

Maintaining Marine Ecosystem to Realize Halal Supply Chain from The Maqāsid al-Sharī'ah Perspective

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Abstract This article aims to examine the importance of preserving marine ecosystems from the perspective of maqāsid al-sharī'ah as an effort to realize a good food product supply chain, and to maintain and realize halal and tayyib (clean and pure) food products. The research method approach used in this article is a literature study or literature review. Sources are collected from books and various research articles on pollution of the marine environment and its consequences for human health that have been carried out by previous researchers, then studied from the perspective of maqāsid al-sharī'ah. The findings in this study show that the problem of damage to marine ecosystems due to pollution is a big problem that must be resolved, because of the impact caused not only on the environment but also on human health problems as a result of consuming marine biota exposed to waste, especially heavy metals. While preserving the ecosystem is part of maqāsid al-sharī'ah. Therefore, in realizing halal products that are tayyib, serious attention is needed on supply chain sources. The results of this research can contribute to thinking and decision-making regarding the importance of preserving the environment in realizing a good source of food supply.

Abstrak Artikel ini bertujuan untuk mengkaji pentingnya menjaga kelestarian ekosistem laut dalam perspektif maqāsid al-sharī'ah sebagai upaya mewujudkan rantai pasok produk pangan yang baik, serta menjaga dan mewujudkan produk pangan yang halal dan tayyib (bersih dan murni). Pendekatan metode penelitian yang digunakan dalam artikel ini adalah studi literatur atau tinjauan pustaka. Sumber dikumpulkan dari buku-buku dan berbagai artikel penelitian tentang pencemaran lingkungan laut dan dampaknya bagi kesehatan manusia yang telah dilakukan oleh para peneliti sebelumnya, kemudian dikaji dari sudut pandang Maqasyid al-Shariah. Temuan dalam penelitian ini menunjukkan bahwa permasalahan kerusakan ekosistem laut akibat pencemaran merupakan permasalahan besar yang harus diatasi, karena dampak yang ditimbulkan tidak hanya terhadap lingkungan namun juga gangguan kesehatan manusia akibat mengkonsumsi biota laut yang terpapar limbah, khususnya logam berat. Sedangkan menjaga ekosistem merupakan bagian dari maqāsid al-sharī'ah. Oleh karena itu, dalam mewujudkan produk halal yang tayyib perlu perhatian serius terhadap sumber rantai pasoknya. Hasil penelitian ini dapat memberikan sumbangan pemikiran dan pengambilan keputusan mengenai pentingnya menjaga kelestarian lingkungan dalam mewujudkan sumber penyediaan pangan yang baik.

Keywords marine ecosystem; halal supply chain; Maqāsid al-Sharī'ah



Introduction

The number of cases of environmental pollution and damage to forests, seas, atmosphere, land, water, and others stems from human behavior patterns that are only selfish, careless, and irresponsible. According to Norbert Dee,¹ environmental components are divided into 4 basic groups, namely ecology, environmental pollution, aesthetics, and human interests. This aspect of human interests is the basis for the occurrence of disasters. Therefore, it is undeniable that the various environmental problems that have occurred recently, both on a national and global scope, can be ascertained to a large extent originating from errors in human behavior.² Many forests are deforested due to illegal logging and the high demand for wood-based raw material industries, while on the other hand, there is no conservation effort through reforestation, resulting in decreased air quality and damage to forest ecosystems, natural disasters, and global climate change. It is complete that humans are the root of pollution, environmental and ecosystem damage.

In addition, the environmental crisis that has occurred recently is also caused by humans with lifestyle patterns who want everything to be fast and easy, such as the large number of single-use packaging products that are immediately thrown away, leaving many environmental problems. Waste from product packaging is disposed of causing it to be environmentally unfriendly because it takes a long time for hundreds of years for the waste to decompose. The problem of disposing of waste both from factories and households can pollute the oceans and rivers causing damage to environmental ecosystems so that it can have an impact on the level of human health. According to Mutadi,³ many catches from both the sea and rivers contain heavy metals, which can affect the health of the consumers.

¹ Norbert Dee et al., "An Environmental Evaluation System for Water Resource Planning," *Water Resources Research* 9, no. 3 (1973): 523–35.

