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MANAGING HOUSEHOLD HAZARDOUS WASTE IN MALAYSIA: LEGAL, FIQH AND CLIMATE PERSPECTIVES

Intan Nadia Ghulam Khan[1], Izawati Wook[2], Mashitah Abdul Mutalib[3], Nabilah Yusof[4], Hasnizam Hashim[5] & Haliza A. Shukor[6]

[1] (*Corresponding author*). Senior Lecturer, Universiti Sains Islam Malaysia. intan@usim.edu.my
[2] Associate Professor, Universiti Sains Islam Malaysia. izawati@usim.edu.my
[3] Senior Lecturer, Universiti Sains Islam Malaysia. mashitahmutalib@usim.edu.my
[4] Senior Lecturer, Universiti Sains Islam Malaysia. nabilah@usim.edu.my
[5] Associate Professor, Universiti Sains Islam Malaysia. hasnizam@usim.edu.my
[6] Senior Lecturer, Universiti Sains Islam Malaysia. hliza@usim.edu.my

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Abstract

Solid waste landfills release methane, a greenhouse gas that plays a role in the issue of global warming. Solid waste generation is a serious environmental problem that requires immediate attention. Effective waste management has become a national concern in Malaysia due to the country's massive annual generation of solid waste, including household hazardous waste. This is because improper waste management can have detrimental impacts on the environment, particularly on climate change and public health. The parties to the 1992 United Nations Framework Convention on Climate Change are required to support and cooperate in specific initiatives that control, reduce, or prevent anthropogenic emissions of greenhouse gases in all relevant sectors, including the waste management sector, by considering their common but differentiated responsibilities. This article assesses Malaysia's legal framework for managing household hazardous waste in a sustainable manner, taking into account Fiqh perspective and the country's efforts to combat climate change and its effects on public health. This was achieved by employing the library research and interview techniques. The findings demonstrate that one of the challenges in addressing the negative environmental effects is the absence of specific legislation for household hazardous waste management in Malaysia. To foster sustainability in line with Sustainable Development Goals (SDGs), it is necessary to enhance the current legal framework and the institutional coordination among relevant agencies in Malaysia. This effort aligns not only with international sustainability commitments but also with the principles of Islamic jurisprudence, which underscore the importance of environmental stewardship and the preservation of public health. This article contributes in bridging legal and Fiqh insights to propose a more holistic framework for household hazardous waste management.

Keywords: *Hazardous Waste, Fiqh, Climate Change, Sustainability, Legal Framework*

INTRODUCTION

As reported by the United Nations Environmental Program (UNEP), Malaysia was among the top five Association of Southeast Asian Nations (ASEAN) countries with the highest annual solid waste production, estimated at 12,840,000 metric tonnes per year (UNEP, 2017). Malaysia also produced 232 metric kilotons of e-waste and ranked the top 3 highest generators of hazardous waste among the four ASEAN countries with updated hazardous waste inventories (UNEP, 2017). Solid waste typically encompasses hazardous waste, hospital waste, commercial waste, and household waste generated from sources such as economy, culture, heritage, industrialization, and seasons (Hwa, 2007). Wastes are commonly grouped by legal and regulatory instruments based on whether they are municipal or industrial, including agricultural and mining, and whether they have non-hazardous, hazardous, or ultra-hazardous characteristics (Sands et al., 2012).

Household hazardous waste is one of the solid waste compositions in Malaysia. It can be classified into various types: biochemical waste, which includes waste products from commercial and healthcare centres, hazardous or toxic solid waste, and electronic waste, also known as e-waste, which includes any type of waste that is generated from electrical or electronic appliances (Zaipul Anwar Zainu, 2019).

Generally, inadequate waste management practices can significantly affect public health and environmental degradation. Uncollected wastes may promote the spread of disease through vectors such as germs, insects, rats, and physical contact with the waste by members of society. Additionally, waste management workers in developing countries are exposed to higher occupational risks, including the risk of infections, severe diarrhoea, pulmonary problems, and respiratory disorders (United Nations Human Settlements Programme, 2010). Moreover, household hazardous waste poses a risk to living beings due to its potential of causing harm or death, non-degradability, and cumulative negative impacts (Hassan Chaib et al., 2014). It can also cause serious environmental impacts as disposing household hazardous waste to landfill sites will contribute toxic substances to the landfill leachate that forms in the landfill rainwater infiltration and waste decomposition (Slack et al., 2009). Furthermore, the long-term destruction and life-threatening effects of the dissemination of harmful segments in e-waste are detrimental to mankind and the environment (Shad et al., 2020).

