



A SYSTEMATIC REVIEW OF GREEN SCHOOL AND ENVIRONMENTAL EDUCATION IN MADRASAH IBTIDAIYAH

Riztasya Ananta¹, Davara Salsabila Elphasani², Ahmad Farqi Musaqaal³, Selvia Sari⁴, Fajar Sigit⁵

¹⁻⁵Raden Intan State Islamic University, Indonesia
Correspondence Email: riztasyaa@gmail.com

Article Info	Abstract
<p>Article history: <i>Received: 2026-04-30</i> <i>Revised: 2026-05-01</i> <i>Accepted: 2026-05-05</i></p> <p>Keywords: <i>green school, environmental education, Madrasah Ibtidaiyah, ecoliteracy, Islamic primary education</i></p>	<p>This article examines the concept, implementation strategies, impacts, and challenges of green school and environmental education in Madrasah Ibtidaiyah through a Systematic Literature Review approach. The review covers 15 open-access sources published from 2022 to 2026. The findings show that green school in Islamic primary education should be understood not merely as a cleanliness program, but as a madrasa culture integrating governance, facilities, teaching and learning, and community engagement. Environmental education becomes more meaningful when linked with tawhid, morality, rahmatan lil 'alamin, clean habits, waste management, school gardening, and contextual learning. The review also reveals positive effects on students' environmental care, discipline, responsibility, healthy habits, and scientific literacy. However, limited facilities, teacher capacity, program continuity, funding, and school-family collaboration remain recurring challenges. Therefore, strengthening green schools in Madrasah Ibtidaiyah requires a sustainable, whole-school approach grounded in Islamic values and children's everyday learning experiences.</p>

This is an open-access article under the CC BY-SA license.
Copyright © 2026 by Author.
Published by Yayasan Mujtahidin Sajimah Selong (Musa Foundation), Indonesia.

INTRODUCTION

Environmental degradation, climate change, and waste-related issues have positioned schools as increasingly strategic institutions. Schools are no longer sufficient as mere spaces for knowledge transfer; they must also serve as environments for cultivating ecological habits. UNESCO emphasizes that green schools are built upon four core domains: governance, facilities and operations, learning processes, and community engagement. This framework demonstrates that a green school is fundamentally an institutional approach that integrates physical aspects, curriculum, and school culture (UNESCO, 2023, 2024a).

For Madrasah Ibtidaiyah (MI), this issue is particularly significant because MI represents the stage of basic education in which children's character is being formed. At this stage, environmental education should not be delivered merely as knowledge about nature; rather, it needs to be embedded through experiences that are closely related to students' daily lives, such as maintaining cleanliness, sorting waste, planting and caring

for vegetation, conserving water, and saving energy. Within the context of madrasah, these ecological experiences can also be linked to moral values (akhlaq) and the human responsibility (amanah) toward Allah's creation (Anwar et al., 2025; UNESCO, 2024b).

The urgency of green schools is further reinforced by the increasing disruption of education caused by climate-related events. A report by UNICEF on school disruptions due to climate events highlights that safe, healthy, and resilient learning environments have become an essential need. This indicates that green schools are relevant not only for long-term sustainability agendas, but also for maintaining the resilience of education systems (UNICEF, 2025).

A number of recent studies in Indonesia indicate that environmental education in elementary schools and Madrasah Ibtidaiyah (MI) has developed in increasingly diverse ways. Emerging themes include environmentally oriented school culture, the Adiwiyata program, cleanliness habits, the integration of ecoliteracy into religious subjects, the use of digital media, plastic waste-based learning, and the cultivation of TOGA (family medicinal plants). In the context of madrasah, the strengthening of environmental education appears to be more effective when it is grounded in the values of tauhid (monotheism), akhlaq (morality), and the learner profile of rahmatan lil 'alamin (Aftina & Hanik, 2026; Al Ghifari, 2024; Anwar et al., 2025; Baiah & Fadiana, 2024; Biantoro & Istiqlal, 2025; Mantopani et al., 2023; Nurlyani et al., 2024; Putri, 2025; Widayanti et al., 2023).

Nevertheless, these research findings remain fragmented and are often discussed in a partial manner. Some studies focus primarily on school activities, others emphasize classroom learning, while the rest concentrate on media use or curriculum design. Therefore, a Systematic Literature Review (SLR) is needed to comprehensively map the concepts, implementation patterns, impacts, and challenges of green schools and environmental education in Madrasah Ibtidaiyah (MI).

