Construction of a Green Campus-Based Facilities and Infrastructure Management Model for Islamic Higher Education Institutions from an Ecotheological Perspective

Finan Ahsani Taqwim[1]*, Ali Kuswadi[2], and Ermayanti[3]
[1] Erciyes University, Turkey
[2,3] Institut Agama Islam Al Hikmah Lampung, Indonesia
*E-mail: 1040115707@erciyes.edu.tr

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Abstract

Facilities and infrastructure management in Islamic higher education institutions has tended to focus on administrative matters, facility availability, and operational needs, and therefore has not been fully integrated with environmental sustainability principles and Islamic ecological values. This article aims to construct a green campus-based facilities and infrastructure management model for Islamic higher education institutions from an ecotheological perspective. This study employs a qualitative approach using library research with an integrative literature review design. Data were obtained through a review of academic literature relevant to facilities and infrastructure management, green campus development, higher education sustainability, and Islamic ecotheology. The analysis was conducted through data reduction, thematic categorization, critical interpretation, and conceptual synthesis. The findings indicate that the constructed model rests on five integrated dimensions: managerial, ecological, educational, participatory, and spiritual. This model positions Islamic ecotheological values, including *khalifah*, *amanah*, *mizan*, *maslahah*, and the prohibition of *fasad*, as an ethical foundation for sustainable facilities and infrastructure management. The study concludes that facilities and infrastructure management in Islamic higher education institutions should shift from an administrative orientation toward an ecological-spiritual orientation. Its implications may serve as a conceptual basis for developing sustainable, educational, participatory, and Islamically grounded green campus policies.

Keywords: Islamic ecotheology; green campus; facilities and infrastructure management; Islamic higher education; sustainability.

INTRODUCTION

Higher education institutions function not only as centers for the development of science, technology, and culture, but also as social institutions with a strategic responsibility to respond to the global ecological crisis. In the contemporary context, climate change, environmental degradation, energy crises, increasing waste, and low ecological awareness require higher education institutions to transform toward sustainable campus governance. Universities can no longer be understood merely as academic spaces oriented solely toward teaching and research processes; they must also be viewed as institutional ecosystems that demonstrate concrete commitment to environmental sustainability through policies, culture, curriculum, research, community service, and the management of campus facilities and infrastructure. Within this framework, the idea of a green campus becomes important because it offers a paradigm of higher education management that integrates energy efficiency, water management, green spatial planning, environmentally friendly transportation, waste reduction, and sustainability education into the overall campus management system (Amaral et al., 2015; Lozano et al., 2015).

The significance of this topic becomes stronger when linked to Islamic higher education institutions. As higher education institutions that carry both scientific and Islamic missions, Islamic higher education institutions have a moral and spiritual responsibility to place environmental sustainability as part of the actualization of religious values. In the institutional context of Islamic higher education, strengthening educational quality cannot be separated from the principles of

inclusivity, adaptability, and participation among academic community members. Dinata et al. (2026) show that assistance in implementing differentiated learning in the Diniyah Program of Ma'had Al Jami'ah at STIT Al Hikmah Way Kanan contributed to improving the quality of inclusive learning. This finding strengthens the argument that campus environmental management, including facilities and infrastructure, needs to be directed toward supporting an educational ecosystem that is friendly, inclusive, and responsive to learners' needs. Islam teaches that human beings are khalifah on earth and bear the amanah to maintain the balance of creation, prevent destruction, and manage natural resources responsibly. Therefore, the management of campus facilities and infrastructure in Islamic higher education institutions should not be viewed merely as an administrative, technical, or operational matter, but also as part of a theological praxis that reflects ecological consciousness. An ecotheological perspective is relevant because it offers a normative foundation that the relationship between human beings and nature is not exploitative, but one of trust, balance, and sustainability (Rakhmat, 2022; Rohman et al., 2024).

Globally, numerous studies show that higher education institutions in many countries have begun adopting sustainability principles through the green campus concept. Studies on sustainable universities emphasize that sustainability in higher education must include governance, campus operations, learning, research, and community engagement (Amaral et al., 2015; Lozano et al., 2015). Meanwhile, studies on green campuses indicate that the success of a sustainable campus is determined not only by environmentally friendly physical development, but also by changes in managerial paradigms and the behavior of the academic community (Anthony Jnr, 2021; Ribeiro et al., 2021). In campus sustainability assessment, various instruments and indicators have been developed, including green campus rankings that evaluate infrastructure, energy, waste, water, transportation, education, and research (Lauder et al., 2015; Berzosa et al., 2017). This indicates that green campus issues have become a global academic agenda receiving increasing attention.

At the national level, green campus issues have also begun to occupy a place in the discourse on higher education development in Indonesia. Higher education institutions are encouraged not only to improve academic quality but also to pay attention to environmental and sustainability aspects. In practice, however, the management of campus facilities and infrastructure often remains oriented toward fulfilling institutional physical needs, such as classrooms, offices, laboratories, libraries, prayer facilities, and other supporting infrastructure. This orientation is important, but it is inadequate if it is not accompanied by principles of energy efficiency, waste reduction, water management, green open-space planning, and the formation of an ecological campus culture. In Islamic education contexts, facilities and infrastructure management is also still commonly discussed within the framework of improving the quality of educational services, and has not been extensively developed as part of a sustainable management model that integrates green campus principles and Islamic ecotheology (Anshori et al., 2022; Ginanjar et al., 2023).

