

Local Ecological Wisdom as Teaching Material for Islamic Religious Education in Coastal East Lombok, Indonesia: A Qualitative Field-Evidence Case Study

Irpan

Universitas Islam Negeri Mataram, Indonesia

irpan@uinmataram.ac.id

Abdul Haris Rasyidi

Institut Palapa Nusantara Lombok NTB, Indonesia

abdulharisrasyidi30@gmail.com

Abstract: Fishing households in coastal East Lombok report falling catches under climate change, and the village rule systems that once regulated the sea have struggled to hold. Islamic religious education (Pendidikan Agama Islam, PAI) reaches Muslim children in these villages, yet it is unclear whether it draws on local ecological knowledge. This study asks what forms of ecological wisdom are documented in coastal and neighbouring Sasak communities, how Islam relates to them, how PAI currently carries ecological content, and what model of teaching material follows. It uses a qualitative interpretive case design in a field-study tradition. The case is built from published field evidence: 78 peer-reviewed articles with DOIs read from publisher pages, of which 49 were coded on six dimensions, and six books and chapters. No new primary data were collected. Reflexive thematic synthesis produced five findings. Only 14 of 49 coded studies concern coastal settings, and none of the 14 addresses a classroom or pesantren. Documented local institutions combine rules, ritual and moral messages, but in East Lombok the awig-awig has not withstood pressure. Islam aligns with local practice in some cases, is negotiated in others and is contested in three. PAI carries environmental content that is general rather than local. Transmission is helped by community partnership and weakened by structural pressure. The study proposes the Coastal Amanah Curriculum Model, with a normative filter based on custom (urf) and the objectives of Islamic law (maqasid), six testable propositions and a field protocol.

Keywords: *Local Ecological Wisdom; Islamic Religious Education; Coastal Communities; Teaching Materials; East Lombok; Sasak Customary Law; Ecotheology.*

Introduction

Climate change reaches the East Lombok coast as a fall in income. In three villages of Labuhan Haji District, fishers reported fewer trips and smaller catches, and they responded by diversifying work, cutting consumption, changing gear and

borrowing (Setiawati et al., 2025). The sample was small, 35 fishers, so the finding is suggestive and not conclusive. The institutions that might cushion such pressure are not in good shape. A study of coastal fisheries in the same regency concluded that the awig-awig, the village rule system, had not been able to cope with pressure from inside and outside the community (Ayunda et al., 2016).

Muslim children in these villages study Islamic religious education at school and madrasah. PAI is therefore a channel that reaches a whole generation with an explicit moral vocabulary about nature, and its environmental content has been examined from several angles. A content analysis found environmental themes such as stewardship, cleanliness and natural-resource management across many grades of the Indonesian PAI curriculum (Wakhidah & Erman, 2022). Interviews with teachers suggest that the content leans toward the affective domain and that teachers tend to insert environmental themes rather than teach them systematically (Rohman et al., 2024). Eco-pesantren have been studied as models in which kyai leadership, infrastructure and routines carry ecological values (Aulia et al., 2024; Subaidi et al., 2023; Albar et al., 2024; Widodo, 2026). Classroom studies report gains in awareness, discipline and empathy, together with weak teacher preparation and a shortage of teaching materials (Bahtiar et al., 2025; Zahro et al., 2026). The newest work places ecotheology inside the love-based curriculum (Kurikulum Berbasis Cinta) now promoted for madrasah (Ulfiani & Ningsih, 2026).

A second body of work lives in fisheries and resource governance. It documents customary sea institutions with measured effects: the Panglima Laot of Aceh (Wilson & Linkie, 2012; Campbell et al., 2012; Wardah et al., 2024), sasi in Maluku and Raja Ampat (Harkes & Novaczek, 2002; McLeod et al., 2009) and awig-awig in Lombok (Satria et al., 2006; Ayunda et al., 2016). These studies seldom mention religious teaching, and when they mention religion the finding can be awkward for any simple story of harmony. In one Raja Ampat village, churches reinforced sasi, while Islam did not do the same in the Muslim village studied (McLeod et al., 2009).

