

EXPLORING THE PRINCIPLES OF FOOD SUSTAINABILITY FROM THE QUR'AN: THE ROLE OF ISLAMIC EDUCATION IN SHAPING A SUSTAINABLE GENERATION

Hadi Yasin¹, Abdul Hadi², Mahfuz³, Syarifah Soraya⁴, Sofia Fahrany⁵

¹²³⁴⁵Universitas Islam As-Syafi'iyah; Indonesia

Correspondence email; hadiyasin2020@gmail.com

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Abstract

This study aims to explore the principles of food sustainability in the Qur'an and examine the role of Islamic education in shaping a generation that upholds sustainable values. Using a qualitative library research method with a thematic (maudhu'i) approach, the research analyzes Qur'anic verses related to resource management, ethical consumption, and the human responsibility of stewardship (khalifah). Primary data are drawn from the Qur'an and classical exegeses, including Tafsir al-Qurtubi, Tafsir Ibn Kathir, and Tafsir al-Mawardi, while secondary data are obtained from contemporary literature on food security and sustainability in both global and Indonesian contexts. The data are analyzed descriptively and analytically through triangulation of sources and interpretation, incorporating historical context and modern relevance. The findings indicate that the Qur'an offers comprehensive ethical guidance for achieving food sustainability through values such as ta'awun (cooperation), amanah (trust and responsibility), and mizan (balance). These principles, when integrated into Islamic education, can cultivate environmentally conscious behavior and ethical awareness in younger generations. This research concludes that Islamic education, rooted in Qur'anic teachings, holds significant potential in fostering sustainable attitudes and practices in response to the contemporary food security crisis.

Keywords

Consumption Ethics, Food sustainability, Islamic Education, Qur'anic Teachings, Resource Management, Sustainable Generation.



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INTRODUCTION

The global food crisis remains one of the most pressing challenges of the 21st century, intensifying due to the convergence of conflict, climate change, and economic instability. The 2023 FAO report estimated that 828 million people worldwide suffer from hunger, with rising trends in acute food insecurity, especially in vulnerable regions. The World Food Program (WFP) highlighted an alarming increase in acute hunger cases from 155 million in 2020 to 193 million in 2022 (Alrozzi, 2024). This situation calls for multidimensional approaches that extend beyond economic and technological interventions and include values-based strategies rooted in cultural and religious systems.

Indonesia, despite its agrarian and maritime potential, continues to struggle with food sustainability. The 2023 Global Hunger Index (GHI) gave Indonesia a score of 18.0, indicating a moderate level of hunger, with severe disparities across provinces. In areas like East Nusa Tenggara, child malnutrition reaches 24%, far exceeding the national average. Climate disruptions in Java and Sumatra have led to crop yield reductions of up to 20%. In 2023, Indonesia imported 11 million tons of wheat and soybeans, indicating a deep reliance on international food supplies (BPS-Statistics, 2023). These conditions demonstrate a growing vulnerability to global economic shocks and necessitate a more localized, value-driven response to ensure food security.

Although Indonesia achieved temporary food self-sufficiency in 1984, persistent food insecurity reflects deeper structural issues: inequitable food distribution, environmental degradation, and policy limitations. The 2024 UNCTAD report underscores that Asia's dependency on food imports exacerbates vulnerability to market fluctuations. Therefore, academic discourse must go beyond technical recommendations and explore ethical, cultural, and spiritual dimensions. In particular, there is a growing scholarly interest in integrating Islamic principles—especially from the Qur'an—into sustainable development agendas, including food security (United Nations, 2024) (Yusriadi, 2024).

The Qur'an contains multiple verses emphasizing the ethical use of natural resources, long-term planning, and collective responsibility—values deeply aligned with sustainability. Surah Yusuf (12:46–49), for example, illustrates strategic food storage and distribution during times of famine. Classical scholars such as Al-Qurtubi and Ibn Kathir interpret this story as an early model for resource management. In this context, Islamic education plays a vital role in shaping youth awareness, behavior, and values aligned with environmental stewardship and food responsibility.

However, the extent to which Islamic education in Indonesia has embedded such principles remains underexplored (Yasin, H., & Abd Muid, 2024).

