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Faith-Integrated Environmental Education in a Muslim-Majority Rural Community: A Qualitative Case Study South Sulawesi, Indonesia

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ABSTRACT

Education for Sustainable Development increasingly recognizes that durable environmental behavior is rooted in intrinsic motivation rather than information provision alone. In Muslim-majority communities, Islamic ecotheology offers a culturally authentic foundation for environmental education, yet empirical research on its operationalization in real community settings remains limited. This qualitative case study investigates how Islamic ecotheological values function as a framework for non-formal and informal environmental education in Ganra Village, South Sulawesi, Indonesia, examining the factors sustaining community-wide environmental learning. Data were collected through purposive semi-structured interviews, participatory observation, and document analysis, then analyzed using the Miles, Huberman, and Saldaña interactive model. Three principal findings emerged: first, environmental awareness is grounded in Islamic faith, framing environmental care as ibadah (worship) through khalifah (vicegerency) and mizan (balance); second, ecotheological values are operationalized through five structured educational channels, including communal rituals and the BERGEGAS waste management program; third, six interdependent factors sustain learning, notably strong leadership, village regulations, and a deep Islamic heritage. The Ganra Village case demonstrates that faith-integrated environmental education, when institutionally scaffolded, produces highly persistent pro-environmental outcomes. This ProKlim-awarded model offers a replicable template for faith-based environmental education globally, advancing scholarship by demonstrating how ecotheology functions as a pedagogically coherent framework.

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1. INTRODUCTION

The global environmental crisis presents education with one of its most profound challenges and most consequential opportunities (Marouli, 2021). Education for Sustainable Development (ESD)—formalized through UNESCO's Decade of

Education for Sustainable Development (2005–2014) and reaffirmed in Sustainable Development Goal 4.7 (UNESCO, 2020)—positions transformative learning as central to the behavioral and attitudinal shifts required for ecological sustainability (Boeve-de Pauw et al., 2015). However, the predominantly technocratic and cognitive framing of mainstream ESD has been criticized for neglecting the affective, spiritual, and culturally embedded dimensions of environmental learning that are most consequential for sustained behavior change (Wals, 2012; Kopnina, 2014; Sterling, 2011).

Emerging scholarship on values-based environmental education and place-based learning increasingly demonstrates that durable pro-environmental behavior is rooted in intrinsic motivation—in values, identity, and culturally grounded meaning-making—rather than in information transfer or regulatory compulsion alone (Meng & Si, 2022; Suárez-Perales et al., 2021). Within this reorientation, religious values and faith-based motivation have attracted growing scholarly attention as underexplored but potentially powerful resources for environmental education, particularly in non-Western and Muslim-majority contexts (Hajar, 2024; Watoni & Rasyidi, 2025).

Islam, as the world's second-largest religion and the faith of over 1.9 billion people, contains a rich and systematically articulated tradition of environmental ethics grounded in the Qur'an and Hadith (Basri et al., 2025; Wani & Azhar, 2024). Foundational concepts include khalifah fil ardh—humanity's role as God's vicegerent on earth (QS. Al-Baqarah: 30)—which establishes a theologically grounded ethic of environmental responsibility; mizan, the divinely ordained cosmic balance that must not be violated (QS. Ar-Rahman: 7–9); the prohibition of fasad fil ardh (corruption of the earth); the principle that al-nazhafatu min al-iman (cleanliness is part of faith); and the historical practice of hima, the Prophet Muhammad's designation of ecologically protected zones (Hajar, 2024; Hamdan, 2026). Collectively, these concepts constitute what scholars' term "Islamic ecotheology": a theologically coherent environmental ethic with significant educational implications (Hidayat, 2023; Syafaruddin, 2025).

Despite growing normative scholarship on Islamic environmental ethics, empirical research examining how these values function pedagogically—how they are transmitted, internalized, and translated into measurable pro-environmental behaviors through community educational processes—remains limited. Most existing studies are discursive or theological, treating Islamic ecotheology as a normative project rather than an educational one (Mohamed, 2014; Munawar-Rachman et al., 2026). This leaves a significant empirical and theoretical gap: we lack systematic understanding of the educational mechanisms through which ecotheological values are communicated, learned, and enacted in real community settings and of the institutional conditions that render faith-based environmental education effective, self-sustaining, and transferable.

