

Transforming the Ecological Behavior of *Santri* through the Go Green Program based on the Eco-Pesantren Model

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Abstract

This study addresses the main research question: how the Go Green program at *Pesantren* Attaqwa Bekasi is implemented and how ecological values, particularly *hubbul bi'ah* (love and responsibility toward the environment), are internalized in *santri* behaviour. The study is grounded in the increasing significance of eco-*pesantren* as an Islamic-based environmental education model, especially following the Indonesian Ministry of Religious Affairs' ASRI policy, which mandates systematic environmental conservation practices across religious educational institutions. However, it also explores common challenges such as resource limitations, community engagement, and institutional resistance that may affect replication. This research positions eco-*pesantren* not merely as physical environmental projects but also as pedagogical and managerial frameworks that shape value internalization, habit formation, and institutional support for ecological practices. Using a descriptive qualitative case study, the analysis centres on three core components of the program: greening initiatives, integrated waste management, and the charity-based plastic bottle donation scheme. The findings reveal that the Go Green Program fosters *santri* behavioural transformation through experiential learning, structured collective habituation, and religious messaging that frames environmental care as a divine mandate. These initiatives not only improve the *pesantren*'s physical environment but also cultivate ecological character through discipline, responsibility, cooperation, and sustainability awareness. The study further shows that the success of eco-*pesantren* is determined by governance, community participation, external partnerships, and overcoming implementation barriers. Overall, this research contributes to the development of eco-*pesantren* models in Indonesia and highlights their potential as replicable forms of sustainability-oriented Islamic education.

Keywords: Eco-*pesantren*, *hubbul bi'ah*, environmental education, *santri* ecological behaviour.

Introduction

Pesantren has significant potential to become "laboratories" for transforming ecological values and behaviors. In addition to their function as religious educational institutions, they also shape the character, habits, and

collective norms of their *santri*. An educational model known as *eco-pesantren* has emerged as an approach that integrates Islamic values with environmentally friendly practices. *Eco-pesantren* not only teaches religion through rituals but also internalizes the value of ecological responsibility, as part of humanity's mandate as caliphs on earth through waste management, sanitation, water conservation, reforestation, and the adoption of a sustainable lifestyle for the entire *pesantren* community (Fua, 2013). This integration can foster a sense of moral pride and moral responsibility among educators (*ustadz*), *santri*, and policymakers, reinforcing their role in environmental stewardship.

The implementation of *eco-pesantren* is gaining momentum as the challenges posed by the global ecological crisis intensify, directly affecting the sustainability of human life. Climate change, land degradation, water pollution, and increasing waste production are environmental issues that require a collective response, including from religious educational institutions. As character-building institutions, *pesantren* holds a strategic position in fostering ecological behavior through habituation, role modeling, and the strengthening of spiritual values grounded in Islamic teachings. Research shows that integrating environmental education into the education system can significantly improve pro-environmental knowledge and behavior, particularly when linked to moral and religious values (Chasanah, 2022; UNESCO, 2025). In the context of *pesantren*, this integration involves more than just knowledge transfer, but also emphasizes practical practices such as waste management, water conservation, reforestation, and energy reduction (Hermawansyah, 2025).

Furthermore, the urgency of *eco-pesantren* is also rooted in fundamental Islamic values related to humanity's mandate as caliphs on earth. Highlighting values such as *hifz al-bi'ah* (protecting the environment) and *islah al-ardh* (repairing the earth) can motivate and inspire the audience to feel proud of their spiritual responsibility, encouraging them to internalize ecological piety in their curriculum and daily lives. International studies on Islamic environmentalism confirm that Islamic teachings have great potential to shape ecological behavior if practiced in a structured and consistent manner (Nasr, 1990). *Pesantren*, as centers of Islamic education, have the potential to become concrete models for the application of these ecological teachings—while also being influential agents of change for their surrounding communities through community programs such as waste banks, productive gardens, and environmental education for *santri* families (Maslani et al., 2023).

At the policy level, the issuance of Circular Letter Number 27 of 2025 by

the Secretary General of the Ministry of Religious Affairs of the Republic of Indonesia, concerning the ASRI Ministry of Religious Affairs Movement, underscores the collective effort needed. This policy requires all religious educational institutions to prioritize environmental conservation, fostering a sense of shared responsibility. This demonstrates that the *pesantren*-based ecological movement is no longer merely a local initiative, but part of a national strategy to build a green and sustainable educational ecosystem. Thus, the implementation of *eco-pesantren* is crucial not only as a theological and moral response but also as a tangible contribution to the national and global agenda for sustainable development (Indonesia, 2025; UNESCO, 2025).

