



A REVIEW ON ISLAMIC ENVIRONMENTAL ETHICS: A SOLUTION MICROPLASTICS-BASED WATER

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Abstract

*Ethical issues in science and technology no longer exist as a new problem arises in this present world. However, the concern for the environment creates awareness in analysing ethical practices in science and technology research and development. It encourages scientists and industries to ensure the chemical products and the processes harmless to the environment. Microplastics (MPs) in the water system demand serious debates and concern among scientists to study the definition and the effects on nature and other organisms. In the past several decades, conventional ethical guidelines have played a significant role in developing new scientific fields but did not control the upcoming technologies, leading to those threats and pollution still occurring. The introduction to the green chemistry concept shows the contribution of conventional ethics in maintaining experimental activities. However, the procedures do not highlight the management of the entire process and the implications after the implementation. It only discusses the purposes of those processes, which may put high risks of destroying the environment during or after the operations are conducted. Therefore, introducing Islamic environmental ethics is significant to curing the unsolved issues. Earlier studies had addressed these ethical guidelines but were limited to philosophical views and personal thought. Hence, the explanation of the Islamic environmental ethics in this research will involve *Qur'an* as the primary reference by applying the *Qur'anic Thematic Exegesis* method to address the issue. It requires a discussion based on the environmental pollution cited in *Qur'an* and the Islamic explanation to overcome. This study involves hermeneutics and content analysis in collecting and presenting the data. At the end of the discussion, Islamic environmental ethics proved to provide guidelines for practising good ethical values and preserving nature in overcoming the presence of MPs, with an integrated approach (physical and spiritual elements) based on the Quranic perspective.*

Keywords: *Microplastics, Islamic environmental ethics, Qur'anic thematic exegesis, Ethics*

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INTRODUCTION

For many years, chemical contaminants have caused widespread environmental contamination. The effects of pollution on land, air, and water are only a few examples. Climate change implications include global warming, greenhouse effects, and low-quality water supplies due to environmental pollution caused by human activity. Because this problem affects all nations worldwide, countless experts from diverse fields of study are working hard to find comprehensive answers to regulate it. Ever since, numerous studies have been conducted with various alternatives to addressing this problem at multiple levels, beginning with building technologies to detect those pollutants (Nath et al., 2018), reducing usage alternatives (Hassan et al., 2018), and ending with the degradation (Cai et al., 2019) of the detected chemical pollutants.

Microplastics (MPs) in the water system necessitate extensive conversations and debates to raise awareness and resolve unresolved concerns. Defining terminologies, establishing MP kinds, characterisation, and aftereffects urge scholars to contribute to the discovery. The role of Muslim scientists in debating scientific ideas piques interest in offering an Islamic framework and addressing Quranic verses that also reference water and water pollution; the Quranic theme of exegesis analysis is the best choice for extracting data and discussing the research. The modern approach of exegetical discussion leads to current data analysis.

On top of that, the proposal to integrate Islamic knowledge and contemporary science sparks the interest of scholars. It believes that there are no chapters in Quran that oppose scientific invention. Mufid (2014) concluded that the integrated interconnection between those two divides into three domains: (i) integrative independence, the belief that both exist in a mutually dependent state. (ii) Integrative compliment is the belief that both complement each other by accepting the method rationally and intuitively. (iii) Integrative-Qualificative, where the implication of science's development does not contradict moral-religious values (p. 158). These domains of integration between science and Islam allow the development of science parallel to Islamic principles, so the invention and new research do not cross the religious and humanities boundaries. This approach's importance will help scholars keep working without neglectation of values.

The Quran, the fundamental source of Islamic knowledge, is the primary source of integrated learning. Scholars recommend various tafsir approaches or Quranic exegesis to understand the Quran based on their opinions. However, the theme technique of exegesis, or *tafsir al-mawdu'iy*, is widely acknowledged as a current and updated exegesis method fit for integrated knowledge purposes, mainly when dealing with modern subjects (Syarifuddin & Azizy, 2018). The thematic technique allows for the organisation and assembly of verses based on the themes associated with the chosen topics. It explains those interpretations that are methodically constructed with the agreement of different interpretive approaches to identical

texts. The examination of interpreted verses based on themes may also conclude the complementing of both understandings in creating a complete solution to the problem coming from the main issue. In this study environment, the theme technique of Quranic interpretation is critical for drawing broad conclusions in discussing the issue of MPs through the dimension of Islamic environmental ethics based on the integrated knowledge of Islamic and modern results.

