
Halal Food Standards for Food Security and Agricultural Sustainability: A Comparative Study of East Africa and Indonesia

Alwy Ahmed Mohamed¹, Abdulrohim E-sor², Muhammad Ndow³, Qudra Bezigweki⁴

¹The Agakhan High School, Mombasa, Kenya

²Department of Sharia, Faculty of Islamic Sciences, Prince of Songkla University, Thailand

³Univesity of The Gambia, Gambia

⁴Islamic University in Uganda (IUIU), Uganda

¹alwyahmed94@gmail.com, ²prfais@psu.ac.th,

³muhammedalmustaphadndow@gmail.com, ⁴bezigwekiqudrah@gmail.com

Received July 02, 2025; Revised October 12, 2025; Accepted December 03, 2025

Abstract

Objective: With a comparative focus on East Africa and Indonesia, this study attempts to explore how halal food standards contribute to agricultural sustainability and food security. In addition to addressing consumer trust, market access, and sustainable farming practices, the study looks at how halal certification regimes affect food production, distribution, and consumption. **Theoretical framework:** Islamic economic ideas and food systems theory serve as the study's foundation. While Islamic halal standards place a strong emphasis on ethical food production, consumer protection, and socioeconomic justice, food systems theory offers a perspective through which to view the relationships between production, distribution, and consumption. **Literature review:** Prior research emphasises how halal requirements affect market access, food safety, and moral consumption. While East African nations are still in the early stages of adoption due to issues like inadequate regulatory infrastructure, lax enforcement, and poor consumer awareness, Indonesia has gained widespread recognition for its extensive halal certification framework. **Methods:** This study uses a qualitative comparative methodology, examining institutional practices, policy documents, and sociocultural contexts in Indonesia and East Africa. In order to evaluate the efficacy and effects of halal standards on food security and agricultural sustainability. **Results:** The results show that Indonesia has constructed a strong halal certification system that guarantees food quality, helps smallholder farmers, and fosters international trade. East African nations, on the other hand, are still in the early phases of creating halal frameworks and are facing obstacles like insufficient regulatory monitoring, low consumer awareness, and shoddy enforcement procedures. **Implications:** The report emphasises how crucial it is to match halal certification with consumer protection, regional trade integration, and sustainable farming methods. In addition to easing access to expanding international halal markets, policymakers and industry stakeholders can use halal standards to benefit smallholder farmers, advance ethical food production, and improve food security. **Novelty:** This study's innovation is its comparative cross-regional analysis, which shows how halal

food standards can be used as a tool for economic integration, sustainable agriculture, and food security in a variety of socioeconomic contexts.

Keywords: halal food standards across regions, agricultural sustainability, food security, halal certification systems, comparative regional analysis

INTRODUCTION

Food security and agricultural sustainability are among the most urgent challenges confronting societies today. Rising global populations, climate change, and resource limitations have placed unprecedented pressure on food systems, particularly in developing regions. For communities with significant Muslim populations, these challenges intersect with religious obligations that emphasise the consumption of halal food. Halal food standards, while rooted in faith-based principles, have evolved into broader mechanisms for ensuring food safety, ethical production, and consumer protection. Their role increasingly extends beyond religious observance to shaping agricultural practices, supporting trade, and fostering sustainable food systems [1].

The goal of this research is to evaluate how halal food standards contribute to food security and agricultural sustainability in Indonesia and East Africa. Indonesia is a fascinating case study since it has established a comprehensive halal certification system that combines consumer safety with agricultural growth and market expansion [2]. Its method highlights how halal certification may improve quality assurance, provide opportunities for smallholder farmers, and broaden involvement in the global halal economy. In contrast, East African countries are still in the early phases of developing halal systems. Limited institutional capacity, inadequate regulatory structures, and a lack of knowledge among producers and consumers continue to be significant impediments to effective implementation [3].

The impetus for undertaking this study stems from the fast expansion of the worldwide halal industry, which is currently worth trillions of dollars. This growth creates major potential for both regions. However, the uneven development of halal certification systems risks putting certain nations on the periphery of this burgeoning market. By studying two locations at different stages of halal integration, the study sheds light on how halal food standards may be used as both a cultural and economic instrument to improve food security and encourage sustainable agriculture [4].

The research uses a qualitative comparative technique. It examines regulatory frameworks, institutional practices, and socio-cultural variables that impact the adoption and implementation of halal food regulations. This comparative perspective enables the identification of strengths, weaknesses, and opportunities in both contexts. Findings reveal that while Indonesia has successfully positioned halal certification as a driver of agricultural sustainability and global trade participation, East African nations face structural challenges but also possess considerable growth potential. Importantly, both contexts demonstrate the feasibility of linking halal certification with larger goals such as sustainable agriculture, consumer protection, and regional trade integration [5].

This study adds to the ongoing discussions about the relationship between religion, development, and global markets. It highlights how, when properly implemented, halal standards may transcend their religious roots and become tools for social and economic development. By focusing on both a well-established and a nascent system, the study provides comparative insights that can help policymakers, industry stakeholders, and researchers devise strategies that connect halal certification to broader development objectives [6]. In doing so, it emphasises the transformational potential of halal food standards not only for Muslim communities but also for the global goal of sustainable and inclusive food systems [7].

This research also aims to place the topic within the larger context of global development goals, including the Sustainable Development Goals (SDGs). Halal standards are closely related to several of these objectives, including Zero Hunger, Responsible Consumption and Production, and Partnerships for the Goals. By linking halal certification with these objectives, countries may enhance both their local food systems and their contributions to global sustainability initiatives [8]. The study's conclusions are thus valuable not just to scholars of religion and development, but also to policymakers looking for innovative approaches to agricultural reform, trade integration, and social inclusion [9].

Finally, this article contends that halal certification is more than a religious or cultural requirement; it is a multifaceted instrument that may be used to ensure food security, improve agricultural sustainability, and increase participation in the global economy. The findings are intended to encourage policies that link halal standards with sustainable farming practices, consumer protection, and international trade integration, allowing both Indonesia and East Africa to benefit from the rapidly expanding halal sector [10].

