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Exploring the Role of Green Theology in Building Environmental Awareness Among Students at Adiwiyata Madrasah

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ABSTRACT

The purpose of this research is to explore how the implementation of Green Theology can foster environmental awareness among students at MIN 1 Sukoharjo as an Adiwiyata Madrasah. The research subjects include the madrasah principal, Islamic Education (PAI) teachers, and students, who were selected using purposive sampling. Using a descriptive qualitative approach with a case research method, data were collected through in-depth interviews, direct observation, and documentation analysis over a three-month period from September to November 2025. Data analysis used the Miles and Huberman model by applying triangulation of sources, methods, and theories to ensure the credibility of the findings. The results of the research indicate that Green Theology is an effective theological foundation for instilling ecological awareness in students through the integration of religious values and ecological practices. The visionary leadership of the madrasah principal is an important factor in building a religious-ecological school culture, while Islamic Education teachers strengthen ecological character through reflective, contextual learning and role modeling. Through routine programs such as waste banks, 3R, Clean Friday, and school greening, students experience a process of internalizing values that change their behavior from mere compliance to spiritual consciousness. This research contributes to the theory that Islamic theology-based environmental education is capable of developing a holistic Islamic eco-pedagogy model that combines knowledge, character, and spirituality. Practically, these findings offer the idea of a Green Theology in Practice model, which can be developed into a thematic curriculum, ecotheology-based Islamic Education (PAI) modules, and the P5 Merdeka Curriculum project. This research confirms that Green Theology has the potential to become a sustainable Islamic education approach that is relevant in responding to the challenges of the climate crisis and the ecological character building of the younger generation.

Keywords: Green Theology, ecological character, Madrasah Adiwiyata, Islamic education, eco-pedagogy

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INTRODUCTION

The global green economy issue refers to the rise in global greenhouse gas emissions[1], the increased consumption of traditional energy resources for economic growth, which causes environmental degradation[2], and the current state of climate change, all of which are regarded as serious threats to human society's long-term development[3]. Lingkungan sampah yang beragam akibat pola konsumsi masyarakat[4] dan kerusakan alam merupakan isu yang mendominasi isu lingkungan di berbagai *ecoregion* di Indonesia. Indeks Kualitas Lingkungan Hidup (IKLH) Indonesia tahun 2023 mencatatkan bahwa Indeks kualitas air berada pada angka 54,59, yang menunjukkan kualitas sedang, sementara Indeks kualitas udara mencapai 88,67, menandakan kualitas yang baik[5] yang membutuhkan perhatian serius. Data tersebut menunjukkan bahwa kualitas lingkungan belum mencapai kondisi ideal, dan masyarakat belum sepenuhnya memiliki kesadaran ekologis yang kuat.

Human activity, along with a lack of public understanding, awareness, and concern, contributes significantly to the situation. Low public awareness of the environment is often seen in the behavior of littering[6], waste accumulation[7], excess waste being burned openly and uncontrollably or dumped into waterways[8], high volumes of industrial and household waste being dumped into rivers[9] and exploitation of nature causing floods, earthquakes, landslides, and other disasters[10]. This situation implies a disparity between the ideal conditions anticipated and the actual conditions in the field, necessitating a more systematic and in-depth educational approach to promote environmental awareness.

One strategic solution to connect this gap is through environmental education.

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[1] Sandro Nižetić and others, 'Smart Technologies for Promotion of Energy Efficiency, Utilization of Sustainable Resources and Waste Management', *Journal of Cleaner Production*, 231 (2019), 565–91 <https://doi.org/10.1016/j.jclepro.2019.04.397>.

[2] Xuefeng Shao and others, 'Modeling the Effect of Green Technology Innovation and Renewable Energy on Carbon Neutrality in N-11 Countries? Evidence from Advance Panel Estimations', *Journal of Environmental Management*, 296 (2021), 113189 <https://doi.org/10.1016/j.jenvman.2021.113189>.

[3] Kerui Du and Jianglong Li, 'Towards a Green World: How Do Green Technology Innovations Affect Total-Factor Carbon Productivity', *Energy Policy*, 131 (2019), 240–50 <https://doi.org/10.1016/j.enpol.2019.04.033>.

[4] Lego Karjoko and others, 'Indonesia's Sustainable Development Goals Resolving Waste Problem: Informal to Formal Policy', *International Journal of Sustainable Development and Planning*, 17.2 (2022), 649–58 <https://doi.org/10.18280/ijsdp.170230>.

[5] Ajeng et al Gianini, *LAPORAN KINERJA 2023 Kementerian Lingkungan Hidup Dan Kehutanan* (Biro Perencanaan Kementerian Lingkungan Hidup dan Kehutanan, 2023).