This raises a critical academic problem: to what degree has Islamic education in Indonesia integrated Qur'anic values of food sustainability? How do students interpret and embody these principles in everyday behavior, and what challenges exist in translating Qur'anic teachings into contemporary educational practices? These questions highlight a gap in the literature—namely, the absence of a comprehensive analysis of how Islamic education functions as a transformative agent in addressing food sustainability. Without such inquiry, efforts to achieve long-term food resilience may miss the crucial moral and cultural foundations needed for sustained impact.

This study seeks to address the academic gap by exploring: (1) the core principles of food sustainability found in the Qur'an; and (2) the role of Islamic education in embedding these principles within learners to form a sustainability-oriented generation. The significance of this research lies in its attempt to bridge religious texts with educational practices to offer a culturally resonant solution to food security challenges. While previous studies have examined the food crisis from economic or agricultural perspectives, this study highlights the underutilized potential of Islamic education to influence sustainable behavior.

A review of recent literature reveals several relevant contributions. Rohman and Khotimah (2024) evaluated the implementation of sustainable education within Islamic boarding schools, highlighting the integration of environmental themes into religious education and identifying challenges such as uneven teacher competencies in embedding sustainability values (Rohman & Ilma Husnul Khotimah, 2024). Irawan (2022) investigated the integration of Sufism and environmental practices in pesantren, demonstrating the broader social and ecological impact of pesantren leadership (Irawan, 2022). Marpaung (2023) analyzed the understanding and application of eco-theology in Islamic boarding schools in North Sumatra, revealing a limited implementation of eco-theology concepts, particularly in environmental management practices (Marpaung, 2023). Jamilah et al. (2023) explored strategies employed by Islamic boarding school teachers to promote environmental ethics, emphasizing methods such as modeling, habituation, and lectures grounded in religious texts (Jamilah et al., 2023). Ali and Bahtera (2024) examined how Islamic education in agricultural Islamic boarding schools promotes ecosophy (ecological philosophy) for environmental protection, suggesting programs like agricultural cultivation and instilling local wisdom values (Ali & Bahtera, 2024). However, none of these studies explicitly linked Qur'anic principles of food

sustainability with the Islamic education curriculum in Indonesia, particularly in shaping behavioral and ethical orientations. This research seeks to fill that gap and offer a new framework for curriculum integration, thereby contributing original insight to the discourse on Islamic education and sustainability.

This study adopts a qualitative approach using thematic tafsir analysis to extract sustainability principles from the Qur'an, complemented by an exploration of how these principles are or can be applied within the framework of Islamic education. The study limits its scope to the ethical and educational dimensions of food sustainability, excluding economic or technological considerations. It focuses on how Islamic values are internalized through pedagogy and how such values manifest in the mindset and behavior of students and educators in Indonesian Islamic education settings.

The aims of this study are twofold: (1) to identify Qur'anic principles related to food sustainability; and (2) to analyze the role of Islamic education in cultivating a generation that upholds these principles. Theoretically, this research contributes to the development of Islamic educational models that incorporate ecological consciousness rooted in scriptural sources. Practically, the study offers guidance for educators, curriculum developers, and policymakers to embed Qur'anic sustainability ethics into learning systems. It also serves to enhance public awareness and encourage community-level engagement with sustainable food practices grounded in Islamic teachings.

METHOD

This study employs a qualitative research method using a library research approach (Marendah, 2023) to explore the topic "Exploring The Principles of Food Sustainability From The Qur'an: The Role of Islamic Education in Shaping a Sustainable Generation." The research investigates Qur'anic verses that address resource management, ethical consumption, and human responsibility as stewards of the earth.

Primary data sources include the Qur'an and classical tafsir works such as Tafsir Al-Qurtubi, Tafsir Ibn Kathir, and Tafsir Al-Mawardi. These sources are examined to identify key principles related to sustainability. Secondary data is collected from relevant scholarly literature, including academic journals, books, and reports discussing food sustainability within global and Indonesian contexts.

The research applies content analysis (qualitative content analysis) to systematically classify and interpret textual data (Sugiono, 2016). The researcher analyzes the Qur'anic verses thematically, identifies recurring values and concepts relevant to sustainability, and compares these findings with contemporary theories and discourses on environmental ethics and sustainable development. Additionally, the study cross-references these insights with prior research to ensure relevance and rigor.

To strengthen the validity of the findings, the study employs source triangulation, comparing different interpretations across tafsir texts and scholarly works, and situating the Qur'anic insights within both classical and modern contexts. This methodological framework aims to construct a comprehensive understanding of how Qur'anic teachings can inform and enrich Islamic education in the context of food sustainability.