² Sony Keraf, "Etika Lingkungan Hidup, Penerbit Buku Kompas" Jakarta, (2010). 73

³ R W Utama et al., "Tinjauan Maqashid Syariah Dan Fiqh Al-Bi'ah Dalam Green Economy," *Jurnal Ekonomi Islam* 10, no. 2 (2019): 242–59.

Many other research results state the effects of pollution on human health, such as; Putranto,⁴ Havas,⁵ Lam,⁶ Zilberstein,⁷ Kalenov,⁸ Mnatsakanyan,⁹ Bello,¹⁰ Halim,¹¹ Rodin,¹² Mufid,¹³ Absori.¹⁴

Meanwhile, in realizing halal products, it's not just a struggling discussion about keeping the consumption of goods that have been forbidden by the Shariah as well as those that have provisions in *fiqh* law. However, it is also necessary to pay attention to can keep from consuming items that may be contaminated materials that can cause health problems that have a direct impactor indirectly in the future.

Meanwhile, in realizing halal products, it is not only about maintaining the consumption of goods that have been forbidden by the Shariah or those that have provisions in *fiqh* law. However, it is also necessary to pay attention to be able to keep from consuming items that may be contaminated with materials that can cause health problems that have a direct or indirect impact in the future.

The problems above are indeed serious and complex common problems, especially for Muslims. Therefore, Islam has also taught related to the importance of protecting the environment as part of protecting the interests of all mankind and the universe. In the science of *fiqh* which examines related to the arrangement of human life, there are four things, namely; First, *rub' u al-'ibādāt*, the affairs that regulate the relationship between humans and Allah Swt. Second, *rub' u al-mu'āmalāt* deals with the relationship between individuals and their environment. Third, *rub' u al-munākahāt* is the business of managing the relationship between humans and their families. Fourth, *rub' u al-jināyāt* is the affairs of organizing human activities to ensure order, peace, and safety in life. According to Yafie,¹⁵ these four basic principles serve as the basis for organizing human life to realize an ideal life with a clean, prosperous, healthy, safe, comfortable, and happy environment both physically and mentally in this

⁴ Thomas Triadi Putranto, "Pencemaran Logam Berat Merkuri (Hg) Pada Airtanah," *Teknik* 32, no. 1 (2011): 62–71.

⁵ Jarkko Havas et al., "Ecosystem Services Management Tool Development Guidelines and Framework Revision for Industries, Industry Policy Makers and Industry Groups," *Ecosystem Services* 7 (2014): 187–200.

⁶ Vicky W Y Lam et al., "Projected Change in Global Fisheries Revenues under Climate Change," *Scientific Reports* 6, no. 1 (2016): 32607.

⁷ Oleg B Zilberstein et al., "Sustainable Ecosystem Development vs Chemical Industry Progress?," *Ekoloji* 28, no. 107 (2019): 4973–76.

⁸ Oleg Kalenov and Sergey Kukushkin, "Innovative Ecosystem of Mining Industry," in *E3S Web of Conferences*, vol. 174, EDP Sciences, (2020), 02024.

⁹ A G Mnatsakanyan and A G Kharin, "Digitalization in the Context of Solving Ecosystem Problems in the Fishing Industry," in *IOP Conference Series: Earth and Environmental Science*, vol. 689, IOP Publishing, (2021), 012008.

¹⁰ Musthapa Adebayo Bello, "Islamic Ethical Perspective of Environmental Abuse in Lagos State Nigeria," *Al-Tahrir: Jurnal Pemikiran Islam* 22, no. 1 (2022): 213–32.

¹¹ Harifuddin Halim, Rasyidah Zainuddin, and Fauziah Zainuddin, "Eco-Profetik: Integrasi Pengetahuan Lokal Dengan Islam Tentang Lingkungan," *Al-Tahrir: Jurnal Pemikiran Islam* 17, no. 2 (2017): 311–30.

¹² Dede Rodin, "Alquran Dan Konservasi Lingkungan: Telaah Ayat-Ayat Ekologis," *Al-Tahrir: Jurnal Pemikiran Islam* 17, no. 2 (2017): 391–410.

