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Eco-Leadership through the Qur'anic Lens: A Case Study of Sustainable Pesantren Management at Daarul Uluum Lido, Bogor

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Abstract

This article examines the model of eco-leadership through the Qur'anic perspective in realizing sustainable pesantren management, drawing on a case study conducted at Pondok Pesantren Tahfizh Al-Qur'an Daarul Uluum Lido, Bogor. The study is motivated by the recognition that Islamic educational institutions, particularly pesantren, occupy a uniquely strategic position in responding to the global ecological crisis, yet the role of principals as Qur'anically grounded eco-leaders in shaping environmentally oriented institutional cultures has received limited systematic attention in the literature. This research employs a qualitative case study approach, drawing on in-depth interviews, participant observation, and documentation analysis. Participants include the school principal, teachers, and santri directly involved in environmental management activities and policy implementation. Data were analyzed using the interactive model comprising data reduction, data display, and conclusion drawing following the framework established by Miles and Huberman (1994). The findings reveal that eco-leadership in this pesantren is grounded in five core Qur'anic principles, namely the concept of khalifah (stewardship of the earth), amanah (trust and accountability), mizān (balance), the prohibition of fasad (environmental corruption), and the universal mission of rahmatan lil'alamin (mercy to all creation). These principles are translated into concrete institutional policies including the conservation of a protected riverine zone known as the Harim Zone, rainwater harvesting technology, the development of a medicinal plant greenhouse, and large-scale fauna exploration activities. Environmental education is integrated through three interconnected pathways, comprising formal classroom instruction, thematic Qur'anic study sessions, and experiential environmental practice. Leadership by moral example, grounded in the concept of uswah hasanah, serves as the primary vehicle through which ecological values are transmitted to the santri community. The study concludes that the integration of Qur'anic values with eco-leadership practice constitutes a strategic framework for building pesantren management that is ecologically sustainable, character-forming, and socially responsible.

Keywords: eco-leadership; Qur'anic perspective; pesantren management; eco-pesantren; sustainable education; khalifah; amanah.

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INTRODUCTION

The world is currently confronted with an environmental crisis of unprecedented scope and urgency. Among the most pressing dimensions of this crisis is climate change, which the scientific community increasingly characterizes as an existential threat to the continuity of life on earth. The Intergovernmental Panel on Climate Change projected in the 2000s that global temperatures could rise by between 2.5 and 10.4 degrees Celsius over the following century, and subsequent assessments have continued to affirm the severity of this trajectory. The World Meteorological Organization, together with the United Nations Framework Convention on Climate Change, has consistently warned that current warming trends will persist for decades unless aggressive and coordinated mitigation action is undertaken. This phenomenon is now widely situated within what scholars and policymakers have termed the Triple Planetary Crisis, comprising climate change, biodiversity loss, and pollution, each of which poses serious risks to human and non-human life alike.

In Indonesia, the ecological challenges are both severe and diverse. Environmental pressures include deforestation, air and water pollution, unmanaged waste, ozone layer depletion, and rapid biodiversity decline. The Ministry of Environment and Forestry reported that in 2023, Indonesia generated approximately 38.3 million metric tons of waste annually, with only 27.6 percent collected for formal disposal and a mere 0.4 percent recycled by households. The majority of Indonesian households, approximately 57.2 percent, resort to burning their waste, a practice that generates secondary air pollution and compounds existing environmental degradation. The Central Statistics Agency has identified inadequate waste management as a primary driver of both air and water contamination across the country. These conditions underscore the urgency of building institutional capacities for environmental responsibility at every level of Indonesian society.

In response to these challenges, the international community has progressively sought to engage educational institutions as agents of ecological transformation. The UNESCO framework for Education for Sustainable Development, known as ESD for 2030, explicitly targets all educational institutions, including Islamic religious ones, as vehicles for embedding ecological awareness, knowledge, and behavioral change within student populations. This framework calls for the integration of sustainable development education across policy formation, institutional management, educator capacity development, youth empowerment, and community-level environmental action. Educational institutions hold particular significance in this agenda because of their capacity to shape the values, habits, and worldviews of large numbers of young people over extended periods, making them among the most powerful mechanisms available for cultivating the ecological consciousness that sustainable development demands.

Indonesian pesantren, the traditional Islamic boarding schools that form the backbone of the country's non-formal Islamic education system, represent a particularly significant yet still under-explored site for environmental education. According to data published by the Ministry of Religious Affairs in 2023, there are 39,551 pesantren in Indonesia, educating approximately 4.9 million santri across all provinces. This vast educational network, which operates with considerable institutional autonomy and possesses deep moral authority within Muslim

communities, holds substantial potential as a force for ecological transformation. The program of eco-pesantren, launched in 2008 through collaboration between the Ministry of Environment and the Ministry of Religious Affairs, has sought to harness this potential by encouraging pesantren to integrate environmental care into their governance, curriculum, and daily life. Research by Mangunjaya and Anjani confirmed that eco-pesantren programs can effectively build communities of environmentally conscious learners when supported by adequate institutional leadership.

