

Adoption of Halal Assurance Management Systems in Poultry Farming In Brunei Darussalam

Siti Majidah Rahim, Nor Surilawana Sulaiman, Norkhairiah Hashim
Halalan Thayyiban Research Centre, University Islam Sultan Sharif Ali, Brunei Darussalam

Abstract: *The Coronavirus outbreak has impacted several industries and sectors, and this has posed major challenges for Brunei Darussalam and the rest of the world in 2020. Following the COVID-19 outbreak, it has impacted food security concerns and people were more attentive and risen their food safety standards, mainly in the quality of raw meat and poultry production, as they believe the virus could easily transmit to raw food, despite no evidence to support the claim. In doing so, the strategies that can be used are to assure the consumer as well as to represent that the highest priority is given to maintaining halal integrity and safety throughout the company's entire supply chain, and this can only be proven strongly by implementing the Halal Assurance System, in addition to the Halal Certification, GMP and HACCP. For data collection, the study conducted interviews and qualitative methods through reliable articles, documents, authoritative websites and theses, to further recognise the importance of the HAMS in Poultry Farming. It was reported that there is the possibility of introducing HAMS in the livestock industry in Brunei Darussalam, as local livestock producers are urged to consistently improve their competitiveness and increase their efforts in ensuring that livestock production in Brunei continues to expand and that its halal status is secured by implementing the HAMS with the already existence HACCP system, besides adopting new Halal knowledge by attending training and seminars to fulfil current and future needs.*

Keywords - *Halal Assurance Management System, Halal Industry, Slaughterhouse, Poultry farming*

I. Introduction

Halal has been at the forefront of the economic debate in recent years. The halal business has now expanded well beyond the food industry, significantly increasing the economic potential for halal. The attachment of the term “Halal” to a product not only indicates that it is permissible for Muslims, but it has also evolved into a global symbol of quality assurance and lifestyle choice [1]. This is seen by the commitment and cooperation of non-Muslim countries and organizations, where halal is swiftly developing as the preferred standard. Many countries with Muslim minorities, including Singapore, the United States, Canada, Japan, Australia, New Zealand, and South Africa, have witnessed the growing global trend for halal products and services and are now attempting to gain a foothold in the halal market [2], [3], [4].

Brunei's economy has long been based on the oil and gas industry, which is dominated by Brunei Shell, and the public sector [5]. Apart from oil, Brunei also has some agricultural resources such as rice, corn, and bananas, but still, the economy in Brunei is highly dependent on oil and gas [6]. The government is being pushed to diversify its industries by shifting away from its reliance on oil and more towards something more economically sustainable [7]. As a result, the Bruneian government plans to diversify its economic activities from oil and gas exports to other industries including the halal industry. Hence, the development of the Halal industry in Brunei should help alleviate the country's reliance on oil and gas.

However, 2020 has been a difficult year not just for Brunei Darussalam but all over the world, with several sectors and businesses affected by delays in international and domestic food supply chains, particularly in the livestock industry, where raw meat is in short supply [8]. Furthermore, the COVID-19 pandemic in the same year has impacted food security concerns, making people more attentive and raising food safety standards, particularly in the quality of raw meat and poultry production, as they believe the virus can easily transmit to raw food, despite no evidence to support the claim [9].

Additionally, the Department of Agriculture and Agri-Food has planned and carried out new improvement efforts to strengthen the agriculture sector as a key contributor to Brunei's economic development,

which includes the launch of the *Pasar Kitani Program (Our Market Program)*, which aim to facilitate our local farmers in promoting their products. In 2020, the agriculture sector produced more broilers, with the livestock industry alone earning B\$267.17 million [10]. Furthermore, the Department has initiated a strategic plan to become Brunei's primary contributor to economic development. Agricultural production is expected to rise remarkably, according to the Ministry of Primary Resources and Tourism's Strategic Plan 2020-2022, with the livestock and crop industries playing a significant role. Plantasti, the world's first Halal plant-based meat 'Ready to Eat Meals,' was introduced by a joint venture between the UAE's Saahtain Group and Brunei Darussalam's Ministry of Finance and Economy's Strategic Development Capital Fund, marking a significant recent breakthrough for Brunei's Halal business [11]. Dato Seri Setia Dr Awang Haji Mat Suny bin Haji Mohd Hussein, former Minister of Energy, Manpower, and Industry, during the launching ceremony of the Brunei Halal Showcase 2019 (BruHAS 2019) also mention that “at the same time, we are encouraging micro, small and medium enterprises (MSMEs) to collaborate with larger companies, and even those from overseas, to gain support and access into local and regional distribution networks” [12].