¹³ Moh Mufid, "Rekonstruksi Fikih Kelautan Berbasis Antropokosmis: Studi Kasus Reklamasi Di Teluk Jakarta," *Al-Tahrir: Jurnal Pemikiran Islam* 17, no. 2 (2017): 371–90.

¹⁴ Absori Absori, Khudzafah Dimiyati, and Ridwan Ridwan, "Makna Pengelolaan Lingkungan Perspektif Etik Profetik," *Al-Tahrir: Jurnal Pemikiran Islam* 17, no. 2 (2017): 331–52.

¹⁵ Ali Yafie, "Merintis Fiqh Lingkungan Hidup." *Penerbit Yayasan Amanah, Jakarta*, (2006). 35

world and the hereafter. In addition, in Islamic teachings it is also known as the *maqāsid al-sharī'ah* principle for maintaining the sustainability of human life and the environment, namely; maintenance of religion, maintenance of life, maintenance of offspring, maintenance of reason, and maintenance of wealth. Therefore, the research question in this article is: how important it is to maintain marine ecosystems in realizing Halal Supply Chain from the perspective of *maqāsid al-sharī'ah*?

There are several previous studies regarding environmental conservation studied from the *maqāsid al-sharī'ah* perspective such as: Siregar,¹⁶ Suryani,¹⁷ Agustina,¹⁸ Ramli,¹⁹ Sari,²⁰ Yaakub.²¹ However, there has been no specific study regarding the preservation of marine ecosystems from the perspective of *maqāsid al-sharī'ah*.

This article aims to examine the importance of maintaining marine ecosystems in terms of *maqāsid al-sharī'ah* in realizing halal products from upstream to downstream so that *halālān tayyiban* is realized. The discussion in this article is focused on the problems of marine environmental ecosystems and their impact on consumer health and then reviewed from the perspective of *maqāsid al-sharī'ah*.

The methodological approach used in this article is a literature review. Sources are collected from books and various research articles discussing environmental pollution and its consequences for human health that have been carried out by previous researchers and then studied from the perspective of *maqāsid al-sharī'ah*. The literature review is sourced from several databases such as Scopus, Web of Science, Google Scholar, Springer, and Emerald.

Ecosystem

The ecosystem is an ecological system created by the interaction of living creatures with their surroundings.²² The ecosystem can be said to be a unified whole and comprehensive order between all elements of the environment that influence each other. British botanist and ecologist Arthur Tensley first proposed the idea of ecosystems in 1935.²³ An Ecosystem denotes a biological system inside it,

¹⁶ Ibrahim Siregar and Suheri Sahputra Rangkuti, "ECO-SPIRITUAL BASED ON MAQASYID AL-SHARI'AH: The New Relationship of Man with the Environment," *Al-Tahrir: Jurnal Pemikiran Islam* 23, no. 1 (2023): 83–102.

¹⁷ Suryani Suryani, "Penegasan Hifdl Al-'Alam Sebagai Bagian Dari Maqāshid Al-Sharī'Ah," *Al-Tahrir: Jurnal Pemikiran Islam* 17, no. 2 (2017): 353–70.

¹⁸ Arifah Millati Agustina, "The Development of Maqasid Al Shari'a on The Role of Women in Environmental Conservation," *Musāwa Jurnal Studi Gender Dan Islam* 22, no. 1 (2023): 14–23.

¹⁹ Raudha Md Ramli, "The Principle Of Natural Resources Management Based On Maqasid Al-Sharī'ah: A Conceptual Framework," *International Journal of Islamic Economics and Finance Research* 3, no. 1 July (2020): 57–74.

²⁰ Risti Lia Sari, "Preservation of Green Ecology Based on Sharia Consumption and Production," in *Proceeding of Conference on Islamic Management, Accounting, and Economics*, 2019, 37–48.

²¹ Sabariyah Yaakub and Nik Ab Halim Nik Abdullah, "Towards Maqasid Shariah in Sustaining the Environment through Impactful Strategies," *International Journal of Islamic Business* 5, no. 1 (2020): 36–45.