The state of the art shows that studies on green campuses have developed across several main orientations. First, several studies emphasize the importance of sustainable universities and the integration of sustainability principles into higher education governance. Amaral et al. (2015) argue that the quest for a sustainable university requires systemic changes in institutional policy, management, operations, and culture. Lozano et al. (2015) likewise show that higher education commitments to sustainability must be implemented comprehensively rather than remaining merely normative declarations. Second, research has discussed indicators and assessment instruments for sustainable campuses. Lauder et al. (2015), Berzosa et al. (2017), and Dawodu et al. (2022) make important contributions to formulating dimensions and indicators for evaluating campus sustainability. Third, research has addressed sustainable campus operations, including facilities, energy, waste, water, transportation, and campus stakeholder engagement (Gholami et al., 2020; Menon & Suresh, 2020; Oliveira & Proença, 2025). Fourth, some studies have begun to connect environmental education with religious values, including Islamic ecotheology, as an ethical foundation for building ecological awareness (Rakhmat, 2022; Rohman et al., 2024).

Nevertheless, previous studies still have several limitations that need to be critically examined. First, most green campus studies remain dominated by technocratic and instrumental approaches, emphasizing physical indicators, rankings, energy efficiency, waste management, or campus infrastructure design. Although these approaches are important, they do not fully explain how religious values, spirituality, and ethics can serve as foundations for building a sustainable facilities and infrastructure management model. Second, studies on facilities and infrastructure management in Islamic education generally remain focused on administrative functions such as planning, procurement, inventory, utilization, maintenance, and evaluation, but have not strongly integrated ecological and sustainability dimensions. Third, Islamic ecotheology studies have provided normative foundations regarding human responsibility toward the environment, but these foundations have rarely been translated into operational institutional management models, particularly in the context of facilities and infrastructure management in Islamic higher education institutions. Thus, there is an academic need to build a synthesis among facilities and infrastructure management, green campus development, and Islamic ecotheology within one integrated conceptual model.

The research gap of this study lies in the absence of a conceptual model that specifically constructs green campus-based facilities and infrastructure management for Islamic higher education institutions from an ecotheological perspective. Previous studies have discussed green campuses as a strategy for higher education sustainability, sustainable facilities management as a facilities management approach, and Islamic ecotheology as an ethical-spiritual foundation for environmental protection. However, these three areas of inquiry tend to stand separately and have not been systematically connected within a facilities and infrastructure management model appropriate to the characteristics of Islamic higher education institutions. In fact, Islamic higher education institutions possess distinctive values, institutional culture, and scientific orientations that allow the integration of green campus governance and Islamic ecotheological principles.

The novelty of this study lies in its effort to develop a construction of a facilities and infrastructure management model for Islamic higher education institutions that is based not only on effectiveness, efficiency, and facility functionality, but also on the integration of the green campus paradigm and Islamic ecotheological values. The constructed model is directed toward integrating managerial, ecological, educational, participatory, and spiritual dimensions. The managerial dimension includes planning, procurement, utilization, maintenance, supervision, and evaluation of facilities and infrastructure. The ecological dimension includes energy efficiency, water management, waste reduction, green open spaces, and environmentally friendly transportation. The educational dimension relates to the formation of ecological literacy among academic community members. The participatory dimension emphasizes the involvement of leaders, lecturers, students, educational staff, and the community. The spiritual dimension positions the values of khalifah, amanah, mizan, maslahah, and the prohibition of environmental destruction as ethical bases for campus management (Rakhmat, 2022; Rohman et al., 2024).

Theoretically, this study is grounded in three main foundations. First, facilities and infrastructure management theory in education positions facilities as important components in improving the quality of educational services. Well-managed facilities and infrastructure can support academic processes, administration, research, community service, and campus life more effectively (Anshori et al., 2022; Ginanjar et al., 2023). Second, the green campus concept views higher education institutions as sustainable ecosystems that should integrate environmental principles into physical governance, operations, academic activities, and institutional culture (Anthony Jnr, 2021; Dawodu et al., 2022). Third, the Islamic ecotheological perspective affirms that environmental concern is not merely an ecological demand, but also part of human spiritual responsibility before God (Rakhmat, 2022; Rohman et al., 2024). The synthesis of these three foundations becomes the conceptual basis for constructing a sustainable facilities and infrastructure management model for Islamic higher education institutions.

Based on this background, the research problem in this article is: how can a green campus-

based facilities and infrastructure management model for Islamic higher education institutions be constructed from an ecotheological perspective? This main question can be elaborated into several conceptual questions: first, what are the main dimensions of facilities and infrastructure management that are relevant to green campus principles? Second, how can Islamic ecotheological values be integrated into facilities and infrastructure management in Islamic higher education institutions? Third, what form of conceptual model can connect managerial, ecological, educational, participatory, and spiritual dimensions in campus facilities and infrastructure governance?

This study aims to construct a conceptual model of green campus-based facilities and infrastructure management for Islamic higher education institutions from an ecotheological perspective. Specifically, this article aims to identify the main green campus dimensions relevant to facilities and infrastructure management, analyze Islamic ecotheological values as an ethical-spiritual basis for campus environmental management, and formulate a conceptual model that can serve as a framework for developing sustainable facilities and infrastructure management in Islamic higher education institutions.

This study is expected to make theoretical and practical contributions. Theoretically, this article enriches Islamic educational management studies by offering an integration of facilities and infrastructure management, green campus principles, and Islamic ecotheology. This integration is important because it can broaden Islamic educational management perspectives from merely administrative governance toward ecological-spiritual governance. Practically, the findings can serve as a reference for leaders of Islamic higher education institutions, facilities and infrastructure managers, quality assurance units, and campus policy stakeholders in designing green campus policies that are oriented not only toward fulfilling physical indicators but also toward forming an ecological culture rooted in Islamic values. Thus, the construction of this model is expected to become a basis for developing Islamic higher education institutions that are excellent, sustainable, and responsible both ecologically and theologically.

