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Islamic Ecotheological Epistemology in Pesantren Education: Constructing, Contextualizing, and Transforming Environmental Values at Amanatul Ummah Islamic Boarding School

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Abstract:

This study aims to analyze the construction and contextualization of Islamic eco-theological epistemology at Amanatul Ummah Islamic Boarding School. A qualitative case study design was employed using interviews, observations, and analysis of Eco-Pesantren documents. The data were analyzed thematically to identify patterns of ecological knowledge construction and value internalization. The findings reveal three main points: (1) the epistemic foundations of Islamic eco-theology are constructed through the integration of the Qur'an, Hadith, *kitab kuning*, and the intellectual traditions of pesantren; (2) the kyai's ecological thought synthesizes the values of *tawhid*, *amanah*, *khalifah*, and *al-mizān* with responses to contemporary environmental challenges; and (3) these values are contextualized through learning, exemplary conduct, habituation, and environmental practices, thereby fostering a collective ecological ethic among students. The study concludes that Eco-Pesantren functions not only as an environmental program but also as a space for producing and internalizing Islamic-based ecological knowledge. These findings imply the need to integrate theology, institutional culture, and ecological praxis systematically within Islamic boarding school education to strengthen environmental sustainability.

Keywords: Islamic Eco-Theological Epistemology; Eco-Pesantren; Islamic Boarding School; Islamic Education; Ecological Ethics

Introduction

The environmental crisis has emerged as one of the most pressing global challenges of the twenty-first century, threatening both the sustainability of human life and the balance of ecosystems (Norton 1992; Searles 1972; Tienhaara 2010). Climate change, biodiversity loss, deforestation, air and water pollution, and the increasing volume of waste indicate that development patterns oriented toward the exploitation of natural resources have exceeded the carrying capacity of the environment (Hultgren et al. 2025; Rezaei et al. 2023). Various international reports have emphasized that ecological degradation not only affects environmental quality but also has significant implications for food security, public health, economic stability, and social well-being (Lakhier et al. 2024; Nguyen et al. 2023; Selvan et al. 2023). Although various conservation policies, green technological innovations, and sustainable development agendas continue to be developed, the rate of environmental degradation has not shown a significant decline. This condition indicates that the ecological crisis is a multidimensional problem that cannot be addressed solely through technical approaches but requires a transformation of values and human perceptions of nature.

The increasing complexity of environmental problems has generated growing recognition that addressing the ecological crisis requires approaches that extend beyond technological solutions and public policy. Various studies have shown that the limited success of conservation programs is often associated with the weak internalization of moral values and environmental ethics in people's everyday lives (Fernandes and Guimar 2016; Hadisi et al. 2025; Sandler 2010). Religion, therefore, is increasingly regarded as an important source of values capable of fostering deeper ecological awareness because it influences beliefs, life orientations, and individual behavior. Within the context of sustainable development, the integration of education, ethics, and spirituality is increasingly recognized as an important prerequisite for cultivating societies that are responsible toward the environment. Accordingly, the development of environmentally oriented paradigms grounded in religious values represents a strategic necessity for addressing global sustainability challenges (Hadisi et al. 2025; Ives and Kidwell 2019).

From an Islamic perspective, the relationship between human beings, God, and nature is constructed through the principles of *tawhid*, *khalifah*, *amanah*, and *al-mīzān*, which position human beings as trustees entrusted with maintaining the balance of creation (Faizal et al. 2024). Within this normative framework, Islamic education should not merely transmit religious knowledge but should also cultivate ecological consciousness as an expression of faith. Environmental values should be internalized through an educational process that integrates the Qur'an, Hadith, the scholarly tradition of *kitab kuning*, the exemplary conduct of educators, and everyday lived experiences, thereby transforming them into an ecological ethic embedded in learners' behavior. Accordingly, environmental stewardship is understood as a form of worship and religious responsibility rather than merely compliance with regulations or conservation programs.

Although Islamic-based environmental education continues to develop, most studies remain focused on the implementation of Eco-Pesantren programs, curriculum development, the strengthening of environmentally friendly institutional cultures, and changes in students' ecological behavior. Various studies have demonstrated that integrating religious education with conservation activities can enhance environmental awareness and strengthen the ecological character of *santri* (Kezar et al. 2024; Renn and Smith 2023). Nevertheless, this tendency still positions the environment primarily as an object of educational program implementation rather than as the outcome of a process of

religious knowledge construction. Consequently, the epistemological dimension concerning how environmental values are constructed, understood, and legitimized within the tradition of Islamic education has received insufficient scholarly attention. This condition indicates that an important area of inquiry remains open for further development within Islamic ecotheological studies.