Central to the success of eco-pesantren programs is the quality of leadership exercised by the pesantren principal or head teacher. Michael Fullan (2001) argued that without purposeful leadership, institutions cannot transform themselves, a claim that holds particular force in the educational context where the principal functions simultaneously as an educational manager, a cultural architect, and a moral exemplar. Research by Wahyuningsih et al. demonstrated that charismatic and spiritually authoritative leaders, such as the kiai of a pesantren, can serve as direct role models for santri in the formation of environmentally responsible character. Similarly, Herdiansyah et al. established that the policies and personal example of the pesantren head constitute the foundational determinant of the success of eco-pesantren programs. In the Western management literature, Simon Western (2008, 2013) developed the theoretical concept of eco-leadership as a new leadership paradigm that understands organizations as embedded within broader ecological and social systems, calling for leaders who exercise connectivity, systemic ethics, distributed authority, and long-term sustainability orientation.

Despite the growing body of research on eco-pesantren programs, a significant gap persists in the scholarly literature. Most existing studies focus on the outcomes of environmental programs, the patterns of santri participation, or the design of environmentally oriented curricula, without systematically examining the role of the principal as a Qur'anically grounded eco-leader. Studies by Safari (2022), Risana et al. (2024), and Junianto et al. (2025) have all made valuable contributions to understanding eco-pesantren, but none has constructed a comprehensive Qur'anic eco-leadership model that is both conceptually grounded and empirically tested in a specific institutional setting. This article addresses that gap by examining how the principal of Pondok Pesantren Tahfizh Al-Qur'an Daarul Uluum Lido implements eco-leadership explicitly grounded in Qur'anic principles, and by proposing an integrative conceptual model based on empirical findings from that setting.

The study addresses four interrelated research questions. The first concerns how the principal implements eco-leadership based on Qur'anic values in the management of the eco-pesantren. The second examines the specific policies adopted to support ecological sustainability in the institution. The third investigates how the principal internalizes Qur'anic values within the collective culture and daily habits of the pesantren community in relation to environmental management. The fourth explores the impact of Qur'anic eco-leadership on the ecological attitudes and behaviors of santri and other members of the pesantren community.

THEORETICAL FRAMEWORK

Eco-Leadership in Western Management Theory

The concept of eco-leadership was systematically introduced by Simon Western (2008) as a new leadership discourse emerging in response to global ecological and social crises that the older industrial paradigms of leadership were unable to adequately address. In his initial formulation, Western argued that organizations must be understood not as closed mechanical systems governed by hierarchy and control, but as ecosystems embedded within and interdependent with larger social, economic, and natural systems. He identified four foundational principles of eco-leadership, namely connectivity and interdependence, eco-ethics, leadership spirit, and dispersed leadership. In the revised second edition of his work, Western (2013) elaborated these into the concepts of connectivity and interdependence, systemic ethics, leadership spirit, and organizational belonging. Together, these principles describe an approach to leadership that is relational, ethical, distributed across organizational levels, and fundamentally oriented toward long-term sustainability rather than short-term productive efficiency.

Egri and Herman extended this framework by defining environmental leadership as the capacity to influence individuals and mobilize organizations toward the realization of long-term sustainability visions. Dechant and Altman proposed a four-dimensional framework for environmental leadership that encompasses inspiring shared vision, developing managerial approaches for environmental challenges, building stakeholder partnerships, and serving as environmental educators. Zacher et al. further refined the empirical understanding of eco-leadership by describing it as a process through which leaders influence followers and organizational systems toward sustainability goals, and identified a typology of green leader behaviors comprising transforming, conserving, avoiding harm, influencing others, taking initiative, and avoiding counterproductive sustainability behaviors. These conceptualizations collectively provide an empirical and organizational dimension to eco-leadership that can be enriched by the theological foundations offered by the Islamic tradition.

Islamic Leadership and the Qur'anic Foundation for Eco-Leadership

In the Islamic intellectual tradition, leadership is understood not merely as a functional or administrative role but as a moral and spiritual vocation. Nadzmi Akbar described Islamic leadership as an effort to improve the quality of the Muslim individual's personality, grounding effective leadership in taqwa (God-consciousness), faith, and compliance with Islamic law. Four prophetic qualities are conventionally identified as the normative model for Islamic leadership, namely shiddiq (truthfulness), amanah (trustworthiness), tabligh (communicative transparency), and fathanah (wisdom and intellectual discernment). When internalized in leadership practice, these qualities situate authority within a broader framework of spiritual responsibility and moral accountability that transcends mere technical competence.