This qualitative case study of Ganra Village in South Sulawesi, Indonesia—a recognized center of Islamic scholarship and recipient of the national *ProKlim* award for its *BERGEGAS* environmental governance initiative—investigates the distinct integration of faith-based motivation, structured pedagogy, and regulatory enforcement in rural environmental education. The research addresses three primary objectives: examining the transmission pathways of Islamic ecotheological values, evaluating their

pedagogical operationalization in daily community life, and identifying the institutional and cultural factors that sustain community-wide pro-environmental behavior. By analyzing this context, the study contributes to Education for Sustainable Development (ESD) literature by demonstrating how religious ecotheology functions as an active pedagogical framework, providing empirical documentation of faith-driven ecological behavior, and offering a scalable, culturally responsive template for implementing faith-integrated environmental programs in analogous Muslim-majority rural settings.

Theoretical Framework

This study is positioned at the intersection of three theoretical traditions: Education for Sustainable Development, Islamic ecoteology, and community-based non-formal and informal education.

Education for Sustainable Development and Non-Formal Learning

UNESCO's ESD framework conceptualizes sustainability education encompassing not only cognitive knowledge but also values, competencies, and transformative dispositions that enable learners to act for a more sustainable world (UNESCO, 2020). Recent scholarship has critiqued the dominance of formal, school-based ESD models and emphasized the educational significance of non-formal and informal learning environments—community practices, religious institutions, cultural traditions, and everyday social interactions—in shaping environmental attitudes and behaviors (Wals, 2012; Zikargae et al., 2022). Non-formal education, defined as structured learning occurring outside formal schooling institutions, and informal education, embedded in everyday life experiences and social interaction, are increasingly recognized as primary channels for environmental learning in many global communities (Adams et al., 2020).

Place-based education theory provides a complementary lens, emphasizing the educational significance of learners' direct, embodied engagement with their local environment and community (Yemini et al., 2025). Place-based approaches argue that durable environmental learning is grounded in care for and identity with specific places, rather than in abstract global narratives (Gnyawali et al., 2024). Ganra Village's Friday communal cleaning program, waste bank operations, and community-monitored environmental protection zones can be understood as institutionalized forms of place-based environmental education.

Values-Based and Faith-Integrated Environmental Education

Singer-Brodowski (2025) argues that transformative sustainability education requires deep engagement with learners' values and meaning-making frameworks, rather than merely providing environmental information. Religious values constitute precisely such frameworks in Muslim-majority communities, where Islamic beliefs about human-nature relationships carry both descriptive and prescriptive moral weight. Faith-based education—education that deliberately draws on religious values, practices, and institutions as pedagogical resources—has been recognized as a potentially powerful but underutilized approach to environmental education, particularly where religious identity is central to community life and where religious institutions function as trusted channels of social influence (Karim, 2022; Mariyono & Wiyono, 2026).

The concept of religious social capital by Putnam is relevant here: dense networks of religious association, trust, and shared values generate community-level capacity for collective action that secular institutions often cannot replicate (Gelderblom, 2018). In Muslim-majority communities, mosques, Islamic study circles (majlis taklim), and religious scholars (*ulama*) function as high-trust educational institutions whose environmental messaging carries motivational weight that governmental communications often lack.

Islamic Ecoteology as Pedagogical Framework

Islamic ecotheology—the systematic theological articulation of Islam’s environmental ethics—has been developed by scholars including Anwar and bin Ali (2025), Cheema (2025), and Hakim et al. (2026). In educational terms, the core ecological concepts examined in this study—khalifah (humanity’s role as God’s vicegerent and custodian of the earth), mizan (divinely ordained ecological balance), amanah (sacred custodial trust), fasad fil ardh (prohibition of earth-corruption), al-nazhafatu min al-iman (cleanliness as faith), and hima (ecologically protected zones)—function as what Vygotsky termed “mediating concepts”: culturally embedded frameworks that organize learners’ perception, motivation, and behavior (Morselli & Kakouris, 2022). When these concepts are actively taught and reinforced through community educational channels, religious sermons, study circles, communal rituals, and regulatory frameworks, they constitute a curriculum in the broad sense: a structured set of learning experiences designed to produce specific values, attitudes, and environmental behaviors.

Environmental Governance and Institutional Complementarity

Ostrom’s polycentric governance theory provides the analytical framework for understanding how multiple institutional mechanisms—regulatory, economic, educational, and communal—interact to produce effective community environmental management (Baldwin et al., 2024). Ostrom argues that sustainable commons governance requires not a single dominant mechanism but a polycentric system of complementary instruments, including persuasive communication, norm reinforcement, economic incentives, and enforceable rules (Jordan & Huitema, 2023). Applied to environmental education, this framework suggests that the most effective community-level environmental learning systems are those that integrate multiple educational channels and motivational structures, such that the failure of any one mechanism is buffered by the others.