This gap becomes increasingly evident in studies of *pesantren* as Islamic educational institutions. Most previous research has treated *pesantren* primarily as sites for implementing environmental education without adequately explaining how the intellectual traditions of *pesantren* shape distinctive systems of ecological knowledge. Within the *pesantren* tradition, however, knowledge is derived not only from religious texts but is also constructed through interactions among the Qur'an, Hadith, *kitab kuning*, the scholarly authority of the *kiai*, institutional culture, and the lived experiences of *santri*. This process determines how theological values are translated into ecological practices in everyday life (Al-Rawi et al. 2023). Therefore, understanding the epistemology of Islamic ecotheology is essential for explaining the relationship between the construction of religious knowledge and the formation of environmental culture within *pesantren*.

Against this background, Pondok Pesantren Amanatul Ummah was selected as the research context because it demonstrates characteristics indicating a systematic integration of Islamic education and environmental conservation practices. Various ecological activities within the *pesantren*, including waste management, greening initiatives, water conservation, energy efficiency, and the cultivation of clean-living habits, are not positioned as incidental programs but as components of an educational system grounded in Islamic values. This distinctive characteristic suggests that environmental practices at Amanatul Ummah are shaped through educational processes, the scholarly authority of the *kiai*, institutional culture, and the intellectual traditions of the *pesantren*. Therefore, the institution provides a relevant context for examining how ecological knowledge is constructed and contextualized within the epistemological framework of Islamic ecotheology.

Research on Islamic ecotheology and environmental education in *pesantren* has expanded considerably, particularly through the development of the Eco-Pesantren concept as a space for integrating Islamic education with environmental conservation practices. Ainiyah and Awakachi demonstrate that Eco-Pesantren innovations can foster environmental awareness among *santri* through waste management, greening activities, organic farming, ecoliteracy, and the habituation of environmentally responsible behaviors (Ainiyah and Awakachi 2025). Meanwhile, Lutfauziah et al. emphasize the importance of developing environmental education curricula in Islamic boarding schools as an instrument for integrating ecological knowledge into educational processes (Lutfauziah et al. 2023). In the context of Dayah Terpadu Inshafuddin, Maulida et al. found that the implementation of Eco-Pesantren was manifested through environmentally friendly policies, *santri* participation in ecological activities, waste management, greening, and land utilization, although several aspects had not yet been optimally implemented (Maulida, Nursaniah, and Sari 2024). These findings demonstrate that environmental education in *pesantren* has developed through the integration of curriculum, institutional policies, and ecological practices into everyday life.

Nevertheless, most previous studies remain oriented toward evaluating program implementation, curriculum effectiveness, changes in environmental behavior, and Eco-Pesantren management strategies. These studies have primarily explained the effects of environmental education on *santri* behavior without examining how ecological knowledge itself is constructed within the intellectual tradition of *pesantren*. Studies

addressing the integration of the Qur'an, Hadith, *kitab kuning*, the ecological thought of the *kiai*, and practical experiences as sources of environmental knowledge remain relatively limited (Putri et al. 2024). Consequently, the epistemological mechanisms through which theological values develop into a collective ecological ethic have not yet been comprehensively explained. This condition indicates that the epistemological dimension remains an underexplored area within Islamic ecotheological research.

Based on a review of previous studies, there are conceptual and empirical gaps that require further investigation. Conceptually, research on Islamic ecotheology remains dominated by normative approaches emphasizing Islamic teachings concerning the environment, while the processes through which ecological knowledge is constructed within Islamic educational traditions have received limited analytical attention. Empirically, research on *pesantren* has predominantly positioned these institutions as sites for implementing environmental education rather than as spaces for knowledge production. Yet, the intellectual tradition of *pesantren* possesses distinctive mechanisms for integrating religious texts, the scholarly authority of the *kiai*, *kitab kuning*, and educational culture into a coherent system of knowledge. Therefore, research is needed to provide a more in-depth explanation of these epistemological processes.

This study offers a novel perspective by positioning the epistemology of Islamic ecotheology as the primary focus of analysis. Unlike previous studies that have emphasized environmental program implementation or changes in ecological behavior, this study examines how Islamic epistemic sources the Qur'an, Hadith, and *kitab kuning* are constructed through the ecological thought of the *kiai* and contextualized within *pesantren* educational practices to form a collective ecological ethic among *santri*. From this perspective, the study develops a conceptual framework that illustrates the relationship among epistemic sources, the construction of ecological thought, the internalization of values through educational processes and institutional culture, and the emergence of an ecological culture within the *pesantren*. Thus, this study extends Islamic ecotheological scholarship from the domain of environmental ethics toward the epistemological dimension of ecological knowledge construction.

