

Household Food Waste Reduction: An Islamic Perspective*

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Abstract

One of the most pressing issues confronting humanity today is the increase in food waste (FW). This is a global issue, and Muslim communities are no exception. There are some indicators of the contribution of Muslim communities to this issue. There is an enormous amount of food waste generated during Ramadan. Middle Eastern countries are recognised as some of the world's highest food wasters. During Ramadan, 30-50 percent of the food prepared in Saudi Arabia is wasted. In Qatar, the percentage was 25 percent and in the United Arab Emirates, it increases to 40 percent. This information raises questions about the value of food to Muslim communities. Islam places the greatest emphasis on the values of food and sets certain guidelines on Muslim behaviour towards food. Wasting food is not allowed in Islam. Thus, this article explores guidance provided by Islam regarding food to reduce food waste. This article is

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based on literature review of books, journal papers, reports, articles, and other published material.

Keywords

Food wastage, Islam, values, community, consumption

Introduction

Food is one of the basic needs of mankind. However, food has the potential to create major problems for humans and the environment. Globally, one-third or 1.3 billion tonnes of foods (a year) produced for human use had been wasted.¹ However, a report entitled “Driven to Waste” from the World Wildlife Fund and Tesco, calculates the total quantity of food lost on farms around the world, revealing that an estimated 2.5 billion tonnes of food go uneaten each year. That’s a 1.2 billion-tonne increase over the 2011 estimate of 1.3 billion tonnes thrown away per year.² Wasting food is an unacceptable practice and would lead to a wide range of economic, environmental and social problems³ and create new challenges to manage.

In Malaysia, data from 2016 showed that 37,000 tonnes of solid waste are thrown away daily and 45 percent or approximately 16,650 tonnes of it are FW. Out of this figure, 3,000 tonnes (equal to 3 million kilogrammes) are edible food. Households generated 38.3 percent of FW compared to wet markets (24.5 percent), restaurants (23.4 percent) and hotels (6.9 percent).⁴ FW accounts for 44.5 percent of the overall solid

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1. J. Gustavsson, C. Cederberg and U. Sonesson, *Global Food Losses and Food Waste: Extent, Causes and Prevention* (Rome: FAO, 2011), 4, <http://www.fao.org/3/ai2697e.pdf> (accessed 28 Dec. 2021).
 2. WWF and Tesco, *Driven to Waste: The Global Impact of Food Loss and Food Waste on Farms* (UK: SWCorp, 2021), 6.
 3. Gesyeana Bazlyn Ramli et al., “Delivery, Impact and Approach of Household Food Waste Reduction Campaigns,” *Journal of Cleaner Production* 246, 118969 (2020): 2, doi, <https://doi.org/10.1016/j.jclepro.2019.118969>.
 4. I.A. Jereme et al., “Addressing the problems of Food Waste Generation in Malaysia,” *International Journal of Advanced and Applied Sciences* 3, no. 8 (2016): 69, <http://science-gate.com/IJAAS/Articles/2016-3-8/12%202016-3-8-pp.68-77.pdf> (accessed 28 Dec. 2021).

Household Food Waste Reduction

waste produced by households, followed by plastics (13.2 percent) and diapers (12.1 percent).⁵ The increase of FW is also visible in Muslim communities worldwide. For example, Middle Eastern countries are identified as some of the world's highest food wasters and the holy city of Makkah witnessed the generation of 5,000 tonnes of food residuals during the first three days of Ramadan in 2014.⁶ In addition, during Ramadan, 30-50 percent of the food made in Saudi Arabia is thrown away; in Qatar, the percentage was 25 percent, and in the United Arab Emirates, it rises to 40 percent.⁷

The amount of FW is constantly increasing in Malaysia and at certain events or festivals, FW generation was found to be higher. The three main celebrations in the country where there is a significant increase in FW are Ramadan, *Aidilfitri* and *Chinese New Year* where the increase is between 15-20 percent.⁸ This information raises some concerns on the relationship between Muslims and FW, for instance, why do Muslims waste food even though Islam has complete guidelines on handling food and avoiding waste? Do Muslims have limited knowledge of the Islamic guidance of managing food? Despite knowing the Islamic worldview of wasting food, do Muslims ignore it? What is the Islamic guidance for wasting food? Should the Muslim communities be re-educated about that guidance?