2. METHOD

This study employs a qualitative case study design, selected for its capacity to generate holistic, context-sensitive understanding of complex social phenomena. A case study approach is particularly appropriate for this inquiry because it enables the integration of multiple data sources and the in-depth examination of educational processes and mechanisms—rather than merely outcomes—of environmental learning within a bounded community setting. The case study methodology supports the generation of both descriptive richness and analytical transferability, allowing findings

to illuminate conditions and mechanisms that may be relevant beyond the specific site studied.

Ganra Village is in Ganra District, Soppeng Regency, South Sulawesi Province, Indonesia. The village is historically renowned as a center of Islamic learning (pesantren culture) and has been home to prominent religious scholars (ulama) across generations, producing an unusually dense religious social capital network relative to surrounding communities in the regency. The village has a comparatively high average educational level and is home to the *BERGEGAS* (*Bersatu Ganra Bebas Sampah*) integrated waste management program, which earned national *ProKlim* recognition from Indonesia's Ministry of Environment and Forestry.

Participants were selected through purposive sampling to maximize informational diversity and depth. Key informant categories included: (1) village head and administrative staff who implement environmental programs; (2) local religious scholars (*ulama*) and Islamic educators responsible for environmental messaging through religious channels; (3) PKK (Family Welfare Empowerment) organizational leaders and members who deliver household-level environmental education; (4) active participants in the *BERGEGAS* and *ProKlim* programs, including waste bank operators; and (5) ordinary community members engaged in routine environmental activities. Data saturation, the point at which additional interviews yielded no substantively new themes, was the criterion for determining adequate sample size across informant categories.

Three complementary data collection methods were employed to ensure methodological triangulation. First, semi-structured in-depth interviews were conducted with key informants, using a pre-developed interview guide that allowed informants latitude to elaborate on their perspectives and experiences. Interviews were conducted in Indonesian and Bugis where appropriate, audio-recorded with participant consent, and transcribed verbatim. Second, participatory observation was conducted during Friday communal cleaning (*gotong royong*) activities, waste bank operations, PKK meetings, and environmental socialization events; systematic field notes recorded contextual details, interactional dynamics, and researcher interpretations. Third, document analysis was performed on village regulations, *BERGEGAS* program reports, *ProKlim* award documentation, PKK activity records, and audiovisual records of environmental activities.

Data was analyzed using Miles, Huberman, and Saldana interactive models, comprising four recursive stages: data collection, data condensation, data display, conclusion drawing and verification. Initial codes were generated inductively from interview transcripts and field notes, then organized into thematic categories aligned with the study's three research questions. A codebook was developed iteratively and applied consistently across all data sources. Credibility was established through source triangulation (cross-referencing interview, observational, and documentary data), methodological triangulation across the three data collection approaches, and member checking with key informants to validate interpretive accuracy. Transferability was supported through thick description of the research context and conditions.

3. RESULTS AND DISCUSSION

Results

Three principal thematic findings emerged from thematic analysis: (1) the nature and ecoteological foundations of environmental awareness in Ganra Village; (2) the educational programs and practices through which ecoteological values are pedagogically operationalized; and (3) the enabling institutional, cultural, and pedagogical factors that sustain community-wide environmental learning.

Ecoteological Foundations of Environmental Awareness: Faith as a Pedagogical Motivator

Findings from this study reveal that environmental awareness in Ganra Village is fundamentally rooted in Islamic faith rather than mere civic obligation, forming a robust, ecotheologically grounded environmental identity. Religious scholars and local leaders systematically integrate ecological principles into formal and informal religious structures, such as Friday sermons (*khutbah*) and weekly study circles (*majlis taklim*), thereby framing environmental stewardship as an active form of worship (*ibadah*). This motivational driver is further reinforced by the village's historical legacy as a center of Islamic scholarship, where community members consistently operationalize core Quranic concepts—including the sacred trust of vicegerency (*amanah* and *khalifah*), the prohibition of ecological corruption (*fasad fil ardh*), and the preservation of cosmic balance (*mizan*). Consequently, this deep-seated theological integration, sustained through continuous mentorship and community practice, establishes a proactive model of environmental behavior that transcends reactive, regulatory compliance.