METHOD/EXPERIMENT

This study employs a qualitative approach using library research. This approach was selected because the article aims to build a conceptual construction of a green campus-based facilities and infrastructure management model for Islamic higher education institutions from an ecotheological perspective, rather than testing relationships among variables quantitatively or conducting empirical field measurement. Library research enables the researcher to search, critically read, interpret, and synthesize various relevant academic literatures in order to generate a new conceptual framework. In this context, library research is not positioned merely as an activity of summarizing theories, but as a scientific method for integrating various findings, concepts, and perspectives into an argumentative and academically accountable conceptual model (Snyder, 2019; Torraco, 2016).

The type of library research used in this study is an integrative literature review, namely a literature review that aims to combine various literatures from different but interrelated fields of inquiry. This approach is relevant because the topic of the study is located at the intersection of educational facilities and infrastructure management, the green campus concept, higher education sustainability, and Islamic ecotheology. Through an integrative review, this study seeks to build a conceptual synthesis among facilities and infrastructure management theory, sustainable campus indicators, and ecological values in Islam. This model aligns with the nature of conceptual research, which does not merely describe previous literature but develops a new theoretical construction based on critical analysis of available sources (Snyder, 2019; Torraco, 2016).

Because this study is library research, the research location is not a specific physical site as in field research. The research context is directed toward Islamic higher education institutions as higher education institutions with academic, social, ecological, and spiritual responsibilities in managing facilities and infrastructure sustainably. Islamic higher education institutions were chosen as the study

context because they possess distinctive institutional characteristics, namely the integration of scientific development with Islamic values. Therefore, campus facilities and infrastructure management is understood not only as an administrative and operational function, but also as part of an ethical-spiritual responsibility to protect the environment. This context aligns with the idea that a sustainable campus is determined not only by physical and technical dimensions, but also by governance, institutional culture, environmental education, and the involvement of the academic community (Amaral et al., 2015; Lozano et al., 2015; Menon & Suresh, 2020).

The subjects of this library research are not individuals or participant groups, but academic literature sources relevant to the focus of the study. The primary data sources consist of journal articles, academic books, book chapters, and scholarly publications discussing educational facilities and infrastructure management, sustainable facilities management, green campus development, higher education sustainability, and Islamic ecotheology. The literature was selected based on its relevance to the main variables of the study and its contribution to the construction of the conceptual model.

The literature sources in this study include several main groups. First, literature on higher education sustainability and green campuses, such as studies by Amaral et al. (2015), Lozano et al. (2015), Lauder et al. (2015), Anthony Jnr (2021), Ribeiro et al. (2021), Dawodu et al. (2022), Boiocchi et al. (2023), Barnett-Itzhaki et al. (2025), and Oliveira and Proença (2025). Second, literature on facilities and infrastructure management and educational facilities management, including Aceves-Avila and Berger-García (2019), Anshori et al. (2022), and Ginanjar et al. (2023). Third, literature on Islamic ecotheology and religious value-based environmental education, such as Rakhmat (2022) and Rohman et al. (2024). Fourth, methodological literature on library research and integrative literature reviews, especially Snyder (2019) and Torraco (2016).

The data source selection technique was purposive, meaning that literature was selected based on its suitability to the research focus. The inclusion criteria in this study were: first, the literature discusses facilities and infrastructure management, facilities management, green campus development, higher education sustainability, or Islamic ecotheology; second, the literature comes from scholarly journals, academic books, book chapters, or verifiable academic sources; third, the majority of literature was published within the last five to ten years to maintain relevance with current developments; fourth, the literature has a DOI or official access link where available; and fifth, the literature contributes to the construction of the model dimensions developed in this article.

The exclusion criteria included literature with no direct relevance to the research focus, popular nonacademic sources, unverifiable publications, articles lacking sufficient bibliographic information, and references that did not support the development of the conceptual model. Through this technique, literature selection was not conducted randomly, but based on academic considerations to ensure that each source had a conceptual function in the article.

Data were collected through literature documentation. The data collection procedure involved several stages. First, the researcher identified relevant keywords, such as green campus, sustainable campus, sustainable facilities management, higher education sustainability, educational facilities and infrastructure management, Islamic higher education institutions, Islamic ecotheology, and Islamic environmental education. Second, the researcher searched the literature through academic databases and platforms, such as Google Scholar, Crossref, ScienceDirect, Springer, Emerald, MDPI, Frontiers, and relevant national journal portals. Third, the researcher selected the literature based on titles, abstracts, keywords, publication years, types of publication, and their relevance to the research focus. Fourth, selected literature was read in depth to identify concepts, indicators, dimensions, and main arguments that could be used in constructing the model.

The data collected in this study consisted of ideas, theories, concepts, prior research findings, green campus indicators, facilities and infrastructure management principles, and Islamic ecotheological values. These data were then classified based on the main themes: managerial dimension, ecological dimension, educational dimension, participatory dimension, and spiritual-

ecotheological dimension.

The main instrument in this study is the researcher as the key human instrument. In qualitative literature-based research, the researcher plays a role in determining the study focus, selecting literature, critically reading sources, interpreting the content of literature, and developing conceptual synthesis. To help maintain systematic and consistent analysis, this study also used an auxiliary instrument in the form of a literature review sheet.

The literature review sheet contained several components, including reference identity, study focus, main concepts, research method in the reviewed literature, important findings, relevance to the article topic, contribution to model dimensions, and critical notes. This auxiliary instrument was used to ensure that the literature reading process was not merely descriptive, but directed toward in-depth conceptual analysis.