Several *pesantren* have attempted to implement this concept. For example, research on *pesantren* in Java shows that through outreach programs, training, and collaborative practices involving *santri*, caretakers, and the community, environmental understanding has increased, and residents have begun to implement sanitation and waste management more systematically (Pudjiastuti et al., 2021). However, when looking at the implementation level, empirical research shows that the adoption of “going green” often suffers from inconsistencies between the ideal concept and the reality on the ground: environmental programs are sporadic, dependent on external or donor funding, and not systematically integrated into the curriculum or institutional culture of the *pesantren*. Therefore, even though physical activities such as reforestation or waste banks are implemented, the transformation of ecological values among *santri* does not always occur (Hermawansyah, 2025).

When the management of the *pesantren* adopted the Ecological Tauhid framework, integrating Islamic values and environmental principles, it fostered a sense of shared purpose among educators and religious leaders, leading to increased ecological awareness and practices among the *santri* (Muin et al., 2025).

Furthermore, numerous studies demonstrate that Islamic education can support sustainable development: values such as the caliphate, trustworthiness, the principle of equality, and social justice, from an Islamic perspective, can serve as an ethical foundation for teaching sustainability and environmental conservation (Hajar, 2024). Research on curriculum integration also suggests that Islamic Religious Education (*PAI*) curricula can be developed to include elements of environmental education, so that *santri* is taught not only religious rituals but also ecological responsibility as part of their faith and life practices (Taisir et al., 2024).

This educational model, which combines religious and ecological values,

resonates across various contexts. Studies of agricultural *pesantren*, for example, demonstrate that *pesantren* that combine Islamic education with organic farming and nature conservation activities can foster an “ecosophy,” a worldview that respects nature, maintains balance, and promotes sustainability (Rini et al., 2022). However, implementing eco-*pesantren* faces challenges such as resource limitations, institutional resistance, and the need for trained personnel. In the context of developing school or *pesantren* culture, research also emphasizes that eco-*pesantren* require institutional management, program organization, and active participation of all *pesantren* residents so that sustainability becomes a culture, not just a temporary project (Erlangga et al., 2025).

Furthermore, in the context of Islamic education in general, research shows that integrating environmental education into the religious education system can strengthen ecological awareness among young Muslims (Safei & Himayaturohmah, 2023). Even within the curriculum of *madrasah* or Islamic schools, programs such as zero-waste programs or deepening environmental jurisprudence have been proposed as strategies to align Islamic teachings with the demands of global sustainability (Widayanti & Widyawati, 2024).

However, several consistent limitations emerge from this body of literature that undermine the current eco-*pesantren* approach. First, much of the research is qualitative and descriptive: it describes practices and narratives of change, but rarely provides systematic quantitative measurements of changes in *santri* ecological knowledge, attitudes, or behavior. This gap may hinder the credibility of findings and the ability to inform policy effectively, which is crucial for researchers and practitioners seeking impactful solutions.

Second, most research focuses on *pesantren* in rural or semi-rural settings, with ample access to land and open space. Recognizing that urban *pesantren* is underrepresented, expanding research into these areas can yield more comprehensive insights, which is vital for practitioners and researchers seeking inclusive, applicable strategies across different settings.

Third, despite efforts to integrate religious values with environmental practices, few studies have formulated and empirically tested religio-ecological constructs, such as *hubbul bi'ah* (love and responsibility for the environment), as theoretical variables. Explaining how religio-ecological constructs could be empirically tested because it clarifies the theoretical gap and suggests directions for future research. Therefore, the literature is insufficient to explain the mechanisms underlying the internalization of environmental values within the framework of *santri* religious identity. Fourth, institutional and policy aspects,

such as the role of *pesantren* administrators/leaders, curriculum integration, human resources, and program continuity, are relatively rarely analyzed as determinants of the success or failure of internalizing ecological values. Many studies focus on describing conditions without deeply exploring the structural factors that influence sustainability.

