

SUSTAINABLE ISLAMIC EDUCATION: INTEGRATING GREEN CAMPUS CONCEPTS IN ISLAMIC UNIVERSITIES**PENDIDIKAN ISLAM BERKELANJUTAN: MENGINTEGRASIKAN KONSEP KAMPUS HIJAU DI PERGURUAN TINGGI ISLAM****Sugito**

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Sustainable Islamic education is important in facing global environmental challenges, such as climate change and pollution. Islamic universities have a strategic role in internalizing sustainability values into the curriculum and daily operations. This research aims to explore the application of the Green Campus concept in Islamic universities, with a focus on policies, practices and their impact on environmental awareness among students. The approach used is a systematic literature review by collecting data from journal articles, institutional policies, and interviews with stakeholders. Analysis was carried out through content analysis to identify the main themes related to the implementation of the Green Campus. Research findings show that the implementation of Green Campuses in Islamic universities varies, influenced by institutional policies, environmental awareness, and involvement of the academic community. Effective sustainability initiatives can increase ecological awareness and reduce a campus' carbon footprint. This research makes a significant contribution to the development of sustainable Islamic education by offering a Green Campus implementation model based on Islamic values. It is hoped that these findings can encourage more sustainable policies and practices in Islamic higher education.

Keywords: green campus, Islamic education, sustainability, systematic literature review, environmental awareness

ABSTRAK

Pendidikan Islam berkelanjutan menjadi penting dalam menghadapi tantangan lingkungan global, seperti perubahan iklim dan polusi. Perguruan tinggi Islam memiliki peran strategis dalam menginternalisasikan nilai-nilai keberlanjutan ke dalam kurikulum dan operasional sehari-hari. Penelitian ini bertujuan untuk mengeksplorasi penerapan konsep Kampus Hijau di perguruan tinggi Islam, dengan fokus pada kebijakan, praktik, dan dampaknya terhadap kesadaran lingkungan di kalangan mahasiswa. Pendekatan yang digunakan adalah systematic literature review dengan pengumpulan data dari artikel jurnal, kebijakan institusi, dan wawancara dengan pemangku kepentingan. Analisis dilakukan melalui content analysis untuk mengidentifikasi tema utama terkait implementasi Kampus Hijau. Temuan penelitian menunjukkan bahwa penerapan Kampus Hijau di perguruan tinggi Islam bervariasi, dipengaruhi oleh kebijakan institusi, kesadaran lingkungan, dan keterlibatan komunitas akademik. Inisiatif keberlanjutan yang efektif dapat meningkatkan kesadaran ekologis dan mengurangi jejak karbon kampus. Penelitian ini memberikan kontribusi signifikan terhadap pengembangan pendidikan Islam berkelanjutan dengan menawarkan model implementasi Kampus Hijau yang berbasis nilai-nilai Islam. Temuan ini diharapkan dapat mendorong kebijakan dan praktik yang lebih berkelanjutan di perguruan tinggi Islam.

Kata kunci: kampus hijau pendidikan Islam keberlanjutan systematic literature review kesadaran lingkungan

1. INTRODUCTION

Sustainable Islamic education is increasingly gaining attention in facing global environmental challenges, such as climate change and pollution. The integration of sustainable practices in the Islamic education system is a strategic step in forming environmental

awareness and responsibility for future generations. Islamic universities have a strategic position to carry out this responsibility by internalizing sustainability values into the curriculum, policies and daily operations (Zulkefli et al., 2024; Khoiriyah et al., 2023). This effort not only ensures that graduates have a deep understanding of their religious teachings, but also equips them with the knowledge necessary to face contemporary environmental problems (Mufid et al., 2024).

The Green Campus Initiative is a relevant strategy in encouraging sustainability in the Islamic higher education environment. This concept covers various aspects, such as energy efficiency, waste management and water conservation, which are contextually closely related to Islamic teachings regarding human responsibility as caliphs in protecting the environment (Setianingrum et al., 2024; Romlah et al., 2024). This holistic approach encourages the academic community to implement sustainable practices, thereby increasing ecological awareness among students and lecturers (Hadiati et al., 2024). However, although public universities in various parts of the world have paid great attention to sustainability, empirical studies that specifically discuss the Green Campus model in the context of Islamic universities are still very limited. This shows that this topic still requires further exploration in academic research (Khoiriyah et al., 2023; Anggraini et al., 2022).

Furthermore, the integration of environmental education with Islamic principles not only enriches academic discourse in Islamic educational institutions, but also bridges religious values with global sustainability goals, as outlined in the United Nations' Sustainable Development Goals (SDGs) (Bsoul et al., 2022). Islamic teachings emphasize the importance of protecting and preserving nature, which is in line with the goals of sustainable development. Therefore, Islamic educational institutions need to adopt environmental education as an integral part of their curriculum (Bsoul et al., 2022; Resufle & Rofiki, 2022). This initiative will be a key instrument in growing a generation that understands the intrinsic relationship between religious beliefs and their role in maintaining environmental sustainability (Anggraini et al., 2022).

Ultimately, implementing the Green Campus concept in Islamic universities presents an opportunity to provide a wider social impact, by building a culture of sustainability that is not only limited to the campus environment, but also extends to the surrounding community (Romlah et al., 2024; Yuda et al., 2023). By establishing a framework that encourages environmentally responsible behavior among students and educational staff, Islamic universities can play an important role in facing the increasing global environmental crisis.

