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An Insight on the Importance of Traceability and Tracking in Halal Food Industry in Pakistan

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Abstract: Halal is becoming a sign for food safety, quality assurance and standard of living worldwide. Farm to table, all the operations involve in the halal industry. The latest innovations in the science and technology and the recent initiatives for the betterment of society, it is necessary that the Halal concept must be fully understood by the industry player and also by consumers. The halal traceability system and halal tracking system are emerging as productive fields in the halal market worldwide. These areas are very important to ensure the implementation of halal standards in the food industry. Traceability and tracking has led to establish new links within the chain of operations particularly in the industries. An effective system for traceability and tracking is needed in Pakistan to lessen the risks connected with halal industries that can mess up the national and international trade of Pakistani halal food. This traceability and tracking systems work as a part for communication and to make information available throughout the supply chain. The purpose of this review based study was to assess the importance of halal traceability system and halal tracking system in the halal food industries of Pakistan. There is a need to consider the potential and expectations of halal food producers,

distributors and consultants to promote Pakistan halal food industry. This study reconnoitered the cognizance, observation and religious views of halal food producers and the market tactics adopted by government to strengthen the Pakistan halal food industry. There is a need to take some serious policy actions for the governance to implement halal standards in the food industries of Pakistan.

INTRODUCTION

Food plays vital role in enhancing the life quality of human beings and considered as an important component for interaction between different civilizations and religious groups. Food restrictions vary among the various religious groups that include Jews prohibit for kosher, Hindu restricts their worshipers from beef and Islam, under Islamic Dietary Laws provide a guide line for its followers on permitted (Halal) and prohibited (Haram) foods[1, 2]. It is compulsory for the Muslims that food must be Halal and free from tainted elements. Islam specifically confined the food within the category of halal and haram. Halal food is defined as lawful, permitted, pure wholesomeness and recommended by the Islamic Dietary Laws by various researchers[3-8]. Muslims are showing more concern in perceiving the source of their food. This is in line with the Islam's teachings as described in the Quran on multiple places in several chapters (surah)[9]:

> O you who believe! Eat of the good things We have provided for you and give thanks to Allah, if it is Him that you serve. (Surah Al-Baqara [TheCow] 2:172)

> Today all good things are made lawful for you. And the food of those given the Scripture is lawful for you and your food is lawful for them. (Surah Al-Maidah [The Table Spread] 5:5)

> It is He who produces gardens, both cultivated and wild and date-palms and crops of diverse tastes and olives and pomegranates, similar and dissimilar. Eat of its fruit when it yields and give its due on the day of its harvest and do not waste. He does not love the wasteful. (Surah Al-An'am [The Cattle], 6:141)

> Eat of the lawful and good things Allah has provided for you and be thankful for Allah's blessings, if it is Him that you serve. He has forbidden you carrion and blood and the flesh of swine and anything consecrated to other than Allah. But if anyone is compelled by necessity, without being deliberate or malicious, then Allah is Forgiving and Merciful. (Surah An-Nahl [The Bee] 16:114 & 115)

All the clean and pure foods are permitted for the consumption of Muslims excluding some types that are prohibited (haram) to be consumed, dead animals, flowing or congealed blood, pig, intoxicant, carnivorous, reptiles such as frogs and snakes and also animals being slaughtered without dedicating to Allah[4]. As what we consume would become part of our body physically, mentally and spiritually, that's why a good Muslim should be extremely careful on his food intake[10]. Quran's one of the detailed enlightenments on halal and haram foods and drinks is given below:

> Prohibited for you (for food)are carrion (dead meat), blood, the flesh of pig and animals dedicated to other than Allah; also the flesh of animals strangled, killed violently, killed by a fall, gored to death, mangled (partly eaten) by wild animals; except what you rescue and animals sacrificed on altars and the practice of drawing lots. For it is immoral. Today, those who disbelieve have despaired of your religion, so do not fear them, but fear Me. Today I have perfected your religion for you and have completed My favor upon you and have approved Islam as a religion for you. But whoever is compelled by hunger, with no intent of wrongdoing; Allah is Forgiving and Merciful. (Surah Al-Maidah [The Table Spread], verse 3)

Another key aspect to check is halal and Syubha, the product must fall under the category of halal standard and not to fall under the category of Syubha. Syubha means a product which is suspicious or doubtful, lies between the two extremes, halal and haram. It is a necessary act for Muslims to evade doubtful and unlawful things[4]. In case of essence, halal and haram foods segregated necessarily to maintain the purity of the halal food[6]. Food traceability is very important in the context of halal and haram food as it is involved from the beginning to the end of process[2]. Therefore, the halal food standards must be followed by the whole food supply chain including the slaughtering of animals, processing, storage, display and preparation. It is requirement of standard to separate the halal and non-halal food physically to maintain the concept of wholesomeness (Halalan Toyyiban) that covers the legal requirements for the good food and Shariah Law[6, 11].