Thus, while previous literature provides valuable theoretical and practical insights into eco-*pesantren*, significant scope remains for more comprehensive research. In this context, this research focuses on the Go Green *Pesantren* program, using a case study of *Pesantren* Attaqwa in Bekasi, selected for its representative semi-urban setting and active ecological initiatives. This large *pesantren*, located in a semi-urban area, balances rural tranquility with urban accessibility, unlike *pesantren* in rural areas. It strives to maintain traditional values while adapting to contemporary demands and developments, preparing *santri* for the complexities of modern life. The focus of this research is to uncover how the Go Green program is implemented and how ecological values, particularly *hubbul bi'ah*, are internalized in *santri*, providing insights applicable to similar *pesantren* contexts.

This research uses a descriptive qualitative approach based on field studies to deeply understand the process and meaning of shaping *santri* ecological behavior through the implementation of the Go Green Program within an eco-*pesantren* framework. This qualitative approach was chosen because it allows researchers to interpret social phenomena in their natural contexts, grounded in participants' perspectives (Creswell & Poth, 2017). Data collection was conducted through participant observation to capture daily ecological practices, in-depth interviews with caregivers, religious teachers, and *santri* to explore the meaning of *hubbul bi'ah* values, and documentation to strengthen the empirical data. To ensure data reliability and validity, source and technique triangulation were employed to address potential concerns about bias and consistency. Data analysis followed an interactive model that included data reduction, data presentation, and simultaneous and iterative drawing of conclusions/verification (Miles et al., 2014). This methodological rigor aims to produce a trustworthy and comprehensive understanding of ecological value internalization in *pesantren* education.

Results and Discussion

The *Pesantren* Attaqwa in Bekasi is an Islamic educational institution with a strong commitment to developing *santri* who excel in both religious and moral

aspects. In recent years, the *pesantren* has demonstrated a strong concern for environmental issues and has striven to integrate environmental education into its learning process and the character development of its *santri*. This commitment is demonstrated through the launch of the *Pesantren Attaqwa Go Green Program*, an environmental movement designed to foster ecological awareness while fostering the value of *Hubbul Bi'ah* (love for the environment) among its *santri*. This program emphasizes not only practical aspects but also provides a pedagogical dimension, teaching that environmental protection is an integral part of the concept of worship and a mandate from Allah SWT to humanity.

The implementation of the *Pesantren Attaqwa Go Green Program* involves three main components: a reforestation program, an integrated waste management program, and a charity program for plastic bottle waste. These three programs are developed comprehensively and involve the entire *pesantren* community, from the leadership, religious teachers, and cleaning staff to the *santri* themselves, who are the primary subjects of environmental learning. Based on interviews with *pesantren* leaders, the greening program, implemented since 2024, has not only had a tangible impact on the physical condition of the *pesantren* environment but has also transformed *santri* ecological behavior. Through a participatory, habituation-based approach, the *Pesantren Attaqwa Go Green Program* builds a sustainable environmental education framework aligned with Islamic values of preserving the earth.

The greening program is one of the most concrete efforts undertaken by *pesantren* to create green spaces that support a healthier, more comfortable learning climate. In its implementation, the greening program is not carried out haphazardly, but rather through a careful planning process that involves analyzing green space needs, selecting appropriate plant species, and determining planting areas. The *pesantren*, through its cleanliness coordinator and environmental team, maps areas deemed in need of greening, such as the mosque courtyard, the front of the student dormitory, the pedestrian paths leading to study rooms, and even areas exposed to direct sunlight without natural protection. This planning is a crucial initial step because it aims to create a *pesantren* environment that is not only visually beautiful but also provides ecological functions such as oxygen supply, heat absorption, and improving air quality.

Furthermore, researchers, accompanied by the person in charge of the greening program, conducted direct observations to select the types of plants

for the program, which was carried out selectively. The plants selected included shade trees such as ketapang kencana and angsona, as well as productive plants such as jackfruit, guava, mango, and starfruit. In addition, hydroponic plants and family medicinal plants (toga) were planted to provide variety in vegetation and educational benefits for the *santri*. On the day of the event, the planting activity was executed through a participatory approach, actively involving all *santri*. This activity was not only a physical activity but also an ecological learning process that provided *santri* with concrete experiences regarding the importance of caring for and nurturing plants. The *santri* worked in small groups, digging holes, planting seedlings, and providing initial watering. In contrast, the ustadz and cleaning staff provided technical guidance to ensure the planting process complied with standards.