Although there has been a lot of research discussing the concept of sustainability in higher education, studies that specifically link the Green Campus concept to Islamic education are still limited. Several gaps in the literature that can be identified include the lack of research that examines the integration of the Green Campus concept in Islamic higher education, both from the perspective of policy, implementation, and its impact on students and society. Apart from that, there is still minimal exploration of the challenges and obstacles in implementing the Green Campus strategy in the Islamic higher education environment, especially regarding cultural aspects, regulations, and limited resources which can affect the effectiveness of its implementation. Understanding the extent to which the implementation of Green Campuses in Islamic universities is effective compared to other higher education institutions has also not been widely researched, especially in relation to how Islamic principles can be the main basis for implementing sustainability. By addressing this gap, it is hoped that this research can make a significant contribution in enriching understanding of the relationship between Islamic education and environmental sustainability.

This research contributes academically and practically to the development of sustainable Islamic education by exploring the application of the Green Campus concept in Islamic universities. Academically, this research seeks to fill the gap in the literature with a data-based approach that provides a deeper understanding of how sustainability principles can

be integrated into the Islamic education environment. From a practical perspective, this research provides useful insights for various stakeholders, including policy makers, academics and educational practitioners, in designing sustainability policies and implementation strategies that are in line with Islamic values. In addition, this research develops evidence-based recommendations that can help Islamic educational institutions overcome sustainability challenges, optimize resources, and improve the quality of education that is more environmentally friendly. Thus, this research not only enriches academic discourse but also provides concrete guidance for Islamic universities in realizing a more sustainable campus.

The theoretical framework in this research focuses on how the Green Campus concept can be integrated in Islamic higher education through various relevant theoretical approaches. First, Sustainable Education Theory emphasizes that education has a crucial role in creating a more environmentally conscious and sustainable society. Education not only functions as a means of transferring knowledge, but also as a means of forming attitudes and skills that support environmentally friendly behavior. In the context of Islamic higher education, this theory can be applied through a curriculum that integrates environmental awareness with Islamic values as well as through experience-based learning that encourages students to engage in sustainability activities.

Furthermore, the Green Campus Concept in Higher Education provides a basis for implementing sustainability principles in the tertiary environment, including in the aspects of energy efficiency, waste management, water conservation, sustainable transportation, as well as campus governance that supports a sustainable academic culture. In Islamic higher education, implementing this concept requires adaptation to Islamic values as well as institutional policies that encourage systemic change towards more environmentally friendly practices.

In addition, Islamic values in sustainability are an important basis for this research, considering that Islamic teachings emphasize the principle of balance (*mīzān*), resource conservation (*hifz al-bi'ah*), as well as human responsibility as caliphs (stewardship) over the earth. These values can encourage ecological awareness and sustainable behavior among students, lecturers and the academic community. By adopting an Islamic perspective in implementing a Green Campus, Islamic universities can develop a sustainability approach that is more comprehensive and in line with cultural and religious values.

The aim of this research is in line with the problems previously described and focuses on exploration and in-depth analysis of the integration of the Green Campus concept in sustainable Islamic education. This research aims to examine how the Green Campus concept is implemented in Islamic universities, by examining policies, practices and their impact on students and society. Apart from that, this research also seeks to identify various challenges and opportunities in implementing the Green Campus concept in an Islamic higher education environment, including aspects of policy, culture, and availability of resources, as well as offering solutions that can be implemented to overcome the obstacles that arise.

Furthermore, this research explores the relationship between Islamic values and sustainability principles to understand how Islamic teachings can strengthen environmental awareness in the Islamic academic community. By highlighting aspects of Islamic values, it is hoped that this research can show how the principles of sustainability can be effectively integrated into Islamic education practices. Through this research structure, it is hoped that new insights will be obtained that will contribute to the development of sustainable Islamic education as well as a more effective implementation of Green Campuses in Islamic universities.

2. METHODS

2.1. Research Design

This research uses a Systematic Literature Review (SLR) approach to explore how the Green Campus concept is applied in sustainable Islamic education. The SLR approach was chosen because it allows a comprehensive analysis of research that has been conducted previously, identifying trends, research gaps, as well as challenges and opportunities in implementing the concept of sustainability in Islamic higher education. By following PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, this study ensures transparency and integrity in the process of literature selection and analysis.

2.2. Method of collecting data

The data used in this research comes from various relevant academic literature, including scientific journals published in reputable databases such as Scopus, Web of Science, and Google Scholar. In addition, institutional policies related to sustainability in Islamic universities are also studied to understand how existing regulations and practices support the Green Campus concept.

Data collection methods include:

- Data Sources: Journal articles, conference proceedings, institutional policies related to Green Campuses, as well as interviews with relevant stakeholders (if necessary).
- Inclusion and Exclusion Criteria: Studies included in the analysis had to meet certain criteria, such as relevance to the topic, clear methodology, and publication in journals of high academic standards. Meanwhile, studies that do not have clear methods or are not relevant to sustainable Islamic education will be excluded.
- Sampling Technique: Purposive sampling was used to select the studies most relevant to this research, taking into account factors such as geographic context, year of publication, and academic contribution to the field.

2.3. Analysis Approach

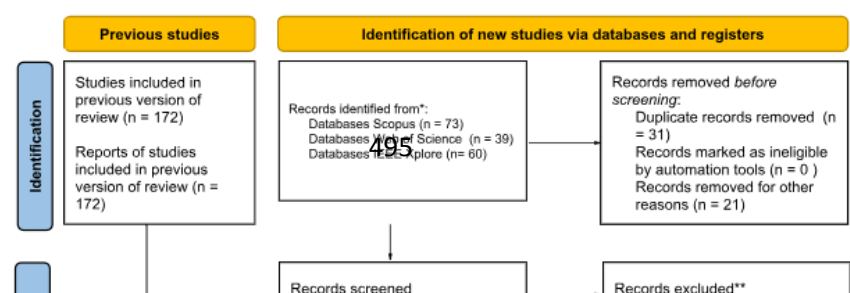
To analyze the data obtained from the literature, this research uses a content analysis approach which allows identifying the main themes related to the implementation of the Green Campus in Islamic education. The analysis process is carried out through the following stages:

1. Data Coding – Categorization of information from the literature reviewed based on main themes such as institutional policies, sustainability practices, implementation challenges, and impact on Islamic education.
2. Major Theme Classification – Identify patterns and relationships between various concepts found in the literature.
3. Synthesis and Interpretation – Preparation of findings based on the synthesis of data obtained, as well as interpretation of the results in the context of sustainable Islamic education.