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[7] Sarah Wulandari and Rofi'ah Rofi'ah, 'Analisis Penyelesaian Konflik Dampak Pembakaran Sampah Terhadap Kesehatan Lingkungan Dan Masyarakat Di Desa Cikaret RT 06 RW 08 Kecamatan Bogor Selatan', *MANIFESTO Jurnal Gagasan Komunikasi, Politik, Dan Budaya*, 1.1 (2023), 23–29.

[8] Yun Arifatul Fatimah and others, 'Industry 4.0 Based Sustainable Circular Economy Approach for Smart Waste Management System to Achieve Sustainable Development Goals: A Case Study of Indonesia', *Journal of Cleaner Production*, 269 (2020), 122263 <https://doi.org/10.1016/j.jclepro.2020.122263>.

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[10] Reflita Reflita, 'Eksploitasi Alam Dan Perusakan Lingkungan (Istinbath Hukum Atas Ayat-Ayat Lingkungan)', *SUBSTANTIA: JURNAL ILMU-ILMU USHULUDDIN*, 17.2 (2015), 147–58 <https://doi.org/http://dx.doi.org/10.22373/substantia.v17i2.4101>.

Environmental education is an important factor in the intention to behave responsibly towards the environment[11]. Environmental education takes on a key role in shaping the development of attitudes, values, knowledge, dispositions, and skills to engage in pro-environmental behavior[12] through two ways, namely, changing individual attitudes towards the environment and increasing community attitudes towards environmental awareness and concern[13]. Environmental awareness is the action and effort to prevent damage and try to repair damage that has already occurred to the surrounding nature[14]. It is important to teach environmentally conscious behavior from an early age, starting at the elementary school level[15]. Integrating environmental concepts into the curriculum, focusing on core subjects, and applying them to elementary school subjects[16] is a crucial step in preparing a future generation that cares about the environment. The goal of instilling environmental education in students is to shape and train them to care for and protect the environment from an early age[17], to apply environmentally conscious behavior in their daily lives[18] and to create agents of change for sustainability[19]. Furthermore, the integration of religious values in environmental education is a relevant approach.

In Islam, humans have two main roles in the world. First, as 'abid (servants who worship God), which reflects the relationship between humans and Allah SWT. Second, as khalifah (representatives of Allah SWT who are responsible for protecting and prospering the earth), which describes the relationship between humans and their fellow humans and the surrounding environment[20]. In the Qur'an, Allah SWT also calls on His servants to be active agents in managing and protecting the environment, not destroying it, being kind to nature, and avoiding actions that damage the earth (Qs. Ar Ruum:9, Qs. Ar Ruum: 41, Qs. Huud:117, Qs. Al Baqarah: 29, Qs. Al A'raf: 56). The Prophet Muhammad SAW strongly emphasized the importance of nature

[11] Dongliang Zhang and others, 'Residents' Waste Separation Behaviors at the Source: Using SEM with the Theory of Planned Behavior in Guangzhou, China', *International Journal of Environmental Research and Public Health*, 12.8 (2015), 9475–91 <https://doi.org/10.3390/ijerph120809475>.
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[20] Yuli Habibatul Imamah and others, 'INTEGRASI PENDIDIKAN ISLAM DAN PENDIDIKAN LINGKUNGAN HIDUP', *Jurnal Mubtadiin*, 8.1 (2022), 13–36.

conservation and prohibited all forms of destruction: "Do not destroy nature, because such actions are prohibited by Allah and His Messenger" (HR. Bukhari and Muslim). It indicates that there is a correlation between religion and nature or the environment. In line with this, the Indonesian Minister of Religious Affairs introduced a concept of religion-based environmental preservation called green theology, which is an approach that discusses the correlation between religion and nature or the environment. This concept emphasizes the relationship between human spirituality and environmental destruction. Green theology links religious teachings with environmental preservation, which can strengthen environmental awareness in education. In line with this, the concept of Green Theology emerged as an approach that links Islamic spiritual values with environmental conservation[21]. Green Theology places humans as believers who have moral and theological responsibilities towards Allah SWT's creation. The concept of Green Theology emphasizes that protecting the environment is not only a social action but also part of worship and the practice of faith values[22].

On the other hand, to realize environmentally conscious behavior, the concepts of green schools and green curriculum have been developed with habit formation and role models that demonstrate ecological culture in schools[23]. These concepts are applied to the Adiwiyata program as a form of government commitment to environmental management and protection through education, in line with Minister of Environment Regulation No. 5 of 2013. The benefits of the Adiwiyata program for students are expected to foster environmental awareness and an understanding of the importance of maintaining a good environment[24]. The Adiwiyata program teaches children from an early age to care for the environment, develop a culture of environmental awareness, and form a love for nature[25] based on three principles (educational, participatory, and sustainable)[26] and four aspects (environmentally friendly policies, an environment-based school curriculum, participation, and environmentally friendly facility management)[27], so that the Adiwiyata program has a strategic role in increasing environmental awareness[28].