LITERATURE REVIEW

The term halal, which literally means "permissible" in Arabic, has long been linked to Islamic dietary regulations. Traditionally, halal standards have been defined in terms of what Muslims are authorised to consume, notably regarding animal slaughter, the avoidance of banned substances such as alcohol and pork, and the preservation of cleanliness in food processing. However, recent research shows that halal food requirements go beyond religious devotion and include larger economic, social, and ethical considerations. Halal certification is now a worldwide recognised indicator of food quality, safety, and authenticity. Halal certification is increasingly aligned with global quality and safety benchmarks such as Hazard Analysis Critical Control Points (HACCP) and ISO standards [11]. This alignment positions halal not only as a religious obligation, but also as a comprehensive regulatory framework that addresses concerns about food safety, traceability, and consumer protection. Furthermore, halal certification is becoming increasingly associated with sustainability issues such as animal welfare, fair trade, and environmental responsibility. As a result, halal food standards are increasingly recognised as beneficial to both religious identity and global development goals [12].

Food security occurs when all people have consistent physical, social, and economic access to adequate, safe, and nutritious food to suit their dietary needs and preferences. Agricultural sustainability adds to this by focusing on the long-term viability of food production systems while emphasising environmental stewardship, economic stability, and social equity. These concepts highlight the necessity for food systems that can endure global challenges like climate change, growing urbanisation, and volatile trade markets [13].

The literature suggests that certification programs, whether halal, organic, or fair trade, play an important role in strengthening food systems. Certification fosters confidence between producers and consumers, ensures compliance with quality standards, and opens up new market opportunities. Within Muslim-majority societies, halal certification also serves to fulfil religious obligations, combining spiritual assurance with material guarantees of food safety. Importantly, certification schemes like halal are increasingly seen as tools for achieving multiple Sustainable Development Goals (SDGs), including Zero Hunger, Responsible Consumption and Production, and Decent Work and Economic Growth. Halal certification has the potential to improve food security and environmental sustainability by promoting ethical and sustainable agricultural practices [14].

Indonesia, with the world's largest Muslim population, has positioned itself at the forefront of the global halal movement. The Indonesian Ulema Council (Majelis Ulama Indonesia - MUI) was established as the primary body for providing halal certificates, formalising the certification process. Recently, the government established the Halal Product Assurance

Agency (BPJPH), incorporating halal certification into national legislation. Indonesia's dual structure has enabled it to build one of the world's most complete halal ecosystems, combining legal frameworks, religious authority, and consumer protection into a single system [15].

Indonesia's halal certification extends beyond food to medicines, cosmetics, and tourism services. This diversification underscores the country's ambition to become a global halal hub. More importantly, halal certification has been linked to agricultural policies that benefit smallholder farmers, who make up a significant portion of the agricultural workforce. Farmers adhering to halal standards gain access to new markets, improve production methods to meet quality requirements, and benefit from consumer trust. Indonesia's experience demonstrates how halal certification can drive national economic growth, rural development, and global trade participation [16].

In contrast, East African countries are still developing halal certification frameworks. Kenya, Tanzania, and Uganda have significant Muslim populations, yet the institutionalisation of halal systems remains fragmented. In Kenya, for example, the Supreme Council of Kenya Muslims (SUPKEM) and other religious bodies issue halal certificates, but the absence of a single regulatory authority leads to inconsistency and weak enforcement. Tanzania and Uganda face similar challenges, with multiple religious and private organisations involved in halal certification, often without adequate coordination [17].

Fragmented systems erode consumer trust because customers may doubt the credibility of certification. Producers also face challenges entering global halal markets, as international buyers often require certification from recognised agencies. Additionally, East African nations face limited technical capacity, weak regulatory frameworks, and low public awareness of the economic benefits of halal certification. Despite these challenges, there is significant potential. Agriculture remains central to many East African economies, and halal certification could enhance value addition, increase export competitiveness, and create niche markets locally and internationally [18].

Comparative studies highlight significant differences between Indonesia's mature halal system and East Africa's nascent frameworks. Indonesia illustrates how government engagement, institutional clarity, and strong public demand can produce a successful halal system that benefits both national growth and global competitiveness. East Africa, on the other hand, exemplifies the challenges faced by regions with weak institutional capacity and fragmented governance. These disparities highlight the importance of political will, institutional infrastructure, and consumer education in determining the effectiveness of halal certification [19].

The global halal food industry is projected to be worth trillions of dollars, driven by growing Muslim populations, rising income levels, and increased demand for ethical and safe food. This trend has attracted both Muslim-majority and non-Muslim nations, making them significant exporters of halal-certified products. Regions such as East Africa risk missing out on this lucrative market if they do not develop recognised and credible halal certification systems. Conversely, successful integration into the halal market could provide opportunities to enhance food security, empower smallholder farmers, and promote sustainable agricultural practices [20].

While previous research provides valuable insights into halal certification in Indonesia and the emerging systems in East Africa, there is a lack of comparative studies that directly link halal standards to food security and agricultural sustainability. Much of the literature focuses either on the religious aspects of halal or the economic benefits of certification, with limited emphasis on how halal frameworks can be strategically aligned with sustainable development goals. This study addresses this gap by performing a comparative analysis of Indonesia and East Africa, highlighting the potential of halal certification as both a cultural and economic tool for strengthening food systems [21].



Figure 1. Halal Certification for Food Security

METHODOLOGY

Research Design

This study uses a qualitative comparative research approach to investigate the influence of halal food standards on improving food security and agricultural sustainability. A comparative case study method is applied, focusing on Indonesia, which has established a comprehensive halal certification framework, and selected East African countries such as Kenya, Tanzania, and Uganda, whose halal certification systems are still under development. This methodology allows for an in-depth examination of how various legislative, institutional, and socio-cultural factors affect the implementation and impact of halal certification [22].

Techniques for Data Collection

Analysis of Documents and Policies

The study examines institutional guidelines, legislative frameworks, and national halal certification regulations. It also reviews food security plans, agricultural sustainability strategies, and regional trade agreements relevant to the halal industry. Reports and publications from international and national agencies provide additional context and a global perspective on halal certification.