²² Prabang Setiyono, *Etika, Moral, Dan Bunuh Diri Lingkungan Dalam Perspektif Ekologi: Solusi Berbasis Environmental Insight Quotient* (Pencetakan UNS (2011). 37

²³ Kalenov and Kukushkin, "Innovative Ecosystem of Mining Industry." In *E3S Web of Conferences* (Vol. 174, p. 02024). EDP Sciences.

which consists of a collection of living things, their living surroundings, and the connections through they carry out their essential functions (exchange of materials or energy).

Meanwhile, the risks and threats related to ecosystems are increasing. Mainly, the risk of the industry giving rise to ecosystem decline caused by overexploitation, but on the other hand, this circumstance generates fresh commercial prospects for forward-thinking businesses. In a recent study, Nidomolu²⁴ examined how to recognize and make use of these chances. In addition, the declining capacity of natural systems has been recognized by governments, and this increases the pressure on the industry to address their dependency on and impact on ecosystems in a more sustainable manner.²⁵

Within the framework of sustainable development theory, many things need to be considered, for instance, at the regional and national levels. The effects of the business, especially those of huge corporations, on society and the environment, must be considered in this theory.²⁶ Its fundamental principle is to satisfy current requirements without jeopardizing those of future generations. It should be highlighted that one of the basic tenets of the notion of sustainable development is the need to conserve the environment for future generations, thereby implementing the concept of intergenerational equity.²⁷

Pollution and Damage to Marine Ecosystems and Their Impact on Health

Fish and other aquatic biological resources are among the most important sources of food raw materials, and demand for them is growing. According to Mnatsakanyan,²⁸ the average annual growth rate of consumption of fish food items (3.2%) was twice as fast as the population growth rate (1.6%) from 1961 to 2016. This outpaced the 2.8% growth in total meat consumption. Per capita, fish intake grew from 9 kg in 1961 to 20.5 kg in 2017. By 2030, fish consumption is predicted to increase by 20%. Fish and seafood are the primary sources of animal protein for about half of the world's population, accounting for around 17% of total protein consumption.²⁹

The fishing industry is expanding, and so is the burden on the ocean. Traditional fisheries are in serious condition and are rapidly deteriorating. Approximately half of the world's fish supplies are currently classed as depleted or at risk of depletion. According to the Food and Agriculture

²⁴ Ram Nidumolu, "Organizational Change for Natural Capital Management: Strategy and Implementation," *Retrieved December 20* (2013): 2

²⁵ Havas et al., "Ecosystem Services Management Tool Development Guidelines and Framework Revision for Industries, Industry Policy Makers and Industry Groups, *Ecosystem services*, 7, (2014), 187-200."

²⁶ Alfiya R Masalimova et al., "The Interrelation between Cognitive Styles and Copying Strategies among Student Youth," *Eurasia Journal of Mathematics, Science and Technology Education* 15, no. 4 (2019): em1695.

²⁷ Zilberstein et al., "Sustainable Ecosystem Development vs Chemical Industry Progress?" *Ekoloji*, 28(107), (2019). 4973-4976 "

²⁸ Mnatsakanyan and Kharin, "Digitalization in the Context of Solving Ecosystem Problems in the Fishing Industry."

²⁹ Agriculture Organization of the United Nations. Fisheries Department, *The State of World Fisheries and Aquaculture*, Food and Agriculture Organization of the United Nations, (2018). 19

Organization of the United Nations (FAO), the share of marine fish stocks exploited at biologically unsustainable levels grew from 10% in 1974 to 33% in 2015.³⁰

Meanwhile, the damage to marine ecosystems is caused by two things, excessive exploration, and pollution (industrial waste). Human waste (industrial and home garbage, particularly plastic waste) and global warming have major side effects on marine ecosystems, a loss in biodiversity, and irreversible deterioration of aquatic life, all of which have an economic impact. According to some projections, this measure might cut global fisheries income by 35% by 2050.³¹

According to Government Regulation of the Republic of Indonesia No. 19 of 1999 concerning marine destruction or pollution, marine pollution occurs as a result of the entry of substances, energy, living things, or other components into the sea/marine environment by human activities, resulting in the quality of the marine environment decreasing at a certain level, making it incompatible with quality standards or functions.