"...In our village, learning is not just a worldly matter, but part of the worship inherited from the scholars of the past. Parents here always try to send their children to higher education. Because of that education, we do not see the Quran's teachings about protecting nature (khalifah fi al-ard) as mere doctrine. When we study environmental science in school or college, it clarifies what is written in the holy book. We understand why littering damages soil microorganisms, not just because it is forbidden by religion. Faith gives us the intention, and knowledge gives us the method. The two are integrated." Informant 3 (Male, 42 years old, Community Leader and Agriculture Graduate)

Participants also emphasized the role of educational attainment in facilitating the integration of scientific environmental understanding with religious conviction. Unusually high average educational levels for a village in Soppeng Regency—attributed by multiple informants to the ulama tradition's valorization of learning—enabled community members to synthesize Qur'anic environmental ethics with contemporary ecological science. This convergence of spiritual and rational motivation produced what participants described as a more holistic and resilient ecological consciousness.

Pedagogical Operationalization of Ecoteological Values: Educational Programs and Practices

Ecoteological values in Ganra Village are not confined to discourse; they are pedagogically operationalized through five structured programs and embedded social

norms that function as distinct channels of environmental education, each serving specific learning functions and reaching distinct community segments.

Friday Communal Cleaning Program (Gotong Royong Jumat Bersih)

The Friday communal cleaning program—in which community members collectively clean public spaces including village roads, the central mosque, communal facilities, and household surroundings—constitutes the most institutionalized expression of ecoteological environmental education in Ganra Village. The selection of Friday, Islam's most sacred day (*sayyidul ayyam*), is pedagogically deliberate: it frames environmental action as an act of worship, elevating its moral and motivational weight beyond what a secular civic duty could achieve. In educational terms, the program functions as a weekly experiential learning event, embodying the principle that *al-nazhafatu min al-iman* through direct, collective environmental practice.

Participatory observations confirmed consistently high levels of community attendance and engagement, with village officials and ordinary residents participating side by side—a spatial embodiment of the Islamic principle of *ta'awun* (mutual assistance) and the Bugis cultural value of *siriq* (honor and solidarity). The program thus simultaneously serves environmental, educational, and social cohesion functions, exemplifying the multidimensional character of effective community-based ESD.

Multi-Forum Environmental Socialization

Environmental education is actively reinforced through a deliberate multi-forum socialization strategy that ensures consistent messaging reaches all community segments. Religious educational forums—including Friday sermons, weekly Islamic study circles, and community religious celebrations—routinely incorporate environmental messages grounded in Qur'anic and hadith references, delivered by trusted religious authorities whose messages carry high community credibility. These function as forms of non-formal religious environmental education, where ecological content is embedded within the established practice of Islamic learning.

"...The mosque is indeed the center of our activities, but not all residents are active in the religious study group or regular religious study groups. Therefore, village deliberations, neighborhood association meetings, and community social gatherings are very important communication channels. In the mosque, we learn the mandate to protect the earth, but it is in this community forum that we are taught the technical aspects: how to sort organic waste, the fines for throwing garbage in the river, and the community service schedule. For residents who rarely go to the mosque or are busy with work, they still receive this information from the village WhatsApp group and the notice board in front of the village office. So, no residents are left behind." Informant 7 (Female, 38 years old, PKK Member & Village Environmental Cadre)

Complementing religious messaging, civic educational forums—neighborhood meetings, village deliberations (*musyawarah desa*), and community gatherings—provide practical environmental information on waste management practices, regulatory expectations, and program participation mechanisms. Village government additionally disseminates environmental information through physical notice boards and digital

communication channels. This multi-forum approach ensures that environmental education penetrates all community segments, including those with limited participation in formal religious learning.

PKK-Integrated Household Environmental Education

The Family Welfare Empowerment organization (PKK) functions as a primary vehicle for household-level environmental education, extending ecological learning into the domestic sphere—which generates the largest proportion of community waste. Through PKK activities, women—who bear primary responsibility for domestic waste management in this community—receive structured practical education in organic and inorganic waste segregation, composting techniques, upcycling of reusable materials, and other household-level sustainable practices. This constitutes a targeted non-formal educational program that connects the ecoteological concept of amanah (responsible stewardship) with practical household competencies.

"...When we conduct outreach at the village office, it's usually the men who come, and the discussion often ends there. But through PKK activities, we go directly into the residents' kitchens. We convey to the women that maintaining a clean home and managing waste is not just a matter of cleanliness, but rather a mandate for which we will be accountable before God. As mothers, we have a moral responsibility to maintain the family's living space. Because we use this language of mandate, the women in the village don't see this as a burden of instructions from the government, but rather as a form of their daily worship at home."
Informant 12 (Female, 45 years old, PKK Core Administrator at Village Level)

PKK's household-level reach enables environmental education to penetrate beyond public spaces and formal program participants into domestic life, making it one of the most behaviorally consequential educational channels in the village's environmental governance system. PKK leaders explicitly framed their educational role in terms of amanah framing that their participants recognized and endorsed, reinforcing the ecological message through religious identity.