After the planting process is complete, the *pesantren* establishes a plant care system involving *santri* on a rotating basis. Each group of *santri* is assigned responsibility for several areas of the plant, including watering twice daily, removing weeds around the plants, and performing light pruning when necessary. Plant care is supervised by a cleaning coordinator who regularly evaluates plant condition and provides guidance to the responsible groups. Through this process, the *santri* not only develop an awareness of the importance of plants for the environment but also develop a sense of responsibility, discipline, and concern for the *pesantren* environment. This greening program offers extensive benefits, including ecological and aesthetic benefits, student psychological well-being, and the strengthening of character values through experiential learning.

Next, the researchers, accompanied by the Head of One Roof Cleanliness (BSA), directly observed another program of the Attaqwa *Pesantren*: the integrated waste management program, which is a systematic effort to create a clean, healthy, and waste-free environment. According to the Head of BSA, this program is designed to combine the concepts of reduce, reuse, and recycle (3R) with a system for fostering cleanliness through scheduled shifts. The implementation of the waste management program at the *Pesantren* Attaqwa has not yet begun, including the provision of waste-sorting facilities at the source level, such as in classrooms, dormitories, the canteen, or the mosque. Waste from various *santri* activities is still collected in a mixed form and then transported to the final disposal site at the *pesantren* (TPS). The waste-sorting process is carried out only at the TPS by *santri* on duty and cleaning staff, separating organic, inorganic, and residual waste. Although sorting is not initially

carried out at the source, this practice remains a learning tool for *santri* to recognize waste types and understand the importance of sorting as part of more sustainable waste management efforts.

Each *santri* is assigned to a daily duty group responsible for maintaining environmental cleanliness on that day. Duty activities include sweeping the yard, collecting trash from each collection point, cleaning small drains, and ensuring public facilities remain clean and free of litter. *Santri* on duty are responsible for transporting the trash to a mini-waste disposal site (TPS) located in a corner of the *pesantren*. At this TPS, the waste is re-sorted to ensure proper separation of organic and inorganic waste. Organic waste, such as food scraps, dry leaves, and small twigs, is then processed into simple compost through a landfill method. The resulting compost is used as fertilizer to support reforestation and plant care programs. This shared responsibility helps *santri* feel valued and integral to the *pesantren's* environmental efforts, reinforcing their sense of purpose.

Meanwhile, inorganic waste, such as plastic, paper, and cardboard, is collected separately and then deposited into a partner waste bank in collaboration with the *pesantren*. The proceeds from this waste collection can provide economic benefits to the *pesantren*; although the amount is small, it has significant educational value. *Santri* learn that waste doesn't always pollute, but can be useful if managed properly. The integrated waste management program also provides crucial social learning experiences, including teamwork, discipline, and collective responsibility. The supervising *ustadz* conducts regular evaluations, and student groups that maintain good hygiene are rewarded to motivate them. These consistent recognitions help *santri* feel appreciated and encourage ongoing participation.

The final program, an integral part of the *Pesantren Attaqwa* Go Green movement, is the charity program for plastic bottle waste. This program is designed as an environmental education initiative grounded in the values of charity and recycling. The *pesantren* places special metal baskets at several strategic locations labeled "Trash Charity" as collection points for used plastic beverage bottles consumed by *santri*. This program not only targets plastic waste reduction but also aims to instill the values of generosity and social participation through an ecological approach. *Santri* is encouraged to bring their own used plastic bottles and place them in the provided baskets. Collections are carried out several times a week by officers on duty, then the plastic bottles are transferred to the main storage area before being sold to the waste bank.

Plastic waste is deposited into the waste bank regularly, either weekly or

biweekly, depending on the volume of waste collected. Sorted and cleaned plastic bottles are counted before being handed over, so the *pesantren* maintains a record of the amount of plastic collected. Interviews with the person in charge of the plastic bottle waste charity program revealed that proceeds from plastic bottle sales are used to support social activities, including small initiatives such as purchasing cleaning supplies, scholarships for underprivileged *santri*, and the "Blessed Friday" program, which distributes food and necessities to the elderly. During moral development sessions (*kultum*), the religious teachers routinely link this program to religious values, such as the importance of charity, caring for others, and maintaining cleanliness as part of faith. Thus, the waste charity program is not only an environmental initiative but also a vehicle for character education grounded in Islamic values.

