years</td>
<td>*known</td>
</tr>
<tr>
<td>Muslim Scholars</td>
<td>Education</td>
<td>Public Sector /Government</td>
<td>More than 20 years</td>
<td>*known</td>
</tr>
<tr>
<td>Muslim Scholars</td>
<td>Education</td>
<td>Public Sector /Government</td>
<td>More than 15 years</td>
<td>*known</td>
</tr>
</tbody>
</table>

* Known -- the slaughtering process according to Syariah perspective

Result from the interviews had identified supply chain process encompassing of nutritional feeding and syariah compliance slaughtering which also include proper handling, cleanliness, proper storage and proper packaging will lead to halal supply chain process. It is essential to safeguard the halal food goes through halal supply chain as to provide a halalan toyyiban food to the customers.

4. Proposed Framework

The proposed conceptual framework of the halal supply chain process which is based on the poultry industry in
Malaysia is demonstrated in Figure 2 below.

Figure 2: The Proposed Framework of the Halal Supply Chain.

The proposed framework of halal supply chain process can be classified into four sections namely animal feed, slaughtering, handling and lastly creation of the halal supply chain.

Animal Feeding

The initial in the halal supply chain is animal feeding which is important in order to ensure the halalness of the product at the beginning of the product source. The Department of Veterinary Services (DVS), Malaysia roles and responsibility is enforcing and checking animals at the farm in Malaysia through its veterinary personnel in ensuring the animal is healthy and safe for consumption. There are scheme such as SALT (Skim Amalan Ladang Terbaik) which the farmer must follow and implement in ensuring the animals are healthy and safe food for consumers before selling in the market. This has also been supported by the Malaysian Standard Development System (2004), where a halal food standard has been launched that is the ‘Halal Food: Production, Preparation, Handling and Storage – General Guidelines (MS 1500:2009)’. In the MS 1500:2009, it includes the Good Manufacturing Practices (GMP) and Good Hygiene Practices (GHP) which lay down the procedure of preparation and handling food that currently under the Malaysian Authority. The first basic requirement in the MS 1500:2009 is the sources of halal animal feed.

In the area of poultry, halal supply chain can be ensured through the animal feeding process whereby the animal is being fed with halal feed mill. At this point, during the feeding stage the feed mill must not contain animal enzymes such as pork even though the purpose is to encourage animal growth. Therefore, nutritional animal feeding is important so as to ensure that everything going into the animal body is halal and the same goes
to the customer’s body upon eating the animal.

Syariah Compliant Slaughtering Process

The second stage that is the most crucial in the halal supply chain is the ‘Syariah Compliant slaughtering processes’. In the slaughtering process, the animal welfare needs to be considering as stipulated in the ‘syariah perspective or law’. As in accordance to Syariah the slaughter person must be Muslim, the use of sharp knife to slaughter the animal, recite Tasmiiyah and so on must be follow by those who own the slaughter house (Qardawi, 2002). Even in the abattoir if the slaughter man is Muslim the way they handle the poultry is important during the slaughtering process; this is to ensure the quality, cleanliness and safety of food being offered to the people.

Recently, awareness of halal logo in the market by the consumers make them searching for halal pructs that have logo. This led to increasing demand for halal products, as well as demands for halal certified products. Currently, Muslim consumers whether teenagers or adults only looking for halal logo but the problem in Malaysia there are numerous halal logos from private companies or government in the market. Thus these make consumers confused and sometimes even only look at the word halal. The above situation is not new in Malaysia because there is no such act for halal. Hence, food manufacturers, food outlets, logistics players, slaughter houses and others have taken this opportunity to use the word or private halal logo in the market. Therefore, the Department of Islamic Development Malaysia (JAKIM) has a role to play in checking and enforcing that food outlets and also the slaughtering process in the abattoirs or slaughter houses are in accordance with Islamic law or Syariah perspective. Awareness of government halal logo to the consumers is important in order to create a ‘halalan toyyiban’ environment in Malaysia meaning that in Malaysia the products are not only halal but good to consume.