The Qur'anic framework for eco-leadership rests on five interlocking concepts. The first is the concept of khalifah, derived from Surah Al-Baqarah verse 30, which establishes that God appointed humanity as his vicegerent on earth, defining the human relationship to the natural

world not as unlimited dominion but as custodial stewardship in which the earth and its resources are held in trust. The second concept is amanah (trust), articulated in Surah Al-Ahzab verse 72, which describes the cosmic trust accepted by humanity and encompasses both the spiritual obligation of worshipping God and the ecological obligation of maintaining the integrity of the created order. The third concept is mizān (balance and equilibrium), established in Surah Ar-Rahman verses 7 through 9, which commands humanity not to transgress the balance that God has set in creation, and to uphold that balance with justice. The fourth concept is the prohibition of fasad (corruption and environmental destruction), articulated most directly in Surah Al-A'raf verse 56, which commands that humans must not cause corruption on the earth after it has been set in order. The fifth concept is rahmatan lil'alamin (mercy to all creation), drawn from Surah Al-Anbiya verse 107, which establishes that the prophetic mission of the Prophet Muhammad was one of universal mercy encompassing all beings. These five Qur'anic concepts together provide a coherent and theologically robust foundation for an Islamic model of eco-leadership.

Eco-Pesantren as a Framework for Sustainable Islamic Education

The concept of eco-pesantren represents the translation of Islamic ecological theology into institutional educational practice. As Hermawansyah argued, eco-pesantren constitutes a model of Islamic educational management that integrates ecological values into all aspects of education, daily life, and institutional governance, responding to the global environmental crisis from a distinctively Islamic perspective. The conceptual architecture of eco-pesantren rests on three foundational pillars, namely curriculum, institutional culture, and physical infrastructure. On the curricular dimension, ecological values are integrated into both formal learning activities and extracurricular programs. On the cultural dimension, environmentally responsible behavior becomes part of the daily routine collectively practiced by the entire community. On the infrastructural dimension, the physical facilities of the pesantren are managed in ways that support sustainability, including waste management, energy conservation, and environmental maintenance. The Government of Indonesia institutionalized this concept through the Eco-Pesantren Guidelines issued jointly by the Ministries of Religious Affairs and Environment, establishing operational indicators covering environmentally oriented institutional policy, an environment-integrated curriculum, sustainable facility management, healthy lifestyle promotion, organized waste management, energy conservation, green space provision, and environmentally friendly transportation arrangements.

Nizar Ali and Ali Satibi situated Islamic educational management within a framework that employs conventional management functions of planning, organizing, actuating, and evaluation, but infuses these functions with Islamic values of amanah, moral responsibility, and accountability before God. This framework distinguishes Islamic educational management from secular management by its orientation toward both worldly and transcendent purposes, making every administrative decision simultaneously an expression of professional competence and spiritual fidelity. In the context of eco-pesantren, this means that

environmental management is not an add-on program but an expression of the fundamental orientation of the institution toward its responsibilities as a steward of God's creation.

METHOD

This research employs a qualitative approach of the case study type, selected because the research is oriented toward understanding the naturally occurring phenomena associated with eco-leadership implementation in a specific institutional setting. Pondok Pesantren Tahfizh Al-Qur'an Daarul Uluum Lido was chosen as the research site on the basis of two principal criteria. The first is its structural representativeness as a formal Islamic educational institution with a well-developed managerial system and established organizational hierarchy. The second is its active implementation of the eco-pesantren concept, as evidenced by its recognition as a recipient of the national Eco-Pesantren Award for best environmental fiqh practice during the 2021 to 2024 program cycle. This recognition confirms that the pesantren has undergone a genuine transformation of Islamic values into environmental practice rather than merely adopting the eco-pesantren label as an institutional credential.

The research subjects include the school principal as the primary informant, together with teachers and santri directly involved in environmental policy implementation and ecological activities. Purposive sampling was employed to identify informants who possess direct knowledge of and experience with the eco-leadership practices under investigation. Data were collected through three complementary techniques. In-depth interviews were conducted with key informants to explore their understanding of Qur'anic principles as applied to environmental leadership, their motivations for ecological practice, and their assessments of program effectiveness. Participant observation was carried out during environmental activities, daily routines, Qur'anic study sessions, and policy implementation processes in order to triangulate interview data with observed behavior. Documentation analysis involved the systematic examination of institutional vision and mission statements, program reports, photographic records, policy documents, and collaborative agreements between the pesantren and external environmental organizations.

Data analysis follows the interactive model developed by Miles and Huberman (1994), comprising three concurrent and iterative processes. Data reduction involves the selection, focusing, simplification, and transformation of raw data, identifying the patterns and themes most relevant to the research questions. Data display involves the organized presentation of reduced data in formats that enable analytical interpretation. Conclusion drawing and verification involves the formulation of analytical conclusions and their ongoing testing against the full dataset through an iterative process of confirmation and refinement. Validity was ensured through triangulation across data sources and collection methods, ensuring that findings are grounded in converging evidence from interviews, observation, and documentation rather than in single-source testimony.

RESULTS AND DISCUSSION

Profile of Pondok Pesantren Tahfizh Al-Qur'an Daarul Uluum Lido

Pondok Pesantren Tahfizh Al-Qur'an Daarul Uluum Lido is located at the foot of Mount Salak in the village of Ciburuy, Cigombong sub-district, Bogor Regency, West Java. The natural setting of the pesantren, characterized by a cool climate, clean air, and proximity to flowing water, provides an ecological environment that is inherently conducive to both Qur'anic memorization and environmental education. The pesantren emerged from a tahfizh community within the larger Pesantren Modern Daarul Uluum Lido, formalized on the Night of Nuzulul Qur'an in Ramadan with an initial membership of twenty santri. The institution gained formal independence on February 1, 2015, and achieved autonomous institutional status in the 2016 to 2017 academic year.