The inadequate availability of legal frameworks for household hazardous waste has caused difficulty to manage its disposal (Fauziah & Agamuthu, 2008). Concerning household hazardous waste management, prior research revealed that e-waste and household hazardous waste are mixed with other municipal or domestic and inappropriate treatment of this co-mingled waste will contribute to environmental pollution and damage to the atmosphere, ultimately harming public health (Zaipul Anwar Zainu, 2019). Hence, waste separation at source is vital to sustainably dispose hazardous and non-hazardous waste accordingly. Although environmental sustainability has received growing academic attention, there is still a lack of research linking waste management and climate change from legal and Fiqh perspectives. This paper fills that gap by evaluating Malaysia's legal mechanisms on managing household hazardous waste, focusing on their role in addressing climate change and their alignment with Islamic principles.

WASTE MANAGEMENT AND CLIMATE CHANGE

Global warming is one of the environmental crises that form the fundamental aspect of climate change. Waste management is related to global warming as processes like waste incineration and landfilling produce greenhouse gases (GHGs), such as methane and carbon dioxide, that can harm the environment (Tanaka, 2014). The production of strong GHGs during inappropriate e-waste handling is linked to the direct contribution of e-waste to climate change (Fawole et al., 2023). Additionally, greenhouse gas emissions have increased the standard global temperature by 0.74 ºC over the last century, which is anticipated to further increase to 6.4 ºC in the next 100 years (Tanaka, 2014). Among the effects of global warming include higher temperatures, increasing sea levels caused by the melting of snow

and ice caps, and the risk of infectious disease transmission by carriers (Tanaka, 2014). Malaysia is not excluded from the grievous impacts of climate change with extreme weather, inconsistent rainfall, and risen sea level as reported in recent years (Tang, 2019).

On 11 October 1994, Malaysia ratified the United Nations Framework Convention on Climate Change (UNFCCC). The Kyoto Protocol was later ratified in 2002, followed by the Paris Agreement in 2016 (the UNFCCC Secretariat, n.d.). This indicates the existence of legally binding agreements for countries to translate their climate change commitment into plans and actions (Felter, 2023).

The ultimate aim of UNFCCC and any related legal instruments that the Conference of the Parties may adopt is to stabilise greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous anthropogenic interference with the climate system in accordance with the relevant provisions of the Convention (Article 2 of the UNFCCC). In addition, the UNFCCC's Article 4 (1) (c) outlines the parties' obligation to support and collaborate on the creation, use, and spread of technologies, procedures, and practices that can limit, control, or prevent anthropogenic greenhouse gas emissions in all relevant areas, including waste management.

The implementation of the National Policy on Climate Change and the National Green Technology Policy serves as a testament to Malaysia's dedication to the United Nations Framework Convention on Climate Change (UNFCCC). To tackle climate change challenges, the National Green Technology and Climate Change Council, which was later renamed the Malaysia Climate Change Action Council, was established (Ministry of Environment and Water, 2020). Despite the array of policies, regulations, strategies, and initiatives designed to combat and adapt to climate change within Malaysia, there remains significant potential for enhancement, particularly concerning monitoring and enforcement mechanisms (Tang, 2019).

Within the Intended Nationally Determined Contribution (INDC) under the UNFCCC, five sectors were identified, one of which is waste management (Michel Devadoss et al., 2021). Consequently, solid waste management is intrinsically linked to climate change issues. Ineffective management of solid waste can lead to the release of greenhouse gases, thereby exacerbating climate change. Besides energy production, the waste management sector significantly contributes to climate change, leading to rising global temperatures in both land and sea. In 2011, waste disposal accounted for 12% of greenhouse gas emissions, impacting agriculture, fisheries, and water resources (Tang, 2019). This situation prompts an inquiry into how efficient household solid waste management practices can alleviate climate change challenges. For example, food waste disposed of in landfills decomposes and emits methane, which has a climate change impact 21 times greater than that of carbon dioxide (Nordin et al., 2020). Therefore, the implications of food waste are critical, as they contribute significantly to global warming. On October 8, 1993, Malaysia became a party to the United Nations Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (the 1989 Basel Convention).

