

## The Relationship between Halal Law and Other Sciences

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### ABSTRACT

#### Keywords:

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The relationship between halal law and various disciplines has become a crucial issue in the development of modern society, particularly amidst increasing public awareness of halal products and the development of industrial technology. This study aims to analyze the relationship between halal law and Islamic jurisprudence, chemistry, food technology, health, Islamic economics, and positive law in supporting the implementation of a comprehensive halal product assurance system. This study uses a qualitative research method with a literature study approach through analysis of various books, scientific journals, and regulations regarding halal product assurance in Indonesia. The results show that halal law cannot stand alone because it requires the support of other disciplines to ensure the halalness of products both in accordance with Islamic law and scientific principles. Chemistry and food technology play a role in identifying product ingredients, while health sciences ensure product safety for consumers. On the other hand, Islamic economics and positive law support the development of the halal industry and protect Muslim consumers. This study also found that the integration of halal law and other disciplines has a positive impact in terms of improved product quality, consumer protection, and the growth of the halal industry, although challenges remain such as the commercialization of halal labels, certification bureaucracy, and differences in halal standards between countries. Thus, the integration of halal law with various disciplines is an important need in responding to the challenges of modernization globalization of the halal industry.

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## INTRODUCTION

As Muslim communities increasingly recognize the importance of consuming halal products, various countries, including Indonesia, have begun developing regulatory systems and institutions that officially guarantee halal products. This is evident in the enactment of Law No. 33 of 2014 concerning Halal Product Assurance (JPH), as well as the role of the Halal Product Assurance Organizing Agency (BPJPH) in product supervision and certification. These regulations require strong scientific support from various fields to ensure effective implementation and accountability, both from a sharia and scientific perspective. Developments in digital and information technology also provide new opportunities for halal assurance systems, particularly in terms of transparency, traceability of ingredients, and consumer education. This requires collaboration between religious scholars, academics, technologists, and industry practitioners to ensure the continued adaptation of halal principles to various sectors of life. With an interdisciplinary approach, halal law becomes not only a religious norm but also a crucial instrument for maintaining quality of life, business ethics, and global environmental sustainability. Therefore, the integration between halal law and other sciences is a necessity that must be built synergistically and sustainably.

In the lives of Muslims, the concept of halal is a fundamental principle that extends beyond food and beverages to all aspects of life, including economics, technology, health, and the environment. Halal refers to anything permitted by Allah SWT for consumption and does not violate Islamic law.<sup>1</sup> Halal law in Islam is an important foundation in forming a lifestyle that is in accordance with Islamic teachings.

Amidst increasingly complex global industrial developments, the issue of halal product certification has become increasingly important and crucial. Modern products often undergo lengthy production processes, involving various additives and sophisticated technologies such as biotechnology or genetic engineering, whose origins and halal status require in-depth study. Therefore, knowledge of halal law cannot be separated from other disciplines, providing an accurate and comprehensive legal basis.

Halal law, along with other disciplines such as pharmacy, economics, biotechnology, and sociology, demonstrates that halal law does not stand alone, but rather involves many disciplines that play a crucial role in determining the halal status of a product, its production process, and its social impact on society. In the food and beverage industry, chemistry and food technology can identify ingredients and ensure the production process meets halal standards.<sup>2</sup> The relationship between halal law and several other sciences provides many benefits that are not only felt by Muslims, but can be utilized by the general public.

## LITERATURE REVIEW

### The Concept of Halal Law

Etymologically, "halal" comes from Arabic, meaning "permissible" or "allowed" according to Islamic law. From a fiqh perspective, halal refers to anything permitted to be done or consumed because there is no evidence prohibiting it. Yusuf Al-Qaradawi explains that the concept of halal in Islam extends beyond food and drink to encompass all aspects of human life, including economic, social, and cultural activities.

The concept of halal is also closely related to the principle of *halalan thayyiban*, which means that products are not only halal according to Sharia law but also good, safe, clean, and healthy for consumption. Therefore, the implementation of halal law requires the support of various scientific disciplines to ensure that product halalness can be determined objectively and scientifically.

## **Halal Product Assurance Regulations in Indonesia**

The Indonesian government has established a halal product assurance system through Law Number 33 of 2014 concerning Halal Product Assurance. This regulation requires every product distributed in Indonesia to have a halal certificate to provide protection and legal certainty for Muslim consumers.