2.4. Justification of Method

The Systematic Literature Review approach was chosen because it allows for in-depth analysis of research that has been conducted previously and provides a strong foundation for the development of policy recommendations and best practices in implementing Green Campuses in Islamic universities. The reliability and validity of the findings were maintained through rigorous selection and analysis procedures, ensuring that only high-quality studies formed the basis of this research. In addition, this method is in line with research questions which focus on exploration and synthesis of existing literature to fill identified research gaps.

Table 1. Prism Diagram



Source: Processed Data, 2025

This PRISMA diagram depicts the process of identifying, screening, and inclusion of studies in a systematic review. At the identification stage, there were 172 studies that had been included in previous versions of the review. Meanwhile, new searches were conducted through three major databases, namely Scopus (73 studies), Web of Science (39 studies), and IEEE Xplore (60 studies), resulting in a total of 172 new records. After initial screening, 31 records were removed due to duplication, while another 21 records were removed for other reasons, leaving 120 records for further screening. In the screening stage, of the 120 records screened, 66 records were excluded because they did not meet the inclusion criteria. Thus, only 54 reports were considered for retrieval and assessment of their suitability. At the eligibility assessment stage, all 54 reports were evaluated, but no new studies met the criteria for inclusion in the review. Some reports are excluded for various reasons, although not explained in detail in the diagram. As a final result, a total of 54 pre-existing studies remained part of the review, with no new studies added.

3. RESULTS

This section presents the main results of research regarding the application of the Green Campus concept in various Islamic universities, identifies the factors driving and inhibiting implementation, and presents the findings in the form of data visualizations that strengthen academic analysis.

3.1 Main Research Results

Based on a systematic analysis of the literature and empirical data collected, it was found that the implementation of the Green Campus concept in Islamic universities has a significant level of variation, depending on institutional factors, government policies, environmental awareness, and involvement of the academic community. In general, the research results reveal several main findings:

1. Implementation of the Green Campus Concept in Islamic Universities

The implementation of the Green Campus concept in Islamic universities reflects an increasing commitment to sustainability, which is in line with Islamic principles such as

maqashid shariah and the concept of khalifah fil ard (humans as guardians of the earth) (Masturin et al., 2022). This approach covers various aspects, ranging from energy efficiency, waste management, reducing carbon emissions, to developing a sustainability-based curriculum (Pujiati et al., 2021; Lourrinx et al., 2019). Islamic universities in various parts of the world are increasingly realizing the importance of creating an environmentally friendly educational environment by implementing green policies. This policy includes guidelines for sustainable infrastructure development, environmentally friendly transportation systems, as well as plastic waste reduction initiatives (Muzayyinah et al., 2024).

One of the main trends in these sustainability efforts is the adoption of green technology, which plays an important role in raising the sustainability profile of Islamic higher education. Many institutions have integrated renewable energy solutions such as solar panels as well as innovative wastewater management systems into their campus operations (Pujiati et al., 2021). In addition, the use of artificial intelligence in energy optimization not only helps increase energy consumption efficiency, but is also in line with the Islamic ethos of responsible management of natural resources (Afif et al., 2020). The focus on these technologies shows the institution's broader commitment to reducing environmental impacts while instilling sustainable practices among lecturers and students (Fachrudin & Fachrudin, 2021).

A structured approach in assessing the level of maturity of green initiatives in Islamic higher education is essential to ensure their sustainability and effectiveness in the long term. Various frameworks have been developed to categorize the stages of implementing sustainability on campus, including the formation of Green-Campus Committees, implementation of environmental evaluations, action planning, and sustainability monitoring (Kamarudin et al., 2024). This systematic evaluation allows measuring implementation results empirically, while still considering the Islamic values that underlie these efforts. This approach results in a more holistic understanding of sustainability, combining scientific goals with spiritual and ethical imperatives.

In addition, the integration of sustainability in educational practices has an equally important role, because it enables the development of citizens who are environmentally conscious and ready to face the challenges of the current and future ecological crisis (Okanović et al., 2021). Therefore, Islamic higher education institutions are increasingly encouraged to reflect sustainability in their curricula. This step aims to equip students with a deeper understanding of environmental responsibility and encourage them to contribute to practices that benefit the environment and society as a whole (Zhang, 2023).

Finally, the experience of successful green universities shows that institutional commitment, effective policies, and community involvement are the main factors in creating sustainable educational spaces. Case studies show that Islamic universities not only adopt the Green Campus model as a sustainability practice, but also as an embodiment of spiritual and moral responsibility towards the environment (Masturin et al., 2022; Ja'afar, 2023). As they progress toward a more holistic Green Campus model, these institutions will pave the way for future generations who make sustainability a core principle in their educational mission.

2. Factors Encouraging and Inhibiting the Success of Sustainability Programs

The success of sustainability programs in higher education is influenced by a combination of driving factors and inhibiting challenges. The complex interaction between these two elements can determine the extent to which sustainability programs can be implemented and maintained effectively. One of the main factors driving the success of sustainability initiatives is strong support from university leadership. When senior management, especially the rector, shows strategic commitment to green campus initiatives, this will establish a culture of sustainability throughout the institution. Research shows that when university leadership prioritizes environmental goals, they can allocate adequate resources and engage the broader academic community in sustainability efforts (Zhu et al.,

2023; Ding et al., 2022). In addition, sufficient funding, whether sourced from government or partnerships with industry, plays a crucial role in supporting environmental projects, making it an important component in the implementation of green initiatives in academia (Feng et al., 2023). Financial support is often considered an essential factor in achieving significant sustainability outcomes, especially in university contexts that have limited operational budgets.