Since the 1980s, waste management strategies have incorporated social, economic, and environmental dimensions of sustainability, with sustainable development emerging as a key consideration in waste policy formulation (Strange, 2002). Effective waste management, including that of hazardous waste, is vital for achieving several Sustainable Development Goals (SDGs), particularly those focused on public health and environmental conservation.

The Sustainable Development Goals (SDGs) represent the 2030 Agenda for Sustainable Development, which was endorsed by global leaders, including Malaysia, during the United Nations Conference on September 25, 2015 (DOSM, n.d.). At least 12 of the 17 SDGs are directly related to solid waste management, outlining various objectives that nations are expected to pursue (Rodic & Wilson, 2017). Effective waste management plays a crucial role in ensuring Good Health and Well-being (SDG 3) and Clean Water and

Sanitation (SDG 6), which are essential for safeguarding water resources from pollution through robust monitoring and reporting systems. Specifically, Target 6.3 aims to "improve water quality by reducing pollution, eliminating dumping, and minimizing the release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and substantially increasing global recycling and safe reuse." This is measured by the "proportion of bodies of water with good ambient water quality" (Indicator 6.3.2).

To realize Sustainable Cities and Communities (SDG 11), integrated and sustainable solid waste management is essential for enhancing urban quality of life and supporting community sustainability. This ensures access to adequate, safe, and affordable housing and essential services while improving slum conditions (Elsheekh et al., 2021). One strategy to achieve this goal involves mitigating the environmental impacts of cities and maintaining good air quality through efficient solid waste collection. An important indicator is the proportion of urban solid waste that is regularly collected and adequately disposed of compared to the total solid waste generated in urban areas (Target 11.6) (Rodic & Wilson, 2017). Furthermore, Elsheekh et al. (2021, p.11) propose transforming landfills into green parks and public spaces to provide universal access to safe, inclusive, and accessible green areas.

Effective waste management is also crucial for achieving SDG 12 - Responsible Consumption and Production. The objective is to significantly reduce waste generation through prevention, reduction, recycling, and reuse (Target 12.5). Regarding hazardous waste and other chemicals, SDG 12.4 focuses on the environmentally sound management of chemicals and all wastes throughout their life cycle in alignment with internationally accepted frameworks, while aiming to significantly decrease the release of hazardous and other chemical wastes into air, water, and soil to mitigate their adverse effects on human health and the environment (IISD, 2018). Many manufacturers have adopted green packaging strategies to reduce plastic use, promoting shared responsibility for waste management between consumers and producers (Cheng et al., 2022). Additionally, implementing policies on extended producer responsibility can encourage businesses to adopt environmentally friendly practices (SDG 12.6) (Elsheekh et al., 2021).

Figure 1 shows the amount of materials recycled in Malaysia from 2014 to 2022. A generally increasing trend can be observed across all types of materials recycled, including lead-acid batteries.

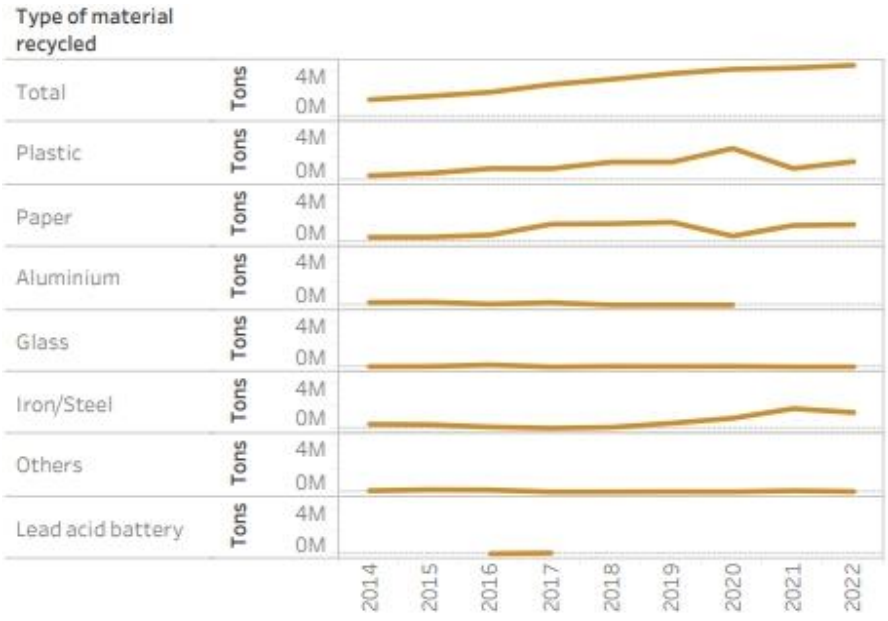

Figure 1: Tons of material recycled
(Source: Ministry of Local Government Development and Departmentof National Solid Waste Management)