DEFINITION OF MICROPLASTICS (MPs) AND THEIR EFFECTS TOWARDS ENVIRONMENT

Researchers have been disputing the concept of microplastics for years to figure out particle sizes, textures, and chemical compositions. Carpenter and Smith's 1972 paper on microplastics (MPs) showed the occurrence of polystyrene spherules that float on the surface of coast water in the southern New England Sea. It exists in two physical forms: transparent crystalline and white opaque, which arose from interactions with diene rubber (Edward J. Carpenter, Susan J. Anderson, George R. Harvey, Helen P. Miklas, 1972). The tiny plastic particles average 5mm in size, with diameters ranging from 0.1 mm to 2 mm. Agreeing with that, Prata et al. (2019) define MPs as small pieces of plastics with particle sizes < 5mm and may contain contaminants that may bring harm to living things or the environment (p. 2).

In 2015, the National Institute for Public Health and the Environment, an independent agency of the Dutch research institute, presented a letter report that concludes the definition of MPs as synthetic materials in solid forms which are insoluble in water and non-degradable. It builds an understanding of what microplastics mean by their sizes and the chemical properties that may change the contact surface with MPs. Five primary concerns in discussing MPs' criteria and threshold values involve the chemical composition, solidity, average size, persistence, and the general issues addressing the cost and benefits of the study of microplastics (Verschoor, 2015). (Frias & Nash, 2019) note that defining MPs based on their physicochemical properties is significant for addressing an all-inclusive definition.

The debate over the sources of microplastics that contaminate the water system, which includes open, surface, and groundwater, is heating up. Human and industrial activities contribute to an excess of MPs in the water system, which has a harmful influence on the marine and aquatic environments. MPs are primarily a result of improper management of primary MPs (larger-sized plastics), which may dissolve those more giant molecules into smaller plastics (Issac & Kandasubramanian, 2021). According to (Nizzetto et al., 2016), the primary sources of MPs include household items (including cosmetic and cleaning products), industrial production, laundry dust, automobile tire debris, and paint flakes. Based on the preliminary data, 21 to 42 percent of plastic waste on land waste made its way into the water system via leaching (Anbumani & Kakkar, 2018).

The earlier study has shown that the presence of microplastics affects marine organisms, mainly fish. (Pozo et al., 2019) describe the presence of MPs (as microfibers) in the gastrointestinal content of fish species from central Chile in both coastal and marine ecosystems. The characterisation research also proves the presence of microplastics in the digestive systems of marine fishes in the state of Kuwait (Al-Salem et al., 2020). The volume and size of microplastics do not cause substantial variations in fish species. However, it has

been noted that species living so close to urban areas have a greater frequency of digesting MPs (Chan et al., 2019). To avoid redundant arguments over the physical properties of MPs, (Shi et al., 2021) developed a nomenclature that addresses the sample mesh or filter size, the density of the flotation solution used to carry out the MPs separation operations, and the detection limit throughout the analytical process. The key goal is to avoid the over-or under-estimation of MP contamination. However, proving the presence of MPs does not address the specific world concern-the harmful consequences of MP ingestion on marine creatures and humans that come into touch with or consume polluted seafood. The significance of the study is to spread awareness with reliable judgment on the degree of harmful level on the MPs' pollution of the environment and living organisms. It urges critical investigations, particularly on the negative impacts of continued consumption of MPs on marine species and human health. The study's significance is to raise awareness and supply trustworthy judgment on the degree of harm caused by MPs' contamination of the environment and living creatures. It calls for more research, notably on the detrimental effects of ongoing MP consumption on marine wildlife and human health.

Because MPs may absorb organic pollutants, heavy metals, and infections and translocate them to marine creatures, biologists and toxicologists must assess the physical effects on species. MPs can potentially produce pathophysiological alterations and reproductive issues in marine species by interfering with lipid metabolism, immune response function, glutathione reductase activity, and the antioxidant system (Alimba & Faggio, 2019). They may also affect the ecosystem by altering population structure (Wright et al., 2013), linked to marine species' decreased mortality and fertility levels. Furthermore, according to a recent article (Prokić et al., 2019), the possible ecotoxicological effects of MPs may generate oxidative stress and create neurotoxic, genotoxic, and inflammatory effects on living organisms. The connectivity between MPs and living beings compels researchers to investigate the impact of MP presence on growth and health. Due to a lack of knowledge on the subject, humans can overlook the red alert caused by the rising frequency of MPs discharged into the water system.