Overall, the implementation of the *Pesantren Attaqwa* Go Green Program demonstrates the *pesantren's* ability to develop an effective and sustainable environmental education model. The involvement of *santri* in each program demonstrates that practical, hands-on environmental learning is more effective in fostering ecological awareness than purely theoretical approaches. Furthermore, this program demonstrates a strong integration between religious values and ecological behavior. Recognizing that preserving nature aligns with Allah SWT's mandate can evoke feelings of hope and collective responsibility among stakeholders. The overall program also has a positive psychological impact, as the green and clean environment provides a more conducive learning environment, reduces stress levels, and improves the *santri's* quality of life while at the *pesantren*.

Thus, the Go Green Program of *Pesantren Attaqwa* not only contributes to the physical aspects of the *pesantren* environment but also aims to embed a long-term culture of environmental awareness within the community. By emphasizing discipline, cooperation, care, and ecological responsibility, this initiative seeks to foster lasting habits that will benefit *santri* and the environment for years to come. Through structured implementation, precise technical specifications, and the collective support of all elements of the *pesantren*, the "Green *Pesantren*, Preserve Nature" Movement has become a new culture within the *Pesantren Attaqwa* environment. This culture is not just a momentary trend, but has been embedded as a long-term awareness and habit that will become provisions for *santri* in their future lives.

This discussion integrates field findings regarding the implementation of the *Attaqwa* Go Green Program, which includes reforestation, integrated waste

management, and plastic bottle waste donation, under two main conceptual umbrellas: *eco-pesantren* as a model for *pesantren*-based environmental education, and *hubbul bi'ah* (environmental love) as the ethical-religious value underlying the ecological behavior of Muslims. This integrative approach aligns with recent developments in sustainable Islamic education studies, which emphasize the importance of an ecological movement grounded in revealed values and *pesantren* culture (Ali & Agushi, 2024; Basri et al., 2025). The goal is to interpret the program's implementation results not merely as a series of technical activities, but as a process of values education that leads to a transformation of environmental attitudes and practices, which can be assessed through specific behavioral indicators and attitude surveys to validate its impact.

The finding that the *Pesantren Attaqwa* integrates environmental education into the learning process and character development of *santri* through the *Attaqwa Go Green Program* demonstrates strong alignment with the theory of value-based environmental education. From an Islamic educational perspective, the internalization of environmental values linked to the concept of worship and the mandate of the caliphate constitutes a concrete form of Islamic environmental ethics, where humans are positioned as guardians and caretakers of the earth, not merely its users (Foltz et al., 2003; Nasr, 1990). Numerous studies confirm that a religious approach to environmental education can strengthen the affective and moral dimensions of *santri*, so that concern for the environment does not stop at knowledge, but continues to commitment and real behavior (Hajar, 2024; Safei & Himayaturohmah, 2023). By integrating environmental activities into worship, the *Go Green Attaqwa Program* has successfully shifted the paradigm of *santri* from a "technical obligation" to a "spiritual responsibility," which, according to the theory of the internalization of values, is the highest stage in character formation (Lickona, 1992).

Furthermore, these findings align with the *eco-pesantren* concept, which emphasizes integrating ecological practices and sustainable pedagogical processes rooted in religious values. Research across various *pesantren* in Indonesia shows that environmental programs focused solely on physical activities tend to be temporary, whereas integrated programs that incorporate learning and character development are more effective at fostering long-term ecological awareness (Fua, 2013; Pudjiastuti et al., 2021). International studies on environmental education also confirm that when environmental values are linked to *santri* belief systems and moral identities, pro-environmental behavior becomes more consistent and lasting (Amiri et al., 2021; Ardooin & Bowers,

2020). In this context, the Go Green Attaqwa Program functions not only as an environmental intervention but also as an instrument for religious character education, fostering *hubbul bi'ah* values as an integral part of the santri personalities. These findings strengthen the argument that *pesantren* has the cultural and theological advantages to become strategic agents of faith-based environmental education in Indonesia.

The finding that the greening program at *Pesantren* Attaqwa was designed through a systematic planning process, including analysis of green space needs, area mapping, and selection of plant species, aligns with the theory of green schools and environmental planning in educational settings. Research shows that well-designed green spaces in educational environments significantly improve the quality of the learning climate, thermal comfort, and *santri* physical and psychological health (Chawla, 2015; Dadvand et al., 2015). In the context of *pesantren*, greening planning that considers ecological functions, such as heat absorption and air quality improvement, demonstrates that this program is not only aesthetically oriented but also ecologically and pedagogically oriented. National studies on eco-*pesantren* confirm that the success of greening is greatly influenced by planning that addresses the needs of the *pesantren* environment and by the involvement of institutional structures in its management (Erlangga et al., 2025; Fua, 2013).