Data were analyzed through qualitative content analysis and conceptual synthesis. Content analysis was used to identify the main ideas, categories, themes, and relationships among concepts in the literature reviewed. Conceptual synthesis was used to integrate various findings and theories into a coherent model construction. The analysis process was conducted through several stages.

The first stage was data reduction, namely selecting important information from literature relevant to the research focus. The second stage was thematic categorization, namely grouping data into main themes such as facilities and infrastructure management, green campus indicators, higher education sustainability, and Islamic ecotheology. The third stage was critical interpretation, namely examining the strengths, limitations, and positions of each literature source in supporting the model construction. The fourth stage was conceptual synthesis, namely formulating relationships among managerial, ecological, educational, participatory, and spiritual dimensions. The fifth stage was model construction, namely developing a conceptual framework of green campus-based facilities and infrastructure management for Islamic higher education institutions from an ecotheological perspective.

In the analysis process, green campus literature was used to identify campus sustainability indicators such as infrastructure, energy, waste, water, transportation, education, research, and governance (Lauder et al., 2015; Berzosa et al., 2017; Dawodu et al., 2022). Facilities management literature was used to strengthen the facilities and infrastructure management dimension, from planning to evaluation (Aceves-Avila & Berger-García, 2019; Anshori et al., 2022). Islamic ecotheology literature was used to interpret green campus management as part of human responsibility as khalifah, trustees, and guardians of natural balance (Rakhmat, 2022; Rohman et al., 2024).

Data trustworthiness in this study was ensured through several strategies. First, source triangulation was conducted by comparing various literatures from international journals, national journals, academic books, and relevant scholarly publications. This triangulation was important to avoid the dominance of a single perspective and to ensure that the model was built on a strong conceptual basis. Second, persistent reading of the literature was conducted through repeated reading of major sources to avoid superficial interpretation. Third, referential adequacy was ensured by using sufficient, relevant, current, and verifiable references. Fourth, conceptual auditing was carried out by rechecking the alignment among the research focus, literature used, analytical categories, and the constructed model.

Conceptual validity was also maintained by ensuring that each dimension of the model had a clear theoretical basis. The managerial dimension was supported by facilities and infrastructure management and educational facilities literature. The ecological dimension was supported by green campus and higher education sustainability literature. The spiritual dimension was supported by Islamic ecotheology literature. Therefore, the model produced is not speculative, but was developed through a systematic academic synthesis process.

Ethical considerations in this study relate to academic integrity in using literature sources. Because this study did not directly involve human participants, there were no ethical risks concerning

informant confidentiality, participant consent, or psychological impacts on research subjects. Nevertheless, research ethics were maintained through several principles.

First, all sources used were cited honestly and consistently according to APA Style 7th Edition. Second, the researcher avoided plagiarism by conducting academic paraphrasing while still acknowledging the original source of each idea. Third, the researcher did not use unverifiable or fictitious references. Fourth, the interpretation of literature was conducted proportionally without manipulating the meaning of sources. Fifth, the reference list includes only sources actually cited in the article.

With this methodological design, the study is expected to produce a conceptual model construction that is academically valid, relevant to the context of Islamic higher education institutions, and contributive to the development of green campus- and ecotheology-based facilities and infrastructure management.

RESULTS AND DISCUSSION

Results

The findings of this study were obtained through documentary review and thematic synthesis of academic literature relevant to educational facilities and infrastructure management, green campus development, higher education sustainability, and Islamic ecotheology. Because this study is library research, the data analyzed were derived from validated journal articles, books, and scholarly publications, and were then classified into major themes to build a conceptual model of green campus-based facilities and infrastructure management for Islamic higher education institutions from an ecotheological perspective.

In general, the findings show that the construction of the developed model rests on five main themes: (1) facilities and infrastructure management as an institutional foundation, (2) green campus as an ecological orientation, (3) Islamic ecotheology as a value foundation, (4) the integration of managerial, ecological, educational, participatory, and spiritual dimensions, and (5) the formulation of a conceptual model of sustainable facilities and infrastructure management in Islamic higher education institutions.

Table 1. Summary of the Main Research Findings

No.	Main Theme	Key Finding	Pattern of Findings	Implication
1	Facilities and infrastructure management	Facilities and infrastructure management remains predominantly administrative and operational.	Focus on planning, procurement, inventory, utilization, maintenance, and evaluation.	An expanded orientation toward sustainability is needed.
2	Green campus	Campus facility management must be integrated with energy, water, waste, transportation, and green-space efficiency.	A green campus is not only physical, but also a matter of policy and campus culture.	Facilities and infrastructure should be managed as ecological instruments.
3	Islamic ecotheology	The values of khalifah, amanah, mizan, maslahah, and prohibition of fasad are relevant as ethical foundations.	Religious values strengthen commitment to sustainability.	Green campuses in Islamic higher education institutions need to be based on Islamic values.
4	Multidimensional	There is a need to integrate managerial, ecological,	A partial approach is	A systemic and integrated model is

	integration	educational, participatory, and spiritual dimensions.	inadequate.	required.
5	Conceptual model	The model is built from relationships among values, policies, implementation, participation, and evaluation.	It is cyclical and sustainable.	It becomes a framework for developing sustainable Islamic higher education institutions.

Table 1 shows that the findings do not stop at concept identification, but move toward establishing patterns of relationships among the findings. Thus, the findings of this study lead to a model construction that is more integrative than conventional facilities and infrastructure management approaches.