Aesthetics-Oriented Social Norms as Informal Environmental Learning

Ganra Village also exhibits distinctive informal social norms oriented toward the visual and aesthetic quality of the shared environment, which function as a form of informal environmental education through community modeling and social expectation. A notable example is the community-wide norm against drying laundry on front-facing verandahs—a practice that, while utilitarian, is collectively understood as detracting from the aesthetic quality of shared public space. This norm exemplifies the educational concept of place attachment: residents demonstrate a strong emotional, spiritual, and aesthetic investment in the quality of their shared environment that motivates voluntary behavioral regulation beyond formal enforcement.

"...In Ganra Village, the beauty of the village is a reflection of our collective pride. There are unwritten rules that are strictly adhered to, for example, the prohibition of drying clothes on the front porch of houses facing directly onto the main road. While drying clothes in front is practical and quick, it spoils the view for neighbors and passersby. We feel a moral responsibility to maintain the beauty of this village. So, without the need for officers to

reprimand us or fine us, we ourselves are reluctant (to be guardians) if our front yard looks messy. The cleanliness and beauty of this village are part of our love and pride for our homeland." Informant 5 (Male, 51 years old, Local Traditional/Cultural Figure)

In sociological terms, this informal norm constitutes a form of community-based informal education through social modeling and normative expectation. Community members learn appropriate environmental behaviors not through explicit instruction but through observation, participation, and the social reinforcement of shared aesthetic and moral standards—a mechanism that Wals identifies as central to socially transformative sustainability learning.

Summary of Educational Practices and Ecoteological Foundations

Table 1 summarizes the five principal environmental education practices identified in Ganra Village, their ecoteological grounding, and their institutional delivery vehicles.

Table 1. Environmental education practices, ecoteological foundations, and institutional vehicles in Ganra Village

Educational Practice	Ecoteological Foundation	Institutional Vehicle
Friday Communal Cleaning (<i>Gotong Royong Jumat Bersih</i>)	Khalifah; ta'awun; sanctity of Friday (sayyidul ayyam)	Village Government / Community
Multi-Forum Environmental Socialization	Al-nazhafatu min al-iman; prohibition of fasad fil ardh	Religious Scholars (<i>Ulama</i>) / Village Government
PKK Household Waste Education	Amanah; conservation of mizan; domestic stewardship	PKK (Family Welfare Empowerment)
Aesthetics-Oriented Community Norms	Hima; shared environment as amanah; place as sacred trust	Community Norms / Social Pressure
<i>BERGEGAS</i> Integrated Waste Management	Khalifah; integrated environmental stewardship	Village Government / External Partners

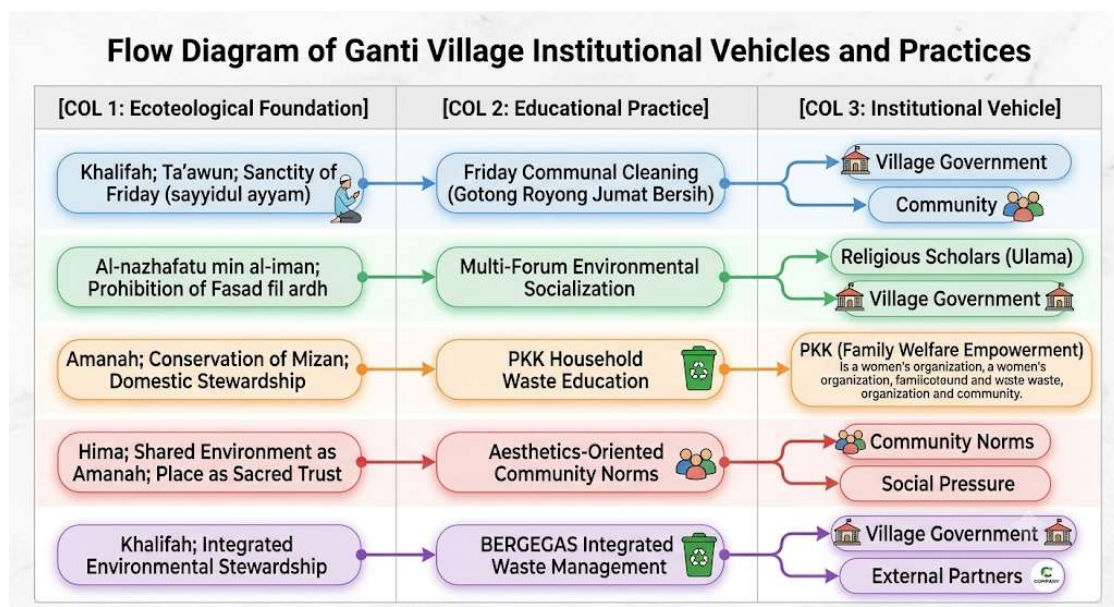


Figure 1. Environmental Education Practices, Ecoteological Foundations, and Institutional