Brunei has the potential to become a global player due to the country's strong Islamic laws and values, as well as the Malay Islamic Monarchy's (MIB) practice of developing the country into a global halal hub. According to Dato Seri Setia Dr Awang Haji Mat Suny bin Haji Mohd Hussein, former Minister of Energy, Manpower, and Industry, during the launching ceremony of the BruHAS 2019 said in his speech, “As a nation upholding the principles of Malay Islamic Monarchy (MIB), it is important that we infuse the values that come with it, such as integrity, fairness and cleanliness, in our daily lives and business conduct” [12]. As a result, Brunei has the potential to provide the most reliable and assured halal product, which will raise demand for Brunei products, and the implementation of the Halal Assurance Management System (HAMS) will certainly boost the quality of Brunei Halal products.

The HAMS is a method for detecting non-halal contamination and implementing controls to ensure that halal and safe products and services are provided. HAMS must be implemented throughout the entire supply chain, starting at the top, which is exactly from the level of live-stock farm breeding to retail, to prevent cross-contamination of raw materials and processed goods from haram sources [13]. Furthermore, according to Omar, Jaafar, and Osman [14], introducing HAMS at an early stage can help industry and community people who are directly involved in the halal food chain approach to have a better understanding and awareness. By interviewing workers from major poultry producers in Brunei to further clarify their awareness of HAMS, the study's main goal is to determine the potential adoption of HAMS to aid poultry farming in Brunei Darussalam.

II. Overview the Poultry Farming in Brunei Darussalam

Chicken production is overseen by Brunei's Department of Agriculture and Agrifood, Ministry of Primary Resources and Tourism (MPRT). Brunei's chicken meat production self-sufficiency reached 98.92 percent in 2020 [10] and slightly increased to 99.27 percent in 2021 [15]. Meanwhile, Brunei's chicken meat consumption per capita reached 58.0kg in 2020 [10], and historically poultry meat consumption per capita in Brunei reached 63.5kg back in 2012 [16]. In general, Brunei imports chicken primarily from Indonesia, Malaysia, and Australia. Furthermore, Brunei has a considerable number of local chicken meat entrepreneurs, with 51 in total [10]. Figure 1 shows the broiler industry in Brunei Darussalam from 2011 until 2020.

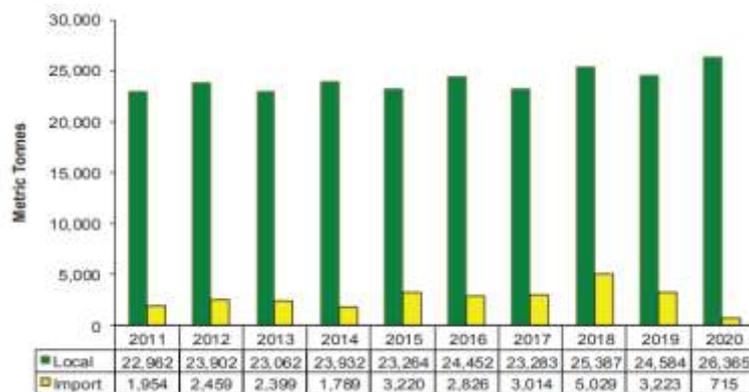


Fig.1 Broiler Industry 2011 – 2020 [10]

During the COVID-19 pandemic, increased production costs have raised the price of chicken and eggs within the country, with high local consumption due to the country's lockdown, resulting in chicken meat being sold out, despite Brunei's poultry industry producing a record high of 26,000 tonnes this year. In 2020, the Department of Economic Planning and Statistics (DEPS), Ministry of Finance and Economy (MoFE) observed the following increases over the previous four months: whole fresh chickens increased by 6 percent (\$4.28/kg to \$4.52/kg); chicken eggs increased by 6 percent (\$4.58 to \$4.87 a tray), and chicken wings increased by 3 percent (\$7.78/kg to \$8.03/kg) [17]. While, the prices have been increased in 2021, according to market prices on August 11 to 14, whole chicken retails to consumers for \$4.35 to \$5.50 per kilogram, while eggs (Grade B) are sold for \$4.30 to \$5.50 for a tray of 30 eggs [18]. According to DEPS, the increase in food prices is due to increased logistic costs as a result of global supply chain disruptions caused by the ongoing COVID-19 pandemic; unstable weather conditions that affect production; a limited range of commodities (alternative options); and increased local consumption due to travel restrictions [17]. The price of chicken feed has risen, especially for chickens. As a result, three of Brunei's major poultry producers have committed to expanding production by adding new chicken farms at the start of 2021, according to the MPRT [17]. In this way, the use of HAMS in poultry farming in Brunei would strengthen poultry production while eliminating the need to import poultry because the local supply is sufficient and Halal.