Methods

This study employed a qualitative approach with a case study design to gain an in-depth understanding of the construction of Islamic eco-theological epistemology at Amanatul Ummah Islamic Boarding School. This approach was selected because it enables the researcher to explore the meanings, processes, and dynamics underlying the formation of ecological knowledge embedded within the *pesantren* tradition in a contextual and holistic manner. A case study was considered appropriate for examining the interconnectedness between religious thought, institutional culture, and environmental education practices, which cannot be separated from their social context. The study was conducted at Amanatul Ummah Islamic Boarding School, Pacet, Mojokerto, East Java, which was purposively selected because it systematically develops an Eco-Pesantren program through the integration of religious education, environmental management, and the development of students' ecological character. This context makes the *pesantren* a relevant setting for examining the construction of eco-theological epistemology in Islamic education (Pahleviannur et al. 2022; Setiyani et al. 2026).

The research data were obtained from informants selected through purposive sampling, namely individuals with relevant knowledge, experience, and direct involvement in the development of the Eco-Pesantren program. The primary informants consisted of the Deputy Caretaker, Head of the Dormitory, an *ustadzah* responsible for

mentoring the Santri Biotech Company (SBC), and two students actively involved in environmental programs. The research focused on four aspects: the epistemic sources of Islamic eco-theology, the construction of the kyai's ecological thought, the contextualization of environmental values within pesantren life, and the transformation of these values into a collective ecological ethic among students. Data were collected through semi-structured in-depth interviews, participant observation of Eco-Pesantren activities, and document analysis involving program guidelines, learning modules, and institutional environmental policy documents. The interview and observation guides were developed based on the research focus to facilitate comprehensive and in-depth data collection (Anggito and Setiawan 2018; Fiantika et al. 2022).

Data were analyzed using thematic analysis, involving data reduction, open coding, categorization, theme development, and interpretation of the patterns emerging from the interviews, observations, and documentary evidence (Muslimin et al. 2023). Data trustworthiness was maintained through source triangulation, methodological triangulation, and member checking with informants to ensure that the researchers' interpretations accurately reflected the experiences they reported. The analysis was conducted iteratively by comparing information across different data sources until consistent patterns and findings were identified (Tubel Agusven et al. 2023). Ethical considerations were also carefully addressed by obtaining informed consent from all informants prior to data collection, maintaining anonymity where necessary, protecting the confidentiality of personal information, and using all collected data solely for academic purposes (Subhaktiyasa 2024). All research procedures were conducted in accordance with the principles of research integrity, respect for participants, and the researchers' responsibility to produce credible and academically accountable findings (Gustaman et al. 2024; Rasyid 2022).

Results and Discussion

Epistemic Sources of Islamic Eco-Theology: Integrating Theological-Normative Texts and the Kitab Kuning Tradition in Pesantren

The findings indicate that the epistemic sources of eco-theology at Amanatul Ummah Islamic Boarding School are constructed through the integration of Islamic theological-normative texts, the kitab kuning intellectual tradition, and the practical experiences of everyday life within the pesantren. In practice, the Qur'an and Hadith are not positioned merely as sources of normative legitimacy but also serve as epistemological foundations for developing an ecological worldview among members of the pesantren community. The intellectual tradition of the pesantren subsequently recontextualizes various classical jurisprudential discussions to make them relevant to contemporary environmental degradation and ecological challenges. Thus, the concept of eco-theology developed at Amanatul Ummah emerges from a dialectical interaction between revelation, the Islamic intellectual tradition, and contextualization in response to contemporary ecological realities.

An interview with Mr. Sayiful, the Deputy Caretaker of the pesantren, indicates that the pesantren's ecological paradigm is rooted in an understanding of humans as khalifah fi al-ardh (stewards of the earth). According to him, the responsibility of human stewardship is not understood merely as a mandate to utilize natural resources, but also as a moral and spiritual responsibility to preserve and protect God's creation. As he explained:

Manusia diciptakan Allah sebagai khalifah di bumi. Artinya manusia bukan hanya diberi hak memanfaatkan alam, tetapi juga diberi amanah untuk menjaga dan

merawatnya. Karena itu pendidikan di pesantren tidak hanya mengajarkan ilmu agama, tetapi juga membentuk karakter santri agar memiliki kepedulian terhadap lingkungan." (Interview with Mr. Sayiful, Deputy Caretaker)

This statement indicates that the concept of khalifah has been reconstructed as an ethical foundation for environmental education. The researcher interprets this finding as demonstrating that the Qur'an functions as a primary epistemic source that provides religious legitimacy for all environmental conservation activities within the pesantren. Accordingly, environmental preservation is understood as a direct implementation of the principles of tawhid and the responsibility of human stewardship, rather than merely as compliance with an institutional program.