Based on the above questions, the main purpose of this article is to present the Islamic guidance on FW reduction and

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5. SWCorp, *Kompendium Pengurusan Sisa Pepejal Malaysia* (Edisi 1) (Cyberjaya: SWCorp, 2017), 12-3, 98.
 6. S. Zafar, "Food Waste and the Spirit of Ramadan" *Eco.MENA* (29 Aug. 2020) <https://www.ecomena.org/food-waste-and-the-spirit-of-ramadan/> (accessed 28 Dec. 2021)
 7. Al-Fawaz (2015), Khaishgi (2015) and Baldwin (2016) in Abiad, M.G. and Hassan, H., *The State of Food Waste in West Asia* (Nairobi: UNEP, 2021), 25. Downloadable from <https://www.unep.org/resources/report/state-food-waste-west-asia> (accessed 16 Dec. 2022)
 8. *MStar Online*, "Pembaziran Makanan di Malaysia sangat Tinggi," *Rencana* (30 Mei 2016) <https://www.mstar.com.my/lain-lain/rencana/2016/05/30/pembaziran-makanan> (accessed 16 Dec. 2021).

explore the opportunities for enlightening the Muslim community on this matter. The focus of this article is on household food generation since education and awareness programmes would be most beneficial to them. This review article relies on various secondary sources such as books, journals, papers, working papers, reports and many more. More importantly, this article also refers to various inputs from the Qurʾān and hadith.

In general, this article found that in Islam, there are many practical guidance of reducing or avoiding FW as Islam puts high value on food. If Muslims understand and practice that guidance, then the increase in FW can be avoided. The Islamic guidance should be the main sources of input to assist Muslim communities in reducing their FW. To ensure Muslim communities make a meaningful contribution to various FW reduction efforts, the Islamic guidance of FW reduction should be reinforced in Muslim communities. Thus, the proper and practical channel of educating the Muslims should be given appropriate attention to convey the knowledge to the specific target group (Muslim communities). Finally, with the knowledge, we hope the Muslim communities would be willingly engaged in various FW reduction activities.

FW Generation and Muslim Community

The problem of increasing FW is a global phenomenon. Besides Malaysia—a Muslim majority country—other Islamic countries are facing the same problem. Six countries under the Gulf Cooperation Council are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE) generate a high amount of FW in Ramadan.⁹ Jordan produced 50-65 percent of FW and this is higher than the international level of 33.3

9. Abu Dhabi Environment Agency, “In Abu Dhabi, Ramadan a Time for Fasting and Food Waste Awareness,” in M.B. Baig et al., “Food Waste Posing a Serious Threat to Sustainability in the Kingdom of Saudi Arabia – A Systematic Review,” *Saudi Journal of Biological Sciences* 26 (2019): 1744.

Household Food Waste Reduction

percent. Al-Domi et al. conducted a study on FW among college students and found that 13 percent of food purchased had been wasted. In Ramadan, food wastage in Jordan also increases. Compared to daily food wastage, there are an additional 600 tonnes of food wastage in Ramadan.¹⁰

A report entitled “Reducing FW in the OIC Member Countries”¹¹ shows different categories of FW by region of OIC member countries. FW for Sub-Saharan Africa region was mostly under the “root and tuber”¹² category, and “fruits and vegetables.” North Africa, Central and Western Asia region wasted “grains” and “fruits and vegetables” and South and Southeast Asia region mostly wasted “grains” and “meat.”