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[25] Anindya Chasti Pelita and Hendro Widodo, 'Evaluasi Program Sekolah Adiwiyata Di Sekolah Dasar Muhammadiyah Bantul Kota', *Sekolah Dasar: Kajian Teori Dan Praktik Pendidikan*, 29.2 (2020), 145–57 <https://doi.org/10.17977/um009v29i22020p145>.

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[28] Adi Suryani and others, 'Education for Environmental Sustainability: A Green School Development', *IPTEK Journal of Proceedings Series*, 2019, 65 <https://doi.org/10.12962/j23546026.y2019i6.6347>.

The implementation of Green Theology in Adiwiyata Madrasah education is relevant in the context of sustainable education. Through this approach, religious values are not only taught ritually but also internalized in the daily ecological behavior of students. Madrasahs, as educational institutions based on Islamic values, have a strategic role in creating students who are faithful, knowledgeable, and have good ecological character. Madrasah Ibtidaiyah Negeri (MIN) 1 Sukoharjo is one of the basic Islamic educational institutions in Sukoharjo Regency that is active in integrating religious values with character education and environmental awareness practices. As an Adiwiyata-status madrasah, MIN 1 Sukoharjo has a strong commitment to building an environmentally friendly, religious, and sustainable school culture with various concrete efforts to create a green learning environment, such as a school greening program, 3R (reduce, reuse, recycle) waste management, and Clean Friday activities involving the entire madrasah community. The integration of Islamic values and ecological awareness makes MIN 1 Sukoharjo a potential example of a madrasah that can implement the concept of green theology. With these various potentials, MIN 1 Sukoharjo is the right location to explore the role of green theology in building students' environmental awareness. Although numerous studies have examined the implementation of the Adiwiyata program in schools and madrasahs[29] [30] [31], the majority have focused primarily on technical-operational dimensions, such as environmental management, waste management, school greening programs, and students' participation in environmental activities. Few studies have examined how Islamic theological values, particularly Green Theology, are transformed into an ecological habitus among primary school-aged children. Thus, there remains a need to understand how religious ecological values move beyond normative teachings and become internalized in students' everyday environmental practices and behavior. Accordingly, this study aims to deeply explore how Green Theology is implemented and internalized within the educational practices and school culture of MIN 1 Sukoharjo, and how these values contribute to fostering students' environmental awareness, ecological habitus, and character formation.

RESEARCH METHODOLOGY

1. Research Design

This research uses a descriptive qualitative method with a case research approach. The case research approach was chosen because it allows researchers to gain an in-depth understanding of the phenomenon being studied in a specific context[32], namely the implementation of Green Theology in building students' environmental awareness at Madrasah Adiwiyata. This approach is relevant because the researcher wants to explore the experiences and perceptions of stakeholders without manipulating the variables under study and focuses on understanding the meaning that

[29] Nur Kholis and others, 'Understanding Adiwiyata School Artifacts in Cultivating Students' Characters At Madrasah Ibtidaiyah', *EDUKASI: Jurnal Penelitian Pendidikan Agama Dan Keagamaan*, 22.1 (2024), 19–38.
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emerges from actual practices in the field. Here is a picture of your research design flow, which illustrates the stages:



Figure 1. Research Design Flow

2. Time and Location of the Study

This research was conducted over a period of three months, from September 2025 to November 2025. The research was located at Madrasah Ibtidaiyah Negeri (MIN) 1 Sukoharjo, which was chosen because it has Adiwiyata Madrasah status, is active in developing environment-based character education, and has practices of integrating Islamic values with environmental conservation activities. This madrasah also has concrete programs such as school greening, 3R waste management, a student waste bank, and Clean Friday activities involving the entire madrasah community. These conditions make MIN 1 Sukoharjo an ideal context for exploring the role of Green Theology in shaping students' ecological awareness.

3. Research Participants

The subjects of this research included the madrasah principal, Islamic Education (PAI) teachers, and students, who were selected using purposive sampling techniques. This technique was used because the participants were considered to have direct involvement and relevant experience in the implementation of environmental education and the integration of Green Theology values in the Madrasah Adiwiyata program. The number of participants in this research consisted of 1 madrasah principal, 2 Islamic Education teachers, and 5 students.