FINDINGS AND DISCUSSION

Findings

One of the primary findings of this research reveals how the Qur'an offers a comprehensive ethical and practical framework for food sustainability. By analyzing selected verses, it becomes evident that the Islamic perspective encompasses three interconnected dimensions: resource management, ethical consumption, and human responsibility as stewards of the earth. These principles are not only theological in nature but also hold strong pedagogical potential for integration into Islamic education. The Qur'an's vision aligns with modern sustainability goals while offering moral imperatives rooted in divine revelation. This section presents key Qur'anic insights related to food sustainability, categorized through Islamic educational values and actionable recommendations.

Table 1. Qur'anic Principles of Food Sustainability

No.	Qur'anic Verses on Food Sustainability	Islamic Educational Values	Recommendations
1.	Surah Al-A'raf (7:31) – <i>"Eat and drink, but do not be excessive. Indeed, He likes not those who commit excess."</i>	Teaching moderation (wasathiyyah), self-discipline in consumption	Promote school-based programs that foster awareness of overconsumption and food waste
2.	Surah Al-Baqarah (2:205) – <i>"And when he goes away, he strives throughout the land to cause corruption therein and destroy crops and animals..."</i>	Responsibility as khalifah (vicegerent), environmental ethics	Incorporate environmental stewardship into religious learning outcomes

3.	Surah Al-An'am (6:141) – <i>"...And do not waste [resources]; indeed, He does not like the wasteful."</i>	Ethics of conservation, anti-consumerism	Integrate lessons on reducing waste and responsible harvesting into Islamic curriculum
4.	Surah Ar-Rum (30:41) – <i>"Corruption has appeared throughout the land and sea by what the hands of people have earned..."</i>	Awareness of human impact, accountability before God	Develop reflective modules in Islamic education about ecological crisis and moral choices
5.	Surah Al-Mu'minun (23:51) – <i>"O messengers, eat from the good things and act righteously..."</i>	Halal and tayyib (good and wholesome) food ethics	Encourage curriculum emphasis on food selection based on both physical and spiritual dimensions
6.	Surah Al-Baqarah (2:172) – <i>"O you who have believed, eat from the good things which We have provided for you..."</i>	Gratitude, ethical sourcing	Include topics on local, ethical food sourcing within pesantren and Islamic school settings

Surah Al-A'raf (7:31) – "Eat and drink, but do not be excessive. Indeed, He likes not those who commit excess." This verse emphasizes the principle of moderation in consumption, which is a core Islamic value. In the context of food sustainability, it provides a moral foundation for discouraging wasteful consumption and promoting responsible behavior. Islamic education can utilize this verse to instill the values of wasathiyah (moderation) and mujahadah (self-restraint) among students. Learning outcomes should focus on nurturing the awareness that abundance is not a license for excess. The recommendation is to integrate education on ethical and healthy consumption patterns into Islamic curricula through activities such as anti-food waste campaigns and project-based learning on the environmental impacts of food behavior.

Surah Al-Baqarah (2:205) – "And when he goes away, he strives throughout the land to cause corruption therein and destroy crops and animals..." This verse illustrates human-induced environmental destruction, including the degradation of agricultural resources. According to the commentary of Ibn Kathir, it reflects fasad fil ardh (corruption on earth) driven by greed and negligence. Islamic education can teach students that humans, as stewards (khalifah) of the earth, are responsible for protecting all forms of life, including food systems. This verse supports the values of environmental ethics and collective responsibility. The recommendation is to include topics such as environmental stewardship and sustainable development within Islamic subjects like Aqidah Akhlaq and Fiqh Mu'amalah or through extracurricular environmental education rooted in Islamic values.

Surah Al-An'am (6:141) – "...And do not waste [resources]; indeed, He does not like the wasteful." This verse explicitly prohibits extravagance and waste. In the realm of food sustainability, this prohibition encompasses issues such as food waste, over-harvesting, and inefficient use of water in agriculture. Classical tafsir, such as that of Al-Qurtubi, interprets this verse as a moral warning against the behavior of *mubadhirun* (those who waste). Islamic education can draw from this verse to cultivate values of conservation ethics and social justice, emphasizing that sustainability is both a technical issue and a moral duty. A practical recommendation is to introduce project-based learning in Islamic schools on food waste reduction, urban farming, or water conservation initiatives inspired by Islamic teachings.