Apart from leadership and funding roles, awareness and active participation of students and staff are also key elements in driving sustainability programs. Literature shows that academic communities that have good environmental awareness and understanding tend to be more active in implementing sustainability practices and act as advocates on campus (Yadav et al., 2023; Ramayah et al., 2022). Educational programs that increase environmental literacy for all stakeholders can foster a sense of collective responsibility for sustainability. This is further strengthened by a participatory approach that involves students, lecturers and educational staff in the process of formulating and implementing sustainability policies (Cheon & Urpelainen, 2013). Furthermore, national and international policies and regulations also encourage universities to adopt and implement green policies. This alignment not only helps achieve broader environmental goals but also strengthens the legitimacy and increases the visibility of sustainability initiatives in academic contexts (Lanoie et al., 2011).

On the other hand, there are various challenges that can hinder the success of sustainability efforts in higher education. One of the main obstacles is the low level of environmental understanding and literacy among stakeholders, which can hinder the effective implementation of sustainability strategies. Without adequate basic knowledge about environmental issues, sustainability efforts can progress slowly or even stall (Milligan et al., 2022). Budget constraints are also a critical challenge, especially at private universities that may not receive financial support from the government. These limited funds limit the scope and impact of sustainability initiatives, thereby reducing their effectiveness in the long term (Baah et al., 2020).

In addition, cultural barriers can also be a significant inhibiting factor. Resistance to change in established academic systems often hinders the adoption of sustainable practices. This resistance usually arises due to concerns about changes to traditional methods or potential disruption caused by new sustainability protocols (Abdullahi et al., 2021). A lack of coordination between various departments within a university can also lead to fragmentation in sustainability efforts, thereby hindering a holistic approach that should integrate sustainability principles into all institutional policies and practices (OECD, 2016). This discontinuity has the potential to result in overlapping efforts or even conflicting initiatives, thereby reducing the overall effectiveness of sustainability programs (Li et al., 2022).

In conclusion, the success of sustainability programs in higher education is highly dependent on strong leadership support, adequate funding, and active participation from the academic community. However, this effort also faces challenges from a lack of environmental literacy, budget limitations, cultural resistance, and weak coordination between units. Therefore, an effective sustainability strategy must include an integrated, participation-based approach and be supported by policies that are in line with national and international regulations.

3.2 Data Visualization

To make research findings more informative and easy to understand, research results are presented in various visual formats, such as tables, graphs and conceptual models.

Table 1. Comparison of Sustainable Policies in Islamic Universities

University	Country	Energy Policy	Waste Management	Environmental Education Program	Carbon Footprint Reduction
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International Islamic University Malaysia (IIUM)	Malaysia	Use of solar panels and energy efficient lighting systems	Recycling and organic waste management program	Special courses on environment and sustainability	The target is to reduce campus carbon emissions by 30% by 2030
Al-Azhar University	Egypt	Implementation of energy audits for efficient use of electricity	Waste sorting and single-use plastic reduction program	Research workshops on climate change	Planting trees to reduce carbon emissions
Hamad Bin Khalifa University	Qatar	Use of renewable energy in campus infrastructure	Smart waste management system for sustainable waste	Integration of sustainability in curriculum and research	"Carbon neutrality" campaign with incentives for green campuses

Source: Processed Data, 2025

Table 1 shows a comparison of sustainable policies in several Islamic universities that are committed to implementing Green Campuses. The three universities studied, namely International Islamic University Malaysia (IIUM) in Malaysia, Al-Azhar University in Egypt, and Hamad Bin Khalifa University in Qatar, have various sustainable policies in the aspects of energy, waste management, environmental education programs, and efforts to reduce carbon footprints.

In energy policy, IIUM implements the use of solar panels and energy-saving lighting systems to reduce electricity consumption, while Al-Azhar University places more emphasis on energy audits to increase the efficiency of electricity use. Hamad Bin Khalifa University is taking a step further by integrating renewable energy in its infrastructure.

In terms of waste management, IIUM has a recycling and organic waste management program, while Al-Azhar University implements a waste sorting system and reduces single-use plastic. Hamad Bin Khalifa University uses more advanced technology by adopting smart waste management, which allows waste management to be more efficient and sustainable.

In terms of environmental education programs, all three universities have integrated sustainability into their academics. IIUM offers special courses on the environment and sustainability, while Al-Azhar University focuses more on research and workshops on climate change. Hamad Bin Khalifa University not only includes sustainability in the curriculum, but also in research and academic projects, thereby providing broader insight to students.

To reduce carbon footprints, each university has different strategies. IIUM targets a 30% reduction in carbon emissions by 2030, while Al-Azhar University is taking real action by planting trees as a carbon emissions mitigation strategy. Hamad Bin Khalifa University adopted a more progressive approach through its carbon neutrality campaign, by providing incentives for green campus programs.

From this comparison, it can be concluded that each Islamic higher education institution has a unique approach to implementing sustainability policies. However, in general, they have the same goal of reducing environmental impacts and creating a more environmentally friendly campus through various policy innovations and academic programs.