Furthermore, Government Regulation No. 39 of 2021 and Minister of Religious Affairs Regulation No. 26 of 2019 also strengthen the implementation of halal certification through the establishment of the Halal Product Guarantee Agency (BPJPH), halal audits, and halal product supervision. These regulations demonstrate that halal law has become a vital part of the national legal system and the development of the halal industry in Indonesia.

## **Multidisciplinary Approach in Halal Law**

Advances in modern technology have resulted in increasingly complex processes for the production of food, beverages, medicines, and cosmetics. Therefore, establishing halal law relies not only on Islamic jurisprudence (fiqh) studies but also requires support from other disciplines such as chemistry, food technology, health, Islamic economics, and biotechnology.

Chemistry is used to identify the ingredients in a product, while food technology ensures that the production process complies with halal standards. Health science, on the other hand, plays a role in ensuring product safety for the human body. This multidisciplinary relationship demonstrates the dynamic nature of halal law and its adaptation to developments in modern science.

## **METHODOLOGY**

This study employed a qualitative research method with a library research approach. Data were obtained from various written sources, including books, scientific journals, academic articles, and regulations related to halal law and halal product assurance in Indonesia. Data collection techniques included documentation and literature review of sources relevant to the research topic.

Data analysis was conducted descriptively and analytically, examining the relationship between halal law and various disciplines, its functions and benefits, and the impacts and challenges of its implementation in modern life. A multidisciplinary approach was used to comprehensively understand the relationship between halal law and Islamic jurisprudence, chemistry, food technology, health, Islamic economics, and positive law.

## **RESULT AND DISCUSSION**

### **Definition of Halal Law with Other Sciences**

The term "halal" comes from Arabic, meaning permitted or permitted. Etymologically, "halal" refers to anything permitted and done without any prohibition under Islamic law.<sup>3</sup>In the context of sharia, halal is used to indicate that an action on drinks, food, or products does not contradict the teachings of Islam, and may be used or carried out by Muslims.

According to Islamic jurisprudence, halal is a legal category that indicates something that is permissible to consume, and there is no evidence that forbids the product.<sup>4</sup>Halal is anything that is permissible or permitted and is not free from the prohibitions of Allah SWT, and is permitted by the creator

of Islamic law to be done or consumed.<sup>5</sup>In economics and business, halal can be defined as economic added value that creates a global halal market, namely halal food, halal tourism, and halal fashion.

Meanwhile, in nutrition and health science, halal is a product that is free from ingredients that contain dangerous, unclean, and addictive substances, because the halal process pays close attention to the cleanliness and safety aspects of each product.<sup>6</sup> Halal, according to chemistry, means that every ingredient used in a product must be free from haram and impure elements, and must not be contaminated during the manufacturing, storage, and distribution of the product. This chemistry is used to identify the composition of substances, such as alcohol, gelatin, and additives, which are used to determine whether they come from halal or haram sources. According to biotechnology, halal means biological processes such as fermentation, the use of enzymes, and genetic engineering that must use materials and microorganisms from halal and pure sources. The production process is not permitted to involve media or substances from haram animals, such as pigs, or carcasses, and must avoid cross-contamination.<sup>7</sup>

The application of halal law related to other sciences is found in Islamic jurisprudence, which explains that the application can be adjusted according to the categories of halal and haram ingredients, such as pork consumed for food, medicine, and alcoholic beverages. According to chemistry, it applies to identifying chemical ingredients in a product, whether food, drink, cosmetics, medicines, and so on. Food science also explains that the processing of food ingredients, medicines, and other products must control their quality and safety, starting from production to distribution.

### Legal Basis Regarding Halal Law

In the Islamic view, halal products are explained in a hadith as the first guideline regarding halal and haram products, which is found in HR. Bukhari and Muslim. The Prophet Muhammad (PBUH) said regarding halal and haram products, which is as follows:

[illegible]

Meaning: "Indeed, what is lawful is clear and what is unlawful is also clear, between the two are unclear matters (doubtful), which most people do not know. So whoever avoids doubtful matters, it means he has protected his religion and honor. And whoever falls into doubtful matters, then he may fall into unlawful matters, like a shepherd who grazes around forbidden land, fearing that he will enter it. Know that every king has a forbidden area, and the forbidden area of Allah SWT is the things that He has forbidden. Know that in the body there is a lump of flesh, if it is good, then the whole body is good, and if it is corrupted, then the whole body is corrupted. Know that it is the heart." (Narrated by Bukhari: 52; and Muslim: 1599).<sup>8</sup>