A third body of work concerns Sasak culture and Islam in Lombok. It describes customary chiefs who lead forest protection and moral instruction (Jayadi et al., 2024), a bau nyale ritual that includes beach cleaning (Mutia et al., 2024), village forest rules

whose socialisation mirrors religious propagation (Irrubai, 2018) and manuscripts that link reverence for God with respect for the natural world (Rahmawati et al., 2024). The same literature records conflict. Supporters and critics of the Perang Topat festival disagree about whether participation is bid'ah (Suprpto, 2017), and a 2023 dispute in Mamben Daya, East Lombok, escalated around a mosque built without consultation (Hamdi et al., 2025).

These three literatures sit in different journals and use different vocabularies. A bibliometric review of 170 Scopus-indexed articles found that work on Islam and sustainability has grown but integrates deeper theological principles and empirical environmental practice only thinly (Husamah et al., 2025). Others describe a gap between Islamic environmental ethics and Muslim conduct (Saniotis, 2012; Basyar et al., 2026). One reading, offered here as an inference rather than a finding, is that local ecological practice could supply the practice layer that theology lacks. That reading is risky. Local wisdom is not automatically sustainable, and it is not automatically accepted as Islamic.

The aim of this study is to build an evidence-based account of how local ecological wisdom in coastal East Lombok can become teaching material for PAI, with an explicit way of deciding which practices qualify. Four research questions guide the work.

1. RQ1. What forms of local ecological wisdom are documented in coastal and neighbouring Sasak communities, and what ecological functions do they serve?
2. RQ2. How is Islam related to these practices in documented cases?
3. RQ3. How do PAI studies currently carry ecological content and local practice, and where are the gaps?
4. RQ4. What conditions support or erode transmission, and what model of teaching material follows?

The study makes three contributions. It maps where the three literatures fail to meet, using a coded corpus of 49 studies. It identifies a normative filter, drawn from Islamic legal theory on custom, that lets teachers treat aligned, negotiated and contested practices differently. And it offers a model, six propositions and a field protocol that a researcher in East Lombok can test. A point on data should be stated at the outset. No

new primary data were collected. The case is assembled from published field evidence, and the study says so wherever it matters.

Method

Design and Stance

The study is a qualitative interpretive case study (Yin, 2018) that follows the logic of field-based inquiry: a bounded case, attention to context and a preference for detailed description (Geertz, 1973). The stance is constructivist. Local ecological wisdom is treated as a set of meanings that communities and religious authorities construct and contest, in line with the hermeneutic tradition of Guba and Lincoln (1989). The case is the set of coastal communities of East Lombok as a setting for PAI.

The boundary is drawn around communities on the East Lombok coast where fishing is a main livelihood and where PAI is taught in schools and madrasah. The verified studies place three things in this regency: a coastal awig-awig institution that has not coped with pressure (Ayunda et al., 2016), fishing households in Labuhan Haji adapting to climate change (Setiawati et al., 2025) and a 2023 religious dispute in Mamben Daya (Hamdi et al., 2025). Islamic education on the island has passed through santren, madrasah founded by tuan guru and ideologically diverse pesantren (Pardi et al., 2024). These pieces are few, which is why the case draws on neighbouring Sasak and Indonesian coastal studies to fill what East Lombok lacks.

The data are published field evidence. Where an ethnography, a survey or an interview study has already been done, its reported findings are the material of this study, and the neighbouring Sasak and Indonesian coastal cases are used to fill what East Lombok lacks. This choice follows from a plain fact: no primary fieldwork was carried out for this article. The study therefore claims a field-evidence design and not a field study in the sense of new data collection. Section 6 sets out a protocol for the latter.