1. Facilities and Infrastructure Management as the Foundation of Islamic Higher Education Governance

The first finding shows that facilities and infrastructure management is a fundamental foundation in the organization of higher education. The literature reviewed indicates that facilities and infrastructure function not only as support for academic activities, but also as strategic elements in ensuring the quality of higher education services. In the context of Islamic higher education institutions, facilities and infrastructure include classrooms, libraries, laboratories, prayer facilities, administrative spaces, information technology facilities, open spaces, and other supporting infrastructure that support the implementation of the tridharma of higher education.

Documentary data show that educational facilities and infrastructure management generally includes planning, procurement, inventory, distribution, utilization, maintenance, supervision, and evaluation (Anshori et al., 2022; Ginanjar et al., 2023). The observed pattern is that facilities and infrastructure management has so far been predominantly understood as a technical-administrative process. This is evident from the greater emphasis on facility provision and operational feasibility than on ecological sustainability.

This finding indicates that facilities and infrastructure management in Islamic higher education institutions still requires an expanded orientation. Facilities and infrastructure not only need to be “available” and “usable,” but also need to be managed in an energy-efficient, environmentally friendly, and sustainable manner that supports the formation of a sustainable campus culture. Thus, this first theme establishes that facilities and infrastructure management must be repositioned as an instrument of institutional transformation toward a sustainable campus.

2. Green Campus as a New Orientation for Facilities and Infrastructure Management

The second finding shows that the green campus concept provides a new orientation in the governance of higher education facilities and infrastructure. The review indicates that a green campus is not merely a concept of physical greening of the campus, but a campus management paradigm covering infrastructure, energy, climate change, water, waste, transportation, education, and sustainability research (Lauder et al., 2015; Dawodu et al., 2022).

Documentary data from various studies show that a sustainable campus is characterized by several main indicators, namely energy efficiency, water management, waste reduction, green open spaces, environmentally friendly transportation, institutional policies, and academic community engagement (Amaral et al., 2015; Menon & Suresh, 2020; Oliveira & Proença, 2025). The pattern of findings reveals that green campus development has two main sides. First, the physical-operational side, namely the provision of environmentally friendly buildings and facilities. Second, the cultural-institutional side, namely the formation of ecological behavior and institutional commitment to sustainability.

This pattern shows that a green campus cannot be understood simply as an infrastructure

project. If understood only physically, green campus management will stop at building construction or landscaping. Conversely, the findings show that a green campus requires integration among facilities, policies, education, and academic community participation.

Table 2. Green Campus Dimensions Relevant to Facilities and Infrastructure Management

Dimension	Main Indicators	Relevance to Facilities and Infrastructure
Infrastructure	Campus spatial planning, environmentally friendly buildings, green spaces	Determines the physical design of a sustainable campus.
Energy and climate	Electricity efficiency, renewable energy, ventilation	Supports energy-efficient campus operations.
Water	Water conservation, sanitation, drainage	Strengthens campus water-resource management.
Waste	Sorting, reduction, recycling	Makes campus facilities more environmentally friendly.
Transportation	Pedestrian paths, bicycles, low-emission transportation	Reduces the campus carbon footprint.
Education and participation	Environmental literacy, green campaigns, campus stakeholder involvement	Connects facilities with ecological culture.

Table 2 shows that green campus dimensions are highly relevant to be integrated into facilities and infrastructure management. Facilities and infrastructure are no longer understood as passive objects, but as media for transforming ecological behavior and campus culture.

3. Islamic Ecotheology as a Value Foundation for a Sustainable Campus

The third finding shows that Islamic ecotheology provides a strong normative foundation for sustainable facilities and infrastructure management. The documentary review indicates that from an Islamic perspective, the relationship between human beings and the environment is built on the principles of responsibility, balance, and public benefit. The concept of khalifah affirms that human beings are mandated to protect the earth; the concept of amanah emphasizes moral responsibility in using resources; the concept of mizan highlights the importance of ecological balance; and the concept of maslahah requires that policies and facility management bring benefits to both human beings and the environment (Rakhmat, 2022; Rohman et al., 2024).

The pattern of findings shows that Islamic ecotheology functions as an ethical foundation for implementing green campuses in Islamic higher education institutions. If the green campus concept provides the technical and operational framework, Islamic ecotheology provides the moral-spiritual orientation. The relationship between the two is mutually reinforcing: green campus principles make campus management more measurable and operational, whereas ecotheology gives that management religious meaning and Islamic value.

Thus, the findings show that Islamic higher education institutions have a distinctive feature that differentiates them from general higher education institutions, namely the ability to integrate environmental governance with religious values. This is an important finding because it demonstrates that a sustainable campus in the context of Islamic higher education institutions is not merely an ecological project, but also an ethical and spiritual project.

4. Integration of Managerial, Ecological, Educational, Participatory, and Spiritual Dimensions

The fourth finding shows that the model construction cannot be built partially. The synthesis

reveals five dimensions that must be integrated so that facilities and infrastructure management in Islamic higher education institutions can operate sustainably: managerial, ecological, educational, participatory, and spiritual dimensions.

The managerial dimension relates to the basic functions of facilities and infrastructure management, namely planning, procurement, utilization, maintenance, supervision, and evaluation. The ecological dimension relates to the implementation of green campus principles such as energy efficiency, water conservation, waste management, green spaces, and environmentally friendly transportation. The educational dimension concerns the use of the campus environment as a space for ecological learning. The participatory dimension concerns the involvement of leaders, lecturers, students, educational staff, and the community. Meanwhile, the spiritual dimension relates to the internalization of Islamic ecotheological values.

Documentary data show that sustainability approaches in higher education will be weak if they emphasize only one dimension. For example, if the focus is only on green infrastructure without cultural transformation, the green campus becomes merely a physical symbol. Conversely, if religious values are emphasized without policies and management systems, sustainability ideas will be difficult to operationalize institutionally (Anthony Jnr, 2021; Oliveira & Proença, 2025).