This finding is further reinforced by an interview with Ms. Hani, an ustadzah and mentor of the Santri Biotech Company (SBC). She explained that environmental activities are consistently initiated by strengthening theological foundations through the teachings of the Prophet's Hadith and the reinterpretation of materials from the kitab kuning tradition, enabling students to understand the spiritual meaning underlying each ecological activity. She stated:

Setiap kegiatan SBC selalu saya awali dengan hadis tentang menanam pohon. Saya jelaskan kepada santri bahwa apabila seseorang menanam pohon, kemudian buahnya dimakan manusia, burung, atau makhluk hidup lainnya, maka semuanya bernilai sedekah. Dari situ mereka memahami bahwa menanam bukan sekadar kegiatan bercocok tanam, tetapi juga ibadah" (Interview with Mrs. Hani, SBC Coordinator).

Furthermore, Mr. Nur Rokhim, the Head of the Islamic Boarding School, emphasized that classical *fiqh* materials are not taught merely in a textual manner, but are contextualized with various environmental issues encountered in the daily life of the pesantren. He explained:

Materi fikih yang kami ajarkan tidak berhenti pada persoalan ibadah saja. Pembahasan tentang kebersihan, air, dan pemanfaatan lahan kami hubungkan dengan kondisi lingkungan sekarang sehingga santri memahami bahwa menjaga kebersihan, menghemat air, mengolah sampah, dan merawat tanaman juga merupakan bagian dari ajaran Islam" (Interview with Mr. Nur Rokhim, Head of the Islamic Boarding School)

The data indicate that the process of ecological knowledge construction at Amanatul Ummah takes place through the reinterpretation of the *kitab kuning* intellectual tradition into *Fiqh al-Bi'ah* (Islamic environmental jurisprudence). The researcher interprets this finding as demonstrating that the Hadith and *kitab kuning* function as epistemological bridges connecting Islamic normative principles with ecological practices carried out by the students. Through this process, religious knowledge does not remain at the level of doctrine but is transformed into an operational ecological ethic embedded in the everyday life of the pesantren.

The observation findings demonstrate that the integration of religious texts and ecological practices is evident in various educational activities within the pesantren environment. The researcher observed that before students engaged in tree planting and greening activities, greenhouse management, hydroponic cultivation, composting, and waste management, mentors first provided explanations of relevant Qur'anic verses, Hadith, or *fiqh* materials associated with these activities. In addition, various educational media containing religious messages concerning environmental preservation were displayed at several strategic points throughout the pesantren as reminders for members of the pesantren community. These observations are consistent with the Eco-Pesantren documents, which indicate that environmental education at Amanatul Ummah is

designed through the integration of environmental *fiqh*, natural resource conservation, waste management, greening activities, and environmental cadre development as integral components of the pesantren's educational system.

Overall, the findings demonstrate that the epistemic sources of Islamic eco-theology at Amanatul Ummah Islamic Boarding School are constructed through three main components: theological-normative texts (the Qur'an and Hadith), the reinterpretation of the *kitab kuning* intellectual tradition, and ecological praxis embedded in the everyday life of the pesantren. These three components complement one another in forming an ecological knowledge system among members of the pesantren community. The Qur'an provides an ontological foundation for understanding the relationship between humans and nature, the Hadith reinforces the ethical dimension of ecological action, while the *kitab kuning* provides a jurisprudential framework that is recontextualized into *Fiqh al-Bi'ah* and implemented through Eco-Pesantren programs.

The data pattern demonstrates that the construction of eco-theological epistemology at Amanatul Ummah is integrative, contextual, and praxis-oriented. It is integrative because it combines revelation, Hadith, and the *kitab kuning* tradition as interconnected sources of knowledge; contextual because classical texts are reinterpreted in response to the challenges of the contemporary environmental crisis; and praxis-oriented because religious concepts are consistently translated into students' learning experiences through various ecological activities. This pattern indicates that the pesantren does not separate normative and empirical dimensions but integrates them into an educational system that cultivates ecological awareness in a holistic manner.

The researcher's interpretation suggests that this pattern has developed because the epistemological tradition of the pesantren possesses a transformative character. Religious texts are not understood as static doctrines but are continually recontextualized through an educational process that connects revelation, the Islamic intellectual tradition, and ecological experience. Thus, the eco-theological epistemology developed at Amanatul Ummah Islamic Boarding School not only produces religious understanding concerning environmental issues but also establishes a framework of ecological thought and action that develops into a collective culture among members of the pesantren community.