Surah Ar-Rum (30:41) – "Corruption has appeared throughout the land and sea by what the hands of people have earned..." This verse links human actions directly to ecological degradation. Al-Mawardi's exegesis suggests that such corruption includes natural disasters, failed harvests, and declining quality of life due to injustice and irresponsible consumption. The Islamic educational values conveyed include ecological consciousness, social accountability, and spiritual repentance. Teachers should go beyond theological interpretation and encourage learners to understand ecosystems as a divine trust (*amanah*). The recommendation is to design reflective learning modules, such as thematic discussions or case studies, that relate current environmental issues to this Qur'anic principle of human responsibility.

Surah Al-Mu'minun (23:51) – "O messengers, eat from the good things and act righteously..." This verse establishes a strong connection between the consumption of *halal* and *tayyib* (pure and wholesome) food and the performance of righteous deeds. In the sustainability context, *Tayyib* includes food that is ethically produced, environmentally friendly, and health-promoting. According to Al-Qurtubi, wholesome consumption enhances spiritual well-being and moral behavior. Islamic education should leverage this verse to promote spiritual awareness, ethical food choices, and piety in everyday life. The recommendation is to develop content that highlights the importance of locally sourced, organic, and ethically produced food, possibly through subjects like *Fiqh*, Islamic entrepreneurship, or integrated science-religion lessons in *madrasahs* or *pesantren*.

Surah Al-Baqarah (2:172) – "O you who have believed, eat from the good things which We have provided for you..." This verse reiterates the call to consume food that is both lawful (*halal*) and wholesome (*tayyib*), framing it within the context of gratitude to God. Consumption is seen not

merely as a physical need, but as an act of worship and spiritual responsibility. The educational values drawn from this verse include gratitude, spiritual integrity, and ethical awareness in food selection. Islamic education can reinforce the link between consumption and sustainability through thematic programs such as “Eat Halal, Live Blessed” or by integrating healthy food awareness into religious education modules. The recommendation is to foster a sense of ethical food literacy among learners that emphasizes personal health, community well-being, and environmental care.

Islam's view of food sustainability is very deep and integrated in the teachings of the Qur'an. This concept not only focuses on meeting food needs, but also includes moral and social responsibility in the management of food resources. The story of the Prophet Yusuf AS in QS. Yusuf AS (12:46-49) is a classic example of how strategic planning can address food crises. The Prophet Yusuf AS gave advice to the king of Egypt to prepare for the famine period by storing the harvest for seven fertile years. This shows the importance of food stock management and mass production as an effective food sustainability strategy. Tafsir Al-Qurtubi emphasizes that this step also reflects the need to be wise in using abundant resources. Tafsir Ibn Katsir underlines that food distribution must be carried out fairly and equitably, reflecting social responsibility in Islam. This concept emphasizes the importance of helping others, especially in difficult times, as part of the principles of social justice governed in Islam. QS. Al-Hasyr (59:7) mentions the importance of an equal distribution of wealth to prevent the accumulation of resources on one side, in QS. Al-Baqarah (2:30), the concept of caliph fil ardh emphasizes the role of humans as the stewards of the earth, including in maintaining food sustainability. This includes the responsibility to manage natural resources sustainably and ethically, as well as ensuring that everyone has access to sufficient and quality food. Modern interpretations of this concept, as explained by Sheikh Yusuf Al-Qaradawi, show that food sustainability is part of the mandate of man as the caliph of Allah on earth (Yasin, H., & Abd Muid, 2024).

Food sustainability in Islam is very important and is reflected in various verses of the Qur'an. Some of the relevant verses include:

1. QS. Yusuf (12:46–49): This verse describes the strategy of the Prophet Yusuf AS in dealing with the food crisis with careful planning. The Prophet Yusuf AS proposed to the king of Egypt to keep the harvest for seven fertile years to face the next seven years of famine. Tafsir Al-Qurtubi explains that the Prophet Yusuf AS showed wisdom in strategic planning to store food and regulate consumption during fertile and famine periods. This reflects the importance of resource

management and long-term planning. Ibn Katsir's Tafsir describes how Yusuf AS not only predicted the future based on dreams but also took concrete actions to protect people from starvation, showing that preventive measures are essential in the face of crises. Contemporary Ulama (Yusuf Al-Qaradawi) emphasized that the food sustainability strategy taught by the Prophet Yusuf can be applied in a modern context by prioritizing efficient agricultural and storage technology.