Partially Structured Interviews

Policymakers, representatives of certification bodies, religious leaders, and agricultural stakeholders will be interviewed. Key informants include smallholder farmers, food processors, wholesalers, and consumer groups. These interviews aim to gather diverse perspectives on the challenges and opportunities of halal certification and its role in promoting food security and agricultural sustainability.

Focus Group Discussions (FGDs)

Focus groups will be organised with consumer groups and smallholder farmers to explore grassroots experiences and perceptions of halal food standards. This approach allows for the triangulation of insights from expert interviews and policy documents, ensuring a more balanced analysis.

Review of Secondary Data

The study also reviews books, conference proceedings, and scholarly journal articles on food security, halal food, consumer protection, and agricultural development. This literature review helps contextualise findings within broader academic debates.

Sampling Method

Participants with knowledge of food security, consumer protection, halal certification, and agricultural policy are selected using purposive sampling. A comparative sampling strategy is also employed to contrast Indonesia's mature system with East Africa's developing frameworks, allowing the study to identify both convergences and divergences.

Data Analysis

Data will be analysed using thematic analysis to identify recurring themes such as food safety, consumer trust, agricultural sustainability, and market access. A comparative analysis will highlight similarities and differences between Indonesia and East Africa regarding institutional capacity, regulatory enforcement, and consumer awareness [23].

Ethical Considerations

The study ensures ethical compliance by obtaining informed consent from all participants and guaranteeing confidentiality and anonymity in data reporting. Cultural and religious sensitivities regarding halal practices will be fully respected to maintain integrity and trust.

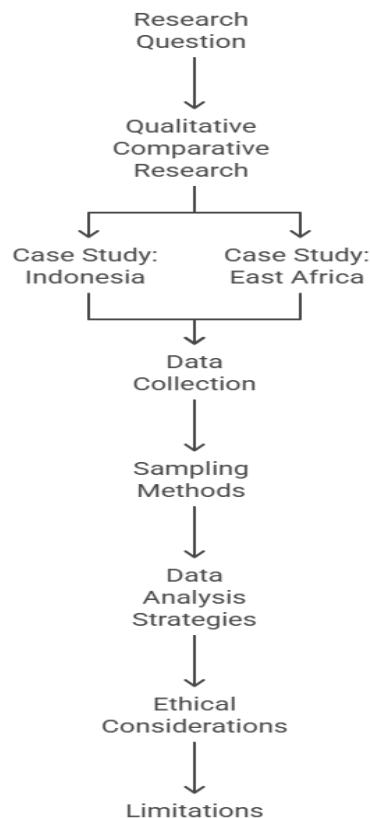
Limitations

The study acknowledges potential limitations, including difficulties in accessing reliable data from East African halal institutions due to weak regulatory systems, limited consumer awareness, and enforcement gaps. Language barriers and uneven availability of official documentation may also pose challenges in data collection and analysis [24].

Table 1. Research Methodology

Aspect	Description
Research Design	Qualitative comparative research using a comparative case study of Indonesia (advanced halal system) and East Africa (developing halal systems: Kenya, Tanzania, Uganda).
Data Collection Methods	Document & Policy Analysis: Institutional guidelines, legislation, certification regulations, food security plans, trade agreements. Structured Interviews: Policymakers, certification bodies, religious leaders, farmers, processors, wholesalers, consumers. Focus Group Discussions (FGDs): Consumer groups and smallholder farmers for grassroots perspectives. Secondary Data Review: Books, conference proceedings, scholarly articles on food security, halal certification, and agricultural development.
Sampling Method	Purposive sampling of knowledgeable participants; comparative sampling to highlight differences and similarities between Indonesia and East Africa.
Data Analysis	Thematic analysis to identify key themes: food safety, consumer trust, agricultural sustainability, and market access. Comparative analysis to explore differences in institutional capacity, enforcement, and awareness.
Ethical Considerations	Informed consent, confidentiality, anonymity, and respect for cultural and religious sensitivities regarding halal practices.
Limitations	Limited access to reliable data in East Africa due to weak regulatory systems, low consumer awareness, fragmented institutions, language barriers, and uneven documentation availability.

Research Methodology for Halal Food Standards Influence



Made with Napkin

Figure 2. Research Methodology for Halal Food

RESULTS AND DISCUSSION

Indonesia's Halal Certification Law Status

Over the past ten years, Indonesia's halal certification system has experienced substantial expansion, demonstrating the government's dedication to protecting consumers and strengthening its position in the international halal market. The legal basis for requiring halal certification for food, drinks, and other consumer goods is Law Number 33 of 2014 on Halal Product Assurance. This law provides Muslim consumers with legal certainty and places the responsibility of obtaining halal certification on manufacturers. Indonesia established a systematic process for halal certification with the subsequent Presidential Regulation Number 31 of 2019 and the creation of the Halal Product Assurance Organising Agency (BPJPH) within the Ministry of Religious Affairs [25].

By 2025, BPJPH's responsibilities had expanded to include collaboration with Halal Inspection Institutions (LPH) nationwide and the provision of digital services via the SIHALAL platform. This infrastructure enables faster halal certification, boosting consumer confidence and enhancing the competitiveness of both local and export-oriented products. As of late 2024, over 1.7 million products, including processed foods, drinks, and agricultural products, had received halal certification, with a significant portion coming from small and medium-sized enterprises. These developments demonstrate that the Indonesian government views halal certification not only as a religious obligation but also as a strategic tool for economic growth and international trade [26].