Enabling Factors for Faith-Integrated Environmental Education

Six interdependent structural and cultural factors were identified as enabling and sustaining Ganra Village's environmental education system. These factors function not independently but as an integrated, mutually reinforcing institutional architecture.

Educational Attainment

Ganra Village's comparatively high average educational level, unusually elevated relative to neighboring villages, facilitates scientific comprehension of environmental issues, enables critical engagement with complex environmental concepts, and supports effective participation in structured environmental programs. High educational attainment also enables community members to engage meaningfully with both religious and scientific environmental framing, supporting the integrative ecotheological consciousness described above.

Village Regulatory Framework

The village government has enacted a formal regulatory framework for waste management, including a village ordinance imposing a monetary fine of IDR 100,000 on residents who dump waste in rivers and requiring that residents not participating in the *BERGEGAS* system manage waste disposal independently. Effective commons governance: This framework combines persuasive educational communication with enforceable coercive instruments. Crucially, the combination of faith-based motivation with enforceable regulation produces higher and more consistent behavioral compliance than either mechanism achieves in isolation—a complementarity that is central to the village's environmental education system's effectiveness.

Environmental Infrastructure

Substantial investments in environmental infrastructure have positioned Ganra Village as a regional leader in village-level environmental management, reducing the practical barriers to environmental participation and signaling institutional commitment to environmental goals. Key facilities include a dedicated waste transport vehicle—making Ganra the first village in Soppeng Regency to own its own waste collection truck—an operational waste bank (bank sampah) enabling residents to sort, deposit, and monetize recyclable materials, and CCTV cameras installed at village bridges and strategic road intersections to deter illegal waste dumping. These infrastructural investments constitute a form of learning environment design, creating physical conditions that make pro-environmental behavior more accessible, visible, and economically rewarding.

BERGEGAS Integrated Program

The *BERGEGAS* program (Bersatu Ganra Bebas Sampah) constitutes the programmatic core of Ganra Village's environmental education and governance system. By integrating waste collection logistics, community education, recycling economics, and behavioral incentives into a unified framework, *BERGEGAS* creates a dual-

incentive structure that sustains participation across socioeconomic groups: ecological benefits (a visibly cleaner environment) combined with economic returns (income from recyclable material sales). National recognition through the Ministry of Environment and Forestry's *ProKlim* award provides external validation of program outcomes and enhances community environmental identity and collective pride—motivational factors that sustain long-term participation.

Participatory and Exemplary Village Leadership

Village leaders, including the village head and administrative staff—actively and visibly participate in *Gotong Royong* activities and environmental socialization, rather than limiting their role to policy formulation and directive issuance. This embodied leadership aligns with the Islamic educational concept of *uswah hasanah* (exemplary conduct), in which leaders who model the behaviors they advocate exert significantly stronger motivational influence on community behavior than those who govern by directive alone. Observational data confirmed that leader participation in communal environmental activities was consistent and visible throughout the study period—a sustained modeling of ecoteological values that reinforces their educational messaging across multiple community forums.

Table 2. Observational Data

Observation Dimension	Concrete Behavioral Indicators	Frequency / Consistency	Analytical Interpretation
Visible Leader Presence & Physical Co-participation	Religious leaders (Imams/Ulama) and traditional/village elites actively engage in physical labor during communal cleanup (gotong royong) events.	Highly Consistent (Observed across all 4 scheduled village-wide cleanup cycles during the study period).	Breaking Hierarchies: Direct physical labor by elites democratizes the ecological task. By working in the mud, leaders strip away bureaucratic distance, transforming communal cleaning from a state-mandated chore into a shared moral duty.
Active Modeling of Ecotheological Values	Leaders explicitly bridge physical ecological actions (e.g., waste sorting, planting) with theological concepts (amanah, khalifah) during informal breaks.	Consistent (Spontaneously observed during post-activity communal rests/social hours).	Sacralization of Ecology: This conversational modeling bridges abstract Islamic stewardship with material conservation. It reframes mundane forestry/waste management as a tangible, spiritually rewarding ritual.
Cross-Forum Behavioral Alignment	Consistent environmental signaling by the same leaders across distinct domains (the pulpit, administrative offices, and domestic/public spaces).	Highly Consistent (A clear thread observed connecting Friday sermons, civic planning, and personal lifestyle).	Eradication of Cognitive Dissonance: When residents observe absolute alignment between a leader's public preaching, administrative decisions, and private lifestyle, the educational message is deeply reinforced, enhancing community trust and compliance.

