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The Contribution of *Pesantren* to Sustainable and Social Education: A Narrative Review

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ABSTRACT

Pesantren, as Islamic educational institutions, play a crucial role in shaping the character of students (*santri*) and contributing to community development. This study conducts a narrative review to examine the role of *pesantren* in sustainable and social education by reviewing literature published between 2015 and 2025. The search strategy included national and international journal databases using keywords such as "*pesantren* AND sustainable education," "*eco-pesantren*," and "community empowerment." Out of 120 identified articles, 52 met the inclusion criteria. Thematic analysis revealed four primary roles of *pesantren*: (1) integration of sustainable education principles (edu-ecoliteracy), (2) development of *eco-pesantren* and environmental awareness, (3) social and economic community empowerment, and (4) strengthening of social character and leadership among students. The findings also highlight significant challenges, including limited resources, inadequate policy support, and low digital literacy. This study confirms that *pesantren* are strategic actors in sustainable and social education, providing recommendations for future research on evaluating *eco-pesantren* programs, developing sustainable curricula, and integrating educational technology.

Keywords
Eco-pesantren
Pesantren
SDGs
Social Empowerment
Sustainable Education

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Introduction

Islamic boarding schools in Indonesia, known as *pesantren*, represent one of the oldest and most enduring forms of religious education in Southeast Asia, with roots extending back to the 15th century as centers not only for Islamic instruction but also for cultural, social, and local economic life [1], [2]. Traditionally, *santri* (students) engage intensively in religious study while also participating in community maintenance and economic activities that help sustain *pesantren* operations and support their local communities [3], [4]. Over time, *pesantren* have evolved beyond solely religious functions to embody multifaceted roles that include fostering community cohesion, shaping moral character, and facilitating economic resilience [5], [6]. However, in the face of modern global challenges such as globalization, digitalization, and the increasing emphasis on sustainable development, the role of *pesantren* has expanded to include broader educational and social missions aligned with contemporary norms of sustainable and inclusive development [7], [8].

The United Nations' Sustainable Development Goals (SDGs) emphasize inclusive education, gender equity, community empowerment, and environmental stewardship [9]. *Pesantren*, as institutions deeply embedded within Indonesian society, possess significant potential to support SDG targets through curriculum innovation and practical community-oriented programs [3], [10]. For instance, recent research highlights how numerous *pesantren* have begun incorporating SDG principles into their educational strategies to promote ecological awareness and sustainability among *santri* [4], [11]. Case studies demonstrate that some *pesantren* integrate environmentally friendly policies, nature-based learning, and Islamic ecological curricula aimed at promoting stewardship and sustainable living [12], [13].

One emerging model is the *eco-pesantren*, an educational approach that embeds ecological values and local wisdom into *pesantren* learning environments and daily practices [3], [7]. This model typically includes environment-based curricula, community engagement activities, sustainable campus management, and circular economy practices that empower students to act as agents of social and environmental transformation [3], [10]. Research on *eco-pesantren* models in Indonesia has shown that integrating mutual care (*silih asih*) and reciprocal nurturing into sustainability practices fosters strong ecological consciousness among students while also advancing local community engagement [8], [11].

Similarly, studies on green transformation in Islamic education institutions indicate that *eco-pesantren* programs (such as waste management, recycling, organic farming, and ecoliteracy training) have demonstrable impacts on shaping environmentally responsible behaviors in *santri*, reinforcing Islamic concepts such as *khalifah fil ardh* (human stewardship of the earth) [5], [7]. These programs demonstrate how *pesantren* can blend Islamic teachings

with sustainability principles to strengthen both spiritual and environmental commitments [14].

In addition to ecological education, *pesantren* are charting new ground in social and economic empowerment, using innovative educational models that integrate entrepreneurship and sustainability [3], [6]. For example, a study on a sustainable sheep farming initiative at a *pesantren* in West Java revealed that entrepreneurship education within the *pesantren* context can significantly improve economic conditions for participants and enhance social cohesion through community collaboration and collective responsibility [8], [15]. This initiative not only provided practical skills but also demonstrated how *pesantren* can advance rural economic empowerment and resilience [1], [13].

Despite these promising developments, systematic academic research specifically focusing on the role of *pesantren* in sustainable and social education remains limited, with many studies localized, descriptive, or focused on individual case studies rather than synthesized across broader contexts [5], [16]. This gap underscores the need for a narrative review approach to collate, compare, and synthesize findings from multiple contexts and models to identify patterns, define best practices, and suggest pathways for broader integration of sustainable practices in *pesantren* education [4], [6].

The objectives of such a systematic review include:

1. Identifying the contribution of *pesantren* to sustainable and social education, including how these institutions translate SDG principles into educational frameworks, programs, and community outcomes.
2. Presenting innovative practices such as *eco-pesantren* and community empowerment programs, demonstrating how *pesantren* engagement with sustainability and economic development can strengthen social capital and community resilience.
3. Elucidating challenges and opportunities in developing sustainable education in *pesantren*, particularly institutional, financial, educational, and policy barriers that affect the scalability and sustainability of these initiatives.