Source Identification and Verification

Sources were gathered in October 2026 in six clusters: ecotheology and environmental education in Islamic schooling; coastal and fisheries institutions in Indonesia; Islamic environmental ethics and law; local content in teaching materials; Sasak and Lombok society, Islam and environment; and theory on traditional ecological

knowledge and commons governance. Searches used English and Indonesian terms, including kearifan lokal, ekoteologi, awig-awig, pesisir and pendidikan agama Islam. A source was retained only if its journal or publisher page was opened and the authors, year, journal, pagination and DOI were read from that page. DOIs were not resolved independently, because the resolver was blocked in the working environment. Items seen only in search results, conference proceedings, news reports and items with unconfirmed authorship were excluded. Eight further sources on qualitative quality were retained for the method and reporting.

The retained set comprises 78 journal articles with DOIs and six books or chapters (five books and one book chapter). Table 1 shows the composition by cluster and Figure 2 shows the workflow. The indexing status of each journal was not confirmed against the Scopus source list. Appendix A records that status for every entry, and the point is repeated in the Limitations.

Table 1

Composition of the retained source set by cluster

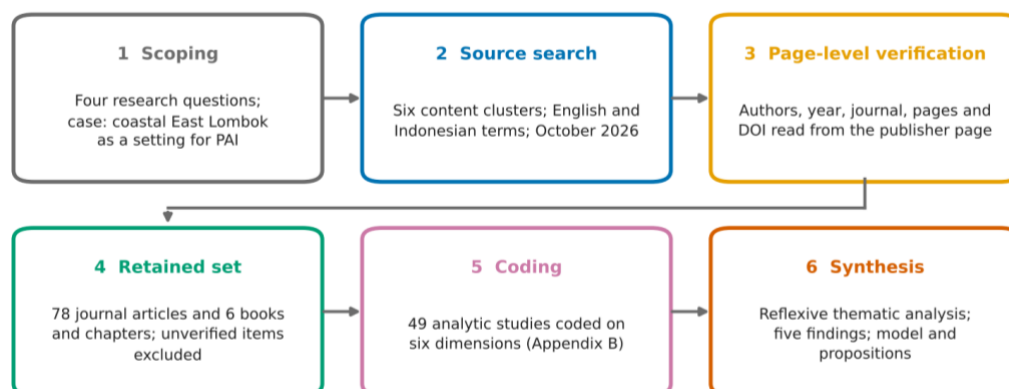
Cluster	Journal articles	In analytic corpus	Role in the study
Ecotheology and environmental education in Islamic schooling	14	14	Findings on PAI, eco-pesantren and classroom outcomes
Coastal and fisheries institutions in Indonesia	11	11	Findings on customary sea institutions
Islamic environmental ethics and law	11	11	Normative frame and the test for custom
Local content in teaching materials	9	2	Two studies coded; seven supply educational theory and context
Sasak and Lombok society, Islam and environment	11	11	Findings on Lombok practice and contestation
Traditional ecological knowledge and commons governance	14	0	Theory and context

Cluster	Journal articles	In analytic corpus	Role in the study
Qualitative method and quality	8	0	Method and quality criteria
Total	78	49	

Note. Six books and chapters (Berkes, 2012; Geertz, 1973; Guba & Lincoln, 1989; Ostrom, 1990; Satria & Adhuri, 2010; Yin, 2018) are additional to the 78 articles and were not coded.

Figure 2

Workflow Of Source Identification, Verification, Coding and Synthesis



Note. The 78 articles comprise the 49-study analytic corpus and 29 sources on theory, context and method.

Coding

Forty-nine studies that bear directly on the research questions were coded as the analytic corpus: those from the ecotheology, coastal, Islamic ethics and Lombok clusters, plus two studies on teaching content for PAI. The remaining 29 articles supply theory, context and method. Each study was coded on six dimensions: setting (East Lombok, other Lombok, other Indonesia, international or general); coastal or marine focus; evidence type (field-based, documentary or conceptual, unclear from the page); religious framing (explicit Islamic framing, adat or ritual with religious meaning, none stated); educational or institutional channel (classroom, pesantren or madrasah, community or ritual or dakwah, policy or customary law, not addressed); and the stated relation between Islam and local practice (alignment, translation or negotiation,

contestation or non-reinforcement, not stated). Coding was done at the level of the page and abstract by one coder. Appendix B lists every code. Counts are descriptive and are used to locate gaps, not to test hypotheses.