Furthermore, the active involvement of santri in planting and caring for plants reflects the application of experiential learning and place-based education in environmental education. Experiential learning theory (Kolb, 2015) emphasizes that knowledge and attitudes formed through direct experience tend to be more meaningful and lasting than lecture-based learning. Consistently, international research shows that activities such as school gardening and urban greening can improve environmental literacy, ecological empathy, and pro-environmental attitudes in santri (Amiri et al., 2021; Ardooin & Bowers, 2020). In the context of *santri*, *santri* involvement in greening not only enriches ecological learning but also strengthens character development through real-life practices, as found in studies of agricultural *pesantren* and habit-based eco-*pesantren* (Rini et al., 2022; Safei & Himayaturohmah, 2023).

In addition to its ecological and educational impacts, findings regarding the rotating plant care system highlight how collective routines can make educators feel their efforts are vital for fostering responsibility and social awareness, reinforcing character values through habituation and social responsibility learning mechanisms. Research on character education confirms that

responsibility, discipline, and social awareness are more effectively developed through structured collective routines than through purely normative instruction (Lickona, 1992). Studies on eco-*pesantren* in Indonesia also show that cultivating collective environmental stewardship is crucial for fostering a sustainable green culture in *pesantren* (Hermawansyah, 2025; Pudjiastuti et al., 2021). Thus, the greening program at *Pesantren Attaqwa* serves not only as an ecological intervention but also as a vehicle for experiential character education that fosters ecological awareness, a sense of environmental ownership, and the internalization of *hubbul bi'ah* values in the *santri*'s daily lives.

The finding that *Pesantren Attaqwa* implements integrated waste management based on the principles of reduce, reuse, and recycle (3R) through the provision of sorting facilities and a mini TPS (landfill site) demonstrates its alignment with the integrated solid waste management (ISWM) framework in environmental education. ISWM theory emphasizes that effective waste management must begin at the source through sorting, reduction, and initial processing before entering the final disposal system (Tchobanoglou & Kreith, 2002). Several studies have shown that educational institutions that implement waste-sorting systems from the outset can reduce waste volume, increase recycling effectiveness, and strengthen *santri* ecological awareness (Amiri et al., 2021; Zaman & Lehmann, 2013). In the context of *pesantren*, the implementation of this system demonstrates that they are not only consumers of environmental policies but also active actors in sustainable waste management practices, as confirmed by studies of eco-*pesantren* in Indonesia (Fua, 2013; Pudjiastuti et al., 2021).

Furthermore, the daily cleaning duty system and *santri*'s involvement in the entire waste management chain demonstrate how *pesantren* culture enhances waste management effectiveness by fostering confidence and trust. Research across various educational institutions shows that collective practices such as cleaning duties and joint waste management are more effective at fostering environmental discipline and responsibility than purely instructional approaches (Ardoin & Bowers, 2020; Kollmuss & Agyeman, 2002). In the context of *pesantren*, these habits are reinforced by a communal social structure and exemplary teacher-*santri* relationships, so that the practice of sorting, processing, and cleaning waste is not perceived as a burden, but rather as a moral obligation and part of character building. These findings align with national research showing that *pesantren*-based waste management is effective when implemented as a collective culture integrated with the *santri* development system

(Hermawansyah, 2025; Safei & Himayaturohmah, 2023).

In addition to educational and ecological aspects, emphasizing the connection between waste management programs, waste banks, and compost use can inspire policymakers and educators to see their role in fostering collective responsibility and *hubbul bi'ah* values in *pesantren* environmental education. International literature confirms that waste management that links economic benefits, even small ones, can increase program sustainability because santri understand the value of waste as a resource (Zaman & Lehmann, 2013). National studies also show that waste bank programs in educational settings contribute to increased environmental economic literacy and sustainability awareness (Nisa', 2019; Sulismadi et al., 2025). In the context of *Pesantren Attaqwa*, integrated waste management not only reduces environmental impact but also fosters *santri* awareness that maintaining cleanliness, managing waste, and reusing it are part of a collective responsibility and the implementation of *hubbul bi'ah* values in daily life. Thus, this program serves as a vehicle for integrated ecological, social, and moral learning.