Consumption waste by region, expressed as a percentage of total food waste at all stages of the food supply chain, in Central Africa, Central and West Asia is 15 percent, followed by South and Southeast Asia (9 percent) and Sub-Saharan Africa (4 percent). Overall, the highest top three categories of food wastage were meat (16 percent), fruits and vegetables (13 percent) and grains (10 percent). The figures represented in this report was the percentage of FW at all levels of the food supply chain.¹³ The report also shows the estimated household FW

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10. FAO, “Save Food,” Jordan Green Building Council, “Your Guide to Waste Management,” Al-Domi et al., “Determining and Addressing Food Plate Waste” and Jordan Times, “Consumer Buy and Waste” in T.Y. Mousa, “Food Security, Food Waste, and Food Donation and Redistribution,” *Austin Journal of Nutrition and Food Sciences*, Vol.8, Issue 3 (2020): 3.
 11. OIC refers to Organisation of Islamic Cooperation, an organisation with the membership of 57 countries working together in political, economic and social areas. See, <https://www.sesric.org/about-oic.php> (accessed 16 Dec. 2021).
 12. Example of “root and tuber” foods are potato, sweet potatoes, carrot etc. Refer to A. Chandrasekara and T. J. Kumar, “Roots and Tuber Crops as Functional Foods: A Review on Phytochemical Constituents and Their Potential Health Benefits,” *International Journal of Food Science*, Article ID 3631647 (2016), doi: <http://dx.doi.org/10.1155/2016/3631647> (See, Table 2).
 13. To understand the meaning of Food Supply Chains, refer to C. Vespia, “The Guide to Food Supply Chains,” *ZipHaccp* (21 April 2021), <https://ziphaccp.com/en/food-supply-chain.html> (accessed 16 Dec. 2021).

in South and Southeast Asia (25 million tonnes a year); North Africa, West Asia and Central Asia (15 million tonnes a year) and Sub-Saharan Africa (5 million tonnes a year).¹⁴

Understanding the Waste Hierarchy (WH)

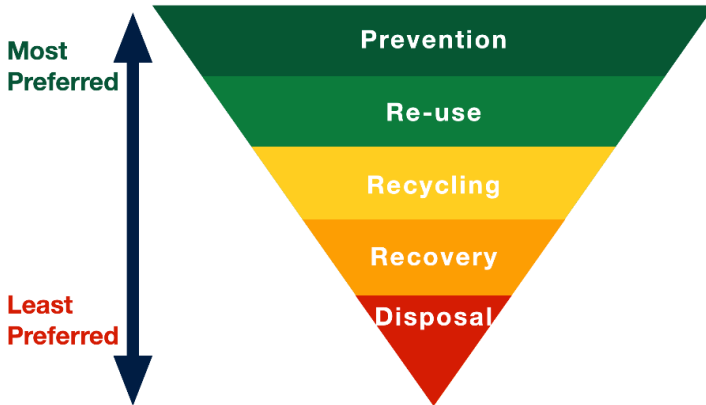
Discussion on the hierarchy of waste is important because it shows the priority of actions to be taken in the effort to reduce waste including FW. The priority of action in WH are related to the Islamic guiding principles for FW reduction. The options shown are organized according to urgency and have the potential to provide the best results in FW reduction efforts.¹⁵

The WH, as the basic framework of waste management, has been introduced since the 1970s by the European Union (EU). Through the Directive on Waste 1975 and the EU's Second Environment Action Programme in 1977, the hierarchy began to gain attention as an important element in various policies related to the reduction of waste in the EU. In 1989, the WH was clearly defined through the 1989 Community Strategy for Waste Management for the EU.¹⁶ In 2008, waste directive 2008/98/EC was introduced and became an important reference in the management of FW. This directive has introduced a hierarchy of food management in the form of inverted pyramids. It demonstrates the primacy of action in FW management and encourages member countries to develop specific programs to stop the problem of increased waste.¹⁷

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14. COMCEC, *Reducing Food Waste in the OIC Member Countries* (Ankara: COMCEC, 2017), 2.
 15. E. Papargyropoulou et al., "The Food Waste Hierarchy as a Framework for the Management of Food Surplus and Food Waste," *Journal of Cleaner Production* 76, (2014): 108, doi: <https://doi.org/10.1016/j.jclepro.2014.04.020> and D. Welch, J. Swaffield and D. Evans, "Who's Responsible for Food Waste? Consumers, Retailers and Food Waste Discourse Coalition in the United Kingdom," *Journal of Consumer Culture* 21, issue 2 (2021): 248, doi: <https://doi.org/10.1177/1469540518773801>.
 16. Papargyropoulou et al., "The Food Waste Hierarchy," 5.
 17. M. Lombardi and M. Costantino, "A Hierarchical Pyramid for Food Waste Based on a Social Innovation Perspective," *Sustainability* 13 (2021), 3, doi: <https://doi.org/10.3390/su13094661>