Analysis

The findings statements of each study were analysed through reflexive thematic analysis (Braun & Clarke, 2021), adapted to documentary material. Candidate themes were developed across clusters, checked against the coded table and revised until five themes remained, each tied to a research question. The model and propositions in Section 5 were developed abductively from the themes and the theoretical framework.

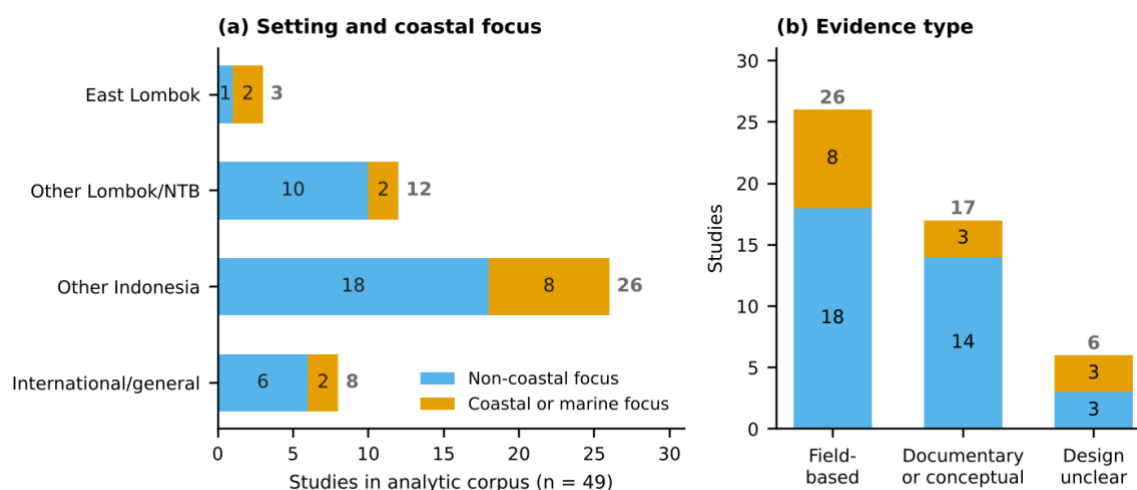
Quality and Ethics

Quality was handled as criteria in context rather than as a checklist (Smith & McGannon, 2018), with Tracy's (2010) eight big-tent criteria as the main guide. Verification was built into the process, as Morse et al. (2002) recommend: sources were checked at the page level while the corpus was being built, not after. Trustworthiness steps followed Nowell et al. (2017), including an audit trail in the form of the coding appendix, and the relational dimension of quality stressed by Lincoln (1995) is carried into the field protocol. On reflexivity, Pillow's (2003) warning against confessional comfort applies. The coding is one person's reading of abstracts, the corpus was assembled through online search, and both choices shape what appears. Reporting follows the logic of the APA qualitative standards (Levitt et al., 2018). No human participants were involved, so no ethical approval was required for this study. Any primary fieldwork would need institutional approval and community consent.

Findings

The Three Literatures Do Not Meet

The analytic corpus holds 49 studies. Fifteen concern Lombok and three concern East Lombok itself (Ayunda et al., 2016; Setiawati et al., 2025; Hamdi et al., 2025). Twenty-six are from other parts of Indonesia and eight are international or general. By evidence type, 26 are field-based, 17 documentary or conceptual and six unclear (Figure 3). Fourteen studies, 29% of the corpus, concern coastal or marine settings.

Figure 3*Evidence base of the analytic corpus by setting, coastal focus and evidence type*

Note. n = 49 studies. Coding by one coder at page and abstract level (Appendix B).