Islamic Scholarly Heritage as Educational Capital

Ganra Village's historical identity as a center of Islamic learning—characterized by generational continuity of ulama residence and Islamic educational provision—has created an exceptional reservoir of religious social capital and community trust in religious educational institutions. This heritage provides a cultural substrate in which ecoteological values are not imported from outside or imposed by governmental authority but are experienced as continuous with existing religious identity and community narrative. It confers legitimacy on environmental messages delivered through religious educational channels, as community members extend their established trust in religious authorities to the ecological positions those authorities articulate. In educational terms, this represents an unusually strong alignment between educational messenger credibility and educational content validity.

Barriers to Universal Participation

Despite its achievements, the study identified one significant and ongoing challenge: full community participation in the *BERGEGAS* waste management system has not been achieved. A minority of residents remain outside the formal program. Barriers identified through interviews include time constraints arising from occupational demands, incomplete understanding of program participation mechanisms among some household categories, and insufficiently compelling personal incentives for specific socioeconomic groups. These findings suggest that program intensification, including targeted door-to-door educational outreach, simplified participation pathways, and differentiated incentive structures tailored to specific household contexts, would strengthen the program's educational reach and participation coverage.

Discussion

Ecoteological Values as Pedagogical Framework: Extending ESD Theory

The principal theoretical contribution of this study lies in its empirical demonstration that faith-based ecological motivation—operationalized through Islamic ecoteological concepts—produces qualitatively different and more durable educational outcomes than regulatory or informational approaches to environmental behavior change. Participants who articulated their environmental practices in terms of ibadah, khalifah, and amanah consistently demonstrated stronger intrinsic motivation, more consistent behavioral engagement, and a more integrated environmental identity than those whose participation was primarily driven by regulatory obligation or economic incentive. This finding resonates with Sterling's (2025) distinction between adaptive and transformative learning: information-based and regulatory approaches may produce adaptive behavioral changes, but values-based ecocological education enables deeper transformative learning—involving identity, meaning-making, and intrinsic motivation—that ESD scholarship increasingly identifies as necessary for durable environmental behavior.

This insight carries significant theoretical implications for ESD. Environmental governance frameworks designed exclusively around regulatory compliance and

economic incentives, however technically sophisticated, may fail to produce the depth of motivational transformation required for environmentally sustainable behavior that persists beyond regulatory oversight. Programs that integrate and activate existing theological motivations for environmental stewardship may generate more robust, self-sustaining, and intrinsically motivated behavioral outcomes, particularly in communities where religious identity is central and where religious institutions command high social trust and educational authority. These findings suggest that ESD theory should more explicitly incorporate faith-based education as a pedagogically productive and culturally legitimate approach to environmental learning, rather than treating it as marginal to the ESD mainstream (Marshall, 2025; Stein et al., 2022).

Institutional Complementarity: A Polycentric Model of Environmental Education

A second significant finding concerns the institutional architecture that sustains Ganra Village's environmental education system. Rather than relying on any single channel or mechanism, the village has developed a multi-layered system in which faith-based motivation, regulatory enforcement, economic incentives, environmental infrastructure, community-level educational programming, and exemplary leadership interact synergistically—closely mirroring Ostrom's polycentric governance model (Baldwin et al., 2024). In educational terms, this constitutes a distributed learning ecosystem: no single educational channel is sufficient, but each reinforces and complements the others to produce a collectively robust environmental education system.

Critically, the study reveals that regulatory enforcement and faith-based educational motivation function as complements rather than substitutes. Village regulations establish minimum behavioral baselines and deter free-riding; faith-based motivation drives voluntary engagement beyond regulatory requirements; economic incentives through the waste bank sustain participation across socioeconomic groups; infrastructure reduces participation costs; exemplary leadership sustains community motivation; and educational attainment enables informed, critical participation. The removal or significant weakening of any component would likely diminish the system's overall educational effectiveness—a finding consistent with Gatto (2022) finding that polycentric systems are more resilient than monocentric ones. For ESD program designers, this implies that standalone interventions, however well-designed individually, are unlikely to achieve the behavioral outcomes attainable by integrated, multi-mechanism approaches.