4. Data Collection Techniques

Research data were gathered through semi-structured interviews, direct observations, and documentation studies. The data collection instruments were developed based on the research focus, covering (1) the implementation of Green Theology and its integration into learning, (2) the roles of the madrasah principal and teachers, (3) students' environmental awareness and ecological practices, (4) the distinction between rule-based compliance and theological awareness, and (5) obstacles and opportunities for program development. FSemi-structured interviews explored participants' experiences and perceptions regarding these indicators. Observations focused on environmental programs, teacher role modeling, student ecological behavior, environmental facilities, and the integration of religious values into daily activities. Documentation included the madrasah curriculum, Adiwiyata activity reports, environmental programs, rules, and records of ecological habit development.

5. Data Analysis

This research uses the Miles and Huberman analytical framework, which consists of three main stages, namely data reduction, data presentation, and conclusion drawing. The data obtained

from interviews, observations, and documentation were systematically organized and reduced according to the focus of the research. Relevant data were then presented according to emerging themes, followed by the process of identifying patterns and drawing conclusions based on the findings.

6. Data Validity and Trustworthiness

To enhance the credibility of the findings, this research applies source triangulation, method triangulation, and theory triangulation. Source triangulation was conducted by comparing information obtained from the madrasah principal, teachers, and students. Method triangulation was conducted by comparing findings obtained through interviews, observations, and documentation. Theory triangulation was used to interpret the findings through relevant theoretical perspectives. In addition, the research ensures transferability through a detailed description of the research context, dependability through systematic recording of the research process, and confirmability by ensuring that the research findings are based on objective and verifiable data.

RESULTS AND DISCUSSION

Results

Based on in-depth interviews, observations at MIN 1 Sukoharjo, and documentation studies, several key findings were discovered regarding the role of Green Theology in building environmental awareness among students at Madrasah Adiwiyata.

Table 1.
Main Findings of Green Theology Implementation at MIN 1 Sukoharjo

No	Theme Findings	Description
1	The Role of the Madrasah Principal	The madrasah principal has a strategic role in directing the strengthening of the madrasah's theological and ecological vision. This can be seen from the school's vision: "The formation of students who are religious, excel in achievement, and are honest, disciplined, intelligent, and environmentally conscious." As a form of realizing this vision, the madrasah principal initiated the formation of the Adiwiyata Team and the Waste Working Group and supported routine programs such as Clean Friday, school greening, and the implementation of 3R (Reduce, Reuse, Recycle). Observations show that the policies made by the madrasah principal have shaped a religious-ecological school culture, where all madrasah members are involved in protecting the environment as part of their religious responsibility. The principal emphasized that environmental responsibility is an inseparable part of Islamic values and school culture: "We want students to understand that caring for the environment is not merely a school program but part of their responsibility as Allah's vicegerents (khalifah) on earth. Therefore,

		environmental activities are integrated into daily school practices." (Principal Interview, October 2025) The principal further stated: "The Adiwiyata program is not only about cleanliness; it is about shaping students' character through religious values and ecological awareness." (Principal Interview, October 2025)
2	The Role of Teachers	Teachers, especially Islamic Education (PAI) teachers, play a key role as facilitators in integrating Green Theology values into learning. In the learning process, teachers relate verses from the Qur'an and hadiths about the environment, especially regarding the role of humans as guardians of the earth, to everyday ecological phenomena. Interviews show that teachers use reflective and contextual approaches, such as asking students to observe environmental damage and relate it to spiritual responsibility. In addition to classroom learning, teachers also serve as role models in caring for the environment, such as practicing electricity conservation, maintaining classroom cleanliness, and encouraging students to sort waste. This approach shows that the internalization of Green Theology is not only conceptual but is also manifested through direct practice, so that students learn through example and habit. Teachers explained that Green Theology values are integrated into Islamic Education lessons through contextual examples: "When teaching verses about humans as khalifah, I ask students to reflect on environmental problems around them and think about how Islam teaches us to protect nature." (PAI Teacher Interview, October 2025) Another teacher stated: "Students learn more effectively when teachers provide direct examples, such as sorting waste, saving electricity, and maintaining classroom cleanliness." (Teacher Interview, October 2025)
3	Student Experiences in Ecological Character Building	Interviews with students showed that there was a change in ecological awareness after participating in various environmental programs at MIN 1 Sukoharjo. Some students stated that keeping the school clean and conserving water was not just a school task but part of worship and a form of gratitude for Allah's blessings. Field observations show that students have begun to exhibit consistent behavior, such as sorting waste, caring for plants, and reminding their friends not to litter. The school atmosphere shows a transition from knowledge to understanding, from concern to responsible action. This transformation shows that a theological approach can be the basis for ecological character building, because students see the environment not only from a social perspective, but also a spiritual one.