Household Food Waste Reduction

Figure 1: The Waste Hierarchy



Source: Reproduced from <https://ismwaste.co.uk/help/what-is-the-waste-hierarchy>

Figure 1 shows the Waste Hierarchy. It starts with the preventive layer and ends with the disposal layer (landfill, incinerator etc.). The preventive layer is the most beneficial option for waste reduction.¹⁸ It is inexpensive in terms of the cost of managing the waste and also the impact on the environment. Based on the hierarchy above, modern societies are more inclined towards the disposal level compared to others level. However, to reduce waste generation—including FW—the top three levels i.e., prevention, reuse and recycling, should be the main focus of all parties. The prevention layer is unpopular and most of the activities under preventive option only involved communication and awareness activities.¹⁹ Thirapongphaiboon (2008) states that in general, many FW hierarchy research did not concretely suggest “the way to prevent food surplus and waste by revaluing or adding value to the unwanted food materials to become edible

18. Papargyropoulou et al., “The Food Waste Hierarchy,” 9.

19. Lombardi and Costantino, “A Hierarchical Pyramid,” 2.

and preferable to the market again.”²⁰ The current focus on the lower layers of this hierarchy is damaging to the environment and the cost of implementing disposal related facilities such as incinerators and landfills is extremely expensive.²¹

Islamic Guidance to FW Reduction

Based on the WH, the best option for FW reduction is through prevention. Although the basis of current practices and systems for prevention needs to be revised, it still has the potential to provide significant environmental, social, and economic advantages.²² Therefore, prevention should be a priority, understood and practised by all parties. In the FW reduction context, prevention aims to avoid waste generation from harming humans and the environment, thus minimising the economic and social impacts.

Therefore, all parties should make prevention a priority. In Islam, prevention of food waste relates to the concept of eliminating harm (*darar*). There is an Islamic legal maxim that states: *Lā Darar wa-lā Dirār* or “no harm shall be inflicted or reciprocated.” This legal maxim indicates that any form of harm or damage should not be inflicted on any person and that the harm must be eliminated. In this case, it is obligatory upon every Muslim to eliminate any form of harm to himself and others; before it happens (*sadd al-dharāʿi*), while it is happening, provide alternative or other options to substitute (or eliminate) the harm, and impose certain punishment on the perpetrator.²³

Efforts to minimise or eliminate harms are vital in maintaining the five goals of *Maqāṣid al-Sharīʿah*.²⁴ In the FW

20. Lombardi and Costantino, “A Hierarchical Pyramid,” 4.

21. J.C. Tjell, “Is the ‘Waste Hierarchy’ Sustainable?” Editorial, *Waste Management and Research* 23 (2005), 173.

22. Papargyropoulou et al., “The Food Waste Hierarchy,” 9.

23. Zulfakar Mamat, “Aplikasi Kaedah Fiqh ‘La Darar Wa La Dirar’ dalam isu Covid-19 di Malaysia,” in *Insla E-Proceeding* 3, no.1 (2020), 332.

24. Adeeba Kamarulzaman dan S.M. Saifuddeen, “Islam and Harm Reduction,” *International Journal of Drug Policy* 21 (2010): 116.

Household Food Waste Reduction

reduction efforts, it is to prevent any damage to other humans and the environment, directly or indirectly. For example, wasting food denies the right of others to food and avoiding FW in landfills will reduce carbon emissions and thus minimise the impact of climate change.