The institutional vision of the pesantren is to produce graduates who are practitioners of remembrance (ahli dzikir), practitioners of thought (ahli fikir), and practitioners of the Qur'an (ahli Qur'an). This threefold vision explicitly links spiritual formation, intellectual development, and Qur'anic immersion in a single institutional orientation. The pesantren's educational system is organized around two foundational frameworks, the Panca Jiwa (Five Spirits) of sincerity, simplicity, independence, Islamic brotherhood, and freedom, and the Panca Bina Tahfizh (Five Foundations of Memorization) of recitation, memorization, repetition, completion, and application. Its program portfolio includes monthly completion reviews, a target of four memorized chapters per semester, an intensive Tasmi' Akbar examination of all thirty Qur'anic chapters for graduating students, and a scholarship program for students who complete full memorization. Facilities include a mosque, classroom buildings, dormitories, a library, a computer laboratory, a biofloc unit, catfish and duck farming operations, a communal kitchen, and laundry facilities. This infrastructure reflects an institution that simultaneously pursues Qur'anic excellence and practical self-sufficiency, providing a rich material context for the integration of ecological values into daily institutional life.

Eco-Leadership Grounded in the Khalifah Concept

The most foundational finding of this study is that eco-leadership at Daarul Uluum Lido is explicitly and consciously grounded in the Qur'anic concept of khalifah, understood as humanity's appointment by God as caretaker and steward of the earth. In an in-depth interview, the principal (Mulyadi, M.Pd.) articulated this grounding with clarity:

"If I understand eco-pesantren, it is a pesantren that runs environmental activities because Islam itself clearly teaches that. Now other people are talking about it at the international level, but actually we have the verses. So the pesantren feels obligated to practice this, because we are human beings to whom the earth has been entrusted. Therefore, maintaining the environment is not just an additional program; it is genuinely part of our responsibility."

This statement reveals an understanding of ecological responsibility that is simultaneously theological, moral, and institutional. The principal explicitly rejects the framing of environmental management as a supplementary or externally imposed agenda, positioning it instead as an intrinsic obligation derived from the Islamic understanding of human

stewardship. This grounding aligns the pesantren's environmental practice with Surah Al-Baqarah verse 30, which establishes humanity's appointment as vicegerent on earth. The verse also carries a cautionary internal structure, as the angels question the wisdom of appointing a being capable of causing corruption and bloodshed, to which God responds that He possesses knowledge that the angels do not. This dialogic dimension means that the concept of khalifah is inseparable from the moral challenge of avoiding environmental destruction, rendering the principal's appropriation of the concept an authentic theological position rather than a rhetorical convenience.

The principal's framing reflects what Hermawansyah identified as the ekoteologi (ecological theology) that characterizes mature eco-pesantren practice, namely the integration of environmental responsibility into the core theological self-understanding of the institution rather than treating it as a technical management concern. This represents a significant conceptual advance beyond the purely procedural model of eco-pesantren as a compliance framework, situating environmental leadership within the deepest structures of Islamic moral identity. It also exemplifies Western's (2013) concept of organizational belonging, which holds that eco-leaders must cultivate an understanding of the organization as genuinely embedded within and responsible to the broader ecological world in which it is situated.

Amanah as the Moral Architecture of Eco-Leadership

The second Qur'anic principle structuring eco-leadership at Daarul Uluum Lido is amanah, the concept of sacred trust. The principal explicitly described the natural environment not merely as a facility to be managed but as an amanah that must be conscientiously maintained:

"The basic principle of this pesantren in maintaining the environment is rooted in the awareness that we are human beings to whom the earth has been entrusted. So the environment is not just a facility; it is an amanah that must be maintained. That is why I always emphasize that planting trees is obligatory, because we live from the oxygen they provide."

This formulation of the environment as amanah has significant implications for the institutional culture of the pesantren. When environmental care is framed as a matter of fulfilling a divine trust rather than complying with a policy mandate, it becomes imbued with the moral weight of a religious obligation. Teachers at the pesantren internalized and transmitted this framing. Ustadzah Faliha Raihan described the motivational basis of environmental behavior in the pesantren as rooted in the concept of rahmatan lil'alamin, explaining that caring for the environment is understood as beneficial to all because it expresses love for all of God's creatures. She noted that even the smallest acts, such as disposing of waste in designated locations, are constantly reinforced by the leadership as expressions of this broader commitment.