		Students expressed that environmental care had become associated with spiritual values: "I no longer throw rubbish carelessly because keeping the environment clean is part of worship and gratitude to Allah." (Student Interview, October 2025) Another student explained: "When I see my friends littering, I remind them because we are taught that humans must protect the earth." (Student Interview, October 2025) One student also stated: "Taking care of plants and saving water are small actions, but they are important because Allah entrusted nature to us." (Student Interview, October 2025)
4	Environmental Habits at Adiwiyata Madrasah	Adiwiyata at MIN 1 Sukoharjo has become institutionalized as part of the school culture. Programs such as waste bank management, school greening, cleanliness duty, and documentation of environmental activities serve as a means of character building through routine and direct experience. From the documentation study, it is known that there are specific rules related to cleanliness and environmental education media as reinforcements for visual campaigns. These routine habits create an ecological habitus, where students learn that caring for the environment is part of habit formation, knowledge integration, and collective responsibility. This model demonstrates that the most effective way to build ecological character is through structured and consistent habits. Students described environmental activities as daily routines: "Sorting waste and cleaning the classroom have become habits because we do these activities every day." (Student Interview, October 2025) A teacher added: "Routine environmental activities gradually shape students' awareness, so environmental care becomes part of their character." (Teacher Interview, October 2025)
5	Obstacles to the Implementation of Green Theology	Although the Green Theology program has been implemented well, several obstacles have been identified, both in terms of facilities and student understanding. Observations show that the number of waste sorting bins is still limited, so students are not always able to fully implement the 3Rs. Interviews also revealed that not all students have a deep understanding of the meaning of Green Theology. Some students only participate in activities because it is their obligation, not entirely because of spiritual awareness. This condition shows the need to strengthen the curriculum, teacher training and emphasize theological values so that the implementation of Green Theology does not stop at activities but is truly embedded as awareness and belief. Several participants acknowledged existing challenges:

		"Sometimes students still throw waste into the wrong bins because the facilities are limited." (Teacher Interview, October 2025) A student stated: "I know we have environmental activities, but sometimes I do them because they are school rules, not because I fully understand their meaning." (Student Interview, October 2025)
6	The potential for program development	Field findings indicate that MIN 1 Sukoharjo has the potential to become a model Islamic madrasah based on Green Theology. Collaboration with environmental communities, local waste banks, and parents has paved the way for strengthening ecological character education in the future. Teachers and madrasah principals believe that Green Theology can be developed into a thematic curriculum, PAI teaching modules, and even P5 Merdeka Curriculum projects. The principal highlighted future opportunities: "Green Theology can be developed further through thematic learning, collaboration with parents, and environmental community partnerships." (Principal Interview, October 2025) A teacher also stated: "Environmental values should not only be taught in Islamic Education classes but integrated across subjects and school activities." (Teacher Interview, October 2025)

The findings presented in Table 1 indicate that the implementation of Green Theology at MIN 1 Sukoharjo operates through the interaction of leadership, teaching practices, student experiences, institutional routines, and environmental programs. The data obtained from interviews, direct observations, and document analysis consistently indicate that environmental awareness is not implemented as an isolated environmental program but is embedded within the religious and educational culture of the madrasah.

First, observations of the madrasah environment showed that the principal's environmental vision was reflected in several institutional practices. Environmental activities were visible through routine cleanliness activities, waste sorting, school greening, and the maintenance of school facilities. The presence of the Adiwiyata Team and Waste Working Group also demonstrated that environmental management had been organized as part of the madrasah's institutional structure rather than being conducted only as occasional activities. These observations were consistent with the principal's statement that environmental care should be understood as part of students' responsibility as khalifah on earth. Documentary evidence, including the madrasah's vision, environmental activity records, and program documentation, further supported the existence of an institutional commitment to integrating religious and ecological values.

Second, classroom observations and interviews with teachers showed that Green Theology was introduced not only through explicit environmental programs but also through the learning process. PAI teachers connected Islamic teachings concerning human responsibility toward the

earth with concrete environmental practices encountered by students. For example, environmental issues were used as contextual material for reflection, while teachers simultaneously modeled environmentally responsible behavior through practices such as saving electricity, maintaining classroom cleanliness, and encouraging students to sort waste. This indicates that the implementation of Green Theology involved both cognitive and behavioral dimensions, with teachers functioning as facilitators as well as role models.

Third, observations of student activities provided evidence of the behavioral dimension of ecological character formation. During school activities, students were observed participating in classroom cleaning, managing waste, caring for plants, and reminding peers about environmental cleanliness. These practices were not limited to formal learning sessions but also appeared during routine school activities. Such observations corresponded with students' interview accounts that environmental care had acquired a religious meaning. For some students, keeping the environment clean, saving water, and caring for plants were understood not merely as compliance with school regulations but also as expressions of worship, gratitude, and responsibility toward God's creation. The convergence between students' statements and observed behavior suggests that ecological awareness was beginning to move from conceptual understanding toward habitual practice.