Dialogue with Islamic Ecoteological Concepts: Educational Mechanisms

The empirical findings can be productively interpreted through the lens of Islamic ecotheology to illuminate the specific educational mechanisms through which theological concepts shape environmental behavior. The khalifah concept (QS. Al-Baqarah: 30) functioned in participant discourse not as an abstract theological abstraction but as an active pedagogical frame—community members described waste management and environmental maintenance as fulfillments of their divine custodial

mandate, transforming routine environmental tasks into acts of spiritual significance (Vahlepi et al., 2025). This theological reframing constitutes a powerful motivational transformation: what might otherwise be experienced as burdensome civic duty becomes an expression of religious identity and spiritual aspiration.

The mizan concept (QS. Ar-Rahman: 7–9) provided a theological rationale for the village's prohibition on river waste dumping: polluting waterways is framed as disrupting the divinely ordained ecological balance, rendering it not merely a civic violation but a theological transgression with spiritual consequences. The hima tradition—historically, the Prophet Muhammad's designation of ecologically protected zones—found contemporary institutional resonance in the village's CCTV surveillance of bridges and waterways, representing a modernized institutional analog of traditional Islamic environmental protection. These findings support and empirically ground Bensaid and Bensaid's (2023) and Shiferaw et al.'s (2023) thesis on spiritual ecology, demonstrating that abstract theological principles do shape concrete environmental behaviors when effectively mediated through trusted community educational institutions.

Implications for ESD Practice and Environmental Education Policy

The empirical insights from the Ganra Village case yield profound practical implications for Education for Sustainable Development (ESD) policy, demonstrating that environmental education within Muslim-majority contexts is highly optimized when leveraging indigenous Islamic ecotheological tenets—such as khalifah, amanah, mizan, and al-nazhafatu min al-iman—via trusted religious conduits rather than relying strictly on conventional secular narratives. This dynamic is operationalized through the *BERGEGAS* model, which employs a gender-responsive, multi-forum socialization framework that effectively bridges the domestic sphere through targeted civic networks like the PKK, while substantiating Elinor Ostrom's polycentric governance theory by intertwining educational interventions with economic incentives and local regulatory constraints. Nonetheless, these findings must be interpreted alongside inherent institutional and methodological limitations; as a single-site qualitative exploration with a restricted two-month data collection window, the results offer analytical transferability to structurally congruent communities rather than cross-sectional statistical generalizability. Furthermore, potential confounding factors such as social desirability bias within a normatively observant populace, potential positionality effects stemming from the research team's local university affiliation, and the lack of formal psychometric or empirical behavioral tracking necessitate subsequent longitudinal and experimental inquiries to fully validate the causal pathways between multi-layered educational inputs and long-term pro-environmental behavioral outcomes.

4. CONCLUSION

This study demonstrates that Ganra Village, South Sulawesi, constitutes a distinctive and instructive case of faith-integrated community environmental education in a Muslim-majority rural context. Environmental awareness in the village is authentically

grounded in Islamic ecoteological values—particularly the concepts of khalifah, mizan, and amanah—and is pedagogically operationalized through five complementary educational channels: the Friday communal cleaning program, multi-forum environmental socialization, PKK-integrated household education, aesthetics-oriented community norms, and the *BERGEGAS* integrated program. Six enabling factors—high educational attainment, enforceable village regulations, adequate environmental infrastructure, the *BERGEGAS* program, exemplary participatory leadership, and a deep Islamic scholarly heritage—function synergistically to sustain this educational ecosystem.

The central contribution of this case to ESD theory and practice is its empirical demonstration that faith-integrated environmental education—when institutionally scaffolded through complementary regulatory, economic, and community mechanisms—produces more intrinsically motivated, behaviorally persistent, and culturally resonant environmental outcomes than either regulatory compliance or informational approaches alone. The *BERGEGAS* model—nationally validated through *ProKlim* recognition—offers a concrete, documented template for faith-based environmental education programs in Muslim-majority rural communities across Indonesia and globally.

Future research priorities include: comparative case studies of faith-integrated environmental education across diverse Muslim-majority national and cultural contexts; longitudinal assessment of behavioral persistence and educational outcome sustainability over multi-year periods; quantitative measurement of the relative motivational contribution of faith-based versus regulatory and economic mechanisms; investigation of gender-differentiated patterns of ecoteological environmental learning; and theoretical development at the intersection of Islamic ecoteology, ESD, and environmental governance—a cross-disciplinary frontier that this study aims to advance and that holds substantial promise for global environmental education scholarship and practice.

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