

Ecoteological education model in community-based home industry, learning from an integrated islamic and environmental approach towards cattle waste management

Siti Yahriyah^{a1}, Rakhmawati^{b2}, Titis Setyaningrum^{c3}, Kholil Baidowi^{d4}, Uswatun Khasanah^{e5}

abcde Darul Ulum Islamic Center Sudirman University GUPPI

¹ sumayahcute@gmail.com; ² rakhmawati86@gmail.com; ³ setyaningrumtitis@gmail.com; ⁴

baedowikhilil@gmail.com; ⁵uswatunkhasanah6815@gmail.com

*Correspondent Author

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ABSTRACT

This study aims to develop an ecotheological education model that can be applied in community-based cottage industries, specifically in the context of cattle waste management. By integrating Islamic values and environmental principles, this approach seeks to build ecological awareness and spiritual responsibility in organic waste management. The study was conducted through a qualitative approach using a case study method in a local cattle farming community that manages waste for fertilizer and alternative energy purposes. The results show that the application of Islamic ecotheological values, such as monotheism, khalifah, and amanah, can strengthen the community's motivation in maintaining a balance between economic needs and environmental sustainability. This model also serves as a transformative educational tool that encourages active community participation in sustainable resource management. This research contributes to the development of a contextual and applicable religious-values-based environmental education curriculum at the community level.

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Introduction

Environmental issues are no longer solely the responsibility of governments or international institutions. They have become a daily reality experienced by grassroots communities, particularly in rural areas. One prominent issue is the management of livestock waste from cottage industries, such as cattle manure. In many regions, cottage industries provide the backbone of the family economy, yet they also generate uncontrolled amounts of organic waste. This situation demands solutions that are not merely technical but also address collective values and awareness. (Mubiar Agustin 2023).

In the context of Islamic education, the relationship between humans and nature is spiritual and moral. The universe is viewed as a trust from God, and humans are tasked with being caliphs (custodians) responsible for its preservation. This perspective positions environmental behavior as part of the dimension of faith, not simply a simple ecological action.

Therefore, an ecotheological approach that combines Islamic values and environmental awareness is crucial, especially in communities whose economic activities are directly related to nature, such as home cattle farming (Nugroho and Widiyanto 2023).

Various studies have shown that environmental behavior change is most effective when initiated within educational and community settings. Unfortunately, environmental education programs have often been normative and disconnected from local and religious values held by communities. Yet, in many rural Muslim communities, religious values have a powerful influence on shaping behavior. Therefore, ecotheological education is a key strategy for bridging scientific knowledge about the environment with the community's faith in Islamic teachings (Pratiwi 2022).

Cow waste has tremendous economic potential, including as organic fertilizer, biogas, or as a raw material for crafts. However, many people still dispose of this waste carelessly, causing water pollution and unpleasant odors in their neighborhoods. A lack of understanding and skills, coupled with a weak religious awareness of the obligation to maintain environmental cleanliness, makes waste a source of problems, not blessings. Therefore, education is needed that integrates theology, ecology, and practical skills in a holistic manner within the local context (Asti et al. 2024).

Beyond simply providing environmental education, ecotheological education embraces a holistic approach that touches the mind, heart, and action. This approach not only encourages communities to understand the importance of preserving nature but also fosters an awareness that environmental damage is a betrayal of God's mandate. By actively involving religious leaders, educators, and home industry players, this model has the potential to become a powerful and sustainable tool for social transformation within a community context (Umar 2013).

This research stems from the need for a contextual, applicable, and spiritual educational model to address waste issues in cottage industry communities. The model developed in this study will combine educational, ecological, and theological approaches based on Islam, grounded in local wisdom. Thus, it is hoped that this will not only lead to changes in the technical aspects of waste management but also foster a new awareness within the community that protecting the environment is part of their worship and moral responsibility as servants of God and members of the community (Dewi 2021).

Research Methods

This research uses a descriptive qualitative approach with a model of participatory action research. The research location was a dairy-producing village in Central Java, which operates a home industry processing milk and its derivatives. This location was purposively selected, considering the real problems related to cow waste and the strong religious traditions of the community. This purposive location selection was important to ensure that the community studied had characteristics that align with the objectives of developing an ecotheological education model (Firmansyah and Dede 2022). The research subjects consisted of three main groups: (1) residents operating in the dairy-based home industry, (2) local religious leaders or religious teachers, and (3) community leaders or village officials.

Data collection was conducted using several techniques: participant observation, in-depth interviews, and focus group discussions (FGDs). Direct observations were made of waste management practices and daily social interactions. Interviews were used to explore religious values and attitudes toward the environment, while FGDs were used to collaboratively develop and test educational models. The use of these various techniques ensured the validity and depth of the data obtained (Salwa 2023).