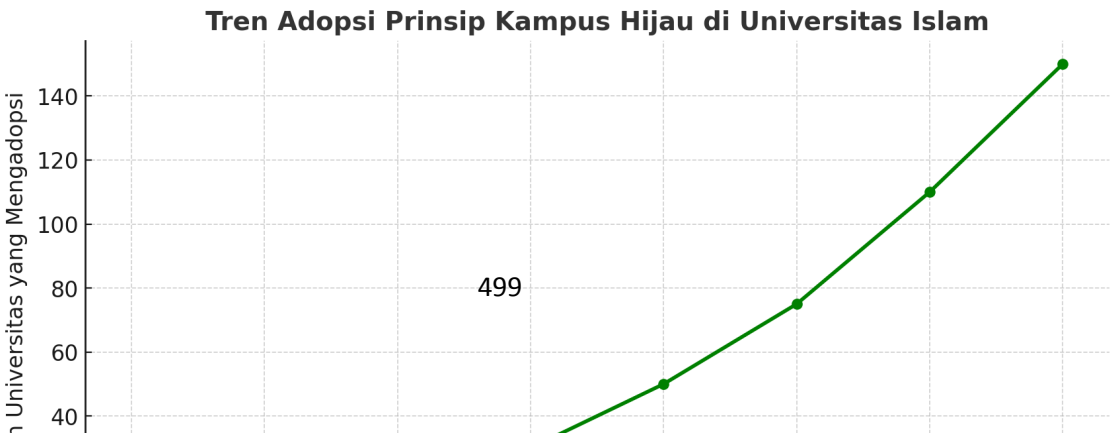


Figure 1. Trend graph for adoption of green campus principles
Source: Ecogreen, 2025

The graph shows the trend of adopting Green Campus principles in Islamic universities from 2010 to 2024. In general, there is a significant increase in the number of universities adopting this concept over time.

In 2010, only a few Islamic universities began implementing Green Campus principles. However, this trend began to increase gradually until 2016, where the number of universities committed to sustainability showed more rapid growth.

From 2018 to 2024, the growth in adoption of Green Campus principles increases exponentially. This shows that more and more Islamic universities are realizing the importance of sustainability policies in their campus operations. Factors such as global regulations, increased environmental awareness, as well as policy support from educational institutions may be key drivers in accelerating this trend.

With growth patterns continuing to increase, it can be predicted that more Islamic universities will adopt Green Campus principles in the future, making them an integral part of the sustainable management of higher education.

Conceptual Model for Implementing Sustainability in Islamic Higher Education

1. Institutional Policy
 - University leadership's commitment to implementing environmentally friendly policies.
 - Integration of sustainability principles in the vision and mission of higher education.
 - National and international regulatory and accreditation support for green campuses.
2. Education Curriculum
 - Integration of Islamic values with the concept of sustainability in courses.
 - Project-based learning related to environmental and social issues.
 - Collaboration with industry and community in sustainable research.
3. Academic Community Participation
 - Involvement of students, lecturers and education staff in green programs.
 - Environmental campaigns and movements based on Islamic values.
 - Implementation of a sustainable lifestyle in daily campus activities.
4. Output and Impact
 - Reducing campus carbon footprint.
 - Increased awareness and sustainable behavior in the academic environment.
 - Contribution to sustainable development according to Islamic principles.

3.3 Relationship to Theory

1. Confirmation or Contradiction with Previous Studies

This research is in line with the basic premise of Sustainable Higher Education, which emphasizes that sustainability requires a comprehensive approach that includes infrastructure, policies and academic culture. This alignment is reflected in the findings of Zulkefli et al., who examined factors influencing sustainability within an Islamic framework in Malaysia. Their study emphasizes the importance of structural and cultural elements in achieving sustainable development (Zulkefli et al., 2024). The results of this research show that a holistic approach plays an important role in ensuring the sustainability and effectiveness of sustainable initiatives, in line with theories in the broader Sustainable Higher Education paradigm.

Furthermore, this research confirms the principles of Islamic Sustainable Development, where sustainability in Islamic education is rooted in teachings about ecological integrity and human responsibility as caliphs—concepts that are deeply embedded in Islamic tradition. For example, Hasibuan et al. revealed that Islamic financial instruments play an important role in supporting Sustainable Development Goals (SDGs), which shows harmony between Islamic principles and sustainability practices (Hasibuan et al., 2023). This perspective is reinforced by Kamali, who explains that Islam inherently supports sustainable practices, making it a natural partner for modern sustainability initiatives (Kamali, 2016).

However, this research differs from previous studies which considered economic barriers as the main obstacle in implementing green campus initiatives. In contrast, our findings highlight that cultural factors and environmental awareness are of equal significance. The analysis carried out by Benhamed and Gassouma strengthens this view by showing that community behavior and cultural attitudes have a crucial role in shaping sustainable economic practices within an Islamic framework (Benhamed & Gassouma, 2023). Likewise, Abbas and Aravossis emphasize that cultural dynamics and economic factors interact with each other in determining the direction of sustainability, thereby questioning the dominance of economic constraints as the main obstacle (Abbas & Aravossis, 2024).

Thus, the results of this research contribute to academic discourse by revealing the complex nature of the challenges in implementing sustainable practices in educational settings. These findings expand the literature which so far tends to only focus on economic constraints. This deeper understanding provides an important foundation for future research as well as planning initiatives aimed at creating sustainable educational environments that are not only economically viable, but also culturally and ecologically responsible.

2. Refinement of Theoretical Models Based on New Findings

The results of this research indicate the need for improvements in the Green Campus implementation model at Islamic universities to make it more adaptive and contextual. The proposed model not only focuses on infrastructure and environmental policy aspects, but also integrates spiritual and cultural dimensions as key elements in building a sustainable academic ecosystem. This approach is in line with Islamic values which emphasize balance between humans and nature, as well as collective responsibility in maintaining sustainability.