Public awareness of halal food and beverage choices is high. Therefore, the Indonesian government has a responsibility to protect the consumption of halal products. The 1945 Constitution provides a constitutional basis for all Indonesian citizens to live their lives, both in this world and the hereafter. Every

Indonesian citizen is guaranteed constitutional rights, as stipulated in the 1945 Constitution, including human rights, freedom of religion and worship, legal protection, equality before the law, and the right to a decent standard of living, including the right to access food and other products that support product quality and are halal for consumption.<sup>9</sup>

The legal basis for halal in positive law in Indonesia is contained in Law No. 33 of 2014 concerning Halal Product Guarantee (UUJPH) Article 4, which states that "Products entering, circulating, and traded within Indonesia must be halal certified." In this case, it can be regulated by the halal certification process, the formation of BPJPH (Halal Product Guarantee Organizing Agency), and the role of LPPOM MUI in halal fatwas.

Law No. 33 of 2014 concerning Halal Product Guarantee is a legal regulation that regulates and protects Muslim consumers from various products that are circulated and traded that do not meet the qualifications as halal products.<sup>1</sup> Products that are essential human needs in general, if their halal status is guaranteed and protected, will provide consumers with a sense of security and peace of mind. This is because Muslims already have clear guidelines regarding halal products, which are a crucial part of consumer protection law, particularly in protecting the rights of Muslim consumers.

Government Regulation No. 39 of 2021 states that the implementation of halal product assurance has explained the stages of halal certification, business actors' obligations, and supervision of halal products.<sup>1</sup> This aims to ensure that products distributed in Indonesia truly comply with halal and thayyib principles. This regulation strengthens protection for Muslim consumers and encourages businesses to maintain the integrity of halal products.

Presidential Instruction No. 3 of 2017 concerning increasing the effectiveness of drug and food supervision, including the supervision of halal products in circulation. The Presidential Instruction is a national policy to streamline drug and food supervision from the central government down to the regional levels.<sup>1</sup> In practice, it supports strengthening the halal product oversight system, particularly through cross-agency collaboration and protecting Muslim consumers from unfit for consumption or questionable products. The primary objective of this presidential instruction is to increase the effectiveness of oversight of drugs and food, including supplements, cosmetics, and traditional products. Second, to protect consumer health and safety from products containing hazardous, expired, or non-halal ingredients. Third, to strengthen synergy between the Food and Drug Authority (BPOM), ministries, and regional governments.<sup>1</sup>

Minister of Religious Affairs Regulation (PMA) No. 26 of 2019 concerning the implementation of halal product assurance, which regulates the technical processes of certification, halal audits, and halal labeling. In halal labeling, products are required to display the official halal logo on their packaging after certification. The Minister of Religious Affairs Regulation (PMA) explains the procedures for using labels, for example, such as the size, placement, and expiration date of the product. The relationship between the government and stakeholders regarding the Minister of Religious Affairs Regulation (PMA) emphasizes synergy between BPJPH, MUI, and LPH, as stipulated in the Minister of Religious Affairs Decree (KMA) No. 982 of 2019, which aims to ensure that the implementation of halal certification can be carried out professionally, transparently, responsibly, and accountably.

### **The Function of the Relationship between Halal Law and Other Sciences**

The interconnection of halal law with various scientific disciplines serves several strategic functions in strengthening the halal product assurance system holistically. The primary function of this interconnection between halal law and other disciplines is to act as a bridge between religious texts and modern scientific realities, enabling halal principles to be applied practically and appropriately in everyday life. For example, in the world of food technology, chemistry, and biotechnology, scientific identification of product contents is essential, which is used to determine whether ingredients originate from halal or haram

sources. Without such support, halal fatwas can be inaccurate or even misleading because they are not based on valid data.<sup>1</sup>

The second function is to strengthen the legitimacy and consumer protection, particularly within the context of positive law or national law. Through an interdisciplinary approach between Islamic law and state law, as stipulated in Law No. 33 of 2014 concerning Halal Product Assurance (JPH), halal law can be implemented through a professional oversight mechanism, legal sanctions, and audits. This legal science functions as a science that regulates how certification bodies, producers, and distributors carry out their obligations in an orderly manner, so that the rights of Muslim consumers are protected equally and comprehensively. This demonstrates that halal law is not merely normative, but operational and legally enforceable.