WESTERN PERSPECTIVES ON ENVIRONMENTAL ETHICS

Two main theories divide modern ethics, which are deontological and teleological ethics theories. In philosophy, deontological ethics is a theory that highlights the interrelation between duty and the morality of human actions (Britannica, 2020). It deals with real action and the responsibility conducted with concern for their excellent motives or intentions. If someone has a will to do good, it is classified as an ethical practice even if it is harmful to living welfare. The first philosopher that explained deontological ethics, Immanuel Kant, the founder of critical philosophy known as Kantianism, believed that an action does not measure its consequences. However, moral values willed to universal law (Vleeschauwer, 2021). In more exact words, personnel should be honest in sharing the information with a murderer, even if it may harm others. Kantianism's main issue is that Kantianism encourages people to have goodwill and follow the morality standard, even need to put themselves in a hot soup.

In contrast, teleological ethics is a theory of morality that derives duty that emphasises good consequences (Britannica, 2008). It holds that an action should be concerning the end products, primarily with action goals and goodness or badness. According to a researcher, Dr.

J. Z. Ding, teleological theories are drawn based on four essential principles: judging the consequences, stressing non-human objects, choosing non-moral and comparative value as a critical criterion, and producing a tremendous possible balance of good and evil. Furthermore, it emphasises creating assumptions on the consequences of an action to analyse a good activity or vice versa. The problem that arises from this theory is that a person may permit to conduct wrongdoing if the ultimate purpose is for a good reason and result in positive consequences.

To conclude, both theories are concerned about determining the solution's moral course but choose two distinct solutions. In a more straightforward approach to differentiate both, if a situation where a lady needs to steal a loaf of bread for her starving children, deontologists strictly prohibit this action regardless of the purpose as it is not a duty to steal others' rights. On the other hand, teleological ethicists may permit this action to consider how this action may hit the lady's kids hard. The two different approaches to the same scenario allow ethical theories to be dynamic and differ according to cultural and philosophical understanding.

What is environmental ethics? Based on those ethical theories, thinkers developed ideologies for explaining ecological ethics. Three main ideologies that relate to ecological ethics are [1] anthropocentrism, [2] biocentrism, and [3] ecocentrism (Bourdeau, 2004). Anthropocentrism aims to protect the environment in view only of humankind's direct or indirect interests. It emphasises the superiority of human beings to all other organisms. They believe that the protection of nature is essential not only for survival but for amenities and aesthetic satisfaction. The argument that human actions may bring environmental harm is rejected by the belief that it is necessary for human living. It is a part of human nature to use or risk natural resources for own benefit.

In contrast, biocentrism underlines the equal importance of all living things. It recognises the intrinsic value of all living beings regardless of their instrumental value to humankind. In other words, biocentrists denied the stigma of humans as superior to other living. They emphasised the inherent importance of all species and the right to have protection based on moral and ethical values. However, the extreme views on moral equality for all living bring a dilemma to act for survival purposes. They will bring conflicts in determining the limit in ethical equality as eating a fish and making a salad bowl may harm the environment. Hence, to protect the environment, one should look up to a bigger perspective and observe the environment as a whole ecosystem, not on an individual species basis.

The understanding of ecocentrism emphasises the ecosystem by considering that both living and non-living objects are equally important and contribute to the environmental state. Ecocentrism accepts both biotic and abiotic factors that may influence the ecosystem, including ocean acidity, weather patterns, and human actions. What is lacking in ecocentrism is separating the ethical philosophy and the religious principle. Religious views provide a holistic understanding and involve physical and spiritual elements by placing God central to any concept of morals and honest discussions.

ENVIRONMENT IN QUR'AN

To achieve the goal of this research is to analyse Qur'anic verses that relate to the environment that explains the importance of Islamic environmental ethics. The thematic analysis begins with the collection of environment-related verses. As the environment is a broad scope, this working

paper will only focus on those verses related to water pollution as MPs bring more pronounced effects in water systems and acknowledge water as the primary source of living. Based on the pilot study conducted, water pollution is rarely explicitly mentioned in one complete verse. Therefore, the analysis of Qur'anic verses is based on the proclamation (lafaz) “ماء,” which means water, and “فسد,” which implies mischief or corruption.