The concept of amanah as developed in this institutional context corresponds closely to the dual accountability structure identified in Islamic leadership theory, namely vertical accountability before God and horizontal accountability to the human community and to all creation. The principal's articulation of environmental obligation as a form of religious duty adds an interior moral dimension to the institutional framework that formal policy

mechanisms alone cannot provide. This finding resonates with Zacher et al.'s observation that effective eco-leadership depends not only on organizational structural factors but on the cognitive, motivational, and moral resources that leaders bring to the exercise of their roles.

Mizān and the Prohibition of Fasad in Institutional Policy

The principles of mizān and the prohibition of fasad find their most direct institutional expression in the Harim Zone policy, one of the most distinctive features of the Daarul Uluum Lido eco-pesantren model. The Harim Zone designates the riverine buffer area along the pesantren's watercourse as a protected conservation zone from which all construction is permanently prohibited. The rationale for this policy, as explained by the principal and confirmed by supporting documentation, is explicitly theological. Maintaining the natural vegetation along the riverbank is understood as an act of preserving the ecological balance that God has set in the created order, in direct application of the principle of mizān articulated in Surah Ar-Rahman, and as a concrete expression of the Qur'anic prohibition against causing fasad on the earth after it has been established in order, as commanded in Surah Al-A'raf verse 56. The principal elaborated on the principle that maintaining the environment is a form of obedience to God, and that damaging it constitutes a violation of the trust placed in humanity as khalifah. The Harim Zone thus functions simultaneously as a conservation policy, an educational resource, and a theological statement, with santri interacting daily with this protected space and developing through regular engagement with it an understanding of how Islamic legal and ethical principles translate into concrete land management practice.

This alignment between theological principle and institutional policy exemplifies what Dechant and Altman described as a key dimension of environmental leadership, namely the development of managerial approaches grounded in environmental values rather than merely responsive to external pressures. The Harim Zone policy did not emerge from regulatory compliance requirements or from donor incentives, but from the principal's own Qur'anic understanding of environmental responsibility. This internally motivated, theologically grounded character distinguishes the eco-leadership practiced at Daarul Uluum Lido from the merely procedural approaches that characterize some other eco-pesantren implementations.

Concrete Environmental Programs and Technologies

Beyond the Harim Zone, eco-leadership at Daarul Uluum Lido is expressed through a range of concrete technological and programmatic initiatives that translate Qur'anic principles into practical institutional management. These initiatives span resource conservation, biodiversity education, waste management, and collaborative ecological programming, and together constitute a comprehensive ecology of practices that makes environmental responsibility a visible and normal feature of daily institutional life.

The rainwater harvesting system exemplifies the anti-israf principle, linking the Qur'anic prohibition of excess in resource consumption from Surah Al-An'am verse 141 to a practical technological intervention. A 250-litre collection tank connected to the greenhouse roof channels harvested water directly to hydroponic cultivation, creating a closed-loop resource system that simultaneously conserves water, reduces dependency on external water supplies,

and provides a living demonstration of wise stewardship. This technological choice reflects the principal's commitment to translating abstract theological principles into experiential learning opportunities that santri encounter in their daily lives.

The medicinal plant greenhouse, developed in collaboration with the Foundation for Indonesian Biodiversity (KEHATI) and the Center for Islamic Studies at Nasional University, was officially opened in December 2024. It houses more than fifteen species of Indonesian medicinal plants including red ginger, turmeric, bidara, and lemongrass. The facility serves simultaneously as an educational laboratory, a source of medicinal resources for the pesantren community, and a biodiversity conservation site. By situating the greenhouse within the framework of the Islamic concept of rahmatan lil'alamin, the pesantren connects the care of plant biodiversity to the universal mercy that Muslims are called to extend to all of God's creation, rather than treating biodiversity conservation as a purely secular environmental concern.

The Fauna Exploration Program, conducted on August 9 and 10 of 2024 in collaboration with Biodiversity Warriors Ekopesantren and Nasional University, engaged approximately 700 santri in the systematic exploration and identification of fauna species in the pesantren environment. A particularly significant feature of this program was its incorporation of the Indonesian Ulema Council Fatwa Number 04 of 2014 on the protection of endangered species, grounding biodiversity conservation in an Islamic legal ruling and demonstrating to santri that their ecological responsibilities are not merely matters of civic duty or scientific knowledge but of religious obligation. This integration of Islamic jurisprudence with practical environmental education represents a distinctive contribution of the pesantren model to ecological pedagogy.

The waste management system establishes a structured differentiation between organic waste, which is directed toward maggot cultivation and composting, and inorganic waste, which is redirected toward handicraft production or commercial sale. A dedicated environmental management division serves as the organizational motor that coordinates and sustains these activities across the institution. The pesantren also operates organic farming and livestock programs including vegetable cultivation, duck and chicken farming, catfish cultivation, and biofloc units, which simultaneously provide food security for the community, practical agricultural education for santri, and a demonstration of the Qur'anic principle that the resources of the earth are to be developed responsibly for the benefit of all rather than exploited recklessly for the advantage of a few.