The distribution of religious framing and channel shows the split. Of the 35 non-coastal studies, 32 use an explicit Islamic frame. Of the 14 coastal studies, only three do: the Qur'anic study of marine conservation (Ulya et al., 2024), the maqasid study of coastal sustainability (Shukor et al., 2024) and the Raja Ampat comparison of church and mosque (McLeod et al., 2009). Nine coastal studies state no religious framing at all, and 11 of the 14 sit in the policy or customary-law channel. None of the 14 addresses a classroom, a curriculum or a pesantren. The 15 Lombok studies tell a related story: 11 are about community, ritual or dakwah, and none addresses formal curriculum. In short, Islamic eco-education is studied mostly away from the coast, coastal customary management is studied mostly without religion or pedagogy, and Sasak culture is studied mostly outside schools. Their intersection, coastal East Lombok classrooms, is empty in this corpus. That finding describes the verified corpus and not the whole literature, and Section 6 returns to the point.

Documented Institutions Combine Rule, Ritual and Moral Message

Table 2 and Figure 4 summarise seven documented forms. The best measured is the Panglima Laot of Aceh. After the 2004 tsunami, GPS devices were fitted to 53 vessels, and a customary decree reduced fishing in hazardous areas of high coral density by 23.3% (Wilson & Linkie, 2012). On Pulau Weh, reef fish biomass and hard coral cover were two to eight times higher where nets were prohibited, even though the

system aims mainly at reducing conflict among fishers (Campbell et al., 2012). In a survey of 180 fishers in 12 villages, performance was rated high for application of customary maritime law (89.25%) and for fisher compliance (83.78%) (Wardah et al., 2024). Sasi, the Maluku seasonal closure, varies widely between villages, and the strong ones share ceremony, written rules and enforcement (Harkes & Novaczek, 2002). A recent analysis argues that Sasi Laut converges with blue-economy aims (Ananta & Cabral, 2026).

Table 2

Documented institutions that combine rule, ritual and moral message

Institution and setting	Rule or ecological function	Ritual, moral or religious content	Reported evidence
Panglima Laot, Aceh	Customary sea law; gear and area restrictions; conflict reduction among fishers	Not reported in the studies read	Customary decree reduced fishing in hazardous high coral density areas by 23.3% after the 2004 tsunami (Wilson & Linkie, 2012); reef fish biomass and hard coral cover two to eight times higher where nets were prohibited, Pulau Weh (Campbell et al., 2012); 89.25% rated application of customary law high among 180 fishers in 12 villages (Wardah et al., 2024)

Institution and setting	Rule or ecological function	Ritual, moral or religious content	Reported evidence
Sasi, Maluku and Raja Ampat	Seasonal closure of marine resources	Strong systems share ceremony, written rules and enforcement (Harkes & Novaczek, 2002)	Wide variation between villages (Harkes & Novaczek, 2002); Islam did not reinforce sasi in the Muslim village studied, unlike churches (McLeod et al., 2009); convergence with blue-economy aims argued (Ananta & Cabral, 2026)
Awig-awig, Lombok	Village rules covering forest, farmland and coast	Not reported in the studies read	Weakened between 1966 and 1998 and revived afterwards (Satria & Adhuri, 2010); limits at Gili Indah (Satria et al., 2006); did not cope with pressure in coastal East Lombok (Ayunda et al., 2016)
Awik-awik, Sesaot	Written rules guiding forest use	Socialisation mirrors religious propagation (Irrubai, 2018)	Descriptive field study (Irrubai, 2018)
Wetu Telu customary chiefs, Bayan	Seven roles in forest management	Convey moral and spiritual messages; lead nature-related religious activities	Chiefs gained influence after a 2012 constitutional ruling on indigenous forests (Jayadi et al., 2024)
Bau nyale, Kuta	Beach cleaning as part of the ritual	Annual ritual read as local wisdom for climate adaptation	Interpretive reading (Mutia et al., 2024)

Institution and setting	Rule or ecological function	Ritual, moral or religious content	Reported evidence
Pepaosan recitation and the Puspakarma manuscript, Lombok	Not a rule system	Values of gratitude, ancestral guidance and respect for the natural world	Textual and community study (Raudloh et al., 2024; Rahmawati et al., 2024)

Note. Entries record what each cited study reports. Not reported means the study did not report it, not that the feature is absent.