The reduction of open dumping is an essential first step towards ecologically appropriate waste disposal. Besides, SDG 15 (Life on Land) seeks to ensure proper hazardous waste disposal and prevent soil contamination, which is essential for preserving terrestrial ecosystems and biodiversity. The Sustainable Development movement has articulated and garnered increasing support for a number of economic measures, including the circular economy (Isa et al., 2021). By encouraging the idea of waste and resource cycling, the circular economy seeks to provide an alternative to the widely used linear take-make-dispose processes (Blomsma & Brennan, 2017).

The aforementioned SDGs, targets, and indicators underscore the significance of conscientious household hazardous waste management in safeguarding human well-being, conserving the environment, and advancing sustainable patterns of consumption and production. Future safety and sustainability can be ensured by tracking the progress made towards these objectives and household hazardous waste management initiatives.

Malaysia has also taken prominent actions to align its national development plan with the initiatives and outcomes of the SDGs, targets and indicators. Three development dimensions, that is, economic empowerment, environmental sustainability, and social reengineering, are continuously in line with the achievement of the SDGs make up the Shared Prosperity Vision (SPV) 2030, which was unveiled in 2019. This supports Malaysia's efforts to participate in international waste treaties, which helped to shape the country's waste management laws. From the Fiqh perspective, such initiatives are in harmony with Shariah, which emphasizes the duty to preserve and manage the environment.

THE RELEVANT LAWS ON HOUSEHOLD HAZARDOUS WASTE MANAGEMENT

In Malaysia, the evolution of solid waste management regulations has transitioned from informal practices to the integration of additional provisions within legislative frameworks such as the Environmental Quality Act of 1974 and the Local Government Act of 1976. More structured policies have emerged, including the National Solid Waste Management Policy (NSWMP) 2006, the Master Plan on National Waste Minimization (MWM) 2006, the National Strategic Plan for Solid Waste Management (NSP) 2005, and the Solid Waste and Public Cleansing Management Act 2007 (Act 672) (Agamuthu & Victor, 2011).

The NSWMP aimed to achieve two primary objectives, that is, to establish a solid waste management system that is comprehensive, cost-effective, socially acceptable, and sustainable, and to implement solid waste management practices with a strong focus on waste reduction through the principles of the 3Rs (Reduce, Reuse, Recycle). However, the implementation of the NSWMP has faced challenges, with only Thrust 3 fully realized out of the six strategies and thrusts outlined (National Solid Waste Management Policy, 2016). The shortcomings in executing the NSWMP can be attributed to various factors, including insufficient funding, lack of experience, outdated infrastructure and technology, as well as an ineffective monitoring and enforcement framework. Nevertheless, Wee et al. (2017) identify ineffective governance as the predominant factor behind the unsuccessful application of the solid waste policy, while Agamuthu and Victor (2011) point to the lack of political commitment and support from stakeholders, alongside the impracticality of directly adopting policies from developed nations.

Following a decade of implementation, the NSWMP 2016 policy was introduced, retaining the two primary objectives established in the 2006 version. The government outlined six objectives, six thrusts, seventeen strategies, and fifty action plans to enhance the policy. New initiatives were incorporated to promote comprehensive waste management and encourage the 3Rs, including waste segregation at the source, a pay-as-you-throw scheme, reciprocal systems, and the enhancement of human capacity and resources in the solid waste and public cleansing sectors. Furthermore, the policy emphasized solid waste treatment methods such as waste-to-energy conversion and the use of anaerobic digesters to mitigate greenhouse gas emissions resulting from solid waste management.

Another relevant solid waste management policy is the National Cleanliness Policy (NCP), which was announced on 21 February 2019. It aims towards making Malaysia a clean nation and fostering a culture of cleanliness to ensure environmental sustainability and the well-being of its citizens. The objectives of NCP are relevant to the issue of waste management as shown in Figure 2 below.