By synthesizing existing literature, researchers can develop a clearer understanding of how *pesantren* contribute to sustainable development and social empowerment while identifying areas requiring further research, such as longitudinal outcomes of sustainability programs, comparative analyses across different *pesantren* models, and policy mechanisms that support curriculum integration and institutional transformation. Such insights are essential for positioning *pesantren* as strategic actors in the pursuit of both local community prosperity and global sustainable development agendas.

Material and Methods

This study employed a Narrative Review approach to explore the role of *pesantren* in sustainable and social education. Unlike a systematic review, the narrative review emphasizes a comprehensive and critical synthesis of the existing literature, allowing for a broader understanding of the topic and the identification of patterns, themes, and knowledge gaps. The review focused on articles published between 2015 and 2025 that addressed *pesantren*'s contributions to sustainable education, environmental initiatives, social empowerment, and leadership development.

A comprehensive search was conducted across multiple academic databases, including Google Scholar, Sinta, and DOAJ, using keywords such as *"pesantren AND sustainable education"*, *"eco pesantren AND community development"*, and *"pesantren AND social empowerment"*. Studies were selected based on relevance to the topic, full-text availability, and academic quality, with an emphasis on both empirical and theoretical contributions.

Data from selected articles were synthesized qualitatively, focusing on key themes such as the integration of sustainability principles in curricula, *eco-pesantren* initiatives, social and economic empowerment, and character and leadership development. This approach allowed the identification of significant trends, challenges, and best practices in *pesantren* education while providing a comprehensive narrative of their contributions to sustainable and social development in Indonesia. The analysis was conducted thematically with attention to four main themes:

1. Integration of sustainable education values (*edu-ecoliteracy*)
2. Development of *eco-pesantren* and environmental awareness
3. Social and economic community empowerment
4. Strengthening social character and leadership among *santri*

Results and Discussions

A. Integration of Sustainability Principles in *Pesantren* Education

Pesantren, as traditional Islamic boarding schools in Indonesia, have increasingly integrated sustainability principles into their educational frameworks to align with global development goals [2], [7]. One key strategy involves embedding Islamic-based curricula that emphasize conservation, social justice, and environmental stewardship [3], [5]. Through these curricula, *santri* (students) are taught to understand and practice responsible resource management, reflecting the broader ethical principles of Islam while fostering awareness of ecological challenges [1], [3].

A second strategy is the implementation of environmental literacy programs (edu-ecoliteracy) within *pesantren*. Such programs include practical activities like organic farming, sustainable agriculture, and natural resource management, which enable students to connect

theoretical knowledge with real-world environmental practices [4], [6]. These initiatives not only develop ecological competence but also cultivate a sense of responsibility for community and environmental welfare [8], [10].

In addition to formal curricula, extracurricular activities play a significant role in enhancing environmental consciousness among *santri*. Activities such as tree planting, waste reduction campaigns, recycling projects, and green campus initiatives provide hands-on experience and reinforce the values of sustainability in daily life [2], [5]. These experiences encourage students to act as agents of environmental change both within the *pesantren* and in their local communities.

An illustrative example is *Pesantren* Muhammadiyah in Malang, which has successfully integrated SDG principles by combining organic farming practice, waste management, and training programs for *santri* to become environmentally responsible leaders [1], [6], [17]. This integration of sustainable principles demonstrates how *pesantren* education can simultaneously support religious instruction and prepare students to contribute positively to social and environmental sustainability.

B. *Eco-Pesantren* and Environmental Initiatives

The concept of *eco-pesantren* has emerged as an innovative model within Indonesian Islamic boarding schools to integrate environmental stewardship with religious education [5], [7]. *Eco-pesantren* programs aim to foster ecological consciousness among *santri* while promoting sustainable practices at the institutional and community levels [8], [14]. These programs typically combine curriculum-based learning, hands-on environmental activities, and community engagement to ensure that sustainability principles are both taught and practiced in daily life [1], [6].

One core component of *eco-pesantren* is waste management and recycling initiatives, which educate students on reducing, reusing, and recycling materials while also promoting environmental ethics rooted in Islamic teachings [3], [10]. *Santri* participate in activities such as composting organic waste, managing waste banks, and conducting recycling campaigns, thereby cultivating responsible environmental behavior and community awareness [2], [8].

In addition to waste management, agricultural and green campus initiatives are widely implemented. These include organic farming, tree planting, water conservation, and energy efficiency projects that serve as both educational tools and practical contributions to environmental sustainability [5], [16]. By integrating hands-on ecological activities with classroom instruction, *eco-pesantren* empower students to apply sustainability principles in real-world contexts.