The pattern of relationships among dimensions shows that the managerial dimension functions as the driving system, the ecological dimension becomes the orientation of sustainability, the educational dimension becomes a vehicle for internalizing awareness, the participatory dimension strengthens implementation, and the spiritual dimension provides the foundation of meaning. The integration of these five dimensions forms the core of the model.

5. Construction of a Conceptual Model of Green Campus-Based Facilities and Infrastructure Management from an Ecotheological Perspective

The fifth finding is the final synthesis of the study, namely the formation of a conceptual model of green campus-based facilities and infrastructure management for Islamic higher education institutions from an ecotheological perspective. This model is built from the relationship among foundational values, institutional policies, facilities and infrastructure management, the implementation of green campus principles, academic community participation, and continuous evaluation.

Substantively, the constructed model shows that Islamic ecotheological values must become the philosophical basis of facilities and infrastructure management. These values are then translated into campus policy and operationalized in the planning and implementation of green campus-based facilities and infrastructure. This implementation needs to be supported by the participation of the entire academic community and followed by continuous evaluation so that an ecological-Islamic campus culture can be formed.

Figure 1. Conceptual Model of Green Campus-Based Facilities and Infrastructure Management for Islamic Higher Education Institutions from an Ecotheological Perspective

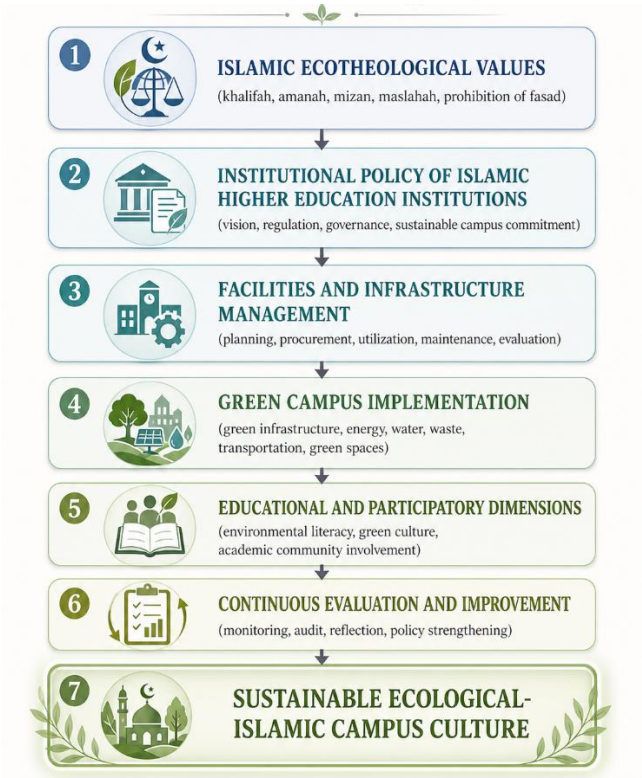


Figure 1 shows that the resulting model is cyclical, integrative, and sustainable. This means that the facilities and infrastructure management process does not stop at facility provision, but moves continuously from values, policy, implementation, participation, and evaluation.

6. Relationships among Findings

The findings show that the five themes are hierarchically interrelated. Facilities and infrastructure management becomes the operational foundation. Green campus becomes the ecological orientation. Islamic ecotheology becomes the value foundation. Multidimensional integration becomes the systemic framework. Meanwhile, the conceptual model becomes the final synthesis of all findings.

These relationships among findings can be formulated as follows:

Table 3. Relationships among Findings in the Model Construction

Theme	Position in the Findings	Relationship with Other Themes
Facilities and infrastructure management	Operational foundation	Becomes the basis for green campus implementation.
Green campus	Ecological orientation	Provides the direction for sustainable facility management.
Islamic ecotheology	Value foundation	Provides ethical-spiritual legitimacy.
Multidimensional integration	Systemic framework	Unifies all elements of the model.
Conceptual model	Synthesis	Becomes a design for the development of

	outcome	sustainable Islamic higher education institutions.

Based on the overall findings, it can be affirmed that the green campus-based facilities and infrastructure management model for Islamic higher education institutions from an ecotheological perspective must be built integratively. This model should not be oriented only toward facility availability; rather, it must connect facilities and infrastructure management with ecological sustainability, environmental education, academic community participation, and Islamic values. Thus, this study produces a more comprehensive and contextual model construction for Islamic higher education institutions

Discussion

The findings of this study affirm that the construction of a green campus-based facilities and infrastructure management model for Islamic higher education institutions from an ecotheological perspective needs to be developed integratively rather than partially. This finding is important because facilities and infrastructure management has tended to be understood as an administrative activity focused on the provision, utilization, maintenance, and evaluation of educational facilities. This orientation is necessary, but it is not sufficient to respond to the challenges of ecological sustainability and the moral-spiritual responsibility of Islamic higher education institutions. In this context, facilities and infrastructure can no longer be positioned merely as physical instruments supporting academic activities, but as strategic instruments for building campus governance that is ecological, educational, participatory, and grounded in Islamic values.

Critically, the findings indicate that the main weakness in the management of higher education facilities and infrastructure lies in the tendency for management to remain technical-operational. Facility management is often measured by the availability of space, building feasibility, equipment completeness, and fulfillment of minimum educational service standards. In a sustainability perspective, however, campus facilities must be assessed more broadly, namely in terms of the extent to which they support energy efficiency, water conservation, waste reduction, green open spaces, environmentally friendly transportation, and ecological behavior among campus stakeholders. Therefore, this study expands the meaning of facilities and infrastructure management from asset management toward the management of a sustainable campus ecosystem.