Furthermore, halal law functions as a pillar of Islamic economic development. Management and economics play a crucial role in managing the halal industry, ensuring it is not only Sharia-compliant but also competitive in business. Halal products processed with cutting-edge technology and professionally managed will further enhance market confidence, both nationally, domestically, and internationally. This function of halal law makes it an integral part of national economic development, particularly in the food, beverage, pharmaceutical, cosmetics, halal tourism, and Islamic finance sectors.<sup>1</sup>

The link between halal law and other disciplines has educational and socio-cultural functions, namely through the scientific approach of halal lifestyle campaigns, communication, and social sciences, which can be implemented effectively in multicultural communities. This function is crucial for fostering and increasing public awareness of the importance of halal consumption, not only from a religious perspective but also from the health, ethical, and safety aspects of such consumption. This education requires synergy between religious scholars, industry practitioners, academics, and the government to ensure a comprehensive understanding of halal principles and avoid misunderstandings or product bias.

Thus, the interconnection of halal law with other disciplines serves not only as a complement to a product, but also as a key component, ensuring that the core principles of halal can be implemented scientifically, socially, economically, and legally. This integration can strengthen the role of halal law as a practical and solution-oriented value system in addressing modern challenges.

### **The Purpose of the Relationship between Halal Law and Other Sciences**

The primary objective of linking halal law with various scientific disciplines is to ensure the comprehensive, applicable, and scientific implementation of halal principles amidst the changing times. In the modern era, marked by advances in chemistry, pharmaceuticals, food technology, and biotechnology, the determination of a product's halal status no longer relies solely on textual product assessments. Therefore, halal law needs to synergize with science to precisely identify haram ingredients, including hidden ingredients derived from unclean substances or animals not slaughtered according to Islamic law. This is based on the maqasid of sharia, namely, safeguarding religion, life, mind, property, and offspring.

The next goal is to encourage the strengthening of the halal industry globally. In this context, the involvement of economics, information technology, and management is crucial. The link between halal law and economics aims to establish the halal industry as a leading sector in the national and international economy. Certified halal products not only reflect compliance with Islamic law but also guarantee quality and global cost competitiveness.<sup>1</sup>

### **The Relationship between Halal Law and Other Sciences**

Halal law in Islamic teachings is part of the Islamic legal system, encompassing various aspects of human life, including both worship and transactions. Halal law does not stand alone but is closely related to various other branches of legal science, both within the context of Islamic law and within positive legal

systems (national and international). The following are some of the connections between halal law and other disciplines:

1. Relation to Islamic Criminal Law(Crime)

Criminal law is a branch of Islamic criminal law that regulates crimes and their sanctions. Criminal law aims to uphold the maqasid sharia (Islamic principles), such as protecting religion, life, property, descendants, and intellect. Criminal law has specific penalties for violators, including:

- a. Boundary, namely punishments that have been determined by Allah SWT, for example stoning, cutting off hands.
- b. Qishas (Diyat), namely punishment, retribution, or fine for those who violate it against the soul.
- c. Ta'zir (counterfeiting product labels), namely the punishment determined by the ruler (judge) because there are no direct provisions from the Qur'an and Hadith.

2. Relationship with Sharia Economic Law

The term halal means permissible according to Islamic law, does not contain any impure elements, does not contain any harmful elements, and does not conflict with Islamic principles.<sup>1</sup> Halal is not only about the sub7 stances in an item, but also looks at how the production process and distribution of a product are carried out.

Sharia economic law is a branch of Islamic law that regulates the economic activities of the Muslim community based on sharia principles, namely the prohibition of usury (riba), gharar (gharar), and gambling (maisir), and emphasizes the principles of justice, balance, and transparency. Halal (permissible) in Sharia economic law aims to create a just and ethical economic system oriented toward blessings, not solely profit. This includes the laws of muamalah (religious transactions), sharia banking, sales contracts, investments, and wealth distribution.