Figure 3. Halal Product Assurance Organising Agency (BPJPH)

Table 2. Development of Halal Certification in Indonesia

Year / Regulation	Key Legal Development	Institutional Role	Impact / Outcome
2014 – Law No. 33/2014	Halal Product Assurance Law enacted; halal certification made mandatory for food, beverages, and consumer goods.	Ministry of Religious Affairs	Established legal foundation; obligated producers to certify products
2019 – Presidential Regulation No. 31/2019	Formal establishment of Halal Product Assurance Organising Agency (BPJPH)	BPJPH under the Ministry of Religious Affairs	Institutionalised halal certification framework
2020–2023	Expansion of Halal Inspection Institutions (LPH)	BPJPH + LPH	Nationwide network of auditors; stronger enforcement
2024 – Digital Transformation	Launch of the SIHALAL platform for online certification	BPJPH (digital services)	Streamlined certification, easier SME access
2025 (Current Status)	BPJPH upgraded with a broader mandate; coordination with LPH strengthened	BPJPH is the central authority	1.7 million+ products certified halal, including SME products; boosted consumer trust and export competitiveness

Frameworks for Halal Certification in East Africa

East African nations such as Kenya, Tanzania, and Uganda are still in the early stages of developing comprehensive halal certification systems. Legal frameworks for consumer protection and food safety exist, but they lack precise and unified measures for halal assurance comparable to Indonesia's established approach. For example, the Supreme Council of Kenya Muslims (SUPKEM) and other private religious organisations oversee halal certification in Kenya, with minimal direct government involvement. Similarly, halal certification remains largely optional in Tanzania and Uganda, where independent certifying bodies and Islamic councils supervise the process with varying degrees of legitimacy. The

absence of centralised legislation makes it difficult to standardise, enforce, and gain international recognition for halal-certified products [27].

Attempts are being made to collaborate with the East African Community (EAC) to standardise halal standards; however, challenges persist due to institutional fragmentation and limited funding. Public awareness of halal certification is also low, with many consumers associating halal primarily with meat products while overlooking other categories such as processed foods and cosmetics. This lack of knowledge limits broader market participation and highlights the need for stronger regulatory frameworks and government-led awareness campaigns [28].



Figure 4. Halal Bodies in East Africa

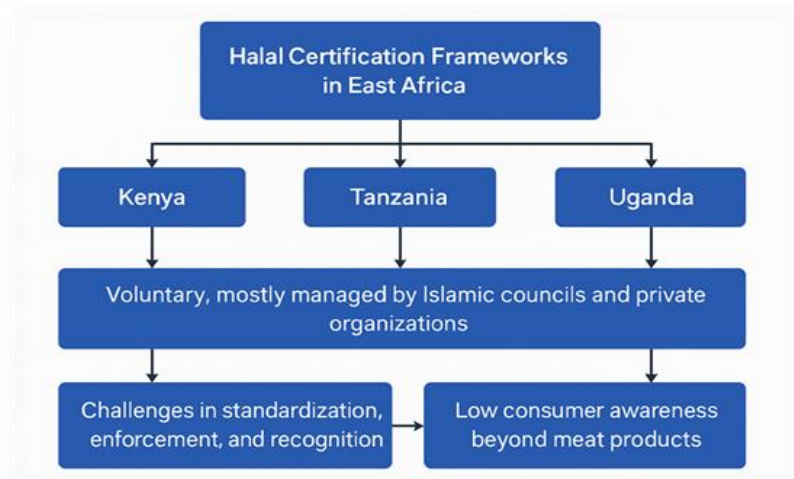


Figure 5. Halal Certification Frameworks in East Africa

Evaluation of Institutional Practices in Comparison

A comparison of East Africa and Indonesia reveals notable disparities in consumer participation, enforcement capabilities, and institutional practices. East Africa exhibits a decentralised and fragmented approach that relies heavily on non-state entities, whereas Indonesia’s regulatory framework demonstrates a complete and centralised model in which the state plays a proactive role. Three significant differences emerge from the findings [29].

First, halal certification in East Africa is primarily based on religious authority and lacks full legal enforcement, whereas Indonesia’s regulatory framework is supported by statutory legislation and government authorities. Second, Indonesia has greater market access because products certified under BPJPH are recognised internationally, while East African producers often struggle to meet export standards due to the absence of standardised certification [30].

Third, consumer trust and awareness in Indonesia are strengthened by consistent government-led public campaigns, whereas East Africa faces challenges in building comparable levels of consumer confidence. Nonetheless, both regions share a recognition of

halal standards as tools for promoting food safety and enhancing agricultural value chains. Properly institutionalised, halal certification has the potential to improve smallholder farmer livelihoods, build consumer trust, and expand participation in global markets [31].

Table 3. Comparative Analysis of Institutional Practices: Indonesia vs. East Africa

Dimension	Indonesia	East Africa (Kenya, Tanzania, Uganda)
Regulatory Infrastructure	Backed by statutory law (Law No. 33/2014) and centralised through BPJPH	Largely voluntary, managed by religious councils (SUPKEM, Islamic councils), with no centralised law
Institutional Role	Strong state involvement with BPJPH and Halal Inspection Institutions (LPH)	Decentralised, dependent on non-state actors with limited government oversight
Enforcement Capacity	Mandatory certification; the digital SIHALAL platform ensures monitoring and efficiency	Weak enforcement; absence of uniform standards and fragmented institutions
Market Access	Certified products gain international recognition; support exports	Export barriers due to a lack of standardised recognition
Consumer Trust & Awareness	High due to government-led campaigns and legal assurance	Relatively low; halal is associated mostly with meat products
Impact on Smallholder Farmers	SME-friendly schemes (self-declare system) expand participation	Limited support; weak integration into value chains
Convergence Point	Halal standards are recognised as tools for food safety, value chain strengthening, and global market opportunities.	Same recognition, though implementation capacity remains weak

The Impact of Maqashid Sharia on Halal Standards

The findings also show that the application of halal requirements in Indonesia and East Africa can be examined through the lens of maqashid sharia, particularly in terms of protecting the five primary objectives: religion, life, intellect, wealth, and lineage. In Indonesia, mandated halal certification protects religion and consumer safety (*ḥifẓ al-dīn* and *ḥifẓ al-nafs*), while also providing economic opportunities for small and medium-sized enterprises (*ḥifẓ al-māl*). The harmonisation of legal frameworks with Sharia principles illustrates Islamic law’s flexibility in addressing contemporary food governance challenges [32].

Although institutional structures in East Africa are less established, maqashid sharia plays a vital role in the efforts of Islamic councils and certifying agencies to ensure that Muslim communities have access to safe and permissible food sources. The focus on consumer protection and ethical food systems reflects the broader goal of *maslahah* (public welfare), especially where legal enforcement is weak. Maqashid sharia thus serves as a unifying normative framework for both regions, demonstrating the capacity of halal standards to integrate religious duties with sustainable agricultural development and international trade objectives [33].