In addition to prevention, reuse and recycling should also be encouraged. Both practices educate Muslims to control their need to purchase new items constantly. Over-consumption is the identity of modern society, and this is one of the reasons for the increase in FW (and solid waste in general). The problem has reached a crisis level because humans are submitting to their wants rather than needs.²⁵ Wasting food is a reflection of human gluttony and this is contradictory to Islamic values. In fact, in the Qurʾān, there are specific titles for greedy people such as *al-Musrifun* (squanderer), *al-Muʿadin* (person who exceeds the limit) and *al-Mubadhirin* (spendthrift).²⁶

There is a hadith that shows the act of re-using. Āʿishah narrated that she was asked about the Prophet’s activities at home. Āʿishah replied, “He sewed his clothes and repaired his sandals” (Ahmad).²⁷ This indicates that old items could be repaired and used as long as possible. Thus, FW such as food scraps (e.g., vegetable roots, animal bones, onion peels etc.) could be composted and used as fertilizer or leftovers could be transformed into different recipes (such as white rice to fried rice) and shared with others.

The above explanations show that the top three options in the WH (prevention, re-use and recycling) are practical actions to reduce waste and should be encouraged. They are

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25. Azrina Sobian, “Bersederhana, Bersyukurlah...,” in *Pandangan IKIM, Utusan Malaysia* (14 May 2019).
 26. Shahrir Mohd. Zain, “Pendekatan Baru terhadap Konsep Optimum kini dan beberapa Konsep Optimum Baru,” *Jurnal Kesturi* 16, 1&2 (Jan-Dec. 2006): 75. These titles were mentioned in *surah al-Aʿrāf* (7):31, *surah al-Baqarah* (2):190 and *surah al-Isrāʾ* (17):27.
 27. Zaini Ujang and Zulkifli Mohd Yusoff, *40 Hadis Pelestarian Alam Sekitar* (Kuala Lumpur: ITBN, 2020), 239.

also parallel to Islamic teachings. There are also other guiding principles based on the Qur’ān and hadith that is also useful in guiding Muslims to appreciate food. Gratitude for food is important because humans rarely waste something that valuable and important. Thus, the next discussion explains some Islamic guidance to instil respect for food and in turn, avoid FW.

Avoiding Excessiveness

Muslims are not allowed to commit any excessive acts as it is against the principles of Islam. Therefore, the squanderer is regarded as “the brothers of the devil.”²⁸ Thus, in Islam, consumption or purchasing of food must be done according to one’s need. Sayyid Qutb explained that Ibn Mas’ud and Ibn Abbas interpreted wastage as spending in an inappropriate way (in a way that is not allowed by Allah). Hence, those who waste are considered “the brother of the devil” because they spend their wealth on the path of evil and wickedness.²⁹

In Islam, food is a blessing from Allah. Wasting food is regarded as wasting the blessings of Allah SWT. Allah SWT owns all and provides sustenance. Even while performing a virtuous act such as charity, wasting food is prohibited. It has been alleged that early Muslims competed in charitable giving to such an extent that their actions were wasteful. As a result, Allah SWT forbids them from being prodigals.³⁰

In either a difficult or favourable circumstance, excessive food consumption or intake is not permitted. Muslims should learn from the story of the Children of Israel, which is recounted in *surah Tā Hā*, verse 81. (20). After they left Egypt and were

28. *Surah al-Isrā’* (17): 27.

29. Sayyid Muhammad Qutb, *Tafsir fī zilāl al-qur’ān*, terj. Yusoff Zaky Haji Yacob, 17 jilid (Kota Bharu, Kelantan: Pustaka Aman Press Sdn. Bhd., 2000), 10: 185.

30. Sayyid Muhammad Qutb, *Tafsir fī zilāl al-qur’ān*, Online version. See, *surah al-An’ām* (Cattle) 6:141, 292, <https://tafsirzilal.files.wordpress.com/2015/01/updated-al-anam-eng1.pdf>.