III. Implementation of HAMS in Brunei Darussalam

In comparison to Malaysia and Indonesia, Brunei has yet to implement the HAMS and does not even have a HAMS manual to refer to. Brunei is currently entirely reliant on Halal Certificates, known as the most stringent Halal certificates, and any business owner who wants to obtain a halal certificate must go through a rigorous process to revise the product to be certified halal. However, companies in Brunei, such as Simpor Pharma Sdn. Bhd., implement HAMS in their facilities. Simpor Pharma is Brunei's first Halal pharmaceutical manufacturing company which sells some of its supplement and cosmetic ranges at several major supermarkets [19]. Simpor Pharma is a joint-venture Canadian firm with Viva Pharmaceutical Inc (Viva), and the MoFE and a group of local investors began its production in 2013 [19].

Simpor Pharma established the HAMS to monitor and maintain a system to ensure halal production consistency [20]. This is accomplished with the help of the Halal Management team (Halal Committee), which is led by experienced Muslim professionals and monitors and improves the Halal Assurance System to ensure better compliance with the halal guidelines of Islamic Law. They investigate the process of developing halal products from start to finish by adhering to Islamic Law and maintaining its halal certification; from raw material selection to purchasing, manufacturing, and handling of final products [20] to produce the highest quality, hygienic, and consistent halal production. Given the implementation of HAMS concepts at Simpor Pharma, the company has gained the confidence to pursue halal certification from numerous authorities because they are certain that the products, they manufacture are Shariah-compliant.

Thus, it is recommended that the HAMS be applied in all industries in Brunei to further increase food safety, ensure halalness and give assurance to the customers that the entire supply chain adheres to Shariah law and the ever-changing halal ecosystem. As a result, HAMS also play a role in maintaining Brunei's competitiveness in the response to the growing demand for the Halal market and diversifying the country's economic prospects.

1. Benefits of Implementing the HAMS

The value of implementing a HAMS is undeniable: it ensures that halal products remain consistent during the validity of the halal certificate. Any owner of the company in Brunei who wishes to apply for a halal certificate or halal permit must go through the Halal Food Control Division (HFCD), which administers the certification process before Majlis Ugama Islam Brunei (MUIB)/Brunei Islamic Religious Council acknowledges it. Imported fresh halal meat, on the other hand, must be assessed by three government agencies before being granted a permit: Animal Quarantine Services, MPRT; HFCD, Ministry of Religious Affairs, and Food Safety and Quality Control Division, Ministry of Health before being declared with the Royal Custom Exercise Department (RCED) [21]. Before the importation, slaughterhouses must be recognized by MUIB [22]. To do so, a specific Halal Committee known as the Inspection Committee will be sent abroad to conduct a

thorough inspection to ensure that the exporting slaughterhouses meet Shariah requirements and Brunei Darussalam's desired standard [22]. The Inspection Committee will be made up of representatives from MUIB, the State Mufti Department, the Syariah Affairs Department, and the Agriculture Department. This is necessary and critical to ensure halal meat assurance, as the majority of Halal meat exporters are from non-Muslim countries [22].

Thus, after obtaining a Halal Certificate, the producer can use HAMS to prevent any cases of non-halalness of halal-certified products, such as contamination of physical hazards (working conditions), as well as maintain and raise internal awareness in the company, so that the company has a detailed and proper guideline on the halal production process, ensuring that the entire process adheres to Shariah standards so that the company does not suffer a serious loss. Hence, halal businesses should adopt and implement HAMS in their operations and production, according to Sulaiman, Hashim and Osmara [23], to ensure that halal certification is not revoked and halal certification applications are not denied. This is because HAMS will ensure that the entire product processing is halal, as HAMS encourages the adoption of a system for developing, implementing, and improving the effectiveness of controlling halal purity and genuineness.

The core objective of implementing the HAMS is to minimize halal risk [24], [25] and enhance the integrity of the halal product, which will be based on the 'Farm to Fork' concept, which involves the acquisition of raw materials until it reaches the customer [26]. The HAMS base its integrity on Quranic teachings and other Islamic principles. As a result, stakeholders should not only contribute to a consistent and healthy food supply, but also to the development and installation of systems that are resistant to situational anomalies [27], [28]. The five elements of being a successful industry player are: having the best sourcing and manufacturing capabilities; finding the best regulatory team to understand and negotiate regulations; having deep customer insights to lead the core product line; and maintaining a consistent R&D investment to produce new and innovative goods. As a result, success in the Halal industry requires the application of HAMS, Hazard Analysis Critical Control Point (HACCP), Good Manufacturing Practices (GMP), and Good Hygiene Practices (GHP) to assure Shariah-compliant products.