The Construction of the Kyai's Ecological Thought: Synthesizing Sufi Theology and Responses to Contemporary Environmental Crises

The findings indicate that the construction of the Kyai's ecological thought at Amanatul Ummah Islamic Boarding School represents a religious worldview that integrates Islamic spiritual values with responses to contemporary environmental issues. Based on the field findings, this perspective is not developed by presenting ecology as a separate academic discipline, but rather through the reinterpretation of *tawhid*, the responsibility of human stewardship, ethics toward nature, and the values of simplicity that characterize pesantren education. Within this framework, nature is understood as an *ayat kauniyah*, namely a sign of God's greatness that must be protected as part of devotion to Him.

An interview with Mr. Sayiful indicates that the pesantren's policy direction in developing the Eco-Pesantren program is not driven by the pursuit of awards, but rather by the implementation of religious values embedded in the educational vision of the pesantren. According to him, environmental education constitutes an integral part of developing Muslim character and fostering responsibility toward all of God's creation.

Program Ecoresantren kami tempatkan sebagai bagian dari pendidikan karakter. Kami ingin santri memahami bahwa menjaga lingkungan adalah bagian dari amanah sebagai seorang muslim. Ketika mereka menjaga kebersihan, merawat

tanaman, atau mengelola lingkungan pesantren, sesungguhnya mereka sedang menjalankan tanggung jawab yang diajarkan agama" (Interview with Mr. Sayiful, Deputy Caretaker)

This statement indicates that the primary orientation of the Kyai's ecological thought is not centered on the technical aspects of environmental conservation, but on the spiritual transformation of students. The researcher interprets this finding as demonstrating that environmental stewardship is constructed as part of moral formation, thereby giving ecological activities a religious meaning. Accordingly, ecological awareness is cultivated through the internalization of faith and the notion of *amanah* (trust/responsibility), rather than through an exclusively instructional approach.

This finding is further supported by an interview with Ms. Hani, the mentor of SBC, who explained how the guidance of the pesantren leadership is translated into an educational process that connects spirituality with ecological activities. She explained that every environmental activity begins by reinforcing its meaning as an act of worship, enabling students to understand the relationship between caring for nature and developing closeness to God.

Setiap kegiatan SBC selalu saya awali dengan hadis tentang menanam pohon. Saya jelaskan kepada santri bahwa apabila seseorang menanam pohon, kemudian buahnya dimakan manusia atau makhluk hidup lainnya, maka semuanya bernilai sedekah. Dari situ mereka memahami bahwa menanam bukan sekadar kegiatan bercocok tanam, tetapi juga ibadah" (Interview with Mrs. Hani, SBC Coordinator).

She further explained that *fiqh* materials concerning cleanliness, water, and land utilization are consistently related to the environmental degradation experienced by society, enabling students to understand the relevance of Islamic teachings to contemporary ecological problems. The researcher interprets this process as demonstrating a synthesis between Sufi theology, which emphasizes spiritual awareness, and responses to contemporary environmental crises. Within this construction, nature is viewed not as an object of exploitation but as an *amanah* (trust) that provides human beings with an opportunity to worship God through acts of preservation and care.

Based on these two findings, the process of constructing ecological thought at Amanatul Ummah Islamic Boarding School can be illustrated as follows:

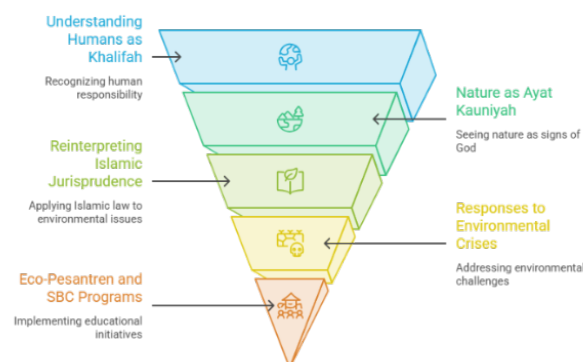


Figure 1.

From Tawhid to Ecological Awareness: An Integrated Framework of Islamic Ecotheological Education

The process indicates that the Kyai's ecological thought does not develop from environmental problems toward religion; rather, it proceeds in the opposite direction, beginning with theological foundations that are subsequently contextualized to address contemporary ecological problems. The researcher interprets this model as reflecting a distinctive characteristic of pesantren epistemology, in which religious texts serve as the primary source of values, while environmental issues provide a context for the actualization of Islamic teachings.

The observations demonstrate that this construction of thought is manifested concretely in the everyday life of the pesantren. The researcher observed that greening activities, greenhouse management, hydroponic cultivation, water conservation, organic waste management, and the habituation of maintaining cleanliness were not conducted merely as technical activities but were consistently accompanied by explanations concerning the meaning of worship, gratitude, and responsibility toward Allah. In addition, various educational media throughout the pesantren displayed religious messages connecting environmental preservation with Islamic values.