Furthermore, applying maqashid sharia to halal certification encourages the promotion of knowledge and awareness (*ḥifẓ al-‘aql*) among consumers and producers. Educational initiatives, public campaigns, and community training programs in Indonesia and East Africa enhance understanding of halal principles, ethical production, and food safety practices, fostering responsible consumption and ethical business conduct [34].

Finally, maqashid sharia provides a basis for aligning halal standards with broader sustainable development goals. By integrating the protection of life, wealth, and community welfare into halal practices, both Indonesia and East Africa can leverage certification systems to promote inclusive economic growth, environmental responsibility, and resilient food systems. This demonstrates the transformative potential of halal standards not only as religious obligations but also as tools for social, economic, and ecological advancement [35].

Halal Standards: A Driver of Food Security and Sustainability

The study's findings imply that halal food standards serve not only as religious and ethical criteria but also as strategic mechanisms for enhancing food security and promoting agricultural sustainability. In Indonesia, the mandatory halal certification system provides consumers with legal assurance while simultaneously strengthening agricultural value chains. This centralised approach ensures that producers, particularly smallholder farmers, have easy access to certification through streamlined procedures, thereby increasing inclusivity within the food system [36].

The use of digital platforms such as SIHALAL illustrates how technology has been leveraged to simplify certification processes, reduce bureaucratic inefficiencies, and enhance engagement among diverse actors in the food sector. These institutional advancements not only increase the credibility of certified products but also align halal standards with national development objectives such as food safety, rural livelihood improvement, and international trade competitiveness. Indonesia's experience demonstrates that when halal certification is embedded within broader state policies, it can become a potent driver of economic growth, consumer protection, and sustainable agriculture [37].

In East Africa, although halal certification frameworks are still developing, the potential for promoting food security and sustainability is significant. By establishing more coordinated and standardised certification processes, East African countries could enhance market access for producers, increase consumer confidence, and encourage sustainable farming practices that meet both religious and ethical standards. Strengthening institutional capacity and harmonising regulatory frameworks across the region would help unlock the economic and social benefits of halal certification [38].

Moreover, halal certification can serve as a tool for promoting environmental sustainability. By encouraging producers to adopt ethical and responsible agricultural practices, including animal welfare, safe food handling, and eco-friendly production methods, halal standards contribute to long-term ecological resilience. This dual focus on ethics and sustainability positions halal certification as a multidimensional strategy for meeting the needs of both present and future generations [39].

Finally, halal food standards foster regional and global economic integration. By aligning certification with international standards, producers in both Indonesia and East Africa can access global halal markets, attract foreign investment, and participate in cross-border trade. This integration not only enhances economic opportunities but also incentivises the adoption of best practices in food safety, quality control, and sustainable production, demonstrating that halal certification is an essential component of modern, resilient food systems [40].

Institutional Gaps in East Africa

In contrast, East African nations such as Kenya, Tanzania, and Uganda are still in the early stages of developing halal certification systems, characterised by fragmented institutional processes and weak enforcement mechanisms. Unlike Indonesia's state-led and regulated approach, East Africa's halal certification frameworks are largely voluntary and managed by private religious organisations or Islamic councils. This reliance on non-state entities results in inconsistent legitimacy, limited international recognition, and difficulties in standardisation. The absence of unified legal frameworks reduces the authority of halal

certification, limiting its capacity to systematically impact food security and agricultural sustainability [41].

Furthermore, consumer awareness in East Africa is often low, with many associating halal certification mainly with meat products while overlooking other categories such as processed foods, beverages, and cosmetics. This limited understanding constrains the full potential of halal certification as a tool for promoting food safety, ethical consumption, and agricultural development. Despite these challenges, initiatives by the East African Community (EAC) to standardise halal practices indicate recognition of the importance of certification for strengthening value chains and enhancing regional trade. Nonetheless, limited institutional capacity, insufficient funding, and low public awareness remain significant obstacles that must be addressed to unlock the full benefits of halal certification in the region [42].

Moreover, the lack of coordinated training and technical support for producers hinders compliance with halal standards. Smallholder farmers and local food processors often lack the knowledge and resources necessary to meet certification requirements, limiting their market access and ability to participate in regional and global halal supply chains. Addressing these capacity gaps through education, technical assistance, and advisory services is crucial for the successful implementation of halal standards [43].

Additionally, the fragmented system in East Africa weakens consumer confidence in halal products. When certification is inconsistent or perceived as unreliable, trust in halal labels diminishes, discouraging wider adoption and limiting domestic demand. Building a centralised and transparent certification framework, coupled with public awareness campaigns, would improve trust, ensure compliance, and enhance the credibility of halal products both locally and internationally. Finally, there is an opportunity to integrate halal certification with broader sustainability and food security initiatives. By linking halal standards with ethical farming practices, food safety regulations, and environmental stewardship, East African countries could use certification as a tool not only for religious compliance but also for strengthening resilient food systems and supporting rural livelihoods. This alignment could create a more comprehensive approach that combines cultural, economic, and developmental benefits, ultimately advancing both local and regional food security [44].

Analysis

This study analyses halal food standards as a strategic instrument for strengthening food security and agricultural sustainability through a comparative lens between Indonesia and East Africa. The findings demonstrate that halal certification extends beyond religious compliance, functioning as an integrated governance mechanism that links ethical production, consumer protection, and sustainable agricultural practices. In Indonesia, the institutionalisation of halal standards through binding legislation and a centralised authority has enhanced regulatory clarity, improved market access, and reinforced consumer trust. This state-led model has enabled smallholder farmers and small and medium enterprises to participate more effectively in halal value chains, contributing to inclusive agricultural development and national food resilience.