Handling Process

The third crucial part is the proper handling process after the slaughtering of poultry. The way of handling the poultry can make the halal poultry become non-halal if the materials used to carry non-halal products are being used to carry the halal products. Since halal also comprises quality, cleanliness and safety food therefore the concept of cleanliness is also being applied to poultry handling as well as proper packaging and storage. The types of packaging being used must be halal and do not include any animal hormones from porcine source. Normally, the halal logo only shows halal for the ingredients and does not include the packaging itself. Therefore, the product packaging must also be halal. In terms of storage for poultry
whether fresh or frozen, it still remains the same where it cannot be mixed with other non-halal products in the same place so as to avoid contamination. Therefore, proper segregation and dedication is advisable to ensure the halalness of the products and the halal concept is realized. In order to promote the halal concept, Kontena Nasional Sdn Bhd, a Malaysian company and halal certified logistics provider, had launched samak service for containers as value added services (Anonymous, 2010c). It is the first such service offered in Malaysia as well as the whole world in ensuring clean and halal containers are provided in the market through ritual cleansing. This shows that with the support from logistics providers the concept of halal can be achieved.

**Halal Supply Chain**

Thus, the final poultry process is followed through a halal supply chain which will be obtained after the three stages as explained above. Starting from farm to consumer, all activities along the supply chain must be halal in order to ensure the effectiveness of halal supply chain. This halal process can be achieved after completing or going through all stages in the halal food supply chain in the poultry industry.

Currently, in the food industry existing systems, the Hazard Analysis Critical Control Point (HACCP) is not a concept from farm to table. The thought of HACCP being successfully applied from farm to table concept needs to re-examined, as HACCP alone is not enough and must be supported by other prerequisite programs to assure food safety (Sperber, 2005). Hazard Analysis Critical Control Point (HACCP) is an approach to ensure food safety and pharmaceutical safety at all stages of production and preparation processes which include packaging and distribution and others, rather than inspection at the finished product. It addresses the danger from physical, chemical and biological contamination and acts as prevention. The use of HACCP is to recognize the potential of food safety hazards so that necessary action called Critical Control Points (CCPs) can be taken to reduce the hazard risk (Anonymous, 2010b).

As recommended by Bonne (2008), following the Hazard Analysis Critical Control Points (HACCP) principles and incorporating the quality assurance system, halal meat quality can be assured and doubt among the Muslim consumer can be reduced as the HACCP system is recognized internationally. How the system is being done is from beginning to end of the meat supply chain by identifying and monitoring halal critical control points in each of the supply chain activity.

5. **Discussion and Conclusions**

Notwithstanding lots of research and review from the literature and problems being identified in the industry, more studies still need to be done on the logistics industry of developing countries particularly Malaysia. Prior studies which have
been carried out in other countries can be used as a guideline in establishing the halal supply chain for the poultry industry. As advocated by Bonne (2008), religion influences the cultural eating habits; therefore to meet the religious-inspired requirements precisely, the halal meat chain needs to be changed by following the Islamic requirements of halal meat production and retailing. This is to ensure that the requirement can be transformed from preferred process characteristic into a set of principles, standards and specification of halal meat production. A HACCP-principle which includes halal control points is required to ensure halal meat status. From this, it can form an integrated quality assurance system by means of monitoring, controlling and guaranteeing of these principles of such institutional body.

The concept of halal can be applied to all and not meant for Muslims only. Therefore, when there is a need for halal products definitely it means creating new and more business for food producers, suppliers and others. The need is to evaluate whether the existing process is already halal whereas consumers are unaware of it. In case it is considered as halal, then the information needs to be disseminated to the public. If not necessary actions need to be taken to ensure the halal nature of poultry is being implemented from farm to customer.

In conclusion, the small, medium and big scale abattoirs and poultry product manufacturers in Malaysia must be thoroughly checked by the relevant parties so as to ensure only halal poultry is being offered in the market. Currently the concept of halal is already being implemented but the concept of ‘toyyiba’ is normally being ignored by the operators. Therefore, the researchers recommend that proper guidelines for the halal food supply chain need to develop for use by the global halal industry.

References

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