2. Challenges of HAMS Implementation

Even though Brunei Darussalam intends to be one of the region's global halal centres, offering halal products and services, the country's halal economy is still in its early stages. Furthermore, the government lacks the technical competence and educated workforce essential to scale up its R&D initiatives. Furthermore, general awareness of HAMS appears to be rather poor, as indicated by a recent survey conducted by Sulaiman et al [23], in which only 46 percent are aware of the importance of HAMS in the halal industry.

The HAMS is also not widely employed by manufacturers in Brunei, as the country lays a heavy focus on and makes Halal Certification mandatory, claiming that this provides consumers with adequate assurance that the output complies with Shariah law.

Despite Brunei's tough certification system, the halal sector in Brunei Darussalam still has the opportunity for expansion, rules that need to be improved, and much-needed industrial infrastructure that needs to be properly created so that the halal industry can prosper. Adoption of the HAMS in Brunei will thus serve as a spur for the country's economic development, in line with the Wawasan 2035 ambition of making Brunei the world's tenth most prosperous country.

IV. Materials and Methods

Aside from analysing relevant articles, journals, theses, and authoritative websites, this qualitative study on a local abattoir company was undertaken to utilize a case study approach. Golden Chick Abattoirs Sdn. Bhd. (GCA) was chosen for its remarkable achievements in poultry farming as well as its standard halal chicken production process in Brunei. Furthermore, virtual interviews in March 2022 were performed to acquire information from various sources and to gain a full understanding of the application of HACCP as well as the potential adoption of HAMS implementation in the Brunei poultry farming business. The questions in this study were developed by the authors for this study. Table 1 lists the questions that were asked during the interview.

Table 1. Lists of Questions for Interview

No	Questions
1	How long have you been employed in the company?
2	What department or tasks have you been assigned?
3	Does the organization offer training to its employee? If so, what kind of training?
4	What kind of training do they offer to their employees?
5	How did you find out about the Halal Slaughtering Method?
6	Can you provide an example of the Hazard Analysis Critical Control Points that were implemented in this poultry farming operation?
7	What are the most difficult tasks associated with poultry handling?
8	Are you familiar with the word Halal Assurance Management Systems?
9	Do you believe that Brunei should adopt the Halal Assurance Management Systems throughout the entire industry?
10	How about implementing it in local abattoirs as livestock is the highest supply chain that needs to be Shariah-compliant and halal?

In addition, there is no specific rule of sample size in qualitative research. Stanley, L. [29] and Kostadinov, I., et al. [30] recommended several 4-6 key informants. Therefore, this study interviewed 5 informants among Golden Chick Abattoirs Sdn. Bhd. (GCA) employees and their descriptions are tabulated in Table 2.

Table 2. Interviewee’s Descriptions

Interviewees	Age	Race	Department/ Responsibilities
Employee 1	30	Malay	Slaughterer
Employee 2	28	Malay	Animal Feed
Employee 3	39	Malay	Defeathering
Employee 4	45	Malay	Slaughterer
Employee 5	39	Malay	Ante-mortem inspection

V. Findings

1. Golden Chick Abattoirs Sdn. Bhd. (GCA)

Golden Chick Abattoirs Sdn. Bhd. (GCA) was chosen for this study because it was one of the biggest manufacturers of poultry meat in Brunei and supplied throughout the country. GCA is located in Jalan Kulapis, Panchur Murai, Kampung Pengkalan Batu, Brunei Muara, Plot 43 & 44. In 2020, GCA is the largest contributor to day-old chick production in Brunei's private sector, accounting for 30.1 percent consisting of 5.36 million birds with a total anticipated value of \$11 million [31].

GCA first opened its processing plant on November 1, 1999, with the primary goal of fulfilling the Brunei Government's policy of self-sufficiency in halal and quality chicken products, with the strategy focusing on Halal, food safety, and flock health, biosecurity, productivity, and human capital development [32]. GCA is a vibrant Brunei company that seeks to be a leader in the manufacture of quality and safe chicken products by utilizing cutting-edge processing technology, a closed-house system, and tight bio-security for broiler farms, as well as 160 workforces of varying levels, competence, and talent. Continuous food safety training and knowledge and skill enhancement were offered through both external and on-the-job training, such as that provided by the Department of Agriculture and Agrifood (DAA).