Conversely, East African countries exhibit fragmented halal governance structures characterised by voluntary certification, weak enforcement, and limited institutional coordination. These structural constraints reduce the effectiveness of halal standards in supporting food security objectives, despite the region's strong agricultural base and growing Muslim consumer market. Low consumer awareness and the absence of harmonised regulations further limit the potential of halal certification to drive sustainability and trade competitiveness. Nevertheless, the study identifies significant opportunities for East Africa to leverage halal standards as a development tool by strengthening regulatory frameworks, enhancing institutional capacity, and integrating halal certification into broader agricultural and food security policies.

From a normative perspective, the application of maqashid sharia reinforces the alignment between halal standards and public welfare objectives, particularly the protection of life, wealth, and social well-being. The analysis highlights that when embedded within coherent policy frameworks, halal certification can promote ethical production, sustainable resource management, and economic integration. Overall, the study underscores the transformative potential of halal food standards as multidimensional instruments for achieving sustainable food systems across diverse socio-economic contexts.

CONCLUSION

This study found that halal food standards have tremendous potential for improving food security, agricultural sustainability, and global market involvement. The comparative examination of Indonesia and East Africa demonstrates the importance of institutional frameworks, legislative enforcement, and consumer knowledge in determining the efficacy of halal certification. Indonesia's comprehensive and required system demonstrates how state-led legislation, technical innovation, and public education can turn halal certification into a strategic instrument for both producers and consumers. In contrast, East African nations confront fragmentation, weak institutional capacity, and low consumer awareness, all of which impede the potential of halal standards to achieve comparable results. Despite these differences, both settings acknowledge the importance of halal certification as a tool for enhancing agricultural value chains, assuring food safety, and fostering consumer trust. The findings highlight the need for East African nations to learn from Indonesia's experience, such as establishing centralised halal agencies, simplifying certification procedures for smallholder farmers, and increasing government engagement in awareness efforts. At the same time, Indonesia must continue to improve its system to maintain efficiency, inclusiveness, and a worldwide reputation. Finally, halal certification should be considered not only as a religious requirement, but also as a policy tool that may support larger development objectives such as sustainable agriculture, consumer protection, and regional trade integration. By incorporating halal standards into sustainable development objectives and encouraging cross-regional collaboration, Indonesia and East Africa may optimise the socioeconomic benefits of the growing global halal market.

Acknowledgments

The authors express sincere gratitude to their respective institutions for academic support and research facilities. Appreciation is extended to colleagues and reviewers whose constructive feedback significantly improved the quality, clarity, and contribution of this study.

Author Contribution

All authors jointly designed the study. Alwy Ahmed Mohamed and Abdulrohim E-sor led conceptualization and analysis. Muhammad Ndow, and Qudra Bezibweki contributed to data collection, interpretation, writing, and final manuscript approval process stages.

Conflicts of Interest

The authors declare no conflicts of interest regarding the research, authorship, or publication of this article. The study was conducted independently, without financial, institutional, or personal relationships that could inappropriately influence the findings or interpretations.

REFERENCES

- [1] Iham *et al.*, “A Bibliometric Analysis of Halal Production in Relation to Halal Authentication (Database Scopus 2013-2023),” *Rev. Gest. Soc. e Ambient.*, vol. 18, no. 6, 2024, <https://doi.org/10.24857/rgsa.v18n6-030>.
- [2] M. Prathama, I. Baihaqi, and N. A. Rakhmawati, “A Conceptual Framework of Halal Traceability System in Indonesia Cosmetics Supply Chain,” in *Digest of Technical Papers - IEEE International Conference on Consumer Electronics*, Institute of Electrical and Electronics Engineers Inc, 2024, pp. 636–641. <https://doi.org/10.1109/ISCT62336.2024.10791155>.
- [3] N. Saidin, F. A. Rahman, and N. Abdullah, “A critical analysis of the legal framework on animal feed in Malaysia: With special reference to the Feed Act 2009,” *Int. J. Eng. Technol.*, vol. 7, no. 2, pp. 21–25, 2018, <https://doi.org/10.14419/ijet.v7i2.10.10947>.
- [4] K. Minke, “A Comparative Analysis of the,” in *Annals of Theoretical Psychology*, no. 4, 2012, pp. 119–141. <https://books.google.fr/books?hl=en&lr=&id=BqQACAAAQBAJ&oi=fnd&pg=PA315&dq=michotte+kh+theory-ladenness&ots=L6FG-ZX12p&sig=avlzE7hwfUw02hJOGgIcqcIVhHI>
- [5] Alwy Ahmed Mohamed, Zaki Afifi, and M. Mahmudulhassan, “Critical Pedagogy in Islamic History Education: Applying Henry Giroux’s Framework,” *Bull. Islam. Res.*, vol. 3, no. 3, pp. 541–554, 2025, <https://doi.org/10.69526/bir.v3i3.363>.
- [6] Aisah Humairo Zen Kholis, Ainur Rhain, and Alwy Ahmed Mohamed, “Interpreting Faith and Good Deeds Through a Gender Lens: Insights from Thematic Qur’anic Exegesis,” *Solo Int. Collab. Publ. Soc. Sci. Humanit.*, vol. 3, no. 03, pp. 457–474, 2025, <https://doi.org/10.61455/sicopus.v3i03.360>.
- [7] Alwy Ahmed Mohamed, Md. Riazul Haque and Alaa Alkhateeb, “Islamic Law in Plural Legal Systems and the SDGs: A Comparative Analysis of Indonesia, Bangladesh, and Kenya,” *Demak Universal Journal of Islam and Sharia*, vol. 3, no. 02. pp. 183–198, 2025. <https://doi.org/10.61455/deujis.v3i02.412>.
- [8] A. A. M. Alaa Alkhateeb1, “Legal Pluralism in Muslim-Majority Asia: Sharia, Customary Law, and Sustainable Development Goals,” *Maktabah Reviews on Sustainable Development Goals*, vol. 1, no. 2, pp. 87–104, 2024.
- [9] Alwy Ahmed Mohamed, Triono Ali Mustofa, Mahmudulhassan, and Mariam Elbanna, “Negotiating Muslim Youth Identity in Southeast Asia: Psychosocial and Islamic Educational Perspectives,” *Solo Universal Journal of Islamic Education and Multiculturalism*, vol. 3, no. 2. pp. 241–252, 2025. <https://doi.org/10.61455/sujjem.v3i2.410>.
- [10] A. A. M. Yahya Muhdiana Fauzin, “Optimising Teacher Student Dynamics through the Nash Principle: Towards Academic Excellence and SDG 4 on Quality Education,” *Maktabah Reviews on Sustainable Development Goals*, vol. 1, no. 1, pp. 29–44, 2024.
- [11] Nahrul Faidin, Tri Marhaeni Pudji Astuti, Sucihatiningsih Dian Wisika Prajanti, Puji Hardati, and Alwy Ahmed Mohamed, “Shaping Children’s Social Ethics in Female Migrant Families: Islamic Insights on Education and Gender within the SDGs Framework,” *Profetika J. Stud. Islam*, vol. 26, no. 01, pp. 321–338, 2025, <https://doi.org/10.23917/profetika.v26i01.11124>.
- [12] Nur Setia Abuabakar and Alwy Ahmed Mohamed, “Strategies for Cultivating Religious Character in Marginal and Minority Schools: A Case Study at Senior High Schools in the Kupang Archipelago,” *Solo Int. Collab. Publ. Soc. Sci. Humanit.*, vol. 2, no. 03, pp. 341–354, 2024, <https://doi.org/10.61455/sicopus.v2i03.292>.
- [13] Meti Fatimah, Edy Muslimin, Aminatus Sayidah, and Alwy Ahmed Mohamed, “Technological Mastery and Competence Development of Islamic Religious Education Teachers in Wonogiri: Supporting SDG 4 on Quality Education,” *Profetika J. Stud. Islam*, vol. 26, no. 01, pp. 245–258, 2025, <https://doi.org/10.23917/profetika.v26i01.11744>.
- [14] Alwy Ahmed Mohamed and Abdulrohimi E-sor, “Zakat as a Legal Obligation in Sharia within the Context of Contemporary Taxation Systems,” *Demak Univers. J. Islam Sharia*, vol. 3, no. 02, pp. 229–244, 2025, <https://doi.org/10.61455/deujis.v3i02.345>.
- [15] I. Maflahah *et al.*, “A multi-criteria fuzzy analytic network process analysis to supplier selection in the fishery of halal supply chain,” *J. Optim. Ind. Eng.*, vol. 18, no. 1, pp. 179–194, 2025, <https://doi.org/10.71720/joie.2025.1196641>.
- [16] M. Belkhatir, S. Bala, and N. Belkhatir, “Business process re-engineering in supply chains examining the case of the expanding Halal industry,” in *ICEIS 2009 - 11th International Conference on Enterprise Information Systems, Proceedings*, vol. ISAS, Syst., Proc: INSTICC Press, 2009, pp. 77–82. <https://doi.org/10.5220/0001955800770082>.
- [17] N. H. A. Rani, N. F. Mohamad, N. S. A. Rasid, and N. Aziz, *Bromelain enzyme extraction from pineapple waste and its application as meat tenderiser*, vol. 2454. American Institute of Physics Inc, 2022.