3. Relation to Islamic Jurisprudence

Islamic jurisprudence (fiqh) discusses the laws governing human actions in everyday life, derived from Islamic legal principles such as the Qur'an, hadith, consensus (ijma'), and analogy (qiyas). Halal law in Islamic jurisprudence is part of the discussion of Islamic jurisprudence, specifically in the chapters on muammalah (social interaction) and taharah (cleanliness), and discusses food and drink. Islamic jurisprudence distinguishes everything based on five legal categories: obligatory, recommended, permissible, makruh, and forbidden.

The urgency of the relationship between halal law and Islamic jurisprudence, namely that halal law cannot be decided or separated without Islamic jurisprudence, because Islamic jurisprudence provides a framework for determining law based on arguments or evidence.<sup>1</sup> In halal certification practice,<sup>8a</sup> fatwa from a fiqh scholar, namely the Indonesian Ulema Council (MUI), is very necessary to determine the halalness of a product, even though it has been scientifically researched.

4. Relation to Chemistry

Chemistry is a science that studies the structure, properties, reactions, and composition of substances. Chemistry can identify the origins of a material (whether it comes from plants, halal animals, or haram animals).

This chemistry can determine the alcohol content, impurities, or even other prohibited substances in a product. Chemistry is crucial in determining the halal status of a product. Because chemistry

is the physical science of materials, which does not always indicate their halal status, chemical analysis may be necessary to scientifically and objectively confirm a product's halal status.<sup>19</sup>

#### 5. The Relationship between Halal Law and Health Sciences

In terms of consumer health, Islam requires maintaining the body. (hifz al- nafs)As one of the objectives of sharia, namely maqasid al-syariah, halal products must be free from substances harmful to the human body, such as toxins, heavy metals, and dangerous synthetic chemicals. Health science pays close attention to product safety for the body and the medical suitability of a substance for consumption.<sup>2</sup>

### Conditions for the Relationship of Halal Law with Other Sciences

The following are the conditions related to halal law with other sciences, including:

#### 1. Relevance of Purpose (Similarity of Orientation)

Halal law in Islam aims to achieve welfare and prevent harm. Other sciences such as chemistry, health, food technology, and biotechnology also share the same goal: to safeguard human welfare, safety, health, and well-being. Therefore, a relationship is only valid if there is a common goal and value orientation.

For example, in health science, it can be used to ensure that food is halal and thayyib, as explained in QS. Al-Baqarah verse 168:

يَا أَيُّهَا النَّاسُ ۖ كُلُوا مِمَّا يَفِي الرِّزْقِ ۚ ضَرِي حَلَّالٌ طَيِّبًا وَلَا تَتَّبِعُوا خُطُوَاتِ الشَّيْطَانِ  
يَنْبَغِي لَكُمْ عَذَابٌ مُبِينٌ

It means: "O mankind! Eat of what is lawful and good (thayyib) on earth, and do not follow the footsteps of Satan. Indeed, he is an open enemy to you."

#### 2. Scientific Validity

Science related to halal law must have a valid methodological basis, based on reliable research and scientific data. This is done to avoid errors in determining whether a product is halal or haram.

For example, chemistry is used to test the alcohol content in food in the laboratory, not just based on guesswork or perception.

#### 3. Not Contrary to Sharia Principles

Any science used to support the determination of halal law is not permitted to deviate from the basic principles of sharia, such as not using an approach that ignores the legal aspects of halal and haram, or relativizing sharia law.<sup>2</sup> 1

For example, biotechnology involving genetic engineering of pigs is still considered haram, even though scientifically it is safe for consumption.

#### 4. Interdisciplinary Support(Multidisciplinary)

Strong interdisciplinary collaboration must be supported by interdisciplinary collaboration, including Islamic jurisprudence, chemistry, food technology, medicine, pharmacy, and Islamic economics. This is crucial for creating comprehensive and applicable halal fatwas. For example, in halal certification, the audit team consists of religious scholars, food experts, chemists, and industrial technologists.

#### 5. Objectivity and Neutrality

Any science used to support halal law must be objective and free from political, business, or ideological influences. This is crucial to maintaining the integrity of halal fatwas and public trust. For example, halal laboratory testing must not be manipulated to pass non-compliant products.