This finding is closely related to educational facilities and infrastructure management theory, which positions facilities as important components in improving the quality of academic services. Anshori et al. (2022) and Ginanjar et al. (2023) emphasize that well-managed facilities and infrastructure contribute to the quality of the learning process and institutional effectiveness. However, this study shows that the concept of quality in facilities and infrastructure management must be expanded. Quality is not only related to comfort, feasibility, and facility availability, but also to sustainability, efficiency, ecological responsibility, and alignment with Islamic values. Thus, the model constructed in this study does not reject the basic functions of facilities and infrastructure management, but extends them toward sustainable and spiritually meaningful facilities management.

In relation to the green campus concept, the findings support the view that higher education sustainability must be realized through the integration of policy, infrastructure, campus operations, education, research, and academic community participation. Amaral et al. (2015) explain that sustainable universities cannot be built solely through normative commitment, but require systemic transformation in institutional governance. Lozano et al. (2015) similarly emphasize that the implementation of sustainability in higher education must include various institutional dimensions comprehensively. Based on this framework, the findings strengthen the argument that facilities and infrastructure management is one of the most strategic entry points for implementing green campus principles in Islamic higher education institutions.

Compared with previous studies, this study supports the findings of Lauder et al. (2015),

Berzosa et al. (2017), and Dawodu et al. (2022), which emphasize the importance of campus sustainability indicators such as infrastructure, energy, water, waste, transportation, education, and governance. However, this study does not stop at affirming technical indicators of the green campus. It extends the framework by incorporating Islamic ecotheology as a value foundation. Thus, the novelty of this article lies in the integration between green campus indicators and Islamic values in facilities and infrastructure management within Islamic higher education institutions.

The findings are also consistent with Menon and Suresh (2020), who emphasize that higher education sustainability needs to synergize education, research, campus operations, and community engagement. Likewise, Oliveira and Proença (2025) show that sustainable campus operations require a systemic approach rather than separate facility management. However, the model constructed in this article has a different emphasis because its context is Islamic higher education. In this context, sustainability is understood not only as an ecological and managerial agenda, but also as a religious amanah. This means that campus facility management is accountable not only to institutional standards, but also to Islamic ethical-spiritual values.

The ecotheological dimension is an important element that distinguishes the findings of this study from most previous green campus studies. Rakhmat (2022) explains that Islamic ecotheology positions human beings as khalifah who bear moral responsibility for protecting the environment. Rohman et al. (2024) also show that integrating ecotheology into Islamic education can strengthen ecological awareness and environmental character education. This study supports these views while extending them into the realm of facilities and infrastructure management in Islamic higher education institutions. In other words, Islamic ecotheology in this study is positioned not only as a normative idea or environmental education content, but also as a conceptual basis for campus facility governance.

Argumentatively, the integration of green campus principles and Islamic ecotheology provides two strengths at once. First, the green campus provides an operational framework that can be translated into concrete indicators such as energy efficiency, water conservation, waste management, environmentally friendly transportation, and green open spaces. Second, Islamic ecotheology provides a value foundation that gives spiritual meaning to sustainability practices. Thus, this model avoids two extreme weaknesses: ecological technocratism that emphasizes physical indicators without values, and religious normativism that is morally strong but weak in institutional operationalization. The synthesis of both produces a more comprehensive facilities and infrastructure management framework.

This finding also expands the concept of sustainable facilities management in the context of higher education. Aceves-Avila and Berger-García (2019) explain that sustainable facilities management in higher education institutions needs to pay attention to operational aspects, efficiency, and long-term sustainability. In this article, this concept is expanded by incorporating the distinctive character of Islamic higher education institutions, namely the integration of religious values into the management system. Therefore, the constructed model answers not only the question of how campus facilities can be managed efficiently, but also how such management can reflect ecological responsibility as part of the Islamic mission of higher education.

The theoretical contribution of this study lies in the development of a conceptual model that connects five main dimensions: managerial, ecological, educational, participatory, and spiritual. The managerial dimension emphasizes the importance of planning, procurement, utilization, maintenance, monitoring, and evaluation. The ecological dimension positions green campus principles as the direction of facility sustainability. The educational dimension turns the campus environment into a space for ecological learning. The participatory dimension emphasizes the active involvement of the academic community. The spiritual dimension provides value foundations in the form of khalifah, amanah, mizan, maslahah, and the prohibition of fasad. The integration of these five dimensions enriches Islamic educational management studies by offering an approach that is not only administrative, but also ecological and theological.

The practical contribution of this study lies in the possibility of applying the model as a framework for developing facilities and infrastructure policies in Islamic higher education institutions. This model can be used by institutional leaders, facilities and infrastructure managers, quality assurance units, and campus planning units to formulate green campus programs based on Islamic values. Practically, the model can be translated into policies for energy saving, reducing plastic use, integrated waste management, providing green open spaces, conserving water, utilizing prayer facilities as centers for ecological education, and involving students in sustainable campus movements.

The policy implication of this finding is that Islamic higher education institutions need to incorporate green campus and ecotheological principles into institutional documents such as strategic plans, facilities and infrastructure standards, quality policies, facility maintenance guidelines, and campus development programs. To date, facilities and infrastructure management has often been closer to technical and budgetary matters. Through this model, facilities and infrastructure management needs to be positioned as part of institutional strategy in building excellence, sustainability, and Islamic campus identity. This means that facilities and infrastructure policies should not only regulate procurement and maintenance, but also govern ecological orientation, sustainability indicators, and the institution's spiritual responsibility.