To maintain data validity, techniques are used: triangulation of sources and methods, and member checking. The findings were discussed with residents and community leaders to obtain feedback and social validation of the data and models developed. This technique was chosen because in community-based research, validity lies not only in scientific methodology but also in community acceptance and understanding of the research results (Arianto 2024).

Results and Discussion

The results of this study demonstrate that an ecotheological approach can foster environmental awareness and responsibility within livestock farming communities, while simultaneously strengthening the local economic base. The integration of Islamic values into waste management practices is not merely symbolic, but has become a framework for community thought and action.

1. Implementation of Ecotheological Education in Home Industries Based on Learning Communities

The research results show that the implementation of ecotheological education in community-based home industries proceeds through three main stages: internalization of values, familiarization with environmentally friendly practices, and religious collaboration.

Internalization of values is carried out through the role of local religious leaders who deliver sermons, religious studies, or informal discussions about the obligation to protect the environment as part of God's mandate (*caliph on earth*). These values are then applied by residents in home industries by sorting cow waste, processing manure into organic fertilizer, and using liquid waste wisely to avoid polluting the rivers around the settlement.

During the familiarization phase, the community created a work schedule to clean the livestock and dairy areas and to build a simple biogas-based waste treatment plant. These activities served not only technical purposes but also served as a platform for collective learning, allowing residents to share knowledge and experiences. *peer learning* Community leaders and village officials also support this through local regulations (*perdes*) that mandate Sharia-compliant waste management practices and environmental sustainability. This finding aligns with those of Pratiwi (Pratiwi 2022) and Alsyadilah et al. (Alsyadilah et al., 2024), who emphasize the importance of integrating Islamic ethics into livestock waste management. Thus, ecotheological education can foster collective awareness that home economic activities cannot be separated from ecological responsibility and religious values.

2. Obstacles and Solutions in the Implementation of Ecotheological Education

However, the implementation of ecotheological education also faces several obstacles in the field. The most dominant obstacle is the residents' lack of technical understanding regarding environmentally friendly waste processing technology. Most home industries still use conventional methods, resulting in cow waste often polluting village drainage. Another obstacle is the busy schedule of residents, who often fail to fully participate in group learning and environmental discussions. Furthermore, limited funding also hinders the construction of more modern and efficient waste processing facilities.

As a solution, the community together with religious leaders and village officials agreed to optimize activities. *focus group discussion* Regular focus group discussions (FGDs) involving partners, such as universities and environmental NGOs, have also begun. Appropriate technology training programs have also been launched, bringing in expert speakers. The village government supports this by allocating village funds for the procurement of household-scale biogas installations. Furthermore, ecotheology campaigns, including Friday sermons, religious study groups, and community social media, are being used to build cross-generational awareness. These efforts demonstrate that obstacles can be overcome through synergy between stakeholders, ensuring that ecotheological education does not stop at the discourse level but is truly implemented in the practice of community-based home industries.

Aspect	Findings / Results	Obstacle	Solution
Implementation of Ecotheological Education	- Internal religious and environmental values by religious figures.	- Technical understanding of waste management is still low.	- Appropriate technology training with practitioner speakers.
	- Processing cow waste into fertilizer and biogas in the community.	- Waste processing methods are still conventional.	- Optimization of routine FGDs and involvement of universities/NGOs.
	- Mutual cooperation and village regulations related to environmentally friendly waste management.	- The busyness of residents reduces participation in learning activities.	- Ecotheology campaign through sermons, religious study groups, and community social media.
	- Support for village officials in regulations and funding (village funds).	- Limited funds for the construction of waste processing facilities.	- Allocation of village funds for household-scale biogas installations.
The Role of Communities and Religious Leaders	- Become a driver for internalizing environmentally friendly values and habits.	- Challenges of coordination across community groups.	- Building synergy through collaborative discussions and regular meetings.
Development of an Ecotheological Education Model	- Model integrating spiritual and practical values of sustainable waste management.	- Barriers to access to modern technology and information.	- Support from external partners (universities, NGOs) for knowledge transfer and technical assistance.

el Research Results

Conclusion

This study concludes that the implementation of ecotheological education in a community-based cottage industry can be effective through a collaborative approach that integrates Islamic religious values and environmental sustainability principles. Ecotheological education has successfully raised collective awareness among residents about the importance of environmentally friendly cattle waste management as a form of spiritual and social responsibility. Religious leaders and village officials play a crucial role in internalizing values, facilitating the adoption of environmentally friendly practices, and strengthening local regulations that support the sustainability of the cottage industry.

Despite facing various obstacles, such as poor technical understanding, busy communities, and limited funding, solutions such as appropriate technology training, strengthening collaborative discussion forums, and financial support from villages and partner institutions have proven effective in overcoming these obstacles. Thus, ecoteological education is not merely a theoretical discourse but can also be implemented in practice to support economic, social, and environmental sustainability at the cottage industry community scale.

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