### Characteristics of Halal Law with Other Sciences

The characteristics of halal law compared to other disciplines can be explained as the specific characteristics that distinguish halal law by demonstrating how it interacts and connects with various other disciplines, such as technology, health, food science, and economics. The characteristics of halal law reflect the comprehensiveness of Islamic law, its humanistic nature, its logic, and its scientific nature. This makes halal law function not only as a religious regulation but also as a system of protection for humanity from harms to the body, soul, and society.<sup>2</sup> The following are the characteristics of halal law with various kinds of knowledge, including:

#### 1. Maintaining the Five Main Objectives of Sharia (Maqashid Syariah)

Halal law is not only about labels, but also protects human life as a whole. Each halal law can be established to maintain and protect five main aspects in the lives of Muslims, including:

- a. Religion, which means avoiding things that harm the pillars of faith, such as drugs, alcohol, etc.
- b. Nafs (soul), which is maintaining the safety of the body. For example, food that does not contain poison, food that is not harmful.
- c. Aql (aql), which protects against anything that damages or disturbs the mind, such as drugs and alcohol.
- d. Nasl (Offspring), which guarantees pure offspring and cleanliness.
- e. Maal (Property), namely to avoid invalid transactions and avoid fraud.

#### 2. Universal in nature

Halal law applies not only to Muslims but also to all people globally. Non-Muslim producers in various countries adhere to halal standards because these products are considered safe, healthy, and hygienic for consumption.

#### 3. Based on Sharia and Rational Sources

Halal law is derived from the Quran, hadith, ijma', and qiyas. However, in terms of its application, other sciences are also needed to interpret the contents of a product and the manufacturing process.

#### 4. Promoting Ethics and Honesty in Business

Ethics and honesty must also be upheld in business. A halal product's quality extends beyond just the ingredients, but also to the ethical distribution and production of each product, including avoiding consumer deception through counterfeit labels.

### The Benefits of the Relationship between Halal Law and Other Sciences

In the relationship between law and other sciences, there are several benefits.<sup>2</sup>, among others are:

#### 1. Ensuring Consumer Safety and Health

These benefits are found in health science and biotechnology. This science explains the relationship between halal law and health science and biotechnology by helping to ensure that consumed products are truly safe for human consumption. This science benefits the public from diseases

caused by unhygienic food and drinks, as well as reducing the risk of allergies and other side effects.

2. Improving Product Quality and Production Processes

This science is found in food technology and chemistry. It explains how food technology and chemistry are used to verify that raw materials and production processes comply with halal standards. This science is useful for ensuring high-quality halal products and minimizing cross-contamination.

3. Providing Legal Certainty and Consumer Protection

This is found in law and economics. This discipline explains halal law and provides a legal framework to protect consumer rights, particularly for Muslims. This knowledge provides benefits, including preventing fraud and the manipulation of counterfeit labels, and ensuring fairness in the trade of halal products.

4. Growing the Halal Industry Globally

This science draws on economics and business. It explains the interconnectedness of economics to significantly boost the growth of the halal industry sector. This knowledge is useful for increasing the competitiveness of local products in the international market, stimulating economic growth and creating jobs.

5. Enhancing Public Trust and Spiritual Values

This knowledge is found in social sciences and religion. It explains the relationship between social sciences and religion, building public awareness of the importance of halal products. The benefit of this knowledge is to foster a halal lifestyle, and to increase faith and inner peace in worship.

6. Supporting the Development of International Regulations and Standardization

This is found in political science and international relations. These disciplines explain how political science can contribute to national halal policies and cooperation between countries. The benefits of these disciplines include collaboration between the Indonesian Ulema Council (MUI) and foreign halal institutions, such as JAKIM (Malaysia) and GAC (UAE).

### **Positive Impact of the Relationship between Law and Other Sciences**

The interconnectedness of halal law with various scientific disciplines has had many significant positive impacts in supporting a comprehensive halal assurance system. One of the main impacts of halal law is increased competitiveness among MSMEs through halal certification integrated with law, social sciences, economics, and management.<sup>2</sup> The humanities and social sciences involved in halal certification can increase consumer trust and market value for MSMEs, thereby expanding market access and encouraging small business growth amidst global competition. The involvement of economics and public policy also creates a fairer and more professional business climate within the national halal ecosystem.

The link between halal law and food technology and management can drive the transformation of the halal food industry in Indonesia. Implementing a science-based Halal Assurance System (HAS) not only improves production efficiency but also strengthens compliance with halal standards. This can encourage companies to be more proactive in maintaining better product quality, thereby fostering greater consumer trust and quality. The integration of these two disciplines can strengthen organizational structures in implementing halal principles in a standardized and consistent manner.