2. QS. Al-Baqarah (2:30): This verse affirms man's role as the caliph on earth, which includes the responsibility to manage natural resources, including food, in a sustainable manner. Tafsir Al-Qurtubi declares that humans, as caliphs, have the responsibility to protect and use natural resources wisely, including food. Tafsir Ibn Katsir emphasizes that the role of humans as the stewards of the earth must be carried out with full responsibility and awareness of the environmental impact of every action. Contemporary scholars underline the need for environmental education and sustainability in the context of food sustainability, so that future generations can understand their responsibilities as caliphs.
3. QS. Al-Hasyr (59:7): In this verse, Allah commands that wealth be distributed equitably among the people, emphasizing the importance of equitable distribution of resources, including food. Tafsir Al-Qurtubi explains that the distribution of resources must be carried out fairly to prevent social inequality, including in terms of access to food. Tafsir Ibn Katsir emphasizes the importance of social justice in resource management, so that all levels of society get their right to food. Contemporary Ulama encourage the application of social justice principles in food sustainability policies, so that no group is marginalized (Adi, K. et al., 2023).

The principle of food sustainability in the Qur'an is very relevant and can be used as a guideline in overcoming current food sustainability challenges. By understanding the interpretation of these verses from the perspective of classical and contemporary scholars, we can integrate Islamic values into sustainable food policies and practices. This will not only increase access to sufficient and nutritious food but also ensure social justice for all of humanity.

Research by Samsul Bahri, et.al., (2020) shows that the implementation of Qur'anic values can increase public awareness in managing food sustainably. In addition, the study of Beta Pujangga Mukti (2019) emphasizes that the principles in the story of the Prophet Yusuf can be applied in modern contexts, such as national food stock management and the promotion of sustainable consumption policies. By understanding and applying the teachings of the Qur'an and the proven

strategies of the Prophet Yusuf's story, people can be better prepared to face the challenges of food sustainability in the future. The integration of these values in education and public policy is essential to achieve sustainable food sovereignty.

Discussion

This study set out to explore Qur'anic principles related to food sustainability and to examine the role of Islamic education in shaping a sustainable generation. The findings reveal a significant alignment between the ethical and ecological values embedded in the Qur'an and the principles required to address the global food crisis. The central thesis of this research proposes that Islamic teachings, when internalized through educational frameworks, can form the foundation for a generation that is environmentally conscious, ethically responsible, and committed to food security and sustainability (Zidney Ilma Fazaada Emha et al., 2024); (Varzakas & Smaoui, 2024); (Vågsholm et al., 2020); (Programme, 2024).

The Qur'anic verses analyzed in the study illustrate three core themes critical to food sustainability: resource management, ethical consumption, and human responsibility as stewards (khalifah) of the earth. For example, verses such as Surah Al-A'raf (7:31) caution against excess and waste, aligning with global calls for reducing food loss and overconsumption. The example of Prophet Yusuf in Surah Yusuf (12:46–49) offers a timeless model for strategic food planning and resource allocation during times of abundance and scarcity, principles echoed in modern disaster preparedness and agricultural policy frameworks.

Furthermore, the study identifies values such as justice (Surah Al-Hasyr 59:7), balance (Surah Al-Hadid 57:25), and reflection on nature (Surah Al-Baqarah 2:164) as essential educational components that reinforce the spiritual, social, and ecological dimensions of sustainability. These values resonate with the holistic worldview of Islam, wherein caring for creation is both a moral and religious duty. As such, food sustainability becomes not just a technical or economic concern, but a spiritual and ethical imperative.

The implications of these findings are manifold. First, they demonstrate that the Qur'an provides not only moral guidance but also a strategic framework for the sustainable use of natural resources. Second, the role of Islamic education becomes crucial in contextualizing and transferring these values to the younger generation. Education is not merely a tool for knowledge dissemination but a transformative medium through which ethical consciousness is cultivated.