Based on the overall research data, it can be understood that the Kyai's ecological thought at Amanatul Ummah Islamic Boarding School is constructed through a synthesis of Islamic theological values, pesantren spirituality, and responses to contemporary environmental crises. Ecological awareness is not developed through a purely technical ecological approach but through a transformation of religious perspectives, whereby environmental stewardship is understood as an act of devotion to Allah. Consequently, conservation activities acquire strong religious legitimacy because they are positioned as integral dimensions of a Muslim's moral character and worship.

The data pattern indicates that the construction of ecological thought at Amanatul Ummah moves from the theological dimension toward the praxis dimension. *Tawhid* serves as the foundation of spiritual awareness, the concept of human stewardship (*khalifah*) establishes moral responsibility, while the reinterpretation of *fiqh* provides a bridge between classical Islamic teachings and contemporary ecological problems. This pattern is subsequently translated into institutional policies, educational processes, and various Eco-Pesantren activities, thereby fostering a living ecological culture within the pesantren community.

The researcher's interpretation suggests that this pattern has developed because the educational tradition of the pesantren possesses a normative-transformative character. Religious teachings do not remain at the level of knowledge transmission but are transformed into an ethical way of life that responds to contemporary challenges. In the context of Amanatul Ummah, the environmental crisis is not positioned as an issue external to religion but is understood as part of the moral responsibility of Muslims to safeguard Allah's trust (*amanah*). Therefore, the Kyai's ecological thought develops as a synthesis of Sufi theology and contemporary ecological responses, namely a religious construction that integrates spiritual awareness, moral formation, and environmental conservation action within a unified pesantren educational framework.

Contextualizing Environmental Values: Transforming Religious Doctrine into a Collective Ecological Ethic among Students

The findings indicate that the contextualization of environmental values at Amanatul Ummah Islamic Boarding School is a process of transforming theological teachings, which are initially normative in nature, into a living ecological ethic that functions as a collective culture within the pesantren community. In this context, the values of *tawhid*, human stewardship (*khalifah*), *amanah* (responsibility/trust), cleanliness, and concern for nature do not remain merely as religious educational

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materials but are translated into systems of habituation, exemplary conduct, institutional reinforcement, and various Eco-Pesantren activities.

Table 1.
Transformation of Islamic Religious Doctrines into Collective Ecological Ethics among Santri

<i>Interview Excerpt</i>	<i>Indicator</i>	<i>Informant</i>
"...menjaga lingkungan adalah bagian dari amanah sebagai seorang muslim..."	Environment understood as a religious trust (<i>amanah</i>)	Mr. Sayiful
"...setiap kegiatan SBC selalu diawali dengan hadis tentang menanam pohon sehingga santri memahami bahwa menanam merupakan ibadah..."	Value internalization through theological learning	Ms. Hani
"...kebersihan pondok dilakukan setiap hari sehingga lama-kelamaan menjadi kebiasaan santri..."	Habituation of ecological behavior	Mr. Nur Rokhim
"...sekarang kalau melihat sampah saya langsung mengambilnya karena sudah terbiasa di pondok..."	Individual behavioral change	Arif
"...ketika pulang ke rumah saya tetap membuang sampah pada tempatnya karena sudah menjadi kebiasaan..."	Transfer of ecological behavior beyond the pesantren	Rizky

The table above shows that the transformation of environmental values occurs through a series of interconnected stages. At the initial stage, ecological values are introduced as part of religious responsibility through explanations of the concepts of *khalifah*, the religious merit of planting trees, and the obligation to maintain cleanliness. These values are then internalized through learning processes facilitated by teachers and Eco-Pesantren instructors, enabling students to understand that ecological activities constitute part of the practice of Islamic teachings. After this understanding has been established, the pesantren reinforces these values through habituation in daily life, such as cleanliness duties, waste management, greening activities, greenhouse maintenance, and activities conducted through the Santri Biotech Company (SBC). This process results in behavioral changes that no longer depend solely on teacher supervision but gradually develop into personal ecological awareness.

The data in Table 2 also demonstrate that value internalization does not stop at the formation of individual behavior but develops into collective ecological ethics. This is evident from the similarities in the responses of pesantren administrators and students. Informants at the managerial level explained that the primary objective of the Eco-Pesantren program is to develop religious character accompanied by environmental concern, while student informants indicated that these values had become habits that continued to be practiced even outside the pesantren environment. The researcher interprets this condition as evidence of the success of the contextualization process, whereby religious doctrines are transformed into social norms that are collectively accepted and practiced by the pesantren community. From this perspective, the environment is no longer viewed merely as an object that must be protected because of institutional regulations, but has become part of a way of life embedded in the students' identity.