Household Food Waste Reduction

in the Sinai desert, Allah SWT provided them with “mann” and “salwa” to eat. Excessive usage of “mann” and “salwa” in prohibited ways, as well as being ungrateful, are not permitted.³¹ Allah warned these people to avoid eating too much for them to neglect (forget) their duty and early intention to escape Egypt. They are also reminded not to be arrogant with the blessing that Allah has bestowed on them and avoid living lavishly because it will make them weak.³²

Living in Moderation

The Islamic worldview supports moderation in various matters including those related to food. Excessive food intake will cause harm to health and the environment through an increase in FW. In one hadith, it is mentioned that “a believer eats in one intestine (is satisfied with a little food), and a kafir (unbeliever) or a hypocrite eats in seven intestines (eats too much)” (Bukhari).³³ Therefore, Muslims are forbidden to eat too much and should focus on a balanced diet. Living in balance is fundamental in the Islamic system of life and excessiveness in eating will disrupt the balance.³⁴ To a certain extent, moderation in food intake is linked to the increase in food waste. Excessive food consumption necessitates the preparation of a wide variety of foods in huge quantities. In the end, some of the food will not be consumed and thrown away. As a result, the amount of food wasted will increase.

31. See footnote 896 and 897 in *The Quran*, trans. Abdullah Basmeih, JAKIM, 2007, 578.

32. Sayyid Muhammad Qutb, 10: 198-199.

33. Hadith no. 306, see Muhammad Muhsin Khan, *The Translation of the Meanings of Sahih Al-Bukhari* (Arabic-English), vol. VII (Lahore, Pakistan: Kazi Publications, 1986), 223.

34. *Surah al-A'raf* (7): 31.

Emphasis on Cleanliness and Hygiene

Islam emphasizes the importance of maintaining cleanliness and hygiene. Cleanliness is regarded as the foundation of faith. The Prophet SAW said, “Cleanliness is half of faith” (Muslim).³⁵ From the FW perspective, cleanliness and hygiene could prevent food from spoiling and being thrown away eventually. Therefore, cleanliness and hygiene must be given proper attention while managing food. The importance of maintaining cleanliness is mentioned in a hadith, from Salman RA, who said, “I have read in the Torah that the blessing of food lies in ablution after eating the food. So, I mentioned the matter to the Prophet SAW, then the Prophet SAW said, “The blessing of food lies in ablution before and after (eating) the food (Abu Daud).³⁶ Ablution in this hadith includes washing one’s hands before eating.

Therefore, cleanliness and hygiene during the preparation and handling of food must be continuously practised especially at homes and restaurants. This is to ensure the safety of food and to avoid cross-contamination during the preparation. Therefore, ensuring that oneself (hands and physical condition), ingredients, and utensils are clean is important while preparing food to avoid food deterioration and the need to throw it away later.

Grateful for Allah’s Blessing

An extravagant and lavish lifestyle is a sign of ingratitude for the blessings that Allah has bestowed and it is contrary to the basic principles of Islam.³⁷ Muslims should be thankful for all

35. Hadith no. 233, *Sahih Muslim*, The Book of Purification, Chapter: The virtue of Wudu’, Book no. 2, Hadith 1, see <https://sunnah.com/muslim:223> (accessed 28 Dec. 2021).

36. Ibn Hajar al-‘Asqalani, *Hidayah al-Ruwat*, Vol. 4 (Kaherah: Dar Ibn ‘Affan, 2001), 154.

37. M.H. Yasini, “Frugality and Extravagance: An Islamic Perspective,” Issue 25, Opinion, *The Pen Magazine* (4 Aug. 2008) <https://thepenmagazine.net/frugality-and-extravagance-an-islamic-perspective/> (accessed 28 Dec. 2021).

Household Food Waste Reduction

sustenance, including food, given by Allah SWT. Throwing food away is an evil act and should be avoided. Allah says: "... Eat of what your Lord has given you as sustenance and render thanks to Him."³⁸ According to the book *Tafsir fi zilāl al-qurʿān*, Sayyid Qutb states that the verse warns the people of Saba to be grateful for the blessings of Allah for all the rich and prosperous land. Hence, foods are part of sustenance bestowed by Allah and Muslims must show gratitude by handling them with care and not wasting it.³⁹

The Blessings of Food

In a hadith, it is suggested that one licks their fingers and wipes the bowl because, "...you do not know in which part (of the food) the blessing is." (Muslim)⁴⁰ If food left on the fingers should not be wasted, then foods that could still be eaten should not be wasted too. Each food has its own blessing (*barakah*) therefore, it is important to finish or consume all to reap the benefits of that blessing. If Muslim understood this Sunnah, they would avoid wasting foods.