Based on this need, this article examines how green schools are conceptualized, identifies the dominant implementation strategies, and analyzes the most frequently reported impacts and challenges within the context of Islamic primary education (Aftina & Hanik, 2026; Putri, 2025; Widayanti et al., 2023).

METHOD

This article employs a Systematic Literature Review (SLR) method. The structure of the article follows the general format of SLR studies, as outlined in the referenced guidelines, consisting of an introduction, methods, results and discussion, conclusion, and references. The review process was conducted through three stages: planning, conducting, and reporting.

In the planning stage, the focus of the review was defined around green schools, environmental education, ecoliteracy, environmentally oriented school culture, and the Adiwiyata program within the context of Madrasah Ibtidaiyah (MI) or relevant primary

schools. The keywords used included green school, environmental education, Madrasah Ibtidaiyah, ecoliteracy, Adiwiyata, environmental care, and Islamic education.

In the conducting stage, sources were selected from open-access journal portals, reports from international organizations, and official digital documents that provided full-text access without paywalls at the time of writing. The inclusion criteria were: publications from 2022 to 2026, relevance to the topic, full accessibility, and contributions of conceptual or practical value. The exclusion criteria included duplicate sources, studies not relevant to primary education, or those containing only brief abstracts.

In the reporting stage, fifteen selected sources were thoroughly reviewed and coded into four major themes: the conceptual framework of green schools; the integration of environmental education with Islamic values; forms of implementation in madrasah or primary schools; and the impacts and challenges. The synthesis results were then presented using a narrative-analytical approach.

RESULTS AND DISCUSSION

1. Green School as Madrasah Culture

The literature indicates that green schools should not be narrowly interpreted as occasional greening activities or cleanliness competitions. The framework proposed by UNESCO positions green schools as an integrated system that connects policies, learning processes, operations, and partnerships. This perspective is important because, in practice, many schools tend to display only physical symbols such as gardens and waste bins without yet fostering consistent and sustainable cultural change (UNESCO, 2023, 2024a).

Findings from the context of Indonesia reinforce this perspective. Studies by Baiah and Fadiana indicate that an environmentally oriented school culture serves as a foundation for developing environmental awareness among primary school students. Similarly, research by Mantopani, Muhajir, and Azis demonstrates that environmental character education is more effective when it becomes part of school habits rather than incidental teaching material. Thus, green schools generate a stronger impact when they are embedded in regulations, daily routines, facilities, and the everyday interactions of the madrasah community (Baiah & Fadiana, 2024; Mantopani et al., 2023).

Global frameworks clarify this meaning. The concept of greening every school by UNESCO positions green schools as educational institutions that foster knowledge, skills, values, and attitudes of sustainability through a whole-school approach in learning, facilities and operations, governance, and community partnerships. UNESCO's green school quality standards further specify four core dimensions, namely school governance, facilities and operation, teaching and learning, and community engagement. UNICEF, through the Green School Initiative, also emphasizes that green schools must be understood as spaces for building children's resilience through policies, safe facilities, risk reduction learning, and community involvement (UNICEF, 2024; UNESCO, 2023, 2024a).

When applied to the context of Madrasah Ibtidaiyah, green school refers to an institutional culture that connects character formation (akhlaq) with health, safety, sustainability, and learning preparedness. Its relevance becomes stronger as a report by UNICEF on school disruptions due to climate events in 2024 shows that at least 242 million learners were affected globally, with heatwaves as the primary cause. Thus, environmental education in MI should not be positioned merely as an additional activity or an aesthetic symbol, but as an investment in sustaining children's right to education and strengthening madrasah resilience to ecological crises (UNICEF, 2025).

2. Integration of Environmental Education with Islamic Values

In Madrasah Ibtidaiyah, green school has a distinctive characteristic because it can be directly linked to Islamic values. Al Ghifari shows that green education in MI supports the development of the rahmatan lil 'alamin student profile through waste management, tree planting, and the integration of environmental values into science (IPA) and Islamic education (PAI) learning. This finding positions environmental awareness not only as a social skill, but also as part of akhlaq (Al Ghifari, 2024).

Widayanti, Effendi, and Shofa emphasize that ecoliteracy can be integrated into religious subjects in madrasah Adiwiyata. Anwar and the team even formulate the integration of tauhid and ecopedagogy as a curricular framework to strengthen environmental care character. Meanwhile, Anwar and colleagues show that the development of environmentally oriented religious education can encourage the internalization of behaviors such as saving water, maintaining cleanliness, and not being excessive in using resources (Anwar et al., 2025; Widayanti et al., 2023).