No.	Qur'anic Verses	Interpretation of verses
1.	وَيَسْعَوْنَ فِي الْأَرْضِ فَسَادًا ۚ وَاللَّهُ لَا يُحِبُّ الْمُفْسِدِينَ (المائدة: 64) Means: ... And they strive throughout the land [causing] corruption, and Allah does not like corrupters.	<i>Ibn Kathir</i> interpreted: And they (ever) strive to make mischief on the Earth. Moreover, Allah does not like mischief-makers. <i>Al-mawdudiy</i> elaborated on the characteristics of the rebellions that now they are striving to spread mischief in the world, but Allah does not like the mischief-makers.
2.	ظَهَرَ الْفَسَادُ فِي الْبَرِّ وَالْبَحْرِ بِمَا كَسَبَتْ أَيْدِي النَّاسِ لِيُذِيقَهُمْ بَعْضَ الَّذِي عَمِلُوا لَعَلَّهُمْ يَرْجِعُونَ (الروم: 41) Means: Corruption has appeared throughout the land and sea by [reason of] what the hands of people have earned so He may let them taste part of [the consequence of] what they have done that they will return [to righteousness].	Referring to tafsir <i>Ibn Kathir</i>, Zayd bin Rafi' said that: (Evil has appeared) “The rain is withheld from the land, followed by famine, and it is withheld from the sea, adversely affecting the animals which live in it.” According to <i>al-Mawdudiy</i>, mischief has appeared in the land and the sea on account of men's doings that He (Allah) may make them taste some of their (evil) works. From both referrals, it may conclude that the current world currently faces the effects of pollution because of the human actions that harm nature.

- وَأَحْسِنَ كَمَا أَحْسَنَ اللَّهُ إِلَيْكَ ۖ
وَلَا تَبْغِ الْفُسَادَ فِي الْأَرْضِ ۖ إِنَّ
اللَّهَ لَا يُحِبُّ الْمُفْسِدِينَ
3. (القصاص: 77)
- Means:
“And do good as Allah has done well to you. Moreover, desire is not corruption in the land. Indeed, Allah does not like corrupters.”
4. (الرعد: 17)
- Means:
He sends down from the sky, rain, and valleys flow according to their ability.
5. (الفرقن: 48)
- Means:
And He sends the winds as good tidings before His mercy, and We send down from the sky pure water.
- Ibn Kathir* explained the verse (and be generous as Allah has been generous to you, as Allah asks human beings to be pleasing to His creatures, as He has been gracious to you. (And seek not mischief in the land.) meaning: ‘do not let the aim be to spread corruption on earth and do harm to Allah’s creation.’
- Al-Mawdudiy* said: do good to others as Allah has done well to you; do not strive to make mischief on the Earth, for Allah does not like the mischief-makers.
- (He sends down water from the sky,) He sends rain (and the valleys flow according to their measure). Each valley takes its share according to its ability, for some valleys are more comprehensive and can keep more water than others that are small and thus keep smaller measures of water. This Ayah shows that hearts differ, for some of them can stay substantial knowledge while others cannot entertain knowledge but are bothered by expertise.
- Allah says:
(And We send down pure water from the sky), meaning as a means of purifying it. Abu Sa’id said, “It was said: “O Messenger of Allah, can we perform Wudu’ with the water of the well of Buda’ah. It is a well in which rubbish and the flesh of dogs are thrown.” He said:
- (Water is pure and nothing makes it impure.) As recorded by Ash-Shafi’i and Ahmad, who graded it by Sahih, Abu Dawud and At-Tirmidhi, Hasan, and An-Nasa’i.

Moreover, it is He, Who drives the winds to be the precursors of His mercy: then He sends down pure water from the sky, That is, such water as is pure and free from all sorts of impurities, germs, and poison, which cleanses and washes away filth and becomes a source of life for men, beasts as well as all kinds of plant life.

وَأَسْقَيْنَكُم مَّاءً فُرَاتًا

(المرسلة: 27)

Means:

“And have given you to drink sweet water.”

Ibn Kathir explained the verse (and have given you Furat water), meaning cold and delicious water from the clouds or from what He causes to gush forth from the springs of the Earth.