GCA is a respectable enterprise with an internationally certified factory, and it is Brunei's first abattoir to integrate HACCP, International Organization for Standard (ISO), and GMP. Acquiring HACCP certification certified by Bureau Veritas in 2007 is an endeavour to improve the volume of "Brunei Premium Halal" products supplied to other countries. Furthermore, GCA has obtained DAA certification for Good Animal Husbandry Practice (GAHP) from 2020. The company's products meet both the demanding Halal and Quality Assurance requirements required by the respective government bodies. The Ministry of Religious Affairs and the DAA, respectively, have given GCA the "HALAL" emblem for Halal compliance and the Veterinary Inspection Logo (VIL) for GMP compliance [32].

QAF Farms collaborated closely with GCA as the sole live chicken supplier. GCA and QAF Farms can

produce the Best Quality Halal Chicken in the market today thanks to the improved marketing strategies, quality control, technological advances, experience and competence, collaborative activities, as well as effective product distribution management.

2. HAMS in GCA

According to interviews conducted with GCA employees with substantial expertise and extensive working experience, HAMS awareness is extremely low, with the majority of them assuming it to be the same as HACCP and GMP, which they had previously implemented in the abattoir. HACCP is a part of HAMS; however, it is more concerned with food safety than with the halal aspect. HACCP is in charge of the thuyyiban component, which is to ensure product purity and cleanliness, whereas HAMS is in charge of halal integrity across the supply chain. It is also worth noting that maintaining the halal quality of a large number of items without a proper monitoring and management system in place is difficult. Failure to comply with halal criteria during production may have a negative impact on product quality or, more importantly, may result in the product being deemed non-halal [33].

When discussing the implementation of HACCP, various work types of employees were interviewed, and they stated that one of the requirements to work at GCA is to be knowledgeable about HACCP and that it must be understood by all employees. This is due to consumer preference, as they are more educated in Halal and safety fields, such as the fear of product contamination and shelf-life, and their expectations are higher. As a result, they must follow GMP through the supply chain. Employees 1 and 4 claim the following:

“Before entering the slaughterhouse, personal hygiene is necessary. Before beginning our job, we were also observed and ordered to wear full uniforms, clean masks, and gloves. From my perspective, the HACCP in this chicken slaughterhouse, which slaughters around 12,000 poultry per day, has met the technique described in the Halal Certificate, and as an experienced slaughterer, I must meet the way that is in line with Islamic law. The challenges that the abattoir faces are having to meet consumer preferences as they become more familiar with the HACCP system and as they get to be aware that the traditional “Halal” term does not work the same way as it does now. Thus, maintaining quality, particularly in terms of product identification and traceability, is critical.”

Employee 4 added, *“Furthermore, with the growing concern about the health and welfare of animals, we believe it is our responsibility to gain insight into animal psychology to ensure that the outcome of the chicken is assured to be halal and can be seen as a whole quality product”.*

They further noted that the company provides training and that all personnel are expected to attend DAA-hosted workshops to further expand their skills and expertise in areas such as humane handling, animal nutrition, and Shariah-compliant slaughtering. *“We prioritize the cleanliness of the chicken after it is slaughtered, such as no chicken feathers leaving, no organs remaining, and the weight of the bird weighed must also match the label given,”* employees 3 and 5 said.

They are also dedicated to ensuring that farming and processing are environmentally friendly through cleanliness and waste management, ensuring that chicks are healthy and productive, and assuring animal welfare on the farm, throughout transportation, and at the time of slaughter. Consistently provide training and worker development to foster a quality culture, corporate development, and long-term progress. Standard operating procedures (SOP) will also be established to help reduce rejects and wastage of resources, resulting in higher production yield.

Two out of every five employees are aware of the HAMS system, and they agree that it should have been adopted because Brunei is known as Negara Zikir, and they are aware that there has recently been a great worry about Halal products. As a result, they feel that if the HAMS system is implemented in Brunei, it will strengthen all Brunei-made items even while assuring all Muslim buyers that they'll never be hesitant to purchase them. Furthermore, the staff believe that integrating HAMS will make it easier for them to perform product recalls without disrupting the entire process in the event of contamination. Employee 2 added that if the HAMS system is being used in poultry farming, demand for chicken in Brunei will inevitably rise, and other countries may wish to work collaboratively with Brunei abattoirs, which will indirectly improve production revenues.

3. Potentials Benefits of Adoption of HAMS Implementation in Poultry Farming

In general, when implementing HAMS in poultry farming, producers or breeders should ensure that the product obtained from the upstream flow in the chain is halal, as shown in Figure 2. They play an important role in the pre-slaughter stage to ensure animal welfare, humane treatment, veterinarian care, and proper nutrition. According to Bonne and Verbeke [34], halal status in the case of meat is not limited to the adoption of the traditional Islamic slaughter process; other conditions must be met for meat to be considered halal.