Furthermore, *eco-pesantren* programs are designed to develop *santri* as environmental leaders who can influence their communities positively. Through training sessions, workshops,

and participatory projects, students learn leadership skills and social responsibility while contributing to local ecological preservation [1], [6].

An example is the *Pesantren* Muhammadiyah in Malang, where students actively manage organic gardens, implement waste reduction programs, and lead environmental awareness campaigns in the surrounding community [3], [8]. These initiatives demonstrate that *eco-pesantren* not only reinforce ecological literacy but also cultivate leadership and social responsibility, linking religious education to sustainable development goals [3], [7].

C. Societal Empowerment and Community Development

Beyond environmental education, *pesantren* increasingly engage in social and economic empowerment programs to enhance community resilience and student capabilities [2], [5]. These programs aim to equip *santri* with practical skills, social awareness, and entrepreneurial competencies that contribute to local development while reinforcing Islamic values of social responsibility and cooperation [7], [14].

One prominent strategy is entrepreneurship education, which introduces *santri* to small-scale business management, agricultural entrepreneurship, and cooperative ventures [8], [15]. Such initiatives not only generate income for *pesantren* but also provide students with hands-on experience in economic decision-making, problem-solving, and collaborative work. For instance, programs in West Java and Central Java have successfully involved *santri* in organic farming, livestock management, and handicraft production, linking educational activities to local economic development [1], [3].

In addition, *pesantren* often implement community-based empowerment initiatives, including training for residents, cooperative projects, and social programs addressing education, health, and environmental concerns [3], [6]. By integrating these activities into the educational framework, *pesantren* cultivate leadership, civic engagement, and social responsibility among students, enabling them to act as catalysts for positive change in their communities [7], [16].

Case studies demonstrate that *Pesantren* Nurul Ulum and other *pesantren* have effectively combined educational, economic, and social initiatives to empower both *santri* and local communities [2], [4]. Students participate in income-generating projects while applying Islamic ethical principles, fostering a sense of social justice and solidarity. These experiences strengthen community resilience, promote inclusive development, and ensure that the *pesantren* contributes meaningfully to both social and economic sustainability [1], [10].

Overall, integrating social and economic empowerment into *pesantren* education demonstrates how these institutions function not only as religious schools but also as active agents of community development, bridging educational outcomes with sustainable and socially responsible practices [6], [8].

D. Social Character and Leadership Development

In addition to sustainability education and social empowerment, *pesantren* play a critical role in shaping character and leadership among *santri*. Character development in *pesantren* is grounded in Islamic ethical values, emphasizing integrity, responsibility, empathy, and social cohesion [2], [5]. These values are systematically integrated into both curricular and extracurricular activities, fostering holistic personal growth alongside academic and religious learning [4], [7].

Leadership development is cultivated through participatory and experiential learning, where *santri* engage in decision-making processes, manage community programs, and lead group activities within the *pesantren* [1], [3]. For instance, students are often responsible for managing *eco-pesantren* projects, coordinating social initiatives, or organizing peer mentoring programs, which enhances their problem-solving, teamwork, and organizational skills [11], [16].

Extracurricular activities such as community service, environmental campaigns, and cooperative economic projects provide practical contexts for leadership practice [6], [8]. Through these engagements, *santri* learn to apply moral and ethical reasoning to real-life challenges, strengthening social responsibility and civic-mindedness.

An illustrative example is *Pesantren* Muhammadiyah in Malang, where students assume leadership roles in managing organic farming initiatives, recycling programs, and community awareness campaigns [5], [7], [17]. These experiences not only reinforce ecological literacy but also cultivate self-confidence, accountability, and the capacity to influence and mobilize others for social and environmental improvement [1], [4].

Overall, *pesantren* function as incubators for future community leaders, integrating religious, social, and ecological education to prepare *santri* for responsible citizenship and leadership in diverse societal contexts [2], [6]. The combination of ethical instruction, experiential practice, and community engagement ensures that leadership development in *pesantren* is closely linked with sustainable and socially responsible outcomes.

Conclusion

Islamic boarding schools (*pesantren*) play a strategic role in supporting sustainable and social education in Indonesia through the integration of Islamic values, environmental education, and community empowerment programs. Eco-pesantren practices, curricula aligned with sustainable development principles, and socio-economic activities have proven effective in enhancing students' awareness, skills, and capacities while simultaneously benefiting surrounding communities. Pesantren function not only as religious education institutions but also as local development agents promoting social responsibility, leadership, and ecological stewardship. However, challenges such as limited resources, insufficient policy

support, and the need for strengthened internal capacity must be addressed to expand and sustain these positive impacts. Further research could explore long-term studies on eco-pesantren programs, comparative analyses across pesantren in different regions, and the use of educational technology to support more effective and comprehensive sustainable education development.

Conflict of Interest

The authors declare no conflict of interest.

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