Findings from the PENAMAS study enrich this perspective. Ruslan, Mudjia Rahardjo, Agus Maimun, and Rahinah Ibrahim show that strengthening environmental care character through the development of Islamic Religious Education takes place holistically through curricular, co-curricular, and self-development activities. Its implementation proceeds in four stages, namely planning, implementation, monitoring and evaluation, and follow-up. Interestingly, this strengthening does not only address teaching materials, but also the ecological vision of the madrasah, the provision of facilities such as green houses, healthy canteens, composters, biopores, infiltration wells, TOGA, waste bins, as well as the involvement of parents and external partners (Ruslan et al., 2024).

When compared with the Greening Curriculum Guidance by UNESCO, the integration of environmental education in Madrasah Ibtidaiyah should not stop at the level of knowledge. A green curriculum needs to combine cognitive, socio-emotional, and practical action domains; be contextual; use reflective learning experiences; and be implemented through a whole-institution approach. This pattern appears to be in line with the findings of Widayanti et al., who integrate ecoliteracy into lesson plans (RPP) for Akidah Akhlak, Al-Qur'an Hadith, Fiqh, Arabic Language, and SKI, as well as with the ideas of Anwar et al., who position tauhid as a moral foundation and ecopedagogy as a

participatory pathway to transform ecological awareness into action (Anwar et al., 2025; UNESCO, 2024b; Widayanti et al., 2023).

3. Dominant Form of Implementation

From the implementation perspective, the literature shows several dominant patterns. First, the habituation of environmental cleanliness and school order. Biantoro and Istiqlal explain that the habituation of cleanliness in Madrasah Ibtidaiyah plays a direct role in moral (*akhlaq*) education. This pattern is simple, but it becomes the starting point for the formation of ecological discipline because it is carried out continuously (Biantoro & Istiqlal, 2025; Mantopani et al., 2023).

Second, contextual learning based on environmental issues. Putri shows that plastic waste can be used as a basis for contextual learning to instill Islamic environmental cleanliness values in Madrasah Ibtidaiyah. Third, ecoliteracy practices through planting and the use of the environment as a learning resource. Aftina and Hanik show that planting TOGA can develop the scientific literacy of MI students while fostering ecological awareness (Aftina & Hanik, 2026; Putri, 2025).

Fourth, the support of learning media and technology. Nurlyani and the team developed the APEL application to foster moral conduct (*akhlaq*) toward the environment. This finding shows that environmental education can be strengthened through digital media as long as the content is contextual, applicable, and appropriate to the child's developmental stage. In general, the most effective implementation is one that combines habituation, classroom learning, real projects, and school governance (Nurlyani et al., 2024).

Fourth, the support of learning media and technology. Nurlyani and the team developed the APEL application to foster moral conduct (*akhlaq*) toward the environment. This finding shows that environmental education can be strengthened through digital media as long as the content is contextual, applicable, and appropriate to the child's developmental stage. In general, the most effective implementation is one that combines habituation, classroom learning, real projects, and school governance (Aftina & Hanik, 2026; Biantoro & Istiqlal, 2025; Mantopani et al., 2023; Putri, 2025).

Quality standards from UNESCO even recommend forms of activities that are highly adaptable for Madrasah Ibtidaiyah, such as composting projects, upcycling, school gardens, eco-fairs, water or energy saving challenges, tree planting, and community service activities. These recommendations directly align with practices in the study by Al Ghifari, which includes waste management into compost and tree planting; the study by Putri, which utilizes plastic waste as a medium for science learning with an Islamic perspective; as well as the study by Aftina and Hanik, which use the cultivation of TOGA as a means of ecoliteracy and scientific literacy.

The alignment between global standards and local practices shows that Madrasah Ibtidaiyah do not need to wait for sophisticated facilities to initiate *green schools*; what is

required is a consistent activity design, closely related to children's daily lives, and supported by teachers' role modeling (Aftina & Hanik, 2026; Al Ghifari, 2024; Putri, 2025; UNESCO, 2024a).

From the media perspective, the development of the APEL application by Nurlyani and the team shows that environmental education can also be strengthened through simple, age-appropriate technology. The feasibility findings of the application, which were rated very good by teachers and students, indicate that digital media can function as a reinforcement, not a substitute, for concrete experiences in the school environment.