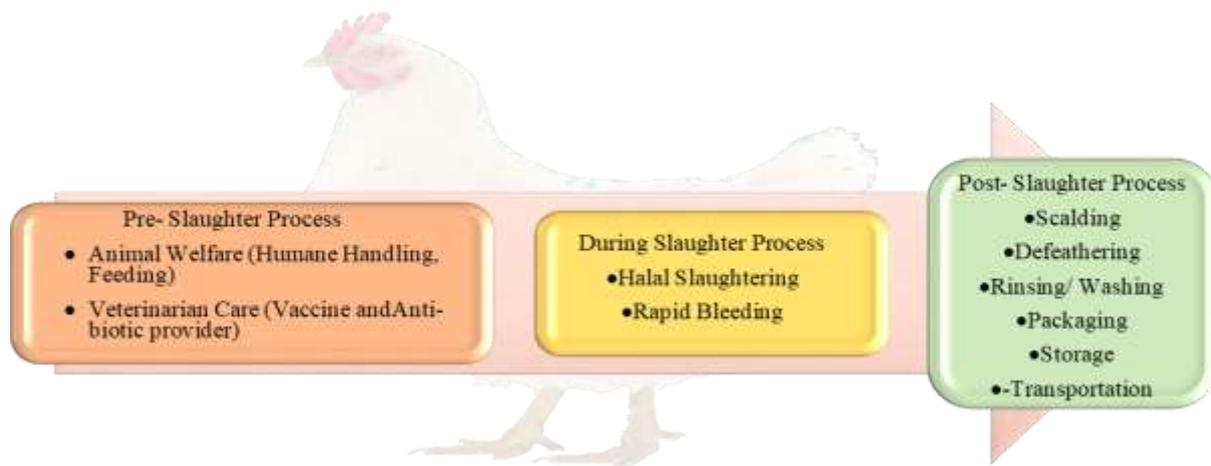


Fig. 2. Halal Meat Supply Chain

Source: Develop for this study

Most livestock slaughterhouses in Brunei have implemented HACCP, which includes the source of animal feed and livestock medications, farm infrastructure, farm biosecurity, and logistics. Even though HACCP is a scientific and systematic approach to food safety that identifies, assesses, and controls hazards in the food production process from purchasing, receiving, transporting, storing, preparing, handling, cooking, and serving. A food safety system, on the other hand, does more than just ensure that the product is halal. Thus, developing HAMS in chicken farming is critical because it not only guarantees food safety but also preserves the integrity of halal products from haram contamination, when even the smallest presence of non-Halal elements will breach the Halal status, denoting the sensitivity and criticality of the Halal meat supply chain.

Although the combination of HACCP and HAMS is still in its early stages [35], it can be used to ensure food safety and halal analysis of food products. Furthermore, the benefits of implementing HAMS in poultry farming include animal welfare, as farmers must avoid intentionally feeding their livestock food waste such as chicken blood, fats, and derivatives of severe *najs* such as pig sewage, which will result in the livestock being classified as *al- Jalallah* animals, which if consumed by humans will cause health hazards as well as endanger the health of livestock.

Furthermore, the combination of an existing HACCP system and the potential implementation of HAMS will provide customers, the public, and government agencies with the assurance that a food safety program and halal analysis are well managed [36], as it improves public health by lowering the risk of foodborne diseases and increasing consumer confidence in the product. Reduced production costs, as well as reduced food, recalls and waste, as well as expanded market access, would boost business. The implementation of HAMS will ensure that the entire supply chain adheres to Shariah law and the ever-changing halal ecosystem. As a result, implementing HAMS could assist Brunei in maintaining its competitiveness in the Halal market and broadening its economic prospects.

VI. Conclusion

The study found that implementing a HAMS in poultry farming in Brunei is critical, as regular monitoring and assessment of halal status should begin at the top of the food chain, which includes the livestock industry. As mentioned in Surah Al-Maidah verse 3, Muslims are encouraged to consume only what is halal, such as animals slaughtered following Shariah law, and to avoid any haram elements. Adoption of HAMS in

poultry farming would undoubtedly ensure food safety and hygiene standards. Furthermore, the HAMS application will ensure product integrity and improve company performance because the presence of non-Halal ingredients will jeopardize the Halal status.

In addition, according to an interview conducted with one of Brunei's leading poultry producers, knowledge of HAMS is still limited; however, workers believe that implementing HAMS on the farm is extremely important. Malaysia is a prime example of a country that has implemented the HAS 23303 Guidelines of the HAS Manual Establishment on Slaughterhouse. Furthermore, it is expected that implementing HAMS throughout the supply chain in the Brunei Halal industry will result in Brunei Halal products being known globally and benefiting the country economically.