<https://doi.org/10.1063/5.0078559>.

- [18] L. Raimi and U. A. Animashaun, *Contemporary Discourse on the Farm-to-Fork Concept of the Blue Economy: Exploration for Halal Industry Sustainability*. In *Green and Blue Economy Frameworks for Halal Industry Sustainability*, Springer Nature, 2025. https://doi.org/10.1007/978-981-96-1729-6_16.
- [19] D. P. Restuti, A. Kasdi, and B. T. Cahya, “Economics issues of halal industry,” in *Exploring the Halal Industry and Its Business Ecosystem Prospects*, Prospect: IGI Global, 2025, pp. 1–22. <https://doi.org/10.4018/979-8-3693-8618-7.ch001>.
- [20] M. Lockerbie, “Public awareness of halal and kosher slaughter,” *Vet. Rec.*, vol. 181, no. 6, pp. 149–150, 2017, <https://doi.org/10.1136/vr.j3711>.
- [21] N. S. Sulaiman, “Utilisation of Industrial Food Waste as Raw Material of Halal Pet Food,” in *Sustainable Smart Cities and the Future of Urban Development*, IGI Global, 2024, pp. 463–486. <https://doi.org/10.4018/979-8-3693-6740-7.ch019>.
- [22] N. F. Jamaludin and K. Sugawara, “Halal logistics certification and regulations in Japan,” in *Halal Logistics and Supply Chain Management: Recent Trends and Issues*, Taylor and Francis, 2022, pp. 196–210. <https://doi.org/10.4324/9781003223719-20>.
- [23] N. A. Salindal, “Halal certification compliance and its effects on companies’ innovative and market performance,” *J. Islam. Mark.*, vol. 10, no. 2, pp. 589–605, 2019, <https://doi.org/10.1108/JIMA-04-2018-0080>.
- [24] M. Djemilou and A. Bayat, “The ethico-political knowledge management practices of a South African Halal certifying body,” in *Proceedings of the International Conference on Intellectual Capital, Knowledge Management and Organisational Learning, ICICKM*, I. C. I. C. K. M. Knowl. Manage. Org. Learn. and S. Pather, Eds., Academic Conferences and Publishing International Limited, 2018, pp. 59–66. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85059812948&partnerID=40&md5=e7629d731fb38a61b4efaa5311d8e693>
- [25] E. H. Purwanto, B. D. Tampubolon, W. C. Anggundari, A. Dewantoro, P. Anggraeni, and U. Ayuningtyas, “Potential technical parameters for the authentication of carrion meat (tiren): A review,” *Int. Food Res. J.*, vol. 30, no. 1, pp. 46–62, 2023, <https://doi.org/10.47836/ifrj.30.1.03>.
- [26] F. A. Mohd Hatta, Q. A. Mat Ali, M. I. A. Mohd Kashim, R. Othman, S. Abd Mutalib, and N. H. Mohd Nor, “Recent Advances in Halal Bioactive Materials for Intelligent Food Packaging Indicator,” *Foods*, vol. 12, no. 12, 2023, <https://doi.org/10.3390/foods12122387>.
- [27] H. Khamnurak, A. Taali, and M. M. Rahman, “Integrating Halal Management Systems and Control Points in Poultry Processing: A Transnational Compliance Case from Thailand to Malaysia,” *J. World's Poult. Res.*, vol. 15, no. 3, pp. 379–388, 2025, <https://doi.org/10.36380/jwpr.2025.36>.
- [28] Z. Daher, M. Mohamad, A. Rama, A. S. S. Albedwawi, H. M. Mahaba, and S. A. Al Taher, “Meat Adulteration in the MENA and GCC Regions: A Scoping Review of Risks, Detection Technologies, and Regulatory Challenges,” *Foods*, vol. 14, no. 21, 2025, <https://doi.org/10.3390/foods14213743>.
- [29] S. B. Aslam and E. Abbasi, “Sustainable protein for the halal market: economic feasibility and regulatory pathways for edible insects in Muslim-majority economies,” *J. Insects as Food Feed*, 2025, <https://doi.org/10.1163/23524588-bja10331>.
- [30] K. Bakhshizadeh Borj, M. Bashirpour, N. Javanshir, and P. Jahedi, “The hidden dimensions of halal brand: examining the role of frugality in consumer purchase decisions,” *J. Islam. Mark.*, 2025, <https://doi.org/10.1108/JIMA-11-2024-0529>.
- [31] R. R. Nasaruddin, F. Fuad, M. Mel, I. Jaswir, and H. A. Hamid, “The importance of a standardised Islamic Manufacturing Practice (IMP) for food and pharmaceutical productions,” *Adv. Nat. Appl. Sci.*, vol. 6, no. 5 SPL.ISS. 4, pp. 588–595, 2012.
- [32] M. N. Riaz and M. M. Chaudry, “The value of Halal food production,” *Inf. - Int. News Fats, Oils Related. Mater.*, vol. 15, no. 11, pp. 698–700, 2004.
- [33] H. Pamukcu and M. Sariisik, “Suggestions for standardisation of halal tourism in hospitality industry,” *J. Islam. Mark.*, vol. 12, no. 2, pp. 389–407, 2021, <https://doi.org/10.1108/JIMA-04-2019-0078>.
- [34] Y. Kim, Y. S. Shim, and K. G. Lee, “Determination of alcohols in various fermented food matrices using gas chromatography-flame ionisation detector for halal certification,” *Food Sci. Biotechnol.*, vol. 31, no. 13, pp. 1639–1646, 2022, <https://doi.org/10.1007/s10068-022-01156-2>.
- [35] A. Aman, A. Hasnain, and W. Ahmed, “The Role of Technological, Organisational and Environmental Factors in the Adoption of Halal Warehousing,” *Hamdard Islam.*, vol. 45, no. 4, pp. 53–78, 2022, <https://doi.org/10.57144/hi.v45i4.538>.
-