Fourth, documentary evidence and field observations indicated that environmental practices had become institutionalized through repetition and collective participation. Records of environmental programs, cleanliness schedules, waste management activities, and environmental education materials demonstrated that ecological practices were supported by formal and informal mechanisms within the madrasah. The recurring nature of these activities allowed students to encounter environmental responsibility repeatedly in different contexts. Thus, the formation of ecological character appeared to occur through a combination of knowledge, example, routine, and social reinforcement rather than through classroom instruction alone.

Nevertheless, the field data also revealed several limitations. Observations indicated that environmental facilities, particularly waste-sorting bins, were not always sufficient to support the consistent implementation of the 3R principle. Interviews further revealed differences in students' depth of understanding. While some students interpreted environmental care in explicitly religious terms, others participated primarily because environmental activities were required by the madrasah. This finding is important because it demonstrates that participation in environmental activities does not necessarily indicate the internalization of Green Theology. The data therefore distinguish between behavioral compliance and deeper theological awareness.

Finally, interviews with the principal and teachers, together with observations of existing programs, revealed opportunities for further development. The existing environmental practices provide a foundation for expanding Green Theology into more systematic learning materials, thematic curriculum integration, teacher-developed PAI modules, and collaborative environmental projects involving parents and external environmental organizations. The findings therefore suggest that MIN 1 Sukoharjo has moved beyond implementing isolated environmental activities toward developing an integrated religious-ecological culture, although further strengthening is required to ensure that environmental practices are consistently accompanied by theological understanding.

Discussion

Research findings show that madrasah principals have a central role in realizing theological and ecological visions. The vision of MIN 1 Sukoharjo, which reads "The formation of students who are religious, excellent in achievement, honest, disciplined, intelligent, and environmentally conscious," reflects the institutional awareness that education is not only the transfer of knowledge but also the formation of values and character. This vision provides a philosophical direction that environmental concern is not an addition but an integral part of the Islamic educational identity. In practice, the madrasah principal does not merely formulate a vision but also operationalizes it through concrete policies such as the formation of the Adiwiyata Team and the Waste Working Group. This stage demonstrates visionary leadership, where the madrasah principal is not only an administrator but also a motivator of behavioral change in the school[33] [34]. The implementation of programs such as Clean Friday, green schools, and waste sorting are examples of translating the vision into concrete action. The application of Green Theology as the basis for shaping madrasah culture has a strong theological foundation in Islam[35]. The concept of khalifah fil ard explains that humans are entrusted with caring for the earth, in accordance with QS. Al-Baqarah: 30 and QS. Ar-Rum: 41, which emphasize the consequences of environmental damage as a result of human error. Therefore, madrasah policies can be concluded as successful in connecting faith with ecological actions. The role of the madrasah principal is also evident in creating a participatory ecosystem. Observations show that the madrasah principal involves teachers, students, and educational staff in protecting the school environment. This pattern is in line with the whole-school approach principle, which views the educational environment as a unified system working together towards the same goal[36]. This synergy forms the basis of a consistent school culture. The most important finding is that Green Theology is not only applied as a temporary program but has become institutionalized as school culture. This means that the policy direction has transcended the administrative level and developed into a living organizational character.

The Islamic Education (PAI) teacher has the greatest contribution in integrating Green Theology into learning. In the learning process, teachers relate verses from the Qur'an and hadiths to real ecological phenomena such as waste, water, plants, and energy. This approach reinforces contextual learning as proposed by Vygotsky's constructivism theory, which states that students

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will understand abstract concepts when they are connected to their daily social reality[37] [38]. In addition to cognitive learning, teachers also serve as role models in educating ecological character. In observations, teachers were seen to always remind students to turn off the lights after class, reprimand students who littered, and supervise the cleaning duty picket. This approach is in line with Bandura's Social Learning Theory, which states that human behavior is shaped by observation of models[39]. Teachers also apply reflective methods, such as asking students to reflect on environmental damage as a result of human negligence towards Allah's mandate. This reflective approach has a strong affective impact so that students begin to see the environment not only from a physical aspect but also as part of spirituality. In interviews, several students stated that protecting the environment is part of worship and gratitude to God. These findings indicate the integration of Islamic epistemology in modern education. Religious studies (PAI) are not taught ritualistically but form the foundation for the development of ecological awareness. Thus, Islamic education does not only study qauliyah verses but also kauniyah verses, namely nature as a sign of Allah's power. This approach confirms that Green Theology is capable of building a comprehensive Islamic education model. Therefore, PAI teachers not only teach religious knowledge but also create an ecological worldview based on faith.