Since a questionnaire's target group is only one of the major poultry producers' employees, this study is limited in scope and focuses on the potential application of HAMS in poultry farming. More research should be done on the potential application of HAMS in the pharmaceutical and cosmetics industries. Importantly, using HAMS for food safety and halal analysis can ensure that there is no adulteration of hazardous substances and that it does not contain additives that exceed the limit specified in the Public Health (Food) Regulations (R1 Chapter 182).

Acknowledgement

The authors would like to express their heartfelt gratitude to all parties involved in the completion of this study, particularly the informants from Golden Chicks Abattoirs Sdn. Bhd.

References

- [1] M. H. Zulfakar, C. Chan and F. Jie, "Institutional Forces on Australian Halal Meat Supply Chain (AHMSC) Operations," *Journal of Islamic Marketing*, vol. 9, no. 1, pp. 80-98, 2018.
- [2] A. Nurdiansyah, "Halal Certification and Its Impact on Tourism in Southeast Asia: A Case Study Halal Tourism in Thailand," *KnE Social Sciences*, vol. 3, no. 5, pp. 26-43, 2018.
- [3] H. Elasrag, "Halal Industry: Key Challenges and Opportunities," 13 January 2016. [Online]. Available: https://mpira.ub.uni-muenchen.de/69631/1/MPRA_paper_69631.pdf. [Accessed 14 June 2022].
- [4] GIFR, "The Global Halal Industry: An Overview," in *Global Islamic Financial Report 2013*, H. Dar, N. Azmi, R. Rahman and R. Malik, Eds., Edbiz Consulting, 2014, pp. 140-158.
- [5] M. Crosby, *Economic Diversification*, Bandar Seri Begawan: Centre for Strategic and Policy Studies, 2007.
- [6] SEA-EU-NET, "Brunei Darussalam," 2015. [Online]. Available: https://sea-eu.archiv.zsi.at/facts/sea/brunei_darussalam.html. [Accessed 14 June 2022].
- [7] K. Mahbubani and J. Sng, *The ASEAN Miracle: A Catalyst for Peace*, Singapore: NUS Press, 2017.
- [8] S. F. Pehin Dato Musa and K. H. Basir, "Livestock Shortage amidst COVID-19: A Case of Brunei Darussalam," *IOP Conferences Series: Earth and Environmental Science*, vol. 756, no. 1, p. 012013, 2021.
- [9] J. Han, X. Zhang, S. He and P. Jia, "Can the coronavirus disease be transmitted from food? A review of evidence, risks, policies and knowledge gaps," *Environmental Chemistry Letters*, vol. 19, no. 1, pp. 5-16, 2020.
- [10] Ministry of Primary Resources and Tourism, "Brunei Darussalam Agriculture and Agrifood Statistics in Brief 2020," Ministry of Primary Resources and Tourism, Bandar Seri Begawan, 2021.
- [11] A. Wong, "Saahtain Asia doubles production capacity to 8 million halal meals annually," *Biz Brunei*, 2 November 2020. [Online]. Available: <https://www.bizbrunei.com/2020/11/saahtain-asia-doubles-production-capacity-to-8-million-halal-meals-annually/>. [Accessed 14 June 2022].
- [12] D. Norjidi, "Vast Possibilities in Halal Industry," *Borneo Bulletin*, 12 November 2019. [Online]. Available: <https://borneobulletin.com.bn/vast-possibilities-halal-industry/>. [Accessed 14 June 2022].
- [13] M. E. Ali and N. N. Ahmad-Nizar, *Preparation and Processing of Religious and Cultural Foods*, Cambridge, United Kingdom: Elsevier Science and Technology, 2018.