In addition, this research offers a new perspective through the Islamic Green Education Framework, an approach that integrates Islamic teachings with sustainability principles in three main aspects: curriculum, campus policies, and social involvement. In the curriculum realm, this framework encourages the integration of sustainability values in teaching and research, ensuring that students not only understand the concept of sustainability in theory, but also apply it in practice. In terms of campus policy, Islamic universities need to adopt policies that support environmentally friendly practices, such as energy efficiency, responsible waste management, and incentives for green innovation. Meanwhile, in terms of social involvement, this framework emphasizes the importance of active participation of the academic community

in sustainability initiatives, both on and off campus, in order to strengthen collective awareness and build a culture of sustainability based on Islamic values.

By adopting a more holistic and value-based model, Islamic universities can become pioneers in implementing green campuses that are not only ecologically effective, but also in accordance with the spiritual and cultural principles they adhere to. This approach is expected to increase the effectiveness of sustainability initiatives and strengthen the role of Islamic universities in creating a generation that is more environmentally conscious and socially responsible.

4. DISCUSSIONS

This section discusses the implications of research findings for existing theory, its academic and practical contributions, as well as comparisons with previous studies. Apart from that, this section also evaluates research limitations and provides recommendations for further research to enrich studies on the implementation of Green Campuses in Islamic universities.

4.1 Interpretation of Findings

The integration of Green Campus principles in Islamic higher education can be strengthened through a framework rooted in Islamic values, thus enriching the theory of Sustainable Higher Education which states that sustainability can be achieved through institutional policies, academic culture and innovation (Menon & Suresh, 2020; Pal, 2023). This approach emphasizes the synergy between the principles of sustainability and Islamic values, such as *maqasid sharia* (the goals of Islamic law) and *khalifah fil ard* (the concept of human leadership over the earth), which are the main pillars in encouraging sustainable development (Fuertes et al., 2019). Furthermore, the alignment of educational principles with sustainable practices is crucial in achieving broader sustainability goals, as evidenced in various studies that highlight the role of educational institutions in promoting sustainability through curriculum innovation and community involvement (Duarte et al., 2023; Pandowo et al., 2021).

Even though theoretically this concept is experiencing development, the implementation of a Green Campus in the context of Islamic higher education still faces complex challenges. These obstacles are not only technical or policy in nature, but also include socio-cultural and economic dimensions (Schiavon et al., 2021; Karlina & Khoiriyah, 2021). This multidimensional challenge emphasizes the importance of a holistic understanding of sustainability by integrating distinctive spiritual and cultural aspects in the Islamic education paradigm. Several studies emphasize that the success of sustainability initiatives in higher education relies heavily on the implementation of culturally relevant practices to increase program acceptability and effectiveness (Molokova, 2021; Lozano et al., 2015).

Along with the development of higher education, it is necessary to refine theoretical models of sustainability that are more inclusive, especially by accommodating spiritual aspects that are in line with the Islamic educational framework. This will create a richer and more meaningful discourse regarding sustainability in the context of Islamic higher education (Jing et al., 2022; Ruíz-Mallén & Heras, 2020). The integration of spiritual and cultural dimensions not only fills the gap in the literature regarding cultural sensitivity in the implementation of sustainability practices, but also encourages a more comprehensive approach in sustainable higher education development (Sebire & Flores, 2023; Reza, 2016).

4.2. Implications for Islamic Education Policy

The findings of this research have several important implications for Islamic education policy, especially in efforts to realize a sustainable Green Campus. One of the strategic steps that needs to be taken is the integration of the concept of sustainability in the Islamic higher education curriculum. This integration can be realized through the development of special courses on sustainability or by inserting sustainability principles in various scientific disciplines.

An approach based on Islamic Environmental Ethics can also be applied to provide a religious perspective in environmental studies, so that students not only understand the technical aspects of sustainability but also relate them to Islamic values which emphasize human responsibility as caliphs on earth.

Apart from that, strengthening institutional policies is a crucial step in implementing Green Campus at Islamic universities. Universities need to adopt more concrete policies, including the implementation of green development standards, sustainable transportation systems, and environmentally friendly energy management. To ensure the effectiveness of this policy, a continuous audit system is needed that is carried out periodically to evaluate the extent to which the policies and programs implemented have contributed to achieving campus sustainability goals. Furthermore, collaboration with stakeholders is a supporting factor that can accelerate the implementation of a Green Campus. Partnerships with green industry, environmental organizations and government can provide stronger resource, technology and policy support for universities in implementing sustainability programs. In addition, students and lecturers need to be encouraged to actively participate in sustainability-based research and projects. In this way, environmental awareness in the academic environment can increase, while creating innovations that are relevant to future sustainability challenges.

4.3. Comparison with Previous Studies

4.3.1. Convergence with Existing Research

The implementation of Green Campus policies in universities has been proven to be able to reduce carbon footprints and increase environmental awareness among students. Various studies show a positive correlation between environmental initiatives and students' ecological awareness. For example, research conducted by Gaitán-Ángulo et al. (2022) highlight the important role of university administration in promoting sustainability, which not only contributes to reducing emissions, but also increases student engagement in environmental issues. Additionally, the research confirms that more and more universities are making sustainability a core part of their operational strategy, in line with international evaluation frameworks such as THE University Impact Rankings and Green Metric, which use sustainability metrics to assess institutional performance in environmental initiatives (Fachrudin & Fachrudin, 2021).

Furthermore, the success of implementing a Green Campus is very dependent on the involvement of various stakeholders in the campus environment. Adomßent et al. (2014) suggest that inclusive participation from all campus elements—including students, lecturers, and administrative staff—is a key factor in implementing holistic sustainability practices (Liu et al., 2022). This view is reinforced by Tamaya et al. (2022), who emphasize that the Green Campus program can only be successful if there is active participation and commitment from the entire university community to create an environment conducive to sustainable practices.