The observations further strengthen this interpretation. The researcher observed that activities such as maintaining cleanliness, sorting waste, caring for plants, watering

green areas, and managing the greenhouse were routinely carried out by students without always waiting for instructions from the *pengasuh* or instructors. At various locations within the pesantren, slogans and educational media connecting environmental preservation with Islamic values were also displayed, serving as collective reminders for the entire pesantren community. In addition, Eco-Pesantren activities were not limited to particular occasions but had become part of daily routines and the institutional culture. These observational findings are consistent with Eco-Pesantren documents indicating that environmental education is integrated through institutional policies, the curriculum, habituation, student environmental cadre development, and continuous environmental conservation practices.

Based on the overall research data, it can be understood that the contextualization of environmental values at Pondok Pesantren Amanatul Ummah occurs through a process of transforming religious doctrines into collective ecological ethics. Values derived from the Qur'an, Hadith, and the *kitab kuning* tradition do not remain merely as normative knowledge but are translated into an educational system that combines instruction, role modeling, habituation, and direct experience through the Eco-Pesantren program. This process produces changes that are evident not only in students' knowledge but also in the development of ecological behaviors that are consistently practiced in their daily lives.

At the initial stage, students acquire a theological foundation concerning the importance of protecting the environment. These values are subsequently reinforced through routine activities and the exemplary conduct of *pengasuh* and instructors. The continuous repetition of these activities forms habits, while habits practiced collectively gradually develop into social norms that guide the entire pesantren community. This pattern demonstrates that the success of environmental education is determined not only by the delivery of instructional materials but also by the institution's consistency in creating an educational ecosystem that supports the internalization of values.

Analysis

The findings indicate that the epistemology of Islamic ecotheology at Pondok Pesantren Amanatul Ummah is constructed through the integration of Islamic normative sources, the scholarly authority of the *kiai*, and ecological experiences embedded in the daily life of the *pesantren*. Environmental values do not emerge as an independent body of knowledge but are constructed through the interaction of the Qur'an, Hadith, the *kitab kuning* tradition, the religious interpretations of the *kiai*, and the everyday practices of the *santri*. The Eco-Pesantren documentation indicates that education at Amanatul Ummah integrates intellectual development, character formation, and environmental awareness through activities such as plastic waste recycling, greening initiatives, compost production, and productive cultivation. These findings suggest that ecotheology in the *pesantren* functions as an epistemological process that connects theological beliefs with the formation of ecological perspectives and practices.

These findings are consistent with Ainiyah and Awakachi, who demonstrate that Eco-Pesantren initiatives can foster environmental awareness and ecological character among *santri* through waste management, greening activities, organic farming, and ecoliteracy. The similarity lies in the role of ecological activities as a medium for developing students' environmental character (Ainiyah and Awakachi 2025). However, the present study extends this finding by demonstrating that ecological practices do not merely produce behavioral changes but are rooted in processes of religious knowledge construction. The findings also support Lutfauziah, who emphasize the importance of environmental education curricula in integrating ecological knowledge into Islamic boarding school education (Lutfauziah et al. 2023). Nevertheless, the Amanatul Ummah

case demonstrates that ecological knowledge is constructed not only through formal curricula but also through the intellectual traditions of the *pesantren*, exemplary conduct, the authority of the *kiai*, and the everyday experiences of the *santri*.

The findings also resonate with Maulida who found that the implementation of the Eco-Pesantren concept involves environmental policies, student participation, waste management, greening activities, and land utilization (Maulida et al. 2024). Their study demonstrates that the effectiveness of environmental education requires institutional support and active participation from members of the *pesantren* community. The present study reinforces this perspective while placing greater emphasis on the epistemological dimension. At Amanatul Ummah, the environment is not merely managed through institutional policies and ecological activities but is also interpreted through a religious framework that provides moral legitimacy for environmental practices. This finding is also consistent with Putri who highlight the importance of the *kiai*'s cognition and the practice of *fiqh al-bi'ah* in developing ecological piety (Putri et al. 2024). Accordingly, this study brings together institutional structures, religious knowledge, and the formation of ecological ethics within a single analytical framework.