- [14] E. N. Omar, H. S. Jaafar and M. R. Osman, "Halalan Toyiyiban Supply Chain of the Food Industry," *Journal of Emerging Economies and Islamic Research*, vol. 1, no. 3, pp. 23-33, 2013.
- [15] Ministry of Primary Resources and Tourism, "Agriculture and Agrifood Brunei Darussalam Statistics in Brief 2021," Ministry of Primary Resources and Tourism, Bandar Seri Begawan, 2022.
- [16] Helgi Library, "Poultry Meat Consumption Per Capita in Brunei," Helgi Library, 2022. [Online]. Available: <https://www.helgilibrary.com/indicators/poultry-meat-consumption-per-capita/brunei/>. [Accessed 14 June 2022].
- [17] A. Wong, "Increased production costs raise price of poultry in Brunei," Biz Brunei, 29 December 2020. [Online]. Available: <https://www.bizbrunei.com/2020/12/increased-production-costs-raise-price-of-poultry-chicken-brunei/>. [Accessed 14 June 2022].
- [18] A. Wong, "Local chicken supply up 25% in first half of 2021," Biz Brunei, 23 August 2021. [Online]. Available: <https://www.bizbrunei.com/2021/08/local-chicken-supply-up-25-in-first-half-of-2021/>. [Accessed 14 June 2022].
- [19] R. Thien, "Simpor Pharma products available in local market," The BT Archive, 1 November 2016. [Online]. Available: <https://btarchive.org/news/national/2016/11/01/simpor-pharma-products-available-local-market>. [Accessed 14 June 2022].
- [20] Simpor Pharma, "Halal," Simpor Pharma, 2015. [Online]. Available: http://simporpharma.com/contents/about_us_halal.html. [Accessed 14 June 2022].
- [21] Ministry of Health, "Importation of Fresh Meat," Ministry of Health, [Online]. Available: <https://www.moh.gov.bn/SitePages/Fresh%20Meat%20Import.aspx>. [Accessed 15 June 2022].
- [22] N. Haji Ibrahim, "Halal Policy in Brunei Darussalam," *Journal of Halal Science and Technology*, vol. 1, no. 1, pp. 86-91, 2022.
- [23] N. S. Sulaiman, N. Hashim and N. Osmara, "The Need for Halal Assurance Management Systems: An Analysis in Brunei Darussalam," *Journal of Halal Service Research*, vol. 2, no. 2, pp. 1-9, 2021.
- [24] A. S. Jais, Internal Halal Control Systems (IHCS) in Foodservices and Food-Based Manufacturing for the Micro & Small Enterprise, Johor: Politeknik Tun Syed Nasir Syed Ismail, 2021.
- [25] A. S. Jais, Halal Assurance System (HAS) for Foodservice Organizations and Food Manufacturers, Melaka: Politeknik Merlimau Melaka, 2016.
- [26] M. H. Ramli, A. S. Rosman and M. T. Ajmain @ Jima'ain, "The Operation of the Halal Assurance System in the Broilers Farming Sector: A Preliminary Study," *Sains Humanika*, vol. 12, no. 3, pp. 67-74, 2020.
- [27] I. Jawed, F. R. Tareen, K. Cauhan and M. Nayeem, "Food Safety and COVID-19: Limitations of HACCP and the way forward," *The Pharma Innovation Journal*, vol. 9, no. 5, pp. 01-04, 2020.
- [28] D. Kadirov, Islamic Marketing: Theories, Practices and Perspective, Porirua: Conscientia Capital Press, 2019.
- [29] L. Stanley, Community readiness for community change, 2nd ed., Fort Collins: Tri-Ethnic Centre for Prevention Research, 2014.
- [30] I. Kostadinov, M. Daniel, L. Stanley, A. \. Gancia and M. Cargo, "A Systematic Review of Community Readiness Tool Applications: Implications for Reporting," *International Journal of Environment Research and Public Health*, vol. 12, no. 4, pp. 3453-3468, 2015.
- [31] S. Sadikin, "Poultry: A multi-million industry in Tutong," The BT Archive, 15 March 2010. [Online]. Available: <https://btarchive.org/news/national/2010/03/15/poultry-multi-million-industry-tutong>. [Accessed 15 June 2022].
- [32] QAF Brunei Sdn Bhd, "Golden Chicks Abbatoirs Snd Bhd," QAF Brunei Sdn Bhd, 2014. [Online]. Available: <http://www.qaf-brunei.com.bn/mobile/industrial/gca.html>. [Accessed 15 June 2022].
- [33] M. M. Razaly and Z. Zakaria, "The Implementation of Halal Assurance Management System in Malaysia's Certified Halal Slaughter Houses and Its Related Issues: A Literature Review," *Journal of Shariah Law Research*, vol. 3, no. 1, pp. 105-124, 2018.

- [34] K. Bonne and W. Verbeke, "Religious values informing halal meat production and the control and delivery of halal credence quality," *Agriculture and Human Values*, vol. 25, pp. 35-47, 2008.
- [35] M. N. Demirci, J. M. Soon and C. A. Wallace, "Positioning Food Safety in Halal Assurance," *Food Control*, vol. 70, pp. 257-270, 2016.
- [36] Safe Food Alliance, "What is HACCP?," Safe Food Alliance, 2021. [Online]. Available: <https://safefoodalliance.com/food-safety-resources/haccp-overview/>. [Accessed 15 June 2022].