According to Khan,³² that of the many polluting wastes in the oceans, the most dangerous waste for the health of living things, especially humans, is heavy metal waste. Heavy metals usually settle on the bottom of the waters which then form sedimentation on the seabed. Meanwhile, most marine biota looks for food sources on the seabed, so there is a high potential for heavy metal contamination from these food sources. Meanwhile, if the marine biota is consumed by humans, it will become a serious threat to health.

Pollution caused by heavy metals is a serious problem that needs to be considered and resolved seriously because it is very dangerous for the environment, ecosystem, and of course human health. of the various types of heavy metals that exist, mercury (Hg) pollution is the most dangerous type of heavy metal as a result, in addition to the wide use side, the production level is also quite large.³³

According to Putranto³⁴ that epidemiological studies due to ethyl and methyl mercury poisoning are mostly the result of the consumption of fish or marine biota from polluted areas. Meanwhile, according to Sudarmaji³⁵ That the effects of exposure to heavy metal mercury (Hg) on human health can cause fetal abnormalities, death at birth, Fetal Minamata Disease, cerebral palsy, mental retardation, brain and motor nerve damage. In addition, further Sudarmaji explained that exposure to mercury in the workplace can cause libido and impotence disorders, while for women it

³⁰ Agriculture Organization of the United Nations. Fisheries Department, *The State of World Fisheries and Aquaculture*, Food and Agriculture Organization of the United Nations, (2018). 19

³¹ Lam et al., "Projected Change in Global Fisheries Revenues under Climate Change."

³² Sajjad Khan et al., "Health Risk Assessment of Heavy Metals for Population via Consumption of Vegetables," *World Appl Sci J* 6, no. 12 (2009): 1602–6.

³³ Putranto, "Pencemaran Logam Berat Merkuri (Hg) Pada Airtanah."

³⁴ Putranto.

³⁵ Corie Indria Prasasti, J Mukono, and Sudarmaji Sudarmaji, "Toksikologi Logam Berat B3 Dan Dampaknya Terhadap Kesehatan," *Jurnal Kesehatan Lingkungan Unair* 2, no. 2 (2006): 3956.

can cause menstrual disorders. Therefore, the impact of sewage pollution in these waters requires serious attention, so that the consequences can be minimized.

Halal Supply Chain

Halal-Tayyib is an Islamic teaching that addresses process, location, contamination, and other safety concerns. When it comes to food and its associated ingredients, the concept of *tayyib* has been very closely associated with the concept of halal. The purpose of *tayyib* is to achieve maximum hygiene (clean) and minimal contamination (pure), whereas the main goal of *Halāl-Tayyib* meal is to generate a calm and comfortable feeling when the food is consumed. Feelings of comfort cannot be obtained merely by eating nutritious and safe foods; but, feelings of comfort and pleasure can be obtained if what we eat is congruent with what we believe. Good food is chosen and influenced by our beliefs, and it can boost our mood, make us feel better, and give us a boost.³⁶

Meanwhile, food can be a route for disease transmission. Indeed, Islam places a high value on food safety and contamination, and the application of the idea of Tayyib as a public health priority is critical for the protection of human health and the enhancement of quality of life. According to Kurniadi³⁷ that any food infected with pathogenic germs or possibly poisonous components that can endanger human health is regarded non-*tayyib*, consequently not halal, and cannot be consumed.

Halal food production necessitates attention to detail across the supply chain. Today's Muslim customers are very curious, and they want assurances that the things they consume are halal and *tayyib*, which means healthy, pure, healthy, nutritious, and good. As a result, the safety of the halal food supply chain is a major problem.³⁸ This is necessary to reduce and ensure that contamination does not occur during the Sharia-compliant halal food handling process. Furthermore, traceability can be utilized to track the halal status of specific food products at each level of the supply chain, increasing halal transparency and bolstering halal integrity.³⁹

As a result, Tieman⁴⁰ defines halal logistics as "the process of managing the procurement, movement, storage, and handling of materials, spare parts, livestock, semi-finished or finished supplies, both food and non-food, while related information and documentation flow through the organization and supply chains by general Islamic principles." This explanation demonstrates that halal logistics

³⁶ Jawad Alzeer, Ulrike Rieder, and Khaled Abou Hadeed, "Rational and Practical Aspects of Halal and Tayyib in the Context of Food Safety," *Trends in Food Science & Technology* 71 (2018): 264–67.