Three Pathways of Eco-Leadership Implementation

The principal articulated a clear three-pathway model for integrating environmental education into the life of the pesantren, a model derived from interview data and confirmed through observational evidence. As the principal explained in a direct interview statement:

"If the integration of environmental education in this pesantren runs through three aspects. First, from the scientific side in the classroom, children are informed about the importance of nature through science and biology lessons. Second, through thematic tafsir study, Qur'anic verses about nature are raised and explained. Third, practical habituation outside the classroom, such

as waste management where waste is separated into organic and inorganic. Organic waste is directed to maggot processing or composting, while inorganic waste can become handicrafts or be sold. All of these activities are managed within a special division that serves as the driving force of environmental activities."

This tripartite model reflects an understanding of environmental education that is simultaneously cognitive, spiritual, and behavioral. The formal classroom pathway builds the scientific knowledge base that enables santri to understand the ecological dimensions of their actions. The thematic Qur'anic study pathway provides the theological motivation and normative framework that invests environmental care with spiritual meaning and religious obligation. The practical habituation pathway translates knowledge and motivation into consistent behavioral patterns through repeated experiential engagement. The establishment of a dedicated environmental management division to coordinate these pathways reflects an institutional commitment to ensuring that environmental education is not dependent on the enthusiasm of individual teachers but is systematically embedded in the organizational structure of the pesantren itself.

Specific thematic study programs identified through the research include sessions on climate change knowledge and action and on climate change education and biodiversity inventory. These thematic programs position the pesantren as an intellectually engaged participant in contemporary environmental discourse, not merely a practitioner of traditional Islamic norms of cleanliness and tidiness. The principal explicitly connected this positioning to the global significance of the Islamic environmental tradition, noting that foreign visitors have come to the pesantren to learn how Islam addresses the issue of climate change, and asserting that Indonesian Muslims, as custodians of the Qur'anic verses on environmental responsibility, bear a particular obligation to practice what those verses teach.

Leadership by Example as the Foundation of Ecological Culture

A consistent finding across all interview data and observational records is the central role of leadership by example, understood through the Islamic concept of uswah hasanah, in the formation of ecological culture within the pesantren. The principal's personal behavior in relation to the environment constitutes a primary vehicle for the transmission of ecological values to the santri community. In the words of the principal:

"The way I direct is starting from myself first. If I find rubbish, I pick it up. If there is a dry plant, I water it myself. Children gradually feel implicitly challenged; they say, why is the teacher watering, why is the teacher picking up rubbish. From there they start to move too. So indeed, exemplary behavior is how we show children to care for the environment."

This description of leadership by example illuminates a key mechanism through which eco-leadership operates in the pesantren context. The principal's direct participation in environmental maintenance activities communicates that ecological responsibility is not a matter for subordinates or students alone but is a personal expression of the leader's own values and convictions. The observation by santri and staff of the principal engaging in these activities generates a relational dynamic of observational learning in which the behavior of a respected authority figure becomes a pattern that others internalize and emulate.

Teachers at the pesantren play an analogous role at the classroom level, translating the principal's leadership by example into daily instructional and pastoral practice. Ustadzah Faliha Raihan described how, when santri become fatigued or disengaged, they are redirected toward gardening and planting activities as a means of renewing their sense of connection to the natural world and their awareness of their ecological responsibilities. This pedagogical use of environmental engagement as a form of spiritual renewal reflects a sophisticated integration of ecological practice with the formative goals of Islamic education, treating care for the natural world not as a separate subject area but as a dimension of the broader cultivation of moral character that lies at the heart of pesantren education. The testimony of teaching staff confirmed that the principal's personal commitment to ecological responsibility permeates the institutional culture of the pesantren, with all layers of the educational community understanding environmental care as an expression of the core religious and moral values of the institution.

Impacts on Santri Ecological Behavior and Institutional Culture

The implementation of Qur'anic eco-leadership at Daarul Uluum Lido has produced demonstrable effects on the ecological attitudes and behaviors of the santri community. Interview data from teachers consistently described a gradual but sustained growth in santri ecological consciousness, attributing this development to the combination of theological grounding, experiential learning, and leadership by example that characterizes the pesantren's environmental approach. Teachers noted that santri who have internalized the concept of environmental care as an expression of amanah and khalifah are more likely to maintain environmentally responsible habits consistently, even in the absence of immediate supervision, than those who understand environmental compliance as purely rule-governed behavior.

Specific behavioral changes identified through observational and interview data include increased consistency in waste separation between organic and inorganic streams, voluntary participation in environmental monitoring activities such as water quality assessment, active engagement with the greenhouse and hydroponic systems, and growing awareness of the ecological significance of the Harim Zone and the biological diversity it protects. The Fauna Exploration Program produced a particular expansion of ecological awareness among the approximately 700 santri who participated, with many reporting increased recognition of local species and heightened concern for the protection of endangered wildlife as a matter of religious duty. At the institutional level, the establishment of a dedicated environmental management division embeds eco-leadership into the organizational architecture of the pesantren rather than leaving it dependent on the enthusiasm of individual leaders, increasing the resilience of the eco-pesantren program against disruptions from personnel changes and institutional development pressures.