Halal food industry is one of the leading around the globe among Muslims and Non-Muslims[12]. Halal industry is standing on its feet because of growth in Muslim consumers as the religious thoughts enhance its acceptance and boost halal industry. Halal food concept was absorbed in global food markets very quickly[13]. The production and consumption of halal food complies with law in Muslim state's[6, 11]. Contribution of Pakistan is not

adequate in the growth of halal food industry. Though, the resources in Pakistan are abundant as compared to the other countries which are economically equal such as Malaysia and Thailand. These countries are promoting in establishing the halal centers in their constituencies[13]. Jabatan Kemajuan Islam Malaysia (JAKIM) is an organization for halal certification established by Malaysian government, to acquire halal certifications from JAKIM is compulsory for all the manufacturers[14]. But Pakistan showed interest very late in this field and established Pakistan Halal Authority (PHA) in 2016 and now the registration process of 8 private Halal certification bodies are under process.

Halal food and goods market growing consistently, since, last few years, its volume was 1.4 dollars in 2017 and expected to reach around 2.6 trillion by 2024 and increasing with the rate of 635 billion dollars per annum[15, 16]. Halal food market is one of the biggest markets for consumers in the world. This contributes 16.7% of the world's whole food industry[17, 18]. As the teachings of Islam restrict the Muslims to intake only permitted foods, beverages and even components of medicine should be halal. This is one of the biggest reasons that the Muslims demand for halal foods exceptionally and declare their consumer power amongst the free market globally. Now the attention of multinational companies such as Tesco, KFC, McDonalds, Nestle and Liver brothers is pulling towards Muslims consume and halal foodstuff. The halal market share by these multinational companies is locked in about 90% of the total market share[19].

Role of private sector in boosting the halal industry of Pakistan is very appreciative; their efforts are acknowledgeable in the current hard situation of Pakistan's economy. Current issues of Pakistan, i.e., energy crisis, terrorist attacks and governmental revenues exerts burden on the private sector. Pakistan is 3rd largest livestock country and boosting approximately at the rate of 4% per annum and stands on number 19th in the export of meat which shows that meat industry is largest industry having concern with halal traceability and tracking[16, 17, 20, 21]. Domestic producers have to face many problems to place halal supplies in the international markets due to lack of modern technologies. Gradually, the need of red meat is increasing globally and Pakistan's local meat producers have the potential to meet this requirement but the hurdle is they do not accomplish the international standards of meat export[22-24]. By last few years, Pakistan's government took some solid steps for the improvement of halal industry and established a company for the halal meat processing named as agricultural and meat Market Company. However a long way is ahead, according to a constant study in Pakistan human livestock ratio is 1:1 and it is necessary to utilize these natural resources sufficiently[14].

Food industries in Pakistan: Pakistan is agriculture based country and supplies a large number of processed and unprocessed food to the world. As Pakistan supply most of its produce to the Muslim countries, so, it is necessary to be certify as halal ensure the acceptance of product. More or less the process of halal traceability is same throughout the supply chain in all industries, due to which supply chain must be managed in the food industries[14]. Management of supply-chain simply includes the management of the whole set of procurement, production, distribution and marketing steps by which the product is supplied to the target consumers[25].

After the extraction of petroleum and oil in the countries of Middle Eat where the Muslims are in majority the demand for halal goods and services enhances as the life style of their people have been revolutionized and countries[26]. Recently Gulf countries such as Kuwait Oman, Qatar, Saudi Arabia and UAE, including China, Indonesia India and Malaysia are main suppliers of halal market and proclaim it favorable market in the future. Well known non-Muslim countries such as Russia and European countries remarkably prefer halal foods because of food safety and products specifications permitted by halal certifications meet the international standards. The supply of halal food is lesser than its demand worldwide; although, the Asian and European markets are big place for halal foods market[27, 28]. The potential of consumers for halal foods and goods can also be seen in the Canadian and American markets if the suppliers accomplish international standards. Currently Pakistan government took some serious grab their share in the halal business through authorized halal certification, halal logo and Shariah compliance of the production method, observed by recognized bodies[29, 30]. Government officials are familiar with the modernization in the halal industries by their visit to the concerned markets in the world and all the organizations which are directly and indirectly linked with the halal industry should contact each other for the progression of national halal industry. Government of Pakistan has assigned a team of well-known Shariah scholars to look after and regulate Pakistan Halal Authority and also set principles keeping in view the Shariah declaration[31].

Traceability and tracking: The International Organization of Standardization (ISO) defined traceability as the ability to trace the history, application or location and a series of recorded identifications. And by the Codex Alimentarius the traceability is defined as forward and backward tracking with a paper or electronic devices[32]. Other definitions of traceability are; the capability to follow and document the origins and history of a food product from its genetics to fork, the tracking involves identifying all the processes and actions that affect the shelf life of the product distributed and documented and available in the supply chain for the buyer and any other

participants to see[33]. Tracing is the ability to track back the food constituents in the production chain, from the end user to the manufacturer and distributer of the producer. Tracing is necessary to determine the history of the product i.e. to find a contamination source, on the other hand tracking can be define as the ability to track forward the food ingredients along the production chain. To locate and withdraw products that may cause a potential harm to the health of consumers, tracking can be followed[34, 35].