³⁷ Muhamad Kurniadi and Andri Frediansyah, "Halal Perspective of Microbial Bioprocess Based-Food Products," *Reaktor* 16, no. 3 (2017): 147–60.

³⁸ Mohd Hafiz Zulfakar, Marhani Mohamed Anuar, and Mohamed Syazwan Ab Talib, "Conceptual Framework on Halal Food Supply Chain Integrity Enhancement," *Procedia-Social and Behavioral Sciences* 121 (2014): 58–67.

³⁹ Zulfakar, Anuar, and Ab Talib.

⁴⁰ Marco Tieman, "Establishing the Principles in Halal Logistics," *Journal of Emerging Economies and Islamic Research* 1, no. 1 (2013): 19–31.

traceability encompasses every component of the supply chain, from upstream to downstream. This is done to meet holistic halal requirements.⁴¹ Furthermore, the concept of the halal supply chain, which oversees the processing of goods and services, considers the boundaries of the 'exploitation' of natural resources. This entails ensuring the ecosystem's sustainability while adhering to Islamic ethical requirements.⁴²

According to Emi and Harlina,⁴³ that one response to this challenge is to develop a supply chain management (SCM) strategy as the key component of a competitive strategy to boost the productivity and profitability of the halal market. The production and distribution of halal goods and services can be defined similarly utilizing the SCM approach. Halal supply networks have been theorized and used by both academics and practitioners. The food supply chain, which comprises the stages of manufacturing, processing and packaging, storage, and retail. By applying the SCM approach, the shared belief in the importance of the halal supply chain as a competitive entity that align all cooperating components in the chain is strengthened.

Marine Ecosystem Conservation in The Perspective of *Maqāsid al-Sharī'ah*

To maintain and realize a safe and comfortable human life, a healthy and clean environment, a well-maintained ecosystem, and natural stability, Islam teaches humans about *maqāsid al-sharī'ah*.⁴⁴ In this case, the purpose of *maqāsid al-sharī'ah* is that all ethical or permissible human behavior must fulfill the five objectives outlined in the *maqāsid al-sharī'ah*, namely, the maintenance of religion, the maintenance of life, the maintenance of offspring, the maintenance of reason, and the maintenance of wealth. Therefore, every human activity has to be following and fulfill the objectives or criteria of the *maqāsid al-sharī'ah*.⁴⁵ If human activity violates these five goals, it is considered improper or unethical.⁴⁶ According to Ramli,⁴⁷ the definition of *maqāsid al-sharī'ah* as stated by classic and contemporary scholars is that *maqāsid al-sharī'ah* has the major objective of human pleasure in both the world and the hereafter, as well as human welfare, which encompasses policies and long-term goals.

⁴¹ Faqiatul Mariya Waharini¹ and Anissa Hakim Purwantini, "Model Pengembangan Industri Halal Food Di Indonesia," *Muqtasid* 9, no. 1 (2018): 1–13.

⁴² Difa Ameliora Pujayanti, "Industri Halal Sebagai Paradigma Bagi Sustainable Development Goals Di Era Revolusi Industri 4.0," *Youth & Islamic Economic Journal* 1, no. 01 (2020): 20–33.

⁴³ Emi Normalina Omar and Harlina Suzana Jaafar, "Halal Supply Chain in the Food Industry-A Conceptual Model," in *2011 IEEE Symposium on Business, Engineering and Industrial Applications (ISBEIA)* (IEEE, 2011), 384–89.

⁴⁴ Zaenafi Ariani, S Nurjannah, and Nur Fitri Hidayanti, "Pola Scale Up Bisnis Sampah Berbasis Al-Maqasid Al-Syariah Di Bank Sampah Induk Regional Bintang Sejahtera," *Istinbath* 20, no. 2 (2021): 296–314.

⁴⁵ Deri Wanto, Rahmad Hidayat, and R. Repelita, "Maqasid Shariah's Change as Theory: From Classical to Cotemporary Maqasid Shariah," *Al-Istinbath: Jurnal Hukum Islam* 6, no. 2 (2021): 427, <https://doi.org/10.29240/jhi.v6i2.3122>.