There is progress in the field of information technology, namely blockchain and internet of things (IoT), which has a positive impact on transparency in halal products. In digital application technology and communication science, educational innovations can also be produced that can increase public awareness of halal-based application users. augmented reality (AR) which has been proven effective in helping consumers recognize the halal label and logo on a product with the certification status of that product.<sup>2</sup>

Halal law is intertwined with sustainable economics and environmental science, demonstrating the existence of a halal industry that addresses ecological and social responsibilities. This is integrated with sustainability principles to encourage the use of environmentally friendly materials, responsible waste management, and concern for the well-being of surrounding communities.

### **Negative Impacts of the Relationship between Halal Law and Other Sciences**

Halal law provides a crucial framework for maintaining the purity of Muslim consumption and production. Halal law is part of Islamic teachings that regulates the halalness of a product, including its substance, distribution, production process, and consumption. In the contemporary context, halal law cannot stand alone but is closely intertwined with various other disciplines such as food science, chemistry, economics, positive law, sociology, and biotechnology.<sup>2</sup> This relationship offers numerous benefits in ensuring product quality and halal certification. However, on the other hand, this relationship can also have various negative impacts that require critical examination to ensure that the implementation of halal law remains in line with the objectives of sharia (maqasid sharia). The following are some of the negative impacts of the relationship between halal law and other disciplines:

1. Over-reliance on modern science

One of the most prominent negative impacts is the emergence of an over-reliance on modern scientific approaches, such as chemistry and biotechnology, in determining a product's halal status. In many cases, halal decisions rely heavily on laboratory results and analytical technology. As a result, fundamental Islamic jurisprudence (fiqh) and sharia considerations can be neglected. For example, if a product ingredient originates from a haram animal but has undergone a chemical transformation process, (term) There are differing views among scholars regarding its permissibility. According to classical Islamic jurisprudence, istihalah can make an impure substance pure. However, in the scientific approach, the original substance is still taken into account. This disharmony can cause confusion among the public.

2. Commercialization and Capitalization of the Halal Label

The link between halal law and economics and business is often exploited for commercial gain. Many businesses are competing to obtain halal certification not out of faith, but solely for market gain. As a result, the ethical and spiritual significance of halal law is diminished, leading to the phenomenon of capitalizing on the halal label. Halal-certified products are sold at higher prices, even though there is not always a significant difference in quality or production process. This can lead to social injustice, particularly for low-income consumers.

3. The Conflict between the Perspectives of State Regulation Science and Islamic Jurisprudence

The interconnectedness of halal law with positive law and state policy can also give rise to conflicting interpretations. For example, Law No. 33 of 2014 concerning Halal Product Assurance in Indonesia stipulates mandatory halal certification for food, beverages, medicines, and cosmetics. However, in practice, the definition and parameters of halal often refer solely to the technical standards of the Halal Product Assurance Organizing Agency (BPJPH) and the Indonesian Ulema Council (LPPOM MUI). Some scholars have criticized halal law for being too

secularized by bureaucracy and losing its spiritual dimension.<sup>2</sup> In addition, the differences<sup>7</sup> exacerbate this situation.

4. Stigmatization of Non-Halal Products

Another negative impact of halal law is the potential stigmatization of non-halal products or businesses. In multicultural societies, the use of the halal label can create an overly rigid dichotomy between halal and haram, leading to discrimination. For example, non-Muslim businesses selling products without halal certification may be deemed untrustworthy, even if their products meet high ethical and hygiene standards. This can trigger social tensions and religious-based discrimination.

5. Imbalance in Access to Technology and Information

The interconnectedness of halal law with biotechnology, food engineering, and chemical analysis requires businesses to have an understanding of and access to advanced technology. However, not all businesses, especially MSMEs in rural areas, have the resources or capabilities to meet complex halal standards. As a result, they struggle to compete in the market and may even be marginalized. This contradicts the Islamic principle of social justice.

6. Administrative Burden and Over Regulation

The implementation of halal law, which is linked to various disciplines and regulatory systems, can create a bureaucracy that is difficult, complex, and burdensome for businesses. The expensive, lengthy, and repetitive certification process presents a real obstacle, especially for small and medium-sized businesses. This not only reduces competitiveness but can also encourage fraudulent practices such as counterfeiting halal labels.