This integration can be explained by the distinctive characteristics of the *pesantren*, which facilitate an intensive relationship between knowledge, religious authority, and everyday practice (Hasan 2025; Zainuddin et al. 2026). The *pesantren* tradition does not clearly separate educational processes from everyday life. Traditional learning systems such as *sorogan* and *bandongan* remain important elements of *pesantren* identity, while modern education develops alongside character formation and the cultivation of integrity. Within this context, the *kiai* occupies a strategic position as an authority who interprets contemporary issues, including environmental concerns (Fahmi Irfani et al. 2025; Ismail et al. 2024). Values such as *khalifah*, *amanah*, balance, and the prohibition against causing environmental harm can subsequently be translated into concrete practices, including maintaining cleanliness, reducing waste, conducting greening activities, and using natural resources responsibly. Thus, the findings can be explained by the interconnectedness of religious authority, *pesantren* culture, habituation, and direct ecological experience.

Theoretically, this study extends Islamic ecotheological scholarship by shifting attention from the question of "what Islam teaches about the environment" toward the question of "how ecological knowledge is constructed and legitimized within Islamic religious traditions." The findings suggest that this process can be understood through the social construction of knowledge, whereby ecological values are externalized through religious teachings and exemplary practices, objectified through institutional policies and routines, and subsequently internalized by *santri* through habituation. This pattern is consistent with Berger and Luckmann's perspective on the social construction of reality (Laisaan, Munawaroh, and Adawiyah 2026; Ocasio 2023). However, the present study demonstrates that this construction process receives additional legitimacy from Islamic theological sources. Ecotheology, therefore, functions not only as a foundation for individual environmental ethics but also as a mechanism of knowledge production through which ecological values become embedded within the collective culture of the *pesantren*.

From a practical perspective, the findings suggest that the development of Eco-Pesantren should not be limited to providing environmental facilities or implementing conservation activities. Rather, it should establish an epistemological foundation that explains why environmental practices constitute an expression of religious responsibility. Environmental programs can be strengthened by integrating Qur'anic verses, Hadith, and the *kitab kuning* tradition with concrete ecological activities.

Pesantren administrators can also strengthen the role of *kiai* and *ustadz* as role models, develop experiential learning approaches, and explicitly connect activities such as waste management, greening, water conservation, and energy efficiency with the Islamic values of *amanah*, *khalifah*, and the balance of creation. Such an approach is consistent with Lutfauziah, who emphasize the importance of environmental curricula, and Ainiyah and Awakachi, who demonstrate the role of Eco-Pesantren practices in developing students' ecological character (Ainiyah and Awakachi 2025; Lutfauziah et al. 2023).

This study has several limitations that should be considered when interpreting its findings. First, it employs a case study design focusing on a single institution, Pondok Pesantren Amanatul Ummah; therefore, the findings are not intended to be statistically generalized to all *pesantren*. Second, the construction of Islamic ecotheological epistemology was primarily examined through the perspectives of administrators, educators, and *santri*, as well as through institutional practices available within the research context. Third, the study does not provide a systematic comparison with other *pesantren* characterized by different ideological orientations, geographical settings, or educational models. Future research could employ a multisite design to compare the construction of ecotheological epistemology across traditional (*salaf*), modern, and Eco-Pesantren institutions. Further studies could also examine how such epistemological constructions influence the ecological behavior of *santri* after they return to their communities.

Conclusion

This study aimed to analyze how Islamic eco-theological epistemology is constructed and contextualized within the educational practices of Amanatul Ummah Islamic Boarding School. The findings demonstrate that the construction of ecological knowledge is not separate from Islamic intellectual traditions but is formed through the integration of the Qur'an, Hadith, the kitab kuning tradition, the scholarly authority of the *kyai*, and the ecological experiences of students. This process generates an understanding that environmental stewardship constitutes a form of religious responsibility and an expression of faith. The values of *tawhid*, *khalifah*, *amanah*, and *al-mīzān* are subsequently contextualized through learning, exemplary conduct, habituation, and ecological practices such as waste management, reforestation, land utilization, and resource conservation. These findings confirm that Eco-Pesantren can function as a space for both the production and internalization of Islamic-based ecological knowledge.

Theoretically, this study contributes to the development of Islamic eco-theology by extending its focus from a normative orientation concerning Islamic environmental teachings toward an epistemological perspective that explains how ecological knowledge is constructed, legitimized, and transformed into a collective ethical framework. Practically, the findings indicate that the development of Eco-Pesantren should integrate theological sources with environmental practices systematically rather than merely implementing conservation programs. Pesantren administrators should strengthen the role of *kyai* and *ustadz* as ecological role models, integrate environmental issues into religious learning, and develop experiential and participatory ecological practices involving students. Future research is recommended to employ a multisite approach to compare the construction of eco-theological epistemology across pesantren with different institutional characteristics. Longitudinal studies are also needed to examine the sustainability of ecological value internalization and its influence on students' environmental behavior after they return to their communities.

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