Findings from the plastic bottle waste charity program demonstrate a strong integration of environmental and character education grounded in religious values, particularly the value of charity in Islam. From an Islamic environmental ethics perspective, maintaining cleanliness and managing waste are seen as part of faith and good deeds, as emphasized in the concept of thaharah and the prohibition of causing damage to the earth (Foltz et al., 2003; Nasr, 1990). Research on environmentally based Islamic education shows that when ecological practices are linked to the values of worship and generosity, *santri* more easily internalize the moral meaning of these actions, so that pro-environmental behavior is not perceived as merely an administrative obligation, but rather as an expression of faith (Hajar, 2024; Safei & Himayaturohmah, 2023). Therefore, the waste charity at *Pesantren Attaqwa* exemplifies how Islamic ethics shape environmental behavior and foster charitable actions that encompass ecological and social responsibilities.

From the perspective of environmental education and the circular economy, the plastic bottle waste charity program aligns with community-based recycling and value-added waste management approaches. International literature confirms that community-based recycling programs that link social and economic benefits can increase participation and sustainability of waste management programs (Zaman & Lehmann, 2013). Research in educational settings also shows that waste management that generates tangible benefits,

such as social funds or educational facilities, encourages *santri* to view waste as a resource, not simply waste (Amiri et al., 2021; Nisa', 2019). At the *Pesantren* Attaqwa, the recording mechanism, regular deposits into the waste bank, and the utilization of the proceeds for social purposes strengthen *santri* environmental and socio-economic literacy.

Furthermore, the association of the waste charity program with moral development and religious sermons reflects the application of character education through habituation and moral reinforcement. Character education theory asserts that moral values are more effectively instilled through habituation reinforced by reflection and normative reinforcement, rather than mere normative teaching (Lickona, 1992). Studies on *eco-pesantren* in Indonesia show that environmental practices accompanied by religious explanations and exemplary behavior from religious teachers can foster internal, long-term ecological awareness (Fua, 2013; Hermawansyah, 2025). In this case, the plastic bottle waste charity program at the *Pesantren* Attaqwa not only serves as a strategy to reduce plastic waste but also as a vehicle for character formation among *santri*, integrating environmental awareness, social solidarity, and the values of *hubbul bi'ah* into their Islamic identity.

Synthetically, the Go Green Attaqwa Program highlights the vital role of *eco-pesantren* and *hubbul bi'ah* in fostering meaningful change: a well-designed environmental education model provides a strong pedagogical framework, while *hubbul bi'ah* offers a deep religious-ethical foundation, inspiring the audience to see ecological behavior as a moral commitment rather than mere compliance. This approach underscores the potential of *pesantren* as agents of socio-environmental change, encouraging researchers, educators, and policymakers to recognize their importance in shaping sustainable attitudes (Aulia et al., 2024; Hajar, 2024).

Beyond internal recommendations, broader policy support is needed. Local governments should recognize their vital role by providing ongoing technical assistance for circular-economy-based waste-management programs in *pesantren*. The Ministry of Religious Affairs could also prioritize *eco-pesantren* programs, given their strategic role in national education and the character development of the younger generation. The provision of *pesantren*-based environmental grants should be expanded to enable *pesantren* to build green facilities, such as green open spaces, modern composters, and mini-recycling centers. Furthermore, universities offering environmental studies, Islamic education, or community service programs should be encouraged to partner with *pesantren* to

develop a more systematic, measurable, and research-based eco-*pesantren* model.

Conclusion

This research confirms that the Go Green Program at *Pesantren* Attaqwa is not merely a series of technical environmental management activities, but rather an integrated, sustainable value-education process within the *pesantren* ecosystem. Through reforestation, integrated waste management, and the donation of plastic bottle waste, the *pesantren* has successfully internalized the values of hubbul bi'ah (the principle of cooperation) into the learning, habituation, and character development of its santri, so that ecological behavior is understood as part of their worship and moral responsibility as caliphs on earth. The integration of the eco-*pesantren* framework, Islamic ethical-religious values, an experiential learning approach, and collective habituation demonstrates that the *pesantren* has strong cultural, theological, and pedagogical capacities to serve as a strategic agent of sustainable environmental education. This success highlights the program's importance and can inspire other *pesantren* to adopt similar initiatives, reinforcing the value of sustainability rooted in Islamic principles.

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