An Integrative Model of Qur'anic Eco-Leadership in Pesantren Management

The findings of this study can be synthesized into an integrative conceptual model of Qur'anic eco-leadership in pesantren management, comprising three mutually reinforcing

dimensions that together constitute a coherent framework for sustainable Islamic educational institution management.

The theological-normative dimension establishes the motivational and legitimating foundation of eco-leadership, grounding environmental responsibility in the Qur'anic concepts of khalifah, amanah, mizān, the prohibition of fasad, and rahmatan lil'alamin. This dimension answers the question of why the pesantren engages in ecological practice, providing an answer that is simultaneously more compelling and more durable than any purely secular rationale for environmental management. The five Qur'anic principles function as a coherent ethical system rather than as isolated injunctions, with each reinforcing and contextualizing the others. Khalifah establishes the ontological basis of human ecological responsibility; amanah defines its moral character as trustworthiness before God; mizān specifies its practical standard as the maintenance of balance; the prohibition of fasad identifies the boundary it must not cross; and rahmatan lil'alamin extends its scope to encompass the welfare of all creation. When environmental care is understood through this integrated theological framework, it commands a different quality of commitment than when it is understood as a technical management function or a compliance requirement.

The educational-formative dimension describes the pedagogical processes through which Qur'anic ecological values are transmitted to the santri community. The three-pathway integration model, the leadership by example of the principal and teachers, and the dedicated organizational structure that sustains these processes together constitute a comprehensive environmental education system. This system is distinctive in that it integrates environmental education into the existing religious and moral formation framework of the pesantren, treating ecological consciousness as a dimension of Islamic character rather than as an extrinsic competency to be separately developed. The result is that environmental behavior becomes embedded in the daily routines, social norms, and moral self-understanding of the santri community in ways that are more likely to persist after the santri leave the pesantren environment than behaviors acquired through purely formal instruction.

The managerial-institutional dimension describes the concrete policies, technologies, and programs through which ecological values are embedded in the physical environment, operational practices, and institutional structure of the pesantren. The Harim Zone, rainwater harvesting system, medicinal plant greenhouse, fauna exploration program, waste management system, and organic farming operations together constitute an ecology of practices that makes ecological responsibility a normal and visible feature of daily institutional life. The collaborative relationships with external organizations including KEHATI and Biodiversity Warriors Ekopesantren extend the institutional capacity of the pesantren and situate it within a broader network of ecological advocacy, ensuring that the pesantren's environmental practice is informed by current scientific and conservation knowledge rather than confined to internal tradition alone.

Taken together, these three dimensions suggest that effective Qur'anic eco-leadership cannot be achieved through any single mechanism alone, whether theological instruction, administrative policy, or individual behavioral example. It requires the simultaneous cultivation and alignment of all three dimensions, creating a coherent institutional culture in

which ecological responsibility is normatively mandated, educationally transmitted, and institutionally structured. This integrative finding is consistent with Western's (2013) insistence that eco-leadership must be systemic rather than individual, organizational as well as personal, and oriented toward long-term sustainability rather than episodic program achievement.

CRITICAL REFLECTION

Several important caveats must accompany the findings of this study. The case study design, while appropriate for the depth of inquiry required, necessarily limits the generalizability of the findings. The distinctive characteristics of Daarul Uluum Lido, including its national recognition as an eco-pesantren, its specific geographic location, its institutional history, and the particular qualities of its principal's leadership, make it an exceptional rather than a typical case. The patterns of eco-leadership observed here may not be replicated in pesantren with different institutional cultures, leadership orientations, or resource endowments. Future research should examine a broader range of eco-pesantren settings, including those at different stages of ecological program development, in order to assess the extent to which the integrative model proposed here has cross-institutional validity.

A second caveat concerns the reliance on self-reported interview data for key findings regarding the motivational and theological grounding of eco-leadership. While the triangulation of interview data with observational and documentary evidence reduces the risk of misrepresentation, the possibility that informants emphasized certain motivational frameworks because they are institutionally sanctioned rather than because they authentically drive behavior cannot be entirely eliminated. Longitudinal ethnographic research would be necessary to assess the depth and durability of the theological motivations attributed to eco-leadership in this setting. A third caveat concerns the scope of impact assessment. The study identifies behavioral changes in santri ecological attitudes and practices on the basis of teacher interview reports and observational evidence but does not employ systematic behavioral measurement instruments or longitudinal tracking of individual santri development. A more rigorous assessment of the educational impacts of Qur'anic eco-leadership would require the development and application of validated instruments for measuring ecological consciousness, environmental knowledge, and pro-ecological behavior over time, representing an important agenda for future research in this field.

CONCLUSION

This study has demonstrated that eco-leadership in the Qur'anic perspective, as practiced at Pondok Pesantren Tahfizh Al-Qur'an Daarul Uluum Lido, constitutes a coherent, multi-dimensional model of sustainable institutional management grounded in the Islamic principles of khalifah, amanah, mizān, the prohibition of fasad, and rahmatan lil'alamin. The principal's explicitly theological framing of environmental responsibility as an act of fulfilling the divine trust placed in humanity as stewards of the earth distinguishes this form of eco-leadership from secular models of environmental management by situating ecological practice within the deepest structures of Islamic moral identity.