Sharing Food

In Islam, sharing food is also a great gesture (Bukhari).⁴¹ An individual may prepare excessive amounts of food at times, such as on special occasions. This could be due to a lack of planning or an overabundance of purchases. Food would not be wasted if

38. *Surah Saba'* (34):15.

39. Norkumala Awang, "Syukur Pemberi Nikmat, Jangan Kufuri," *Utusan Malaysia* (3 Mac 2014) <https://www.wikim.gov.my/index.php/2014/03/03/syukuri-pemberi-nikmat-jangan-kufuri/>.

40. Hadith no. 7, see Fazlul Karim, *Al-Hadis: An English Translation and Commentary of Mishkat-ul-Masabih*, vol. 2, chapter 11, section 2 (Lahore: Book House, n.d), 121.

41. Hadith no. 286, see Muhammad Muhsin Khan, *The Translation of the Meanings of Sahih Al-Bukhari*, 219.

people shared their meals. Instead of throwing away excess food or storing it for an extended period until it spoils, it is preferable to donate it or share it with others.

Educating Muslims on FW Reduction

Islamic values should be an important element to guide Muslims in food preparation and handling (including FW) to achieve environmental sustainability. It is crucial to understand the elements that contribute to wasteful attitudes to prevent FW. The increase in FW would be influenced by lifestyle and changes in eating habits during specific seasons, particularly during the fasting months. As a result, the incorporation of Islamic beliefs into measures to reduce FW must be seriously considered.

Integrating Islamic beliefs into FW reduction initiatives could be accomplished through formal or informal teaching and awareness campaigns. The program's target audience should be the younger generation and community members. Experience-based education, which allows young people to feel or witness the impacts of FW, is strongly encouraged. A visit to a waste management facility, for example, might serve to improve awareness of humans' contribution to the FW generation and establish a sense of "belonging" to the effort of not wasting and responsibility to avoid the waste.

Environmental education is taught across the curriculum in Malaysia, while informal environmental education is delivered by a variety of environmental-related organisations and agencies, such as the Department of Environment Malaysia.⁴² The education initiatives, however, do not necessarily incorporate Islamic values. Thus, how could the above-mentioned Islamic principles and guidelines for FW reduction be communicated to Muslim communities?

42. Azrina Sobian, "Involvement of Religious Leaders in Environmental Awareness and Conservation Activities in Malaysia: A Preliminary Review," *TAFHIM: IKIM Journal of Islam and the Contemporary World* 5 (2012): 74-5.

Household Food Waste Reduction

In Malaysia, there is also a significant opportunity to deliver Islamic FW reduction principles and guidelines. This can be done informally through mosques, suraus, or religious schools. There are 6,514 mosques and 17,210 suraus in Malaysia.⁴³ There are also 283 religious schools with a combined enrolment of 123,707 students.⁴⁴ The numbers specifically refer to religious schools and students under Malaysia's Ministry of Education. If religious schools and students in state level and private schools are included, the total number will be higher.

If all mosques, suraus, and schools could be the platform to educate students and communities about the value of food and waste reduction, it will generate a positive impact, provided the effort is carefully planned, implemented constantly, and mobilised collectively in an orderly manner. Public talks on the topic of FW reduction, the establishment of FW collecting facilities, and composting FW are part of activities that could be incorporated in the Islamic-based schools and institutions in Malaysia to enhance Muslim awareness of FW reduction.

However, the greatest obstacle to this effort is the Muslim community's lack of understanding of the significance of this issue. This will undoubtedly hamper the above institutions' participation in FW reduction efforts. Environmental issues are rarely addressed as a topic of discussion in various activities or public talks in mosques, suraus, or religious schools. As a result, while there is an opportunity to educate the Muslim community on the issue of FW reduction, that prospect has not been fully exploited because the issue of FW (or environmental issues) is seen as less important or relevant to Islam and Muslim communities. Perhaps this is one of the reasons the Muslim communities failed

43. Data provided by Jabatan Kemajuan Islam Malaysia (JAKIM), see "Masjid Malaysia" portal. The data is in an excel type document and updated at 21 Dec. 2021. Refer to, <http://masjid.islam.gov.my/index.php?data=c3RhdGlzdGlrLnBocA==> (accessed 22 Dec. 2021).