Changes in student behavior are evidence of the successful internalization of Green Theology values. Field findings show that students are beginning to realize that caring for the environment is part of worship, gratitude, and a form of spiritual responsibility. In interviews, several students stated that littering is not only a violation of school rules but also a sin because it damages Allah's creation. Observations show that students not only carry out cleaning tasks but also remind each other. They remind friends who forget to dispose of trash properly, take care of plants in the schoolyard, and show concern for small animals such as ants or birds. This is evidence that a theological approach can strengthen empathy and ecological morality. This change shows a stage of transformation in character education from compliance (actions out of obligation) to consciousness (actions out of awareness). This stage is very important in character education because true character arises not out of compulsion, but out of a sense of responsibility[40] [41] [42]. Penelitian ini menunjukkan bahwa pendekatan Green Theology meningkatkan spiritual eco-literacy siswa. This research shows that the Green Theology approach enhances students' spiritual eco-literacy. These results are in line with Parker's (2017) research, which concluded that Islamic theology-based environmental education is more successful than education based solely on

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scientific knowledge[43]. This is because spiritual values are the deepest motivation for caring about the environment, not just rules or appeals[44] [45].

The findings also show that Green Theology is realized through structured routine habits. Programs such as school greening, student waste banks, waste sorting, Clean Fridays, and documentation of ecological activities have formed an environmentally conscious school culture. These habits are a form of character building through habit, which places routine practices as the basis for character building. The documentation study also found that classroom cleanliness and duty schedules were managed by students. This data shows that an experiential learning-based character education system is an ideal practice in 21st-century education[46] [47] [48]. This program also encourages the emergence of ecological citizenship, namely the awareness that protecting the environment is a social responsibility[49]. Students demonstrate this through community service, caring for plants together, and helping each other process recyclable waste. From the perspective of Bourdieu's habitus theory, what MIN 1 Sukoharjo has done has formed a habitus, which is a habit and behavioral tendency formed through consistent social interaction[50]. This habitus becomes social capital for students to live an environmentally friendly life in the future. Thus, environmental habits at MIN 1 Sukoharjo are not just a program but have become a character education structure that is integrated with the school culture.

Although the implementation of Green Theology is going well, there are several obstacles that need to be addressed. Observations show that waste sorting facilities are still limited, so students cannot always implement the 3R principle optimally. Interviews also show that not all students understand the theological meaning of environmental activities. Some students only participate in the program because it is a school obligation, not a personal awareness. These obstacles indicate a gap between technical implementation and internalization of values. This gap between behavioral compliance and theological internalization can be further understood from the perspective of children's cognitive and moral development. Students at Madrasah Ibtidaiyah (MI) are generally in the primary-school age range, a developmental period in which children's understanding of abstract concepts is still closely connected to concrete experiences, social

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interaction, adult guidance, and repeated practices. Piaget's cognitive-developmental theory explains that children at the concrete operational stage increasingly develop logical reasoning, but their reasoning remains strongly grounded in concrete objects and observable experiences. Therefore, abstract theological concepts such as khalifah, amanah, stewardship, and divine responsibility may be difficult for children to fully comprehend when presented only at the conceptual level. Students may understand that littering is prohibited or that keeping the school clean is a good behavior without necessarily being able to articulate the deeper theological meaning behind these actions.

Kohlberg's theory of moral development provides a complementary explanation for why some students' environmental actions remain influenced by school rules and adult authority. At the earlier stages of moral reasoning, children's behavior is often guided by rules, expectations, authority, and the consequences of actions. Thus, students who participate in environmental activities because they are required by the madrasah should not necessarily be interpreted as having failed to internalize environmental values. Rather, rule-based compliance can represent an initial stage in moral development through which children learn socially valued behaviors. Through consistent habituation, adult modeling, explanation, and reflection, externally regulated behavior can gradually develop into a more internally motivated sense of moral responsibility.

These developmental characteristics suggest that Green Theology for MI students needs to be translated from abstract theological principles into concrete and repeated environmental experiences. Concepts such as khalifah can be connected to caring for plants and animals, amanah to responsible use of water and school facilities, and gratitude to God to maintaining the natural environment. In this way, habituation does not merely produce behavioral compliance but provides children with concrete experiences through which abstract theological meanings can gradually become understandable and personally meaningful. This perspective also explains why teacher modeling, classroom routines, environmental programs, and repeated ecological practices are important foundations for the gradual internalization of Green Theology among primary-school-aged students.

Ideally, Green Theology should not stop at activities but should also shape spiritual awareness and moral responsibility. Therefore, a more systematic strategy is needed to strengthen the integration of theological values in the curriculum and classroom. One recommended solution is to strengthen the curriculum through the development of lesson plans or Islamic education modules based on eco-theology. This approach can help teachers convey religious teachings in an applied manner, rather than theoretically. In addition, special training for teachers is needed so that the methods of conveying eco-theological values become more creative and less monotonous. This research also indicates the need for parental involvement so that environmental education does not only take place at school but also at home. The concept of school-family-environment partnership is very important for strengthening students' ecological character in their daily lives[51]. The concept of school-family-environment partnership emphasizes that ecological character

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education must be integrated between schools, families, and the social environment[52] [53]. Schools become centres for learning values, families become spaces for internalization and habituation, while communities provide a real context for ecological practices[54] [55] [56]. When the three work together synergistically, ecological habitus is strongly formed because it is supported by a consistent social system.