Therefore, the most relevant model for Madrasah Ibtidaiyah is a combination of direct activities in the school yard, daily moral (*akhlaq*) habituation, and learning media that facilitate the reinforcement of messages in the classroom (Nurlyani et al., 2024).

4. Impact and Challenges

In general, all the sources reviewed show a tendency toward positive impacts. The most frequently observed impacts are the strengthening of environmental care, discipline, responsibility, clean living habits, and cooperation. On the academic side, green school practices can also improve scientific literacy and environmental literacy because students learn through direct experience and real-life contexts (Aftina & Hanik, 2026; Baiah & Fadiana, 2024; Biantoro & Istiqlal, 2025; Mantopani et al., 2023).

However, the literature also shows recurring constraints, such as limitations in waste management facilities, land, planting media, instructional time, and budget. In some madrasahs, teacher training in environment-based learning is still limited, so programs often depend on certain teachers. Another constraint is consistency; many programs run well at the initial stage but weaken because they are not integrated into the school's vision, policies, and evaluation (Aftina & Hanik, 2026; Al Ghifari, 2024).

5. Synthesis of Green School Strengthening Model in MI

Based on all sources, the green school strengthening model in MI can be formulated into five interconnected layers. The first layer is the institutional direction in the form of vision, policies, and governance that view the environment as part of the madrasah's identity. The second layer is the curriculum and learning that integrate environmental issues into PAI, science, and contextual themes. The third layer consists of daily habituation, such as duty rosters, LISA, water conservation, maintaining sanitation, and community service. The fourth layer involves real projects, such as composting, school gardens or TOGA, plastic waste management, as well as the use of digital media that strengthens students' reflection. The fifth layer is partnerships with families, committees, and the community so that environmental care values remain alive beyond the school grounds (UNICEF, 2024; Ruslan et al., 2024; UNESCO, 2024a, 2024b).

This model also addresses various constraints found in the literature. Barriers such as limited funding, low teacher readiness to teach climate issues, limited instructional

time, weather factors, and program discontinuity can be minimized if madrasahs start with low-cost but routine programs, and then expand them through collaboration. In other words, the strength of green schools in MI does not primarily lie in the size of the budget, but in the continuity of policies, the leadership of the madrasah head, the role modeling of teachers, and the involvement of families and the community (UNESCO, 2023, 2024a).

Based on this synthesis, the direction for strengthening green schools in MI includes at least four aspects: integration into the curriculum and daily learning; strengthening madrasah culture through habituation and role modeling; provision of simple but functional facilities; and the involvement of families and the community so that children's ecological habits do not stop within the school environment (Ruslan et al., 2024; UNESCO, 2024a).

Table 1. Thematic Synthesis of Study Results

Theme	Keywords	Dominant Findings	Implications for MI
Global urgency and school resilience	UNICEF (2024, 2025)	The climate crisis has disrupted the continuity of children's learning and demands that schools become safe, resilient, and responsive spaces.	MI needs to view environmental education as part of protecting the right to learn and the resilience of madrasahs.
Green school framework	UNESCO (2023, 2024a, 2024b)	A green school integrates governance, facilities and operations, learning, and the community through a whole-school approach.	MI needs to view green school as a madrasah culture, not an incidental program.
Integration of Islamic values	Widayanti; Ruslan; Al Ghifari; Anwar	The values of monotheism, morals, IRE/PAI, and PPRA strengthen students' environmental awareness.	Integration can be included in PAI, IPA, cocurricular, and madrasa culture.
School habits and culture	Mantopani dkk. (2023); Biantoro & Istiqlal (2025); Baiah & Fadiana (2024)	The LISA program, picket duty, community service, teacher role models, and an environmentally conscious school culture effectively shape discipline and responsibility.	MI requires simple, repetitive, and co-supervised ecological routines.



Theme	Keywords	Dominant Findings	Implications for MI
Contextual Learning and Media	Putri (2025); Aftina & Hanik (2026); Nurlyani dkk. (2024)	Plastic waste, TOGA, school gardens, and digital media can increase students' participation, scientific literacy, and ecological awareness.	MI needs to use real experiences and supporting media so that environmental learning does not stop at theory.
Impacts and challenges	All primary sources	Environmentally conscious character, learning quality, and eco-culture have increased, but are still hampered by facilities, time, teacher training, and home-school collaboration.	There is a need for strengthening leadership, minimum facilities, monitoring, and family-community partnerships.