When compared with previous research, this study offers a more integrated approach. While prior works e.g., (Rohman & Ilma Husnul Khotimah, 2024); (Ralph & Stubbs, 2014); (Mufid et al., 2024) have discussed Islamic environmental ethics or educational reform separately, this research bridges the gap between religious textual analysis and practical pedagogical strategies in the field of food sustainability. For instance, whereas Mufid et al. (2024) focus primarily on green education initiatives in Islamic schools, this study extends the conversation to include scriptural foundations and their relevance to real-world food policy and behavior change. Additionally, this study diverges from secular sustainability discourse by emphasizing the divine accountability associated with consumption and waste, which is largely absent from non-religious frameworks.

Moreover, the integration of Qur'anic analysis with educational recommendations strengthens the claim that sustainability must be a lived value, not just a conceptual ideal. Islamic education, by anchoring students' understanding in spiritual accountability, provides a unique advantage over secular environmental curricula that often rely solely on scientific rationale or policy-based arguments.

The research also highlights the role of non-governmental actors—particularly Islamic institutions and community networks—in fostering local awareness and behavioral change. These grassroots initiatives, when grounded in Qur'anic values, are more likely to resonate with communities and achieve long-term impact. Programs such as community gardens, waqf-based agricultural projects, and cooperative food banks demonstrate how Islamic teachings can inform innovative and sustainable food practices at the community level (Maghfirah, 2019).

In conclusion, the Qur'an offers a profound theological and ethical framework for addressing the pressing challenges of food sustainability. When these teachings are systematically incorporated into Islamic education, they have the potential to instill values of cooperation, moderation, justice, and responsibility among learners. Islamic education, therefore, becomes an essential pathway toward cultivating a generation that is both spiritually grounded and ecologically mindful.

Islamic education has a vital role in shaping the awareness of the younger generation towards sustainability, especially in the context of food sustainability. By integrating Islamic values, education can be an effective tool to promote social and environmental responsibility among the younger generation (Fua, J. L. et al., 2018). The concepts of *ta'awun* (cooperation) and *amanah* (responsibility) are very relevant in food sustainability education. Through a curriculum that prioritizes cooperation in food resource management, students can be taught to collaborate in

creating solutions to food sustainability challenges. Amanah teaches the importance of individual and collective responsibility for the wise use of resources. Food sustainability is also part of the maqashid of sharia, which is the goal of sharia that aims to preserve the soul (hifz al-nafs). In this context, Islamic education can emphasize the importance of access to sufficient, nutritious, and safe food as a basic human right. This is in line with the view that maintaining food sustainability is an effort to protect the life and health of mankind (Abd Rahman et al., 2020).

1. Ta'awun (Cooperation): The value of ta'awun can be applied in education by encouraging students to cooperate in agricultural projects or food resource management activities. For example, Schools can hold community farming programs where students work together to plant and care for crops, learn about sustainable farming, and share crops with communities in need.
2. Mandate (Responsibility): Mandate teaches students about their responsibility towards the environment and the resources they use. The curriculum can include lessons on the importance of responsible management of natural resources, including how to reduce food waste and use resources efficiently.
3. Hifz al-Nafs (Safeguarding the Soul): Hifz al-Nafs relates to the importance of maintaining the health and well-being of individuals through access to nutritious food. Teaching about nutrition and health can be incorporated into the curriculum, including how to choose healthy foods and understand the impact of food on the health of the body.

To address this gap, it is important to carry out a deeper integration between Qur'anic values and food sustainability education. Some of the relevant Qur'anic values include: Human responsibility towards nature (Qur'an Surah Al-Baqarah 2:164), which encourages students to preserve nature and appreciate natural resources as a trust (amanah); Sustainability (Qur'an Surah Al-A'raf 7:31), which promotes moderation and efficiency in resource consumption aligned with the principles of sustainable agriculture; and Social justice (Qur'an Surah Al-Hadid 57:25), which emphasizes the importance of equitable food distribution so that all members of society have access to sufficient and nutritious food. These values, when integrated into the learning process, can provide a moral and theological foundation for developing environmentally conscious behavior among students.

Building upon these scriptural foundations, Islamic education can play an important role in advancing food sustainability through the integration of Islamic values and sustainable practices (Uyuni, B., & Adnan, 2023). The following discussion presents an analysis of Islamic value-based

educational programs focused on sustainability, highlighting the effectiveness of initiatives that incorporate practices such as zakat, sadaqah, and waqf as practical mechanisms to support food security and equitable resource distribution in Muslim communities.