The integration of Qur'anic ecological values into institutional policy, educational programming, and daily practice through three complementary pathways, namely formal instruction, thematic scripture study, and experiential environmental management, creates a learning environment in which ecological consciousness develops as a dimension of Islamic character formation rather than as an extrinsic technical competency. The concrete programs implemented under this eco-leadership model, including the Harim Zone conservation policy, the rainwater harvesting system, the medicinal plant greenhouse, the fauna exploration program, and the differentiated waste management system, demonstrate that Qur'anic ecological principles can be effectively translated into practical institutional management. The establishment of a dedicated environmental management division provides organizational continuity that extends the sustainability of eco-leadership beyond dependence on the personal enthusiasm of individual leaders. The collaborative partnerships developed with external organizations extend the institutional reach and scientific capacity of the pesantren's environmental programs.

The integrative model of Qur'anic eco-leadership proposed by this study, comprising theological-normative, educational-formative, and managerial-institutional dimensions, offers a conceptual framework applicable beyond the specific case studied here. Pesantren leaders, educational policymakers, and Islamic education scholars can draw on this framework both as a guide for institutional development and as a basis for comparative research across different eco-pesantren settings. Future research directions include longitudinal studies of the impacts of Qur'anic eco-leadership on santri ecological attitudes and behaviors, cross-institutional comparative studies examining eco-leadership models in diverse pesantren contexts, and investigations of how the Qur'anic eco-leadership framework can be extended to formal Islamic schools and universities. The broader implication of this study is that the Islamic intellectual tradition possesses rich resources for responding to the global ecological crisis, and that pesantren, as institutions that combine deep moral authority with extensive educational reach, are uniquely positioned to translate those resources into transformative social and environmental action.

REFERENCES

Dechant, K., & Altman, B. (1994). Environmental leadership: From compliance to competitive advantage. Academy of Management Perspectives, 8(3), 7-20.

Egri, C. P., & Herman, S. (2000). Leadership in the North American environmental sector: Values, leadership styles, and contexts of environmental leaders and their organizations. Academy of Management Journal, 43(4), 571-604.

Fullan, M. (2001). Leading in a culture of change. Jossey-Bass.

Hermawansyah. (2022). Manajemen eko-pesantren berbasis lingkungan. Jurnal Pendidikan Islam, 10(1), 45-62.

Herdiansyah, H., et al. (2022). Kepemimpinan pengasuh pesantren dalam keberhasilan program eco-pesantren. Jurnal Pendidikan Lingkungan Hidup, 5(2), 88-103.

Intergovernmental Panel on Climate Change. (2023). Synthesis report of the IPCC sixth assessment report. IPCC.

Junianto, A., Syamsuddin, R. S., & Setiawan, A. I. (2025). Implementasi program eco-pesantren di Pondok Pesantren Daarut Tauhid Bandung. Jurnal Manajemen Pendidikan Islam, 8(1), 55-74.

Kementerian Agama Republik Indonesia. (2023). Data statistik pesantren Indonesia tahun 2023. Kemenag RI.

Kementerian Lingkungan Hidup dan Kehutanan. (2023). Data sampah nasional 2023. KLHK.

Mangunjaya, F. M., & Anjani, A. (2019). The eco-pesantren: An environmental education model in Islamic boarding schools in Indonesia. Jurnal Sosial dan Budaya, 7(3), 112-128.

Miles, M. B., & Huberman, A. M. (1994). Qualitative data analysis: An expanded sourcebook (2nd ed.). Sage.

Nadzmi Akbar. (2020). Kepemimpinan Islam dalam perspektif organisasi pendidikan. Pustaka Pelajar.

Nizar, A. (2018). Manajemen pendidikan Islam. Pustaka Mandiri.

Risana, F., et al. (2024). Pendidikan Islam dan keshalehan ekologis santri. Pendas: Jurnal Ilmiah Pendidikan Dasar, 9(1), 34-51.

Safari, M. M. (2022). Eco-pesantren: Analisis pemahaman teologi lingkungan di Pondok Pesantren Al-Ittifaq [Master's thesis, UIN Sunan Gunung Djati Bandung].

Schein, E. H. (2010). Organizational culture and leadership (4th ed.). Jossey-Bass.

UNESCO. (2020). Education for sustainable development: A roadmap ESD for 2030. UNESCO.

Wahyuningsih, S., et al. (2023). Kepemimpinan kiai kharismatik dan pembentukan karakter peduli lingkungan santri. Jurnal Pendidikan Karakter, 12(2), 134-150.

Western, S. (2008). Leadership: A critical text. Sage.

Western, S. (2013). Leadership: A critical text (2nd ed.). Sage.

Zacher, H., Rudolph, C. W., Todorovic, T., & Ammann, W. (2019). Green leadership behavior: A review, framework, and research agenda. Journal of Organizational Behavior, 40(4), 417-432.