44. Data provided by Kementerian Pendidikan Malaysia, see "Statistik SMKA dan SBKA" portal. Data updated on Januari 2020. Refer to <https://www.moe.gov.my/en/statistik-menu/statistik-bilangan-smka-dan-sabk-di-kementerian-pendidikan-malaysia>. (accessed 22 Dec. 2021).

to show good examples in terms of human-nature relationships and the simple evidence could be seen in the rise of FW during Ramadan and Hari Raya.

While certain Islamic principles could benefit overall FW reduction efforts, these are not always reflected in Muslim behaviours or attitudes. Apart from the data on a large amount of FW in the Muslim community, some studies demonstrate that the Muslim community does not have good practices concerning FW reduction or the environment in general.⁴⁵ This indicates that, despite the existence of various Islamic guidelines, knowledge alone is insufficient to encourage the Muslim community to protect the environment.

Other aspects must be considered to ensure Muslim community engagement in FW reduction efforts. For example, collaborating with food manufacturers to change food packaging and food portions, terminating “buy one, get one free” promotion, encouraging hotels to provide appropriate portion sizes and prohibit FW, public food handling and preparation training, television programmes that promote FW reduction, educating the public about composting, and many other initiatives. These efforts could assist the Muslim community (and the general public) to reduce FW.

In addition to religious-based education and awareness efforts, alternative motivations to enhance public participation in FW reduction initiatives must be identified. For example, motivation from a financial perspective, where reducing FW would save money and ease the financial load on the family.⁴⁶

45. Affendi Ismail, “Pengaruh Agama dalam Tingkah laku Kesedaran Pengurusan Sisa Pepejal Masyarakat Islam: Kajian di Kelantan,” Paper presented at the Social Sciences Postgraduate International Seminar (SSPIS) at Lecture Hall, School of Social Science, 21 Oct. 2014, organized by School of Social Science, USM.

46. A study in the United States shows that the total daily food expenditure (per capita) is USD13.27 per day and of this amount 27 percent of food is wasted and the value of the food wastage is USD3.67 per day. Refer to Z. Conrad, “Daily cost of consumer food wasted, inedible, and consumed in the United States, 2001–2016.” *Nutrition Journal* 19, 35 (2020). <https://doi.org/10.1186/s12937-020-00552-w> .

Household Food Waste Reduction

Furthermore, the relationship between FW reduction and the environment is a fascinating topic to investigate. Another motive for communities to avoid FW could be environmental protection. Financial, environmental and religious motivations should be jointly mobilized in FW reduction initiatives.

Conclusion

There are several Islamic guidelines to promote FW reduction programmes. Muslims' appreciation of food guided by Islamic values and principles will enhance their appreciation of food and educate them not to waste food. Some of the instructions are strict (and may include some sort of punishment), while others are encouraging. For example, wasting food is regarded as a devil's acts and an immoral (sinful) activity, whereas sharing food (food donations) provides rewards (*pahala*) and a sense of pleasure for helping others.

Islamic values and principles should be incorporated into various initiatives to educate the Muslim community about FW reduction. This article demonstrates that there are numerous chances to educate and communicate Islamic guidance in FW reduction efforts in the Malaysian setting. However, some inputs, such as environmental and financial benefits, should be incorporated into this effort to support.

Finally, this article has certain limitations. It is an attempt to explore the Islamic guidance or principles that could be used in household FW reduction initiatives. The Islamic principles for preventing FW presented in this paper is not all-inclusive. Exploration of Islamic guidance and recommendations for reducing FW, either in the Qur'ān, hadith, or the works of Muslim scholars and from Islamic history perspective, should be explored further. Knowledge and skills in household food management are also vital to assist food waste reduction and must be shared with Muslim households (and the general public).

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