Figure 2: National Cleanliness Policy
(Source: Ministry of Housing and Local Government, 2019)

According to Zuraida Kamaruddin (former Minister of Housing and Local Government), the policy's execution was centred on five clusters: cleanliness awareness, environmental sustainability, circular economy, good governance, enforcement, and public awareness quality. The programme would impose the Extended Producer Responsibility (EPR) strategy on producers who import recyclable items (Yusof, 2019).

There is currently no specific law in Malaysia that exclusively governs household hazardous waste management. Nevertheless, there are several laws in place to regulate hazardous waste in general, most notably the Environmental Quality Act 1974 (Act 127) and the Environmental Quality (Scheduled Wastes) Regulations 2005. The term 'waste' is defined under section 2 of the Environmental Quality Act 1974 (Act 127) as "…any matter prescribed to be scheduled waste, or any matter whether in a solid, semi-solid, or liquid form, or in the form of gas or vapour which is emitted, discharged, or deposited in the environment in such volume, composition, or manner as to cause pollution".

Scheduled waste or hazardous waste means any waste falling within the categories of waste as listed in the First Schedule of the Environmental Quality (Scheduled Wastes) Regulations 2005 (Regulation 2 of the Environmental Quality (Scheduled Wastes) Regulations 2005) which include waste from different sources like the industrial sector, agricultural sector, health sector, and households, and include metal and metal-bearing wastes, wastes containing principally inorganic constituents that may contain metals and organic materials, wastes containing principally organic constituents that may contain metals and inorganic materials, wastes that may contain either inorganic or organic constituents, and other wastes (First Schedule of the Environmental Quality (Scheduled Wastes) Regulations 2005).

Effective collaboration among various institutions and agencies is crucial for improving sustainable solid waste management practices. Nevertheless, currently, there is ambiguity regarding the roles and responsibilities related to the management of household hazardous solid waste. The Department of Environment, which operates under the Ministry

of Natural Resources, Environment, and Climate Change, is the primary body responsible for managing hazardous waste. The specific types of waste handled by different waste management operators in Malaysia dictate the facilities they employ. Given the potential dangers associated with hazardous waste, conventional management practices that are suitable for non-hazardous waste are inadequate (Zaipul Anwar Zainu, 2019). Consequently, the disposal of scheduled wastes must occur only at designated sites, and efforts should be made to render these wastes non-harmful before disposal, as outlined in Regulation 4 of the Environmental Quality (Scheduled Wastes) Regulations 2005. In Malaysia, the infrastructure for managing hazardous waste includes facilities for transporting scheduled or hazardous waste, off-site storage and transfer stations, secure landfills for the final disposal of treated waste, and incineration plants specifically for scheduled waste (Aja et al., 2016). According to Act 127, it is illegal for any individual to place, deposit, or dispose of scheduled waste on land or in Malaysian waters, or to allow such actions, unless done at designated sites and with prior written consent from the Director General of Environmental Quality, as stipulated in Section 34B.

Conversely, the management of household solid waste is primarily regulated by the Solid Waste and Public Cleansing Management Act 2007 (Act 672) and the Solid Waste and Public Cleansing Management (Scheme for Household Solid Waste and Solid Waste Similar to Household Solid Waste) Regulations 2011 which are applicable in most states in Peninsular Malaysia and the Federal Territories of Kuala Lumpur and Putrajaya. Under the Solid Waste and Public Cleansing Management Act 2007 (Act 672), household solid waste is classified as controlled solid waste. Section 2 of Act 672 defines household solid waste as "any solid waste generated by a household, typically produced by premises used as a dwelling, including garden waste." While household hazardous solid waste may fit the definition of "special solid waste," Act 672 and its associated regulations do not contain specific provisions addressing this type of waste.