Al-Mawdudiy said: In the interior of this Earth, sweet water has been stored and on its surface rivers of sweet water have been arranged, and from the saline waters of the sea, vapours of pure water are also raised caused to fall like rain from the sky. Is not all this an argument to prove that an All-Powerful Sovereign has created all this, and He is not only All-Powerful but All-Knowing and All-Wise? Now, if this Earth has been thus equipped and provisioned only by His power and wisdom, why should an intelligent man trod it challenging to understand that the same Sovereign by His power can wind up this world and create another world on a new pattern? Furthermore, His wisdom demands that he create another world after it to call man to account for his deeds in this world?

6.

QUR'ANIC THEMATIC EXEGESIS

Over time, an extensive literature has developed on the contemporary method of Quranic exegesis, a thematic process known as *tafsir al-mawdu'iy*. This method aims to arrange the translated verses into specific themes according to the whole discussion context. Thus, there are three methods of approach in thematic works of Qur'anic knowledge, namely: (1) books and compendia that offer a general understanding of the issues of scientific interpretation, (2) publications on diverse themes of scientific interpretation, and (3) texts and discussions based on a specific scientific point of view and scientific comprehension of the sight of the Qur'anic miracle by anthologies (Syarifuddin & Azizy, 2018).

In general, discussing water and corruption in one analysis is significant. Corruption in Islam does not limit human actions that violate each other, discriminate, or manipulate others. Nevertheless, it includes the activities that may negatively affect other organisms, including animals and plants, which refers to deforestation, toxic waste, and synthetic chemicals (Ashtankar, 2016).

Environmental microplastics are caused by industrial activities in producing paint and personal care and cosmetic products (PCCPs), which use microplastics as the raw materials. Due to the human wrongdoings, the negative consequences disturb marine and aquatic life, destroy the ecosystem, and affect human health too. As Allah had warned in the Qur'an in verse 30:41, the destruction that occurs on Earth and the seas is caused by humans' actions which do not control or limit themselves from threatening nature. Global climate changes, natural disasters, and shortage of clean water supply represent the impacts that face by the world if do not encounter the pollution problems earlier, including bringing diseases (Al-Zuhaili, 2013; Al-Sa'adi, 2000). It leads to maximum negative consequences with minimum benefits obtained from the Earth. Due to disobedience and injustice, lack of agricultural production, death, and decreased rain became a huge global threat. To solve, the Creator is ordering human beings to obey Allah's rules. Although Allah created the civilisation of other creatures far behind human society, it is not a green light for humans to act at their own will. In addition, it is significant to note that the consequences are not only a form of punishment to cause despondence but to resolve the issues and to put right what is wrong- giving nature rights as it deserved. It is a trigger warning for human beings to seek Allah's guidance and be obedient vicegerents on Earth (Qutb, 1994).

Based on the table, those verses reflect the relationship between Allah, humans, and the environment as His creations. It may be categorised into three main themes: the unity of God (*tawhīd*), trusteeship (*Khilafah*), and accountabilities. The analysed themes align with Islamic environmental ethics (Gada, 2014), a guideline to discuss the relationship between humans and the environment to control ecological pollution.

Unity of God (*tawhīd*)

To build the inner strength, uphold the principle of *tawhīd* brings the real meanings and understanding of any truth and reality of all sources of knowledge. The interconnection between physical and spiritual ideas enhances the rational limitations via spirituality possessed by a Muslim. As a continuation of the paradigm of *tawhīd*, Islamic spirituality propagates the concept of unity and interrelatedness in the world of nature. It draws strong relationships with Allah, The Creator (Al-Aidrus, 2008). Humans should acknowledge the ultimate power of Allah in creating all creatures on Earth, including humans and the whole universe. Others own no such power. It develops as a significant view to purify the heart to stay in the guided path by urging humans to observe the sign of God in every angle, uniqueness of the creations, documented history, and in oneself. Plus, it brings the condition of closeness and emphasises the feeling of the presence of God through scientific activities.

The focal lens of Islamic environmental ethics differs from the dominant epistemology of Western ecological ethics. Islamic guidelines and modern understandings are not mutually contradictory but complement each other to achieve the main goal, "the unity of nature," based on two sources, religious revelation, and intellectual intuition. The scholars suggest four methodologies to extract knowledge based on the philosophy of Islamic science (Nasution, 2020). It involves two stages of experiments, theoretical and practical, to prove the theories.