In educational practice, this model has implications for the formation of an ecological culture in Islamic higher education environments. Beyond forming ecological culture, the model is also relevant to strengthening the socio-religious functions of Islamic higher education institutions. Green campus-based facilities and infrastructure management needs to be understood as part of an institutional ecosystem that supports learning, da'wah, community service, and digital literacy. Kuswadi et al. (2026) show that strengthening religious moderation through digital majelis taklim can serve as an effective and sustainable community service model in building socio-religious harmony in rural communities. Thus, facilities and infrastructure in Islamic higher education institutions function not only as internal physical campus facilities, but also as socio-educational infrastructure supporting community transformation based on Islamic values, technology, and sustainability. The campus is not only a place for formal learning, but also a laboratory of ecological life. Students can learn environmental responsibility not only through courses, but also through direct experiences of using energy-efficient facilities, sorting waste, maintaining cleanliness, caring for green spaces, conserving water, and participating in campus sustainability programs. Thus, facilities and infrastructure function as media for ecological character education. This is in line with the idea that higher education sustainability must involve learning processes, cultural formation, and academic community participation (Ribeiro et al., 2021; Menon & Suresh, 2020).

The implication for scientific development is evident in the expansion of Islamic educational management studies. So far, Islamic educational management studies have largely discussed leadership, curriculum, quality, human resources, financing, and facilities and infrastructure within institutional governance frameworks. This article expands that space by incorporating ecological sustainability and ecotheology as part of Islamic educational management discourse. Thus, Islamic educational management is directed not only toward institutional effectiveness, but also toward ecological responsibility and civilizational sustainability. At this point, the article contributes to building an Islamic educational management paradigm that is more responsive to environmental crises.

Nevertheless, this study has limitations. First, it is based on library research, so the resulting model remains conceptual and has not been empirically tested in a specific Islamic higher education institution. Second, the model construction was developed based on literature synthesis, and therefore it does not directly capture variations in facilities and infrastructure management practices in the field. Third, Islamic higher education institutions are highly diverse in terms of institutional capacity, resources, geographic location, organizational culture, and funding capability. Therefore, the application of this model requires adjustment to each institutional context. Fourth, the green campus indicators used in this article remain general, so future research needs to develop more specific

operational instruments for Islamic higher education institutions.

Based on these limitations, further research can be directed toward empirical testing of the model through case studies, field research, or mixed methods designs. Future research can also develop evaluation instruments for green campus- and Islamic ecotheology-based facilities and infrastructure management, so that this model does not remain merely conceptual but can be used as an institutional measurement tool. In addition, comparative studies among several Islamic higher education institutions can be conducted to examine variations in implementation, challenges, and strategies for strengthening green campuses based on Islamic values.

In synthesis, this discussion shows that the green campus-based facilities and infrastructure management model for Islamic higher education institutions from an ecotheological perspective is a relevant, contextual, and novel construction. This model supports previous studies on the importance of higher education sustainability, but extends them by incorporating Islamic ecotheology as a value foundation. The model also develops facilities and infrastructure management from an administrative orientation toward an ecological-spiritual orientation. Thus, this article offers a conceptual framework suggesting that Islamic higher education institutions can become institutions that are not only academically excellent, but also centers for forming ecological culture rooted in Islamic values.

CONCLUSION

This study concludes that the construction of a green campus-based facilities and infrastructure management model for Islamic higher education institutions from an ecotheological perspective needs to be developed through the integration of managerial, ecological, educational, participatory, and spiritual dimensions. Thus, the research objective of formulating a conceptual model for sustainable facilities and infrastructure management in Islamic higher education institutions has been achieved through a framework that positions facilities and infrastructure not merely as physical institutional assets, but as instruments for forming an ecological-Islamic campus culture. This model affirms that campus facility management should not be oriented only toward availability, feasibility, and maintenance, but should also be directed toward energy efficiency, water conservation, waste management, green open spaces, environmentally friendly transportation, ecological literacy, and the internalization of Islamic values.

The synthesis of the main findings shows that the green campus provides an operational framework for sustainable facilities and infrastructure governance, while Islamic ecotheology provides a value foundation that strengthens the ethical and spiritual meaning of sustainability practices. The principles of khalifah, amanah, mizan, maslahah, and the prohibition of fasad become normative bases that can guide policies and practices of facilities and infrastructure management in Islamic higher education institutions. Therefore, the model developed in this study not only expands the concept of facilities and infrastructure management from an administrative orientation toward an ecological-spiritual orientation, but also strengthens the position of Islamic higher education institutions as academic institutions with ecological and religious responsibilities.

Theoretically, this study contributes to the development of Islamic educational management studies by offering an integration of facilities and infrastructure management, green campus principles, and Islamic ecotheology within a single conceptual model. This contribution is important because facilities and infrastructure management studies have tended to focus on technical and administrative aspects, while ecological and spiritual dimensions have not been systematically constructed. Practically, this model can serve as a reference for leaders of Islamic higher education institutions, facilities and infrastructure managers, quality assurance units, and campus policy makers in designing strategies for developing facilities that are environmentally friendly, educational, participatory, and aligned with Islamic values.

The implications of this study indicate that Islamic higher education institutions need to incorporate green campus and ecotheological principles into institutional documents, such as strategic plans, facilities and infrastructure standards, quality policies, procurement guidelines, facility

maintenance policies, and campus environmental culture programs. However, this study has limitations because it is based on library research, so the resulting model is conceptual and has not yet been empirically tested in the context of a particular Islamic higher education institution. Therefore, further research is recommended to test this model through case studies, field research, or mixed methods approaches, and to develop evaluation instruments for green campus- and Islamic ecotheology-based facilities and infrastructure management so that the model can be operationalized more measurably in institutional practice.

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