Figure 4

Components reported for seven documented institutions

	Rule or regulation	Ritual or spiritual meaning	Conflict mediation or enforcement	Outcome evidence
Panglima Laot (Aceh)	reported		reported	reported
Sasi (Maluku)	reported	reported	reported	partial
Awig-awig (Lombok)	reported		partial	partial
Awik-awik, Sesaot (Lombok)	reported	partial		
Wetu Telu chiefs, Bayan	reported	reported		
Bau nyale, Kuta		reported		
Pepaosan, Puspakarma		reported		

Note. Coded from the cited studies (Table 2).

Lombok's own institutions were weakened between 1966 and 1998 and were revived afterwards, when communities drew on the older sawen to write awig-awig covering forest, farmland and coast (Satria & Adhuri, 2010). The Gili Indah case in West Lombok questions how far such systems can protect a coral reef alone (Satria et al., 2006). The East Lombok study found weakness, as already noted (Ayunda et al., 2016). Inland, the picture is richer in religious content. Written awik-awik guide forest use in Sesaot, and their socialisation mirrors religious propagation (Irrubai, 2018). Wetu

Telu chiefs in Bayan perform seven roles in forest management, among them conveying moral and spiritual messages and leading nature-related religious activities (Jayadi et al., 2024). The bau nyale ritual at Kuta includes beach cleaning and has been read as local wisdom for climate adaptation (Mutia et al., 2024). Pepaosan recitation and a nineteenth-century manuscript carry values of gratitude, ancestral guidance and respect for the natural world (Raudloh et al., 2024; Rahmawati et al., 2024), and Sasak house construction and mutual aid shaped recovery after the 2018 earthquakes (Sasongko et al., 2025). Knowledge can also be left out. The Bajau of Wakatobi hold deep maritime expertise but are not recognised as a customary law community, and co-management programmes sideline their knowledge (Ariando & Arunotai, 2022).

The pattern is that regulation, spiritual meaning and conflict mediation are usually packaged together. Teaching one without the others would strip the institution of what made it work.

Islam Aligns With, Negotiates and Contests Local Practice

Only nine of the 49 studies state a relation between Islam and local practice, and the nine disagree (Table 3, Figure 5). Two show alignment. Lombok ulama read environmental verses in ways that fit local concern for stability and blame human conduct for damage (Acim & Suharti, 2023), and village rules in Sesaot are presented as a means of dakwah (Irrubai, 2018). Four show translation or negotiation: Wetu Telu communities negotiate Islamic values through elite, emotional and cultural approaches (Sumiadi, 2025); Nahdlatul Wathan combined Sasak spiritual knowledge with Islamic teaching after the 2018 earthquakes (Koopman, 2023); a Puspakarma manuscript is read through Islamic community development (Rahmawati et al., 2024); and Indonesian green Islam is described as lived religion (Bagir, 2025).

Table 3

Studies that state a relation between Islam and local practice

Relation	Study	Setting	Finding
Alignment	Acim & Suharti (2023)	Lombok ulama	Environmental verses are read in ways that fit local concern for stability and blame human conduct for damage

Relation	Study	Setting	Finding
Alignment	Irrubai (2018)	Sesaot, Lombok	Village forest rules are presented as a means of dakwah
Translation or negotiation	Sumiadi (2025)	Wetu Telu communities	Islamic values are negotiated through elite, emotional and cultural approaches
Translation or negotiation	Koopman (2023)	Lombok after the 2018 earthquakes	Nahdlatul Wathan combined Sasak spiritual knowledge with Islamic teaching
Translation or negotiation	Rahmawati et al. (2024)	Puspakarma manuscript, Lombok	Manuscript read through Islamic community development
Translation or negotiation	Bagir (2025)	Indonesia	Green Islam described as lived religion, including power and justice
Contestation or non-reinforcement	Suprpto (2017)	Perang Topat, Lombok	Critics call participation bid'ah; supporters reinterpret it in Islamic terms
Contestation or non-reinforcement	Hamdi et al. (2025)	Mamben Daya, East Lombok	2023 dispute escalated around a mosque built without consultation
Contestation or non-reinforcement	McLeod et al. (2009)	Raja Ampat	Islam did not support sasi in the way churches did