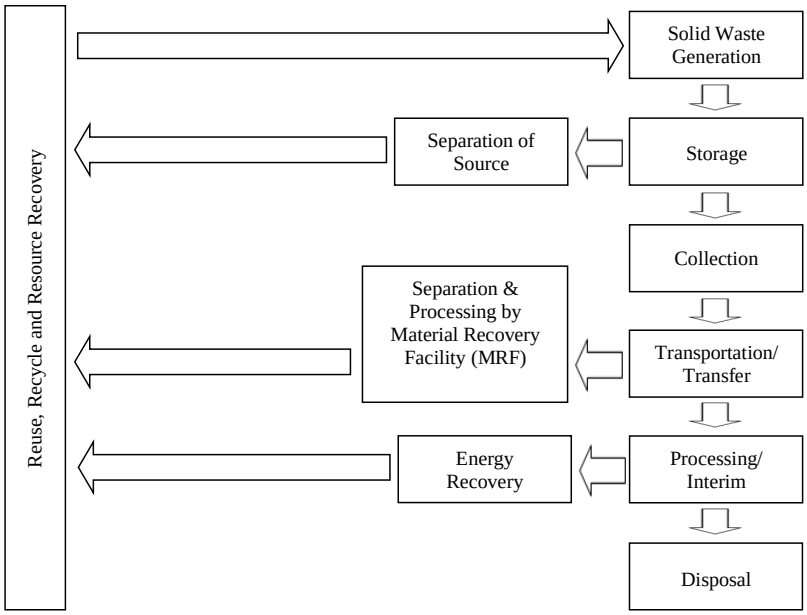

Figure 3: Solid waste management services process
(Source: Solid Waste and Public Cleansing Management Corporation 21 June 2016)

The above Figure 3 shows the solid waste management services process in which apart from disposal, suitable waste which has been separated during storage, transportation or transfer processes could be sent for reuse, recycle or resource recovery.

The Solid Waste and Public Cleansing Management Act 2007 (Act 672) and the Solid

Waste and Public Cleansing Management (Scheme for Household Solid Waste and Solid Waste Similar to Household Solid Waste) Regulations 2011 support the objectives of the Department of Environment by encouraging the segregation of hazardous materials such as aerosol cans, electrical appliances, and electronics categorized under Schedule +1 (Officer of Solid Waste and Public Cleansing Management Corporation, 1 March 2023).

Several ministries and agencies, including the Ministry of Local Government Development, the National Solid Waste Management Department, the Solid Waste and Public Cleansing Management Corporation (SWCorp), local governments, and other concession companies, are part of Malaysia's institutional framework for solid waste management.

In relation to household hazardous waste, mixing of hazardous and non-hazardous solid waste remains a persistent challenge in Malaysia (Officer of Solid Waste and Public Cleansing Management Corporation, 1 March 2023). Insights from this interview, along with data from SWCorp, indicate that improper disposal of hazardous solid waste can lead to environmental contamination of groundwater. This contamination ultimately affects primary water sources such as rivers, streams, and lakes.

Since June 2016, the failure to properly separate waste has been categorized as a compounding offence under Act 672, applicable in all states that have adopted this legislation. Enforcing mandatory source separation facilitates a greater recovery of recyclable materials and enhances the operational capacity of landfill sites (Moh & Latifah, 2017). Households can participate in the separation of solid waste by categorizing it according to its composition, including hazardous waste and small electrical items. This segregated waste should be stored in appropriate containers or plastic bags and positioned next to the bin on designated collection days (National Solid Waste Management Department, n.d.). Nevertheless, there is still low waste separation practice among Malaysians, as indicated in a study conducted involving residents in the East Coast of Malaysia (Fadhullah et al., 2022).

According to SWCORP's officer (1 March 2023), Act 672 and its associated regulations bolster the Department of Environment's efforts to promote the segregation of hazardous waste from household items, such as aerosol cans and electrical appliances, as outlined in the schedule 2+1 implemented by SWCorp. SWCorp plays a vital role in managing household hazardous solid waste by encouraging its collection on specific days and directing it to recycling centers. However, she emphasized the risks associated with public co-mingling of waste, stemming from a lack of awareness, which can lead to pollution when hazardous materials are disposed of in landfills. Raising public awareness could involve creating a system or website that allows individuals to check collection schedules based on the type of waste. While there is some level of coordination between the Department of Environment and SWCorp at the agency level, it remains inadequate (Officer of Department of Environment, 20 July 2023),

Besides, the Department of Environment Malaysia has pointed out that the volume of e-waste collected is still insufficient (Department of Environment, 2023). There is a pressing need to enhance public awareness and education regarding e-waste management, as many individuals tend to either retain e-waste at home or dispose of it through informal channels. The Department also highlights that a significant challenge in establishing a sustainable system for domestic e-waste disposal in Malaysia is the recyclers' primary focus on precious metals. Additionally, the collection and transportation of e-waste are complicated by its scattered distribution across households. The recycling and recovery processes are often prohibitively expensive due to the substantial investment required for machinery, equipment, and environmental safeguards, which can render these methods economically unfeasible (Shad et al., 2020).