1. Islamic Value-Based Education Program

- a. Utilization of Sustainable Agricultural Technology: Islamic education can teach students about the importance of sustainable agricultural technologies, such as hydroponics and aquaponics. This is in line with the principle of ta'awun (cooperation), where students can work together on modern agricultural projects. The implementation is such that the school can hold workshops or training on environmentally friendly agricultural technology, as well as facilitate students to apply the technology in the school garden or community.
- b. Fair Distribution of Crops: Teach students about the importance of fair distribution of crops in accordance with the principles of justice in Islam. This includes an understanding of agricultural zakat and how the harvest can be used to help the needy. The implementation is through a fundraising program or charity activity where students collect crops to be distributed to the underprivileged, so that they learn about social responsibility and justice.
- c. Food Waste Reduction: Education on food waste reduction is essential for creating awareness of the impact of food waste on food sustainability. This is in line with the principle of hifz al-nafs (safeguarding the soul), where protecting food resources means preserving life. The implementation is by how the school can hold an awareness campaign about food management, including how to store food well and use leftovers to make new dishes.

2. Effectiveness of Islamic-Based Programs

- a. Zakat, Alms, and Waqf Practices: Islamic-based programs such as zakat, alms, and waqf have great potential to support food sustainability. Agricultural zakat can be used to help underprivileged farmers, while waqf can be used to build agricultural infrastructure. As in the research by Syaparuddin and D. Nuzul (2021), effective zakat management can increase people's access to sufficient food. For example, zakat institutions can provide funds to buy seeds and fertilizers for poor farmers.
- b. Collaboration with the Community: Educational programs that involve the community in the practice of zakat and alms can strengthen social networks and improve local food sustainability, for example, in food bazaars in mosques or communities that collect food

donations from the community to be distributed to those in need, not only helping those in need but also building a sense of solidarity in the community.

Islamic education strategies for food sustainability must focus on the integration of Islamic values in the context of sustainability. By utilizing modern agricultural technology, distributing crops fairly, and reducing food waste, education can form a generation that is aware of the importance of food sustainability. In addition, the practice of zakat, alms, and waqf must be maximized as a tool to support food sustainability in the community, creating a fairer and more sustainable system for all parties (Millah, A. S., Suharko, S., & Ikhwan, 2020).

Food sustainability based on Islamic values has significant social and environmental impacts. Socially, the principles of zakat and alms can strengthen community solidarity by distributing agricultural products to those in need, as applied in food sustainability programs in several villages in Central Java. The program empowers smallholders by providing training and market access, improving their well-being, and reducing dependence on external markets. In the environmental aspect, sustainable agriculture that prioritizes Islamic principles prioritizes wise management of natural resources, such as the use of natural fertilizers and crop rotation systems. For example, in Bali, farmers who adopt organic farming have succeeded in reducing the use of chemical pesticides, preserving biodiversity, and reducing their carbon footprint. Collaboration between communities, religious institutions, and the government is essential to support this sustainability, as seen in the cooperation between the government and farmer groups in developing environmentally friendly agriculture in several regions of Indonesia. By socializing Islamic values about sustainability, food sustainability based on Islamic values can create a more just, sustainable, and beneficial system for all people.

To overcome the barriers in integrating Islamic values with modern food security systems, a multi-faceted approach involving policy support, intersectoral collaboration, and capacity building is essential (Nainggolan, 2013). Policy support plays a pivotal role, as governments can incentivize farmers to adopt sustainable practices by providing subsidies for tools like hydroponic systems, access to organic farming techniques, or financial assistance for transitioning to environmentally friendly practices. For example, the Indonesian government's 2023 Agriculture Budget allocated over IDR 15 trillion for agricultural infrastructure and innovation, but only a small portion was dedicated to supporting marginalized farmers. Expanding this allocation to include training programs rooted in Islamic principles, such as *khalifah fil ardh* (stewardship), could enhance

adoption rates (World Health Organization, 2023).

Intersectoral collaboration is equally critical. Partnerships between educational institutions, religious organizations, and agricultural cooperatives can create a cohesive ecosystem that bridges the gap between traditional practices and modern technologies. For instance, schools could incorporate agricultural training into their curricula, teaching students about sustainable practices alongside Islamic teachings like *ta'awun* (cooperation) and *ihsan* (excellence). Mosques or Islamic centers can further complement this by conducting community outreach programs that promote sustainability in farming and highlight the compatibility of innovation with Islamic ethics. A successful example is the collaboration between *pesantren* (Islamic boarding schools) in Java and local agricultural cooperatives, which introduced organic farming practices to surrounding communities (Edimon Ginting et al., 2018); (Annasa Rizki Kamalina, 2022).