Purpose of traceability: The transparency in production chain is increased by traceability; greater transparency is effective to increase satisfaction of consumer in food safety because of more information about the product like production line, food safety protocols, condition of animal and medicines use. Increase in transparency is also effective to enhance the original level of food safety as a result of the enhanced knowledge distribution throughout the chain[36]. By applying traceability delivered food is safe and interaction between consumers and manufacturers is established[37]. Significant reduction in the risk of liability claims such as counterattack liability claims and to recoup claims from other participants in production chain. Betterment in the recall efficiency, i.e., the recall quality, reduce the cost and improves the image of production chain[38]. Transparency is promoted along the supply chain which ultimately lowers the recall potential of products and also liability claims towards the producers[39]. Traceability is also known as a communication and tracking phenomenon to confirm information is reachable along the supply chain[29].

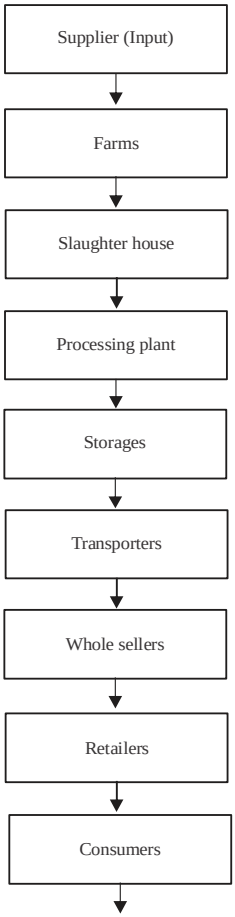

Fig. 1: Critical value chain

Importance of traceability and tracking in food industry: The capability to trace and follow a food, feed animals producing food and the ingredients likely to be used into a food or feed through all the steps during production, processing and production is termed as traceability. Described by Opara *et al*.[40] traceability in another way in perspective of agriculture as: the collection, documentation, maintenance and application of data associated with all practices in the supply chain in a way that offers surety to the consumer and other stakeholders on the origin, location and life history of a product as well as assisting in crises management in the event of a safety and quality breach (Fig. 1).

Traceability exemplifies the ability to recognize the farm where it was cultivated and sources of input of materials as well as the ability to conduct full tracking backward and forward to define the specific location and life history in the supply chain by means of records, when described in the context of food product[41]. Furthermore, an integrated supply chain traceability system offers following essentials to agriculture and food business. Traceability make possible to govern the physical location of produce at any step in the supply chain which support recall and/or distribution of information to customers and consumers[7, 42-44]. It determine the type and order of events that may happen through the production and handling process of the product such as what, where and when which include physical, mechanical and chemical processes[33]. Input traceability describe about the type and origin such as source and supplier of components used to produce the raw material like seeds, stem cuttings and other planting materials, i.e., fertilizer, chemical sprays, irrigation water, livestock and feed and materials i.e. additives and chemicals which are used for the post-harvest management, preservation and conversion of the basic raw food material into processed, reconstituted or new food products. It also comprises of the genetic ingredients analysis of products[45, 46].

Traceability of disease is for biotic hazards like bacteria, virus and other spreading disease causing microbes which are probable risks to the humans via food contamination and other edible material which is obtained from biological and agricultural raw materials, to investigate the outbreak and check the epidemiology[47]. To fix the genetic composition of the

product as well as variety, type, origin and alterations in the basic DNA structure, the effective way is genetic traceability. Measurement traceability to compare results of individual measurement like quality and safety attributes of product through a continuous chain of calibrations to accepted reference standards[32].

Problems in halal traceability and tracking system: A few problems originate when it turns to halal tracing and tracking. Firstly, it is realized that there is no real time halal tracking[48]. Recently, there are few countries which provide halal information services based on web, primarily provide the lists of companies and food products with valid halal certificates in a certain country. It is realized that to provide more information regarding all halal food items available in the market a large number of global application and database is required[49]. Secondly, there is lack in the security of halal certification logo due to which logos can be copied, redesigned and sold by the wrongdoers to companies that cannot qualify to get halal certification from the legal authority. Lastly, there is no proper method to recognize either the food product came from the country stated on the packaging or otherwise.

For that reason, to enable the monitoring of the distribution of halal food products from its country of origin to destination of export a tracking system is required. In Pakistan, lack of awareness is also one of the big hurdles in the way of halal traceability and private certification bodies are not registered with Pakistan halal authority.

CONCLUSION

It can be concluded from the current study, that halal traceability and tracking cover a very vibrant area in which new methods are being familiarized and standards evolve rapidly. Moreover, traceability and tracking exerts good impact at the company and farm levels, the chain level and for society as a whole. Obligatory transparency, controlling epidemics of livestock, improving due diligence and withdrawing government are principal contributors in this trend. When partaking in the halal markets, each and every player has its specific faintness.

The key faintnesses are the deficiency of halal markets knowledge, halal technology and the suitable use of halal inputs. Evidently, these are main problems that can badly affect the ability of Pakistan's halal market. If Pakistan overcomes these problems then Pakistan's halal market can be one of the leading markets around the globe.

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