The latest findings show that MIN 1 Sukoharjo has great potential to become a model for eco-theology-based Islamic madrasahs. The madrasah principal and teachers believe that Green Theology can be developed into a thematic curriculum, Islamic Education learning modules, and even P5 Merdeka Curriculum projects. This is a great opportunity, because the eco-theological approach naturally involves multidisciplinary studies between religion, science, social studies, and life practices. Furthermore, these findings show that MIN 1 Sukoharjo has moved from the implementation stage to the development stage of a new educational model. This means that the madrasah is not only running a program but is moving towards a conceptual model of sustainable Islamic education. If this model is well formulated, MIN 1 Sukoharjo can become a national model for Madrasah Adiwiyata based on Islamic theology. This also responds to global challenges in the context of the Islamic response to the climate crisis, an urgent need in the era of climate change[57] [58] [59]. In Islam, protecting the environment is not only a social action but also part of tawhid, amanah, akhlak, and worship. Therefore, protecting the environment is part of obedience to Allah, not merely an ecological action. This approach gives rise to the concept of Green Theology, which is the integration of spiritual values, Islamic ethics, and ecological responsibility. Green Theology rejects excessive exploitation of nature and calls for collective awareness to protect the earth as a form of worship. This concept is relevant for building character education that cares for the environment, especially for madrasah students who have a strong foundation of faith. With this approach, theology is not only taught in the classroom but also lived out in concrete actions to

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protect nature. Academically, this research contributes to the emergence of the idea of Green Theology in Islamic Education Practice, which can be used as a basis for curriculum development, environmental education policies, and character-building programs in other madrasahs.

CONCLUSION

This research aims to explore the role of Green Theology in building environmental awareness among students at Madrasah Adiwiyata. Based on the findings from interviews, observations, and documentation studies at MIN 1 Sukoharjo, it was concluded that environmental education based on Islamic theological values is able to build a deeper and more sustainable ecological awareness among students. This is reflected in the involvement of the entire madrasah community, including the principal, teachers, and students, in placing environmental awareness as part of worship and spiritual responsibility. The results show that the principal plays a strategic role in directing the school's ecological policies, while Islamic Education teachers integrate Green Theology values into learning through reflective methods and practical examples. Students showed behavioral changes, from simply following rules to realizing that protecting the environment is a form of gratitude to Allah. In addition, environmental habit-forming programs such as 3R, waste banks, and Clean Friday have become institutionalized as school culture, forming a consistent ecological habitus through daily social interactions.

Referring to the research objectives, it can be concluded that the application of Green Theology not only strengthens character education but also has the potential to become an Islamic eco-pedagogical approach that is relevant to the challenges of the global climate crisis. Based on the results and discussion, this research produced a new idea, namely the Green Theology in Practice-based Islamic Education model, which integrates religious teachings, ecological habits, and school culture into a unified character education system. This model also opens up opportunities to be developed into a thematic curriculum, eco-theology-based Islamic education modules, and projects to strengthen the Pancasila student profile (P5) in the Merdeka Curriculum. Therefore, Green Theology can become a concept of sustainable Islamic education that is able to respond to the urgent needs of the era of climate change while shaping a generation of Muslims who are religious, ecologically ethical, and responsible for the sustainability of the earth.

This study has several limitations that should be considered when interpreting the findings. First, the research was conducted at only one Madrasah Ibtidaiyah, namely MIN 1 Sukoharjo, using a qualitative single-case study approach. This setting provided an in-depth understanding of the implementation of Green Theology within its specific institutional and cultural context, but the findings cannot be directly generalized to other madrasahs with different characteristics, resources, educational cultures, or levels of Adiwiyata implementation. Second, the qualitative nature of the study means that the findings primarily reflect the experiences, perceptions, observations, and documentary evidence available within the research setting. Therefore, the findings should be understood as contextually grounded insights rather than as evidence of the effectiveness of Green Theology across a broader population.

Further research is recommended to be conducted in other madrasahs so that this model can be tested, enriched, and developed into a foundation for Islamic education policies that are more adaptive to global environmental issues. Comparative studies involving several madrasahs and mixed-method or quantitative approaches may also provide broader evidence regarding the applicability and potential effectiveness of the Green Theology in Practice-based Islamic Education model across different educational contexts.

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