- [36] N. Rajesh Mavani, J. Mohd Ali, N. Abd. Rahman, H. Hashim, S. Abdul Mutalib, and M. A. Hussain, “Fuzzy logic-based approach for porcine DNA determination in meat products,” *npj Sci. Food*, vol. 9, no. 1, 2025, <https://doi.org/10.1038/s41538-025-00548-y>.
- [37] L. A. Prasetyanti and R. Takashima, “Simulating supplier-producer relationship in halal food supply chain,” in *Proceedings of the International Conference on Industrial Engineering and Operations Management*, Manage: IEOM Society ieom-society@iieom.org, 2016, p. 430. [<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85018958597&partnerID=40&md5=93e5351691d6f6218633ff12dc6f87d4>]
- [38] M. Glevitzky, I. Glevitzky, P. Mucea-Ştef, M. Popa, G. A. Dumitrel, and M. L. Vică, “Integrated Risk Framework (IRF)—Interconnection of the Ishikawa Diagram with the Enhanced HACCP System in Risk Assessment for the Sustainable Food Industry,” *Sustain.*, vol. 17, no. 2, 2025, <https://doi.org/10.3390/su17020536>.
- [39] A. Kamil, F. A. M. Hatta, N. H. M. Nor, and A. G. Ismail, “Global Halal Standards and Competitiveness in The Halal Food Industry: A Systematic Review and Bibliometric Analysis,” *Glob. J. Al-Thaqafah*, pp. 45–60, 2025, <https://doi.org/10.7187/GJATSI112025-4>.
- [40] K. Rosyidi, I. Santoso, Y. Wibisono, and S. Sucipto, “Effects of Vibration Sensor on Mitigation Risk of Halal Chicken Slaughtering System,” *J. World’s Poult. Res.*, vol. 15, no. 3, pp. 338–349, 2025, <https://doi.org/10.36380/jwpr.2025.33>.
- [41] M. Fatchurrohman, M. Takhim, and M. R. Irhamni, “Advancing Halal Creative Industry Exports: Strengthening Advocacy and Codification in HPPA Performance to Boost Indonesia’s Economic Growth,” *Maz. J. Pemikir. Huk. Islam*, vol. 24, no. 1, pp. 62–100, 2025, <https://doi.org/10.21093/mj.v24i1.9593>.
- [42] H. C. Wahyuni, M. A. Rosid, R. Azara, and A. Voak, “Blockchain technology design based on food safety and halal risk analysis in the beef supply chain with FMEA-FTA,” *J. Eng. Res.*, vol. 13, no. 2, pp. 590–595, 2025, <https://doi.org/10.1016/j.jer.2024.02.002>.
- [43] J. V. Chavez and M. B. Vicente, “Halal compliance behaviours of food and accommodation businesses in the Zamboanga Peninsula, Philippines,” *Multidiscip. Sci. J.*, vol. 7, no. 5, 2025, <https://doi.org/10.31893/multiscience.2025259>.
- [44] A. W. Kurniawan, A. Alam, W. Yuspin, and Rizka, “Comparative Legal Analysis of Stunning Methods in Halal Animal Slaughter Between Muslim-Majority and Muslim-Minority Countries,” *Int. J. Law Soc.*, vol. 4, no. 1, pp. 84–107, 2025, <https://doi.org/10.59683/ijls.v4i1.103>.