CONCLUSION

Based on the findings, green school and environmental education in Madrasah Ibtidaiyah are most effective when implemented as a comprehensive madrasah culture. The literature shows that their main strength lies in the integration of school governance, contextual learning, daily habituation, and the reinforcement of Islamic values. Practices such as cleanliness routines, waste management, TOGA cultivation, waste-based learning, and the use of digital media have been proven to contribute to the development of students' environmental care character and scientific literacy. However, limitations in facilities, teacher capacity, program sustainability, and collaboration with families remain the main challenges. Therefore, strengthening green schools in MI needs to be directed toward a sustainable whole-school approach that is simple yet consistent, and grounded in Islamic values embedded in madrasah culture.

BIBLIOGRAPHY

- Aftina, N., & Hanik, E. U. (2026). Pembelajaran sains berbasis ekoliterasi melalui penanaman TOGA untuk menumbuhkan literasi sains siswa Madrasah Ibtidaiyah. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 11(1).
- Al Ghifari, F. H. (2024). Green education: Implementasi profil pelajar rahmatan lil alamin di Madrasah Ibtidaiyah Ma'arif NU Ujungpangkah Gresik. *Jurnal Tarbiyatuna: Jurnal Kajian Pendidikan, Pemikiran Dan Pengembangan Pendidikan Islam*, 5(2), 1–15.
- Anwar, S., Maulani, F., Lutfiah, W., Syadiah, S. I. H., & Azizah, A. S. N. (2025). Integrasi nilai ketauhidan dan ekopedagogi dalam kurikulum Madrasah Ibtidaiyah untuk penguatan karakter peduli lingkungan. *TSAQAFATUNA: Jurnal Ilmu Pendidikan Islam*,



7(1).

- Baiah, M., & Fadiana, M. (2024). Pendidikan karakter peduli lingkungan dengan penerapan budaya sekolah berwawasan lingkungan. *Jurnal Basicedu*, 8(3), 1700–1710. <https://doi.org/10.31004/basicedu.v8i3.7455>
- Biantoro, O. F., & Istiqlal, M. (2025). Strategi guru dalam membiasakan kebersihan lingkungan sebagai pendidikan akhlak di Madrasah Ibtidaiyah. *SITTAH: Journal of Primary Education*, 6(1), 15–30. <https://doi.org/10.30762/sittah.v6i1.5277>
- Mantopani, I., Muhajir, M., & Azis, A. (2023). Pendidikan karakter peduli lingkungan di sekolah dasar. *JUDIKDAS: Jurnal Ilmu Pendidikan Dasar Indonesia*, 2(4), 191–198. <https://doi.org/10.51574/judikdas.v2i4.931>
- Nurlyani, S. N., Zamzam, F., Oktavia, A., & Aeni, A. N. (2024). Pengembangan aplikasi Android berbasis SAC “APEL” (Aku Peduli Lingkungan) untuk memupuk akhlak terhadap lingkungan bagi peserta didik kelas VI sekolah dasar. *Jurnal Basicedu*, 8(3). <https://doi.org/10.31004/basicedu.v8i3.7596>
- Office, U. W. and C. A. R. (2024). *The Green School Initiative*. UNICEF.
- Putri, S. (2025). Penerapan pembelajaran kontekstual berbasis limbah plastik dalam menanamkan nilai kebersihan lingkungan Islami di Madrasah Ibtidaiyah. *QuranicEdu: Journal of Islamic Education*, 5(2), 249–272. <https://doi.org/10.37252/quranicedu.v5i2.1752>
- Ruslan, Rahardjo, M., Maimun, A., & Ibrahim, R. (2024). Environmental care: The strengthening character education through Islamic religious education (IRE) development. *PENAMAS: Journal of Religion and Society*, 37(1), 116–130. <https://doi.org/10.31330/penamas.v37i1.791>
- UNESCO. (2023). *Greening every school*. UNESCO.
- UNESCO. (2024a). *Green school quality standard: Greening every learning environment*. UNESCO.
- UNESCO. (2024b). *Greening curriculum guidance: Teaching and learning for climate action*. UNESCO.
- UNICEF. (2025). *Global snapshot of climate-related school disruptions in 2024*. UNICEF.
- Widayanti, E. Y., Effendi, M., & Shofa, S. N. (2023). Integrasi ecoliteracy pada mata pelajaran keagamaan di sekolah Adiwiyata mandiri Madrasah Ibtidaiyah Negeri 2 Madiun. *Ibriez: Jurnal Kependidikan Dasar Islam Berbasis Sains*, 8(2), 241–252. <https://doi.org/10.21154/ibriez.v8i2.497>