In contrast to the e-waste generated by the industrial sector, which benefits from established management protocols, the handling of e-waste originating from households remains largely ambiguous (Osman, 2016). Consequently, household e-waste is often inadequately collected, frequently ending up either in the hands of second-hand dealers or

being discarded as regular refuse. Additionally, e-waste produced by non-industrial sources, particularly residential areas such as televisions, air conditioners, washing machines, and refrigerators, lacks proper regulatory oversight under current legislation, leading to a significant portion being disposed of inappropriately (Department of Environment Malaysia, 2015). As a result, many electrical and electronic appliances from homes are treated like typical domestic waste and sent to landfills (George et al., 2018). The authors emphasize the lack of specific regulations or laws addressing e-waste, which explains why this issue remains largely overlooked in society today. This is also supported by Sanghvi (2023) who opined that e-waste is frequently disposed of alongside other household waste due to a lack of an appropriate framework for managing e-waste in households.

Moreover, the absence of a structured sector for e-waste management has led to the proliferation of numerous private enterprises in Malaysia that profit from the trade of e-waste (Dinggai et al., 2020). This inadequate management poses serious risks to both the environment and human health, as e-waste contains six hazardous heavy metals: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, and polybrominated diphenyl ethers.

This discussion underscores that the responsibility for managing hazardous or scheduled waste lies with the Department of Environment, as outlined in Act 127 and the relevant regulations. In contrast, the management of household solid waste, classified as controlled solid waste, falls under the authority of SWCorp in states that implement Act 672, which also defines special solid waste. To address the global challenge of climate change, it is essential to foster comprehensive collaboration across various levels of government (Puppim de Oliveira, 2019). Besides, the absence of specific legislation in Malaysia that governs the management of household hazardous waste reveals significant gaps that hinder its effective management. From Fiqh perspective, the act of preserving the environment is regarded as an obligation, thereby reinforcing the moral and religious imperative for legal reforms.

FIQH PERSPECTIVE

Shariah places a strong emphasis on the necessity and responsibility of preserving and managing the environment, including the aspect of solid waste management, to protect the *maslahah* of human life and to reject *mafsadah* from them.

The environment, or in Arabic *al-bi'ah*, is an important aspect that receives prominent attention by the Shariah based on the evidence of the Quran and al-Hadith. In the Quran, the word *al-ardh* is mentioned 461 times to explain the diversity of meanings contained in the concept of the environment. This affirms the close relationship between human beings and the universe as a conducive place prepared by Allah SWT so that humans can live in it (Nizamuddin Zakaria et al., 2011). Solid waste management has a strong foundation in Islamic jurisprudence and is basically a matter that is highly recommended in Islam. The practices related to solid waste management, namely reduce, reuse and recycle, if understood more deeply, are actually part of the proof of a servant's faith in Allah, who has given various blessings on this earth (Zakaria et al., 2022).

The main objective of Shariah is to safeguard religion, life, lineage, intellect, and property, which are the five basics of human life that form the concept of *al-dharuriyyat al-khamsah*. Concerns relating to environmental management and sustainability are contained in these five matters. The act of preserving the environment is an obligation while the act of defiling it is a crime, a sin, and a betrayal of religious trust. This is because such actions, sooner or later, will eventually have a negative impact on life, lineage, intellect, and property. Islam explains that the protection or preservation of the environment is highly important and it has been affirmed explicitly and implicitly in many verses of the Quran and al-Hadith. For Muslims, the existence and balance of nature created by Allah SWT is a sign of His greatness, which should be administered as best as possible according to Shariah. Allah SWT says in surah al-Qasas (28) verse 77:

﴿ وَٱللَّهُ لَا يُحِبُّ ٱلۡمُفۡسِدِينَ ﴾

Which means,*"For Allah loves not those Who do mischief"* (al-Quran. Al-Qasas:77).