⁴⁶ Siti Hafsyah Idris, Abu Bakar Abdul Majeed, and Lee Wei Chang, "Beyond Halal: Maqasid Al-Shari'ah to Assess Bioethical Issues Arising from Genetically Modified Crops," *Science and Engineering Ethics* 26 (2020): 1463–76.

⁴⁷ Ramli, "The Principle Of Natural Resources Management Based On Maqasid Al-Shari'ah: A Conceptual Framework."

In the context of protecting marine ecosystems from pollution and conserving the environment, Yang⁴⁸ and Ramli emphasized that in managing, maintaining, and preserving the environment and natural resources, one must refer to the *al-darūriyyāt al-khams* (five basic values) contained in *maqāsīd al-sharī'ah* is to maintain faith, lineage, soul, property, and reason. These five elements are very fundamental and vital to be applied in human life to maintain marine ecosystems and the balance of nature in general. The approach of using *maqāsīd al-sharī'ah* can help protect and safeguard human interests both in this world and in the hereafter, improve human welfare, and prevent suffering for humans.⁴⁹ Yafie⁵⁰ explains that preserving the environment (*hifz al-bī'ah*) is part of *maqāsīd al-sharī'ah*. Because the problem of environmental damage is a big problem that must be faced. Furthermore, Yafie emphasized that *hifz al-bī'ah* is part of the pillar of religion because human life depends on environmental security and sustainability.

Therefore, regarding marine damage and pollution, *maqāsīd al-sharī'ah* teaches us to take care of these five things, namely: *First*; Keeping religion in this context is our obedience to the commands and prohibitions of religion for the good and welfare of human beings. Therefore, what is needed to maintain the existence of religious preservation is to carry out all religious teachings and increase faith to prevent someone from committing sinful acts, arbitrarily, excessively, and following their desire.⁵¹ *Second*, maintaining life is the protection of life for everyone, so every individual in society has the same obligation to maintain the quality of life and protect all possibilities that endanger human life and other living creature.⁵² *Third*, maintaining offspring is the preservation of offspring to ensure that future generations get their rights including the beauty of the environment, prosperity, and distribution of wealth from environmental maintenance and conservation of natural resources.⁵³ Islam regards the environment and natural resources as priceless gifts from Allah Swt. for the well-being of human life. Allah provides for human's natural resources in luxury so that they are managed and maintained by humans as caliphs on earth so that the full responsibility is in the hands of humans to protect and maintain them for the survival of mankind from generation to generation.⁵⁴ *Fourth*, maintaining reason is a protection against human beings both from physical and mental elements. Therefore, managing natural resources and protecting the environment from pollution and damage is a manifestation of

⁴⁸ Abu Bakar Yang, "Pengurusan & Pemuliharaan Alam Sekitar Dari Perspektif Islam," *Kuala Lumpur: Penerbit IKIM*, 2015.

⁴⁹ Ahmad Syukran Baharuddin et al., "Three-Dimensional (3D) Printed Halal Meat: Do We Need A New Regulatory Framework?," 2020.

⁵⁰ Yafie, "Merintis Fiqh Lingkungan Hidup. 2006." 37

⁵¹ Mohamad Akram Laldin, *Introduction to Shari'ah & Islamic Jurisprudence* (CERT, 2008).

⁵² Omar Hasan Kasule, "Medical Ethics from Maqasid Al Shari'at," *Arab Journal of Psychiatry* 15, no. 2 (2004): 75.

⁵³ Zubair Hasan, "Sustainable Development from an Islamic Perspective: Meaning, Implications, and Policy Concerns," *Journal of King Abdulaziz University: Islamic Economics* 19, no. 1 (2006).