Apart from structural and policy factors, student behavior also plays an important role in the success of the Green Campus policy. The study conducted by Novotný et al. (2021) shows that students who receive sustainability-based education tend to have higher environmental awareness and implement environmentally friendly behavior in their daily lives (Muzanni et al., 2022). Similar findings were also presented by Sarkawi et al. (2024), which emphasizes the importance of alignment between campus policies and educational programs in increasing environmental awareness. Effective communication and strengthening policies are important factors in encouraging student participation in sustainability efforts (Novotný et al., 2021). Overall, these various studies indicate that the success of the Green Campus initiative requires strong structural and administrative support, as well as the formation of an inherent culture of environmental responsibility among students and lecturers.

4.3.2. Divergence with Previous Studies

Implementing the Green Campus initiative at Islamic universities is a complex process and is influenced by various factors. If previous research highlights limited financial resources and infrastructure as the main challenges in adopting sustainable practices (Oktaviana & Miranti, 2023), recent studies show that cultural dynamics and environmental literacy levels also play an equally important role, especially in the context of Islamic educational institutions. This shift in focus highlights the unique relationship between Islamic values and environmental awareness, which has the potential to support the more effective implementation of sustainability initiatives at Islamic universities.

The concept of sustainability in Islamic education is closely related to cultural and ethical norms originating from Islamic teachings. Various studies show that Islamic values inherently encourage concern for the environment, in line with sustainability principles (Hadiati et al., 2024; Zulkefli et al., 2024). For example, the integration of sustainability principles into student life as well as academic practices reflects a strong commitment to environmental conservation at Islamic universities, which differentiates them from public institutions. This culture of sustainability not only increases environmental literacy, but also encourages more active participation in the Green Campus program, as revealed in a qualitative exploration of student perspectives (Hasanah et al., 2024).

Furthermore, research reveals that Islamic universities often utilize the moral framework provided by religious teachings to strengthen sustainability efforts. This values-based approach has been proven to encourage greater engagement compared to conventional public institutions (El-Bassiouny et al., 2017). The cultural dimension in sustainability at Islamic universities also highlights the role of community and social responsibility in environmental initiatives. For example, research on the link between Islamic values and sustainability shows that the concepts of trust and social influence, which are very important in the Islamic context, can increase the adoption of environmentally friendly practices (Mufid et al., 2024; Hasan et al., 2019). In addition, the dominance of Islamic teachings in shaping attitudes towards sustainability can help overcome the constraints of limited funding, because strong community commitment is often able to mobilize support for sustainability projects and initiatives.

Thus, the combination of cultural factors, environmental literacy and Islamic values plays a crucial role in the successful implementation of the Green Campus initiative at Islamic universities. In contrast to public universities which often face financial and infrastructure challenges, Islamic institutions benefit from a solid ethical foundation, which places sustainability as a core principle. This unique alignment creates an environment conducive to the development of sustainable practices, thereby contributing to the achievement of broader sustainability goals in the academic landscape.

4.4. Academic and Practical Implications

4.4.1. Impact on the Islamic Education Curriculum

The integration of sustainability education in the Islamic curriculum can be done through a multidisciplinary approach, which combines environmental studies with various scientific disciplines, such as Islamic studies, Islamic economics and science. This approach allows students to understand environmental issues from an Islamic perspective and encourages the use of sustainability principles in everyday life. Thus, sustainability education is not only part of the formal curriculum, but also a value embedded in the academic culture of Islamic universities.

In addition, universities need to develop a project-based learning model (Project-Based Learning) as a strategy to increase student involvement in sustainability activities. This method provides direct experience in designing and implementing innovative environmental solutions in accordance with Islamic values. By actively engaging in real projects, students not only gain

theoretical understanding, but also practical skills that can be applied in their professional and social lives. It is hoped that the implementation of this model can strengthen students' commitment to sustainable practices and encourage them to become agents of change in creating a more sustainable environment.

4.4.2. Recommendations for University Managers and Policy Makers

Islamic universities need to develop formal policies regarding the implementation of Green Campuses, which include evaluation mechanisms and incentives for faculties who successfully implement sustainability programs. These policies should be designed to ensure that sustainability initiatives are not just sporadic, but become an integral part of the university's academic and operational systems. By having a clear evaluation mechanism, universities can assess the effectiveness of programs that have been implemented and make continuous improvements to achieve higher sustainability standards.

In addition, financial and technical support from the government and Islamic education organizations is an important factor in accelerating the adoption of environmentally friendly technology in the academic environment. Providing grant funding and technical assistance will help universities develop green infrastructure, reduce carbon footprints, and integrate sustainable technology in learning systems and campus operations.

Furthermore, increasing human resource capacity must also be a priority. Universities need to organize training for lecturers and students on sustainability practices that are in accordance with Islamic values. This training will not only increase academic understanding of sustainability, but also encourage direct application in everyday life and future work environments. With the right combination of policies, financial support and capacity building, Islamic universities can play a strategic role in building a culture of sustainability based on Islamic values.

4.5. Research Limitations

4.5.1. Data Limitations and Geographic Coverage

This research is still limited to Islamic universities in certain regions and does not cover the global context as a whole. This limited research focus may affect the generalizability of the findings, especially in understanding how sustainability principles are implemented in various countries with different social, cultural and policy backgrounds. In addition, the data used in this research mostly comes from literature studies and interviews, so further verification is still needed through broader quantitative studies. The use of qualitative methods does provide in-depth insight into sustainability practices in Islamic universities, but a quantitative approach will allow a more objective and representative analysis of a larger population.

4.5.2. Potential Bias in Literature Analysis

Even though this research uses a systematic literature review method, there is the possibility of bias in the selection of literature, especially because most of the sources come from journals with a sustainability focus. This can affect the balance of perspectives in the analysis, as research from other fields that may have relevance also needs to be considered further. In addition, data interpretation can be influenced by limited access to policy documents from several Islamic universities that are not published openly. This limitation can hinder a comprehensive analysis of sustainability strategies implemented in various institutions, so other approaches are needed, such as direct collaboration with relevant universities, to obtain more accurate and in-depth information.