Both steps must be completed using one of the four specified techniques. First, *tajribi* (experiment technique) encourages scientists to use all their senses to conduct experiments as

close to the truth as feasible. To limit the risk of harm to individuals and the environment, scientists should prioritise ethical standards throughout their investigations. Following that, the burhani approach stresses that the object of science includes both physical and spiritual aspects. Imam Ghazali acknowledges that examining non-physical components needs greater insight than the senses. The inner meaning is derived from the causes of any source of information capable of describing things that the five senses are incapable of understanding. Aside from that, the *'irfani* technique advocates recognising the heart's (*qalb*) participation, also known as intuition, in establishing a more excellent grasp of the received information. Lastly, the *Bayani* technique, which encourages Al-Quran as a significant source of knowledge and frames any contradictory ideas on a single problem, is the last way. Scholars' viewpoints might differ if they are based on the book's revelation in Islam and religious ideals. At the end of every conversation, it finishes the concept of *tawhīd*, which emphasises Allah's ownership of all knowledge.

Trusteeship (*Khilafah*)

Islamic views of knowledge define a gift from God to humanity, allowing us to govern the world as His vicegerents (*Khalifah*). Islam has shown tremendous concern for the environment and has set up guidelines for development to promote the domain's best use, protection, and upkeep. The current plight of dwindling resources and a deteriorating environment is unavoidable in adhering to Islamic environmental principles. In Islam, the environment regards as a betrayal of humanity. The lack of true confidence in God Almighty, who created both man and the environment, has resulted in imbalance and a lack of harmony between man and the environment (Ali Gobaili Saged, Thabet Ahmad Abu Alhaj, Mohd Yakub Zulkifli Bi, 2017).

The closest approach to defining *Maqasid al-Shariah* is the goals and purposes that humanity looks for. It is conducted by (Ibrahim, Rahman, Saifuddeen & Baharuddin, 2019):

- I. Individual education (*tahdhub al-fard*)
 - It underlined the training of noble values to everyone, aiming to create good people for society and prevent harming others.
- II. Realization of justice
 - Justice in Islam defines putting things in the right place and creating life balance without bias or creating sentiments, creatures, race, and religion.
- III. The accomplishment of human *maslahah*
 - Emphasize the importance of protecting basic human needs and serving a better nation.

Three important classifications of this ruled Islamic law are preserving human interests, inclusive coverage, and intention status. These categories function as the primary guide to protect five purposes which are religion (*din*), life (*nafs*), progeny (*nasab*), intellect (*aql*), and wealth (*mal*) (Ibrahim, Rahman, Saifuddeen & Baharuddin, 2019).

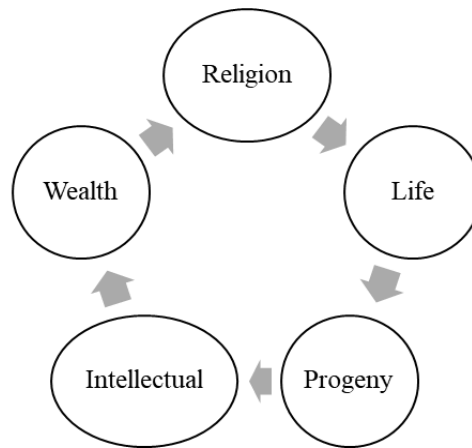


Figure 1: Five Necessities of *Maqasid al-shariah*

In current technology, preservation of religion means the guideline only to accept knowledge and technologies consistent with Islamic teachings and the responsibility to reject that contradicted knowledge. If a technology violates and goes against the inherent nature of human beings as created by Allah, it is no longer suitable or encouraged. The technology developed must also be helpful to humans, allowing them to better serve Allah by ensuring their safety and honour.

Religious protection concerning rivers and water is related to the necessity to perform ablution for daily prayers and other acts of worship. Water is essential for hygiene and cleansing in times of crisis. Riverbanks may use as fantastic backdrops and sceneries for mosques, improving their surroundings and relaxing effects for people who pray there.

Any technology designed to preserve life must increase the quality of life rather than degrade it. If technology is harmful to human life or other living, it is forbidden in Islam. Without water, it is not easy to protect life. The significant sources of food and drinking water are rivers and oceans. Protection of several species of animals and plants at the exigency level benefits people in food sustainability and balanced nutrition. Even preserving insects and algae is critical in keeping a population's rich biodiversity and life cycle.