⁵⁴ Ali Ali Gobaili Saged, Thabet Ahmad Abu Alhaj, and Mohd Yakub Zulkifli Bi, "The Role of the Maqās . Id Al-Sharī' ah in Preserving the Environment," *Humanomics* 33, no. 2 (2017): 125–32.

preserving humans physically, mentally, and intellectually.⁵⁵ *Fifth*, maintaining the property, in this case, is maintaining the property in a broad sense, namely everything that exists in nature including land, water, air, and all living things in it. Allah Swt. created everything on earth and provided all natural resources for human life. Therefore, natural resources are assets for humans to meet the needs of life.⁵⁶

The exploitation of natural resources and environmental pollution from industrial and household waste causes massive environmental and ecosystem damage. These problems create an imbalance in the environment, ecological systems, and their functions. In addition, the occurrence of waste pollution, especially in the waters of both rivers and the sea, can indirectly result in human health problems, especially from heavy metal waste that settles on the bottom of the waters. Because most of the biota in the water, the food source is at the bottom of the water, it has the potential to be contaminated with heavy metals, and if consumed by humans it will be a serious threat to human health.⁵⁷ Therefore, the environmental crisis is a challenge to the objectives of *maqāsid al-sharī'ah*. Environmental damage affects health and basic human needs (*al-darūriyyāt*) which are important aspects in maintaining the life of all creatures.⁵⁸ As a result, humans, as caliphs on Earth, have to do their duty in preserving and regulating the environment and natural resources, particularly the marine environment, for human life today and future generations.⁵⁹ If ecosystems and nature are well maintained, then all living things, especially humans, will find it easier to meet their needs. Because real wealth is the preservation of the universe.

In the context of halal food, preserving nature to maintain an ecosystem balance from pollution is vital, because maintaining sources of production raw materials from contamination of substances or materials that are harmful to human health is a vital part of halal food products. Halal food products need to pay attention to supply chain sources to ensure that there is no contamination with anything that endangers human health, and to realize the halal and *tayyib* product integrity. According to Al Qardawi⁶⁰ all food that has been contaminated with ingredients that cause human health problems is considered Haram.

⁵⁵ Ramli, "The Principle Of Natural Resources Management Based On Maqasid Al-Shari'ah: A Conceptual Framework."

⁵⁶ Akilu Aliyu Shinkafi and Nor Aini Ali, "Contemporary Islamic Economic Studies on Maqasid Shari'ah: A Systematic Literature Review," *Humanomics* 33, no. 3 (2017): 315–34.

⁵⁷ Khan et al., "Health Risk Assessment of Heavy Metals for Population via Consumption of Vegetables."

⁵⁸ Norita Mohd Nasir, Mahendhiran Sanggaran Nair, and Pervaiz Khalid Ahmed, "ENVIRONMENTAL SUSTAINABILITY AND CONTEMPORARY ISLAMIC SOCIETY: A SHARIAH PERSPECTIVE," *Asian Academy of Management Journal* 27, no. 2 (2022): 211–31.

⁵⁹ Normawaty Mohammad-Noor, "Conservation of Marine Biodiversity from Plastic Pollution for the Health and Well-Being of Society: A Maqasidic Approach," *Revelation and Science* 11, no. 2 (2021).

⁶⁰ Yusuf Al-Qaradawi, *The Lawful and the Prohibited in Islam: الحلال والحرام في الإسلام*, The Other Press, (2013). 123

Conclusion

From the study above, it can be concluded that damage to marine ecosystems due to pollution is a serious problem, especially pollution from heavy metal elements. This is because the damage caused not only impacts the environment but also causes health problems for humans. Exposure to heavy metals has a high risk for long-term health because of its accumulation in the body, especially in the liver and kidneys. Therefore, in realizing halal and *tayyib* products, it is very necessary to pay attention to environmental aspects and food product supply chain sources. *Maqāsīd al-sharī'ah* teaches us to protect the environment through obedience to religious commands and prohibitions for the good and welfare of humanity, maintaining the quality of life and protecting all possibilities that endanger human life and other living creatures, as well as preserving everything that exists in nature, both land, water, air, and all living things in it, and guarantee that future generations will obtain prosperity, equal distribution of wealth resulting from environmental maintenance, and conservation of natural resources. This illustrates how important the role of *maqāsīd al-sharī'ah* is in dealing with issues of ecosystem preservation and environmental protection as well as a guide in considering all activities and making decisions for humans to avoid danger and provide benefits for life.

In this research, the study is limited to a literature review and has not explored in more depth the dangerous impact of environmental pollution and ecosystem damage on human life through food supply sources. Therefore, there needs to be further studies on this problem in more depth, especially studies that are based on cases or field research.

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