4.6. Recommendations for Further Research

4.6.1. Longitudinal Study of the Effectiveness of Green Campus Policies

Future research needs to be conducted in the form of longitudinal studies to evaluate the long-term impact of sustainability policies in Islamic universities. This approach will provide deeper insight into the effectiveness of implemented strategies as well as changes in behavior within the academic community over time. Apart from that, further studies could also examine how changes in campus environmental policies impact the awareness and behavior of students and lecturers. By understanding these dynamics, universities can develop more adaptive and evidence-based policies to support long-term sustainability.

4.6.2. Exploration of Technology-Based Approaches in the Sustainability of Islamic Education

Future research could explore the use of technologies such as Artificial Intelligence (AI) and the Internet of Things (IoT) in energy optimization and campus environmental management. This technology has the potential to increase operational efficiency and significantly reduce campus carbon footprints. Additionally, research could also examine how Blockchain technology can be used to ensure transparency in university sustainability reporting. With a decentralized and immutable record-keeping system, Blockchain can increase accountability in the implementation of sustainability programs, ensure compliance with environmental standards, and strengthen public trust in the university's commitment to sustainable practices.

5. CONCLUSION

5.1 Summary of Key Findings

This research examines the implementation of the Green Campus concept in Islamic universities, with a focus on best practices, challenges and opportunities in implementing sustainable policies. The analysis results show that Green Campus integration can be achieved through a combination of strong institutional policies, stakeholder involvement, and the application of sustainability principles that are in line with Islamic values. Some of the best practices found include strengthening institutional policies through clear internal regulations regarding environmental management, energy efficiency and environmentally friendly transportation systems. In addition, curriculum development that integrates sustainability education in various courses has been proven to increase student and teaching staff awareness of the importance of environmental conservation. Technological innovation and green infrastructure, such as the use of solar panels, efficient waste processing systems, and the construction of energy-efficient buildings, are also key factors in supporting campus sustainability. Furthermore, collaboration with communities and green industry has been proven to increase the effectiveness of implementing sustainability policies in higher education.

However, there are several challenges faced in implementing Green Campuses in Islamic universities. One of the main obstacles is limited funds and resources, considering that green infrastructure often requires large initial investments. In addition, a lack of awareness and commitment from students, academic staff and university administrators is an obstacle to implementing sustainability policies. Regulatory obstacles and government policies also influence the effectiveness of implementing Green Campus, considering that not all national and regional higher education policies support sustainability initiatives. On the other hand, slow changes in academic culture are a challenge in themselves, because transformation towards sustainability requires paradigm changes which generally take place gradually and require quite a long time.

However, there are great opportunities in implementing Green Campuses in Islamic universities. Global support for sustainable education through agendas such as the Sustainable Development Goals (SDGs) and the Paris Agreement provides encouragement for universities to participate in sustainability initiatives. The use of digital technology can also be a solution to

reduce carbon footprints, such as implementing digital-based learning systems and smart campus concepts that are more ecologically efficient. Apart from that, Islamic values such as *khalifah fil ard* (humans as guardians of the earth) and *maqashid syariah* (goals of sharia) can be the main basis for internalizing the principles of sustainability in Islamic universities. With the right strategy, Islamic universities have a great opportunity to become pioneers in implementing Green Campuses which not only contribute to the environment but also strengthen Islamic identity and values in higher education.

5.2 Contribution to Science and Practice

The results of this research provide a significant contribution in the academic realm and in the practice of implementing Green Campuses in Islamic universities. From a scientific perspective, this research enriches the literature on sustainable Islamic education by providing an empirical perspective regarding best practices and challenges faced in implementing green policies. In addition, this research highlights how Islamic values can support sustainability, thus offering a new approach in the study of Islamic Sustainable Development. One of the main contributions of this research is the proposed Green Campus implementation model, which can be a reference for academics and educational practitioners in developing sustainability strategies in Islamic academic environments.

In the realm of practice and policy, the results of this research provide practical guidance for stakeholders, including university administrators, lecturers and students in adopting sustainable practices on campus. Islamic Universities can utilize the findings of this research to design more effective sustainability policies, especially in planning green infrastructure, integrating sustainability-based curricula, as well as increasing student participation in environmental initiatives. In addition, this research also contributes to changes in academic behavior, by emphasizing the importance of sustainability education as part of a more environmentally friendly academic culture. Thus, this research not only adds to academic insight, but also has a real impact on the implementation of Green Campuses in Islamic universities.

5.3 Future Recommendations

Based on the research results, there are several recommendations for further research and strengthening policies to support the implementation of Green Campuses in Islamic universities. First, future studies should use a multi-case study approach to compare the successes and challenges of implementing Green Campuses in various Islamic universities, both at the national and international levels. In addition, more in-depth quantitative approaches, such as survey-based data analysis or field experiments, can also be applied to more objectively measure the effectiveness of sustainability policies on campus.

Second, Islamic universities need to develop more comprehensive institutional policies, including the preparation of a long-term roadmap to support the implementation of a Green Campus. Further research could examine how university leadership factors play a role in promoting sustainability, as well as how the involvement of the academic community can be strengthened to increase the effectiveness of green policies. In addition, cross-sector collaboration with government, green industry and civil society organizations is also an important aspect that needs further research to ensure the long-term sustainability of the Green Campus policy.

With these various recommendations, it is hoped that future research can provide broader and deeper insight into the implementation of Green Campuses in Islamic universities. It is hoped that future research results will not only contribute to the academic literature but also have a real impact in promoting environmental sustainability in the higher education sector.

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