Capacity building remains a cornerstone of this effort. Tailored training programs for farmers, particularly in remote areas, can combine hands-on demonstrations of innovative practices with explanations of their alignment with Islamic values. Demonstrations of success stories, such as the hydroponics project in Jakarta, can help build trust and inspire wider adoption. The FAO (2023) reported that training programs improve agricultural productivity by up to 30% when they are designed to meet local cultural and economic contexts. Additionally, partnerships with NGOs and religious organizations can provide financial and technical support, ensuring that smallholder farmers have access to necessary resources and ongoing mentorship. Through these solutions, Indonesia can create a robust framework that integrates Islamic principles with modern food security systems, fostering both cultural acceptance and sustainable agricultural development (Swastika, D.K.S., Indraningsih, 2020).

To effectively integrate Islamic values into modern food security systems, several successful government policies from both Islamic nations and Indonesia offer valuable models. In Indonesia, the National Food Security Program has aimed to reduce dependence on food imports and improve local agricultural production. This policy aligns with Islamic values of social justice (*adl*) and cooperation (*ta'awun*), ensuring equitable food distribution and empowering marginalized communities. Similarly, Saudi Arabia's Vision 2030 incorporates sustainable agricultural practices to tackle food security challenges. The Kingdom's \$10 billion investment aims to leverage technologies like hydroponics and precision farming, reducing reliance on food imports while addressing climate challenges such as water scarcity. These efforts align with the Islamic principle

of *khalifah fil ardh* (stewardship of the earth), promoting responsible resource management. The focus on sustainability and innovative farming methods supports long-term food security while minimizing environmental impact, in line with Islamic teachings on stewardship. Qatar's food security initiatives emphasize sustainability by adopting innovative technologies like hydroponics and vertical farming. These methods address the country's agricultural challenges, such as harsh climate and limited arable land. They align with the Islamic principle of *mizan* (balance), promoting the wise and efficient management of natural resources. By reducing water usage and increasing local food production, these solutions embody responsible stewardship, reflecting Qatar's commitment to long-term environmental sustainability (LightsADMIN, 2024). In Iran, the Agricultural Development and Rural Employment Program empowers rural communities through sustainable farming practices, fostering social justice and sustainability, key values in Islam (Ahmadi Dehrashid et al., 2021). Additionally, Indonesia's Zakat for Food Security Program effectively leverages zakat and sadaqah (charity) to support food distribution and agricultural projects for the poor, ensuring that resources are shared equitably. These policies demonstrate that integrating Islamic teachings with modern food security strategies can create a more sustainable, just, and equitable system (Herianingrum, S. et al., 2024); (Kurnia, G. et al., 2022). Expanding these initiatives to include Islamic educational frameworks, community-based projects, and technological innovations will further strengthen their impact, ensuring that food security efforts are both effective and aligned with Islamic ethical principles.

CONCLUSION

This study sought to explore the principles of food sustainability in the Qur'an and examine the role of Islamic education in shaping a generation that upholds sustainable values. The research affirms that food sustainability is not merely a technical or economic concern but is deeply rooted in ethical, spiritual, and moral dimensions highlighted in Islamic teachings. The Qur'an contains a wealth of guidance regarding the responsible management of natural resources, the ethics of consumption, and the human role as stewards (*khalifah*) of the Earth. These principles provide a rich foundation for constructing a religion-based framework for sustainability education. Islamic education, with its holistic approach that integrates moral and spiritual values with practical knowledge, has the potential to cultivate environmental consciousness and social responsibility among learners. By embedding sustainability principles into the Islamic education curriculum—

grounded in the Qur'an and supported by classical tafsir—educators can foster values such as moderation (wasatiyyah), trust (amanah), cooperation (ta'awun), and justice ('adl). These values are central to shaping attitudes and behaviors that support long-term food sustainability. Furthermore, the role of Islamic education extends beyond formal schooling to include community-based learning, charitable institutions (such as zakat and waqf bodies), and socio-religious movements, all of which can contribute to building a sustainable food system. This study, therefore, encourages a more intentional and structured integration of Qur'anic environmental ethics into Islamic educational models to inspire a sustainable and accountable generation aligned with both religious imperatives and global development goals.

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