Shariah also explains the basic principles that must be observed in the management of all matters including the nature. Human beings should translate these principles into a set of rules and regulations that are appropriate to them. This is aligned with a hadith narrated by Imam Muslim from Anas bin Malik whereby Prophet Muhammad PBUH gave freedom to people or a society to create the best rules for their lives or affairs.

The principle of Shariah also clearly states that one should not harm or cause harm to others (Mustafa Ahmad al-Zarqa', 1998). Prophet Muhammad PBUH said in a hadith narrated by Ibn Abbas:

{ لاَ ضَرَرَ وَلاَ ضِرَارَ }

Which means, *"There should be neither harming (darar) nor reciprocating harm (dirar)"* (Hadis. Ibn Majah. *Bab La Darar wa La Dirar*. 2340).

The word *dharar* in the hadith comes in the form of *nakirah*, which means that whatever is harmful is prohibited including matters related to the environment. It means that Islam denies all forms of acts that can cause danger or harm in every matter. This hadith has been taken by the jurists as a *fiqh* method where any act that causes harm is prohibited and haram.

{ أنتم أعلم بأمور دنياكم }

Meaning: *''You are more knowledgeable about your worldly affairs"* (Hadis. Al-Bukhariyy. *Bab al-Zira'ah*. 232).

The above hadith coincides with the concept of human privilege or advantage as a caliphate which has been bestowed by Allah SWT with knowledge.

By acknowledging the role of each individual in preserving the environment, the government has also undertaken the duty, based on the principle of *siasah syar'iyyah*, to provide education to the public on the need for working together to preserve the environment and shed light on the adverse consequences that will be faced by all if the problem regarding the management of hazardous waste is not complied with or managed properly. The government, based on the principle of *siasah syar'iyyah*, has the obligation to administer and provide appropriate disposal methods to prevent pollution as well as to enforce laws and punishments against anyone who breaches the rule. In this regard, the public interest, or *maslahah* '*ammah*, is given priority which is in line with the principle of *mursalah* (Abdul Karim Zaydan, 2009). Meanwhile, Islamic jurisprudence also explicitly gives the government broad powers in managing and enforcing any rules and prohibitions to safeguard the public interest and anything that is considered to preserve the public interest as well as to avoid matters that may cause *mafsadah* based on the views and assessments of the government (Abdu al-'al Ahmad 'Uthwah, 1993). Thus, it is clear that the basis for environmental practices is found in the Quran and the Sunnah of Prophet Muhammad PBUH.

CONCLUSION

Ineffective management of household hazardous waste may cause adverse impacts on the environment particularly on climate change and subsequently to public health, which is against the sustainability principle. Proper management of household hazardous waste is important to prevent contamination and protect public health in line with SDGs. Malaysia has demonstrated a strong commitment to sustainable development by aligning its national strategies with the SDGs and relevant international treaties. These efforts are consistent with Islamic principles, which emphasize the duty to preserve the environment. The Shariah

places a prominent emphasis on solid waste management, which is one of the branches of environmental conservation. The responsibility to safeguard and manage the environment including solid waste is a task that must be conducted by men as caliphs or administrators as best as possible. It is also regarded as an obligation to preserve and guarantee *maqasid al-shariah* and included in *maqasid al-dharuriyyah*. Failure to manage this will lead to environmental imbalance and consequently cause harm to human life. Thus, effective management of household hazardous waste is important in line with Islamic jurisprudence as stated in the Quran and al-Sunnah. In Malaysia, the management of hazardous waste or scheduled waste is under the responsibility of the Department of Environment including household hazardous waste while the management of household solid waste is under the SWCorp for states enforcing Act 672. Nevertheless, there is a lack of legal framework and institutional coordination to deal with the management of household hazardous waste. Hence, the existing laws on household hazardous solid waste management should be improved and there should be clear coordination in this matter between SWCorp and the Department of Environment under the Ministry of Natural Resources, Environment, and Climate Change as well as other relevant agencies. It is recommended that a joint committee between the Department of Environment and SWCORP be established to address this matter for the purpose of ensuring unified policies and consistent enforcement mechanisms across agencies. Furthermore, strategic plans for awareness campaigns and education on 3R, waste separation, and recycling of e-waste as well as the application of Artificial Intelligence waste management models stand as an important initiative to enhance sustainable household hazardous waste management. This emphasizes the necessity for a sustainable effort to balance the needs of the present generation with those of future generations. Fulfilling current needs should never compromise the future of the country's younger generations.

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