In addition, the inventions must not have negative consequences on intellectual and wealth to preserve them. Islam recognises intellectual property as a form of necessarily protected wealth. Rivers and oceans supply landscapes and ambiances that promote mental serenity in the human brain. Like one published last year by Natural England, many scientific studies show that contact with nature decreases anxiety, stress, and depression and increases happiness. The water system also offers food and shelter for birds and other animals. They give leisure opportunities for people to relax their minds and bodies and improve their overall well-being. Islam does not allow any actions that may harm other creatures for economic purposes or any reason.

River and seawater conservation is essential to ensuring intergenerational justice, so that future generations can enjoy natural resources of the same or higher quality as we do. However, when overcrowding is the primary cause of river pollution and degradation, family planning might be regarded as one of the answers at the urgency level of Islamic goals.

The holistic view of Islam in encountering problems in science and technology allows technology development within human limitations. Humanity involves human-human relationships and is related to the relationship of slave-God, human-other creatures, and human nature. As scientists, we are responsible for ensuring our knowledge or research development will not bring any harmful risks to others for every intolerable reason. *Maqasid al-shariah* helps set guidelines to emphasise the essential element that needs further attention before performing any action. The ends do not justify the means.

Accountabilities

Accountability is defined as “the quality or state of being accountable; especially an obligation or willingness to accept responsibility or accountability for one’s action.” (Merriam-Webster, n.d.). Qur’an clearly says that human beings (believers) should realise that they are accountable for all deeds, good or bad. The beliefs on Judgement Day should remind humans that the consequences of all actions are real. As God’s vicegerents, humans will be asked for even the most minor actions (Ahmadon et al., 2014) as revealed in this verse:

فَمَنْ يَعْمَلْ مِثْقَالَ ذَرَّةٍ خَيْرًا يَرَهُ. وَمَنْ يَعْمَلْ مِثْقَالَ ذَرَّةٍ شَرًّا يَرَهُ (الزلزلة: 7-8)

Means: So, whoever does an atom’s weight of good will see it, and whoever does an atom’s weight of evil will see it (Surah Al-Zalzalah: 7-8)

Even though man has a unique hierarchy among Allah’s creations on Earth, but also forbidden to do any corruption towards others (including animals and nature), it is also a huge responsibility to ensure humans benefit the environment well and do not violate it for any purposes, as the environment has significant rights in demanding sustainable usage (Al-Damkhi, 2008).

Being a leader on Earth, humans should realise the responsibility of preserving the environment to avoid harm. The fact is that the living is affected by the natural changes that currently occur and may function as a continuous threat if no further actions are taken. The negative impacts of environmental destruction should be one of the humans’ concerns nowadays. Preserving nature is essential to ensure the future generation appreciates the beauty of nature and living in sustainable surroundings. Lack of accountability considerations in developing science and technology may increase the probability of wrongdoings and the violation of the environment—the spirit of responsibility control human actions from taking the beauty of nature for granted.

In short, realising the vast responsibility carried by human beings in protecting the environment may avoid environmental pollution caused by science and technology activities. The faith may help the believers control their actions and keep the relationship between the human-God closer.

CONCLUSION

Environmental pollution such as microplastic pollution should be a concerning issue in science and technology. The negative impacts of the pollution may affect the living habitat and destroy the ecosystem. Even though there is no clear proof that pollution may critically harm humans, it is likely to affect humans as the end consumer of the food chain. Qur'an is known as the main reference in Islamic knowledge and a primary referral to seek guidelines in living. Six verses are environmental-related and explain the physical and spiritual elements of discussions on nature, the corruption that may occur, and the human's role as the "leader" on Earth. They also underline the superior power of God and beliefs on Judgement Day that humans should not deny and hold as a concrete faith to consider honourable deeds and leave evil deeds behind. In applying the Quranic thematic exegesis method, three significant elements that may avoid pollution: the unity of God, trusteeship, and accountabilities, are all explained well through the dimension of Islamic environmental ethics. Unity of God shows the importance of humans to acknowledge God's ultimate power and build a strong faith on no dichotomy between religious perspectives and science but to complement each other. Next, trusteeship explains how humans should consider the *maqasid al-shariah* as the pillars of Islamic law to bring the role as God's vicegerents on Earth. Lastly, humans are accountable for all good and wrongdoings, even on the smallest deed and asked during Judgement Day. Those concepts develop an Islamic framework to comprehensively discuss environmental pollution without separating religious views in the whole discussion.

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