### **Risks in the Relationship between Halal Law and Other Sciences**

In practice, the interconnection of halal law with various disciplines, such as chemistry, biotechnology, law, economics, and food technology, does indeed offer many benefits. However, this interdisciplinary relationship presents a number of risks and challenges that require careful and thorough consideration. One of the main risks in the interconnection of halal law with other disciplines is the difference in perspective between Sharia law and modern science.<sup>2</sup> For example, a product that is scientifically proven to be safe for health can still be classified as haram (forbidden) because its ingredients are prohibited under Islamic law, such as pork and gelatin. This discrepancy can lead to confusion among the public and controversy over the issuance of halal fatwas.

Furthermore, there is a limited understanding of modern scientific terms and processes among scholars, and conversely, a lack of understanding among scientists of the principles of Islamic jurisprudence, which can lead to imbalances in decision-making. For example, genetic engineering or modern fermentation processes can be challenged if there is a lack of transparency with religious authorities. On the other hand, the risk of fraud by industry players exploiting gaps in the scientific process is also a concern. There is the possibility of the use of hidden illicit substances that are difficult to detect if supervision does not involve competent experts in the relevant fields.

The lack of global uniformity in halal standards and regulations can also pose risks in international trade. Differences in standards between Indonesia, Malaysia, and Middle Eastern countries, for example, mean that a product that is halal in one country may not be recognized as halal in another.<sup>2</sup> This can impact consumer confidence and reduce halal product exports. The high cost of halal certification, which can require technological audits, laboratory work, and the involvement of various experts from other

disciplines, also places a burden on small and medium-sized businesses. If this is not agreed upon fairly, it can create unequal access to halal certification.

Thus, the relationship between halal law and other sciences offers many advances, but there are a number of risks that must be managed well, through cross-sector collaboration, education, and strengthening without compromising sharia principles.

## CONCLUSION

The interconnectedness of halal law with various branches of science demonstrates the comprehensive and dynamic nature of Islamic law. Halal law extends beyond individual worship to social, economic, technological, and public health domains. By leveraging contributions from Islamic jurisprudence, chemistry, food technology, biotechnology, Islamic economics, positive law, and the social sciences, halal principles can be realized in a concrete, measurable, and relevant manner.

Halal law in Islam is a legal system that does not stand alone but is closely interconnected with various other branches of science, such as Islamic jurisprudence, chemistry, biotechnology, Islamic economics, health sciences, and positive law. This collaboration is crucial to ensure that halal principles can be implemented comprehensively and in line with modern challenges. Through a multidisciplinary approach, halal products are assessed not only from a religious perspective but also based on scientific, health, technological, and socio-cultural aspects.

This relationship offers significant benefits, including guaranteed product quality and safety, enhanced consumer protection, strengthening the national and global halal industry, and raising public awareness of the importance of a halal lifestyle. Halal law also provides a crucial foundation for the development of the Islamic economy and the enforcement of ethics in the business community.

However, synergy can also present challenges, including over-reliance on scientific approaches, the risks of commercializing halal labels, gaps in technology access for small businesses, and inconsistencies between state regulations and sharia norms. There is the potential for stigmatization of non-halal products and the risk of manipulation in the certification process. Therefore, wise and balanced collaboration between sharia experts and scientists is needed to maintain the integrity of halal law for every product.

This integration of sciences enables the halal product certification and monitoring process to be more objective and scientifically accountable. The involvement of experts from various fields makes the halal assurance system more robust and comprehensive, from raw material identification and production to distribution. This provides legal certainty for consumers, protects them from the dangers of illicit or hazardous materials, and supports the growth of the halal industry both nationally and internationally.

Overall, the integration of halal law and other sciences demonstrates Islam's holistic nature and adaptability to scientific advancements. Halal law not only addresses the spiritual needs of humanity but also provides a concrete solution for building a safe, healthy, and ethical consumption system for the global community. However, this interconnectedness also poses a number of challenges, such as the commercialization of the halal label, regulatory bureaucracy, and differing legal interpretations between Sharia and scientific approaches. Therefore, discussing the relationship between halal law and other sciences is crucial to ensure that Sharia principles can be implemented scientifically, fairly, and contextually in modern life.

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