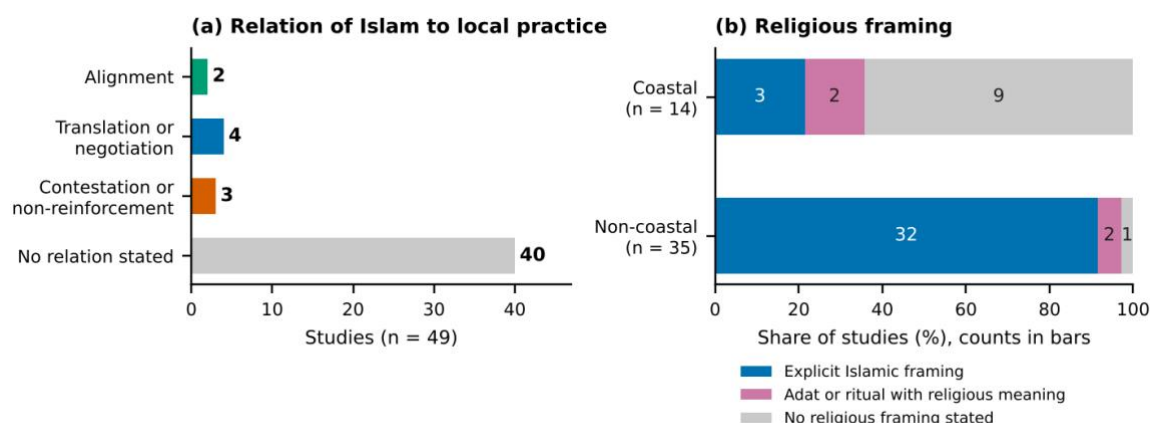
Note. Forty of the 49 coded studies state no relation.

Three show contestation or non-reinforcement. Critics call participation in the Perang Topat bid'ah while supporters reinterpret it in Islamic terms (Suprpto, 2017). The Mamben Daya dispute of 2023 in East Lombok is the only verified contestation study from the target regency (Hamdi et al., 2025). In Raja Ampat, Islam did not support sasi in the way churches did (McLeod et al., 2009). The institutional background explains why. Islamic education in Lombok moved from santren with a

tarekat curriculum to madrasah founded by tuan guru and then to ideologically diverse pesantren, from Aswaja to integrated Islamic schools to Salafi-Wahhabi (Pardi et al., 2024). Whoever writes teaching material in East Lombok writes into that diversity.

Figure 5

Relation of Islam to local practice and religious framing by coastal focus



Note. n = 49 studies; coastal n = 14, non-coastal n = 35.

PAI Carries Environmental Content That Is General, Not Local

Table 4 summarises how PAI studies carry ecological content, and Figure 6 shows where the corpus has no study at all. Content exists: environmental themes appear in most grades of the curriculum (Wakhidah & Erman, 2022), and a systematic review of 34 publications identified four Qur'anic concepts used across Islamic ecological education (Hamdan, 2026). The themes are general, such as stewardship, cleanliness and resource management. Rohman et al. (2024) found that the curriculum was strong on the affective side but did not address the cognitive side well. Teachers inserted themes. Classroom and school studies report positive but modest outcomes. A madrasah adopting Eco-Sufi values under the Adiwiyata programme reported gains in ecological concern, discipline and empathy, and also weak teacher preparation and limited teaching materials (Bahtiar et al., 2025). An elementary school case found developing ecological awareness but inconsistent habits outside school and uneven family engagement (Zahro et al., 2026). Other studies describe integration through khalifah-linked moral material, routines and teacher modelling (Ulfiani & Ningsih, 2026), and through values combined with fiqh al-bi'ah and activities such as tree planting and waste management (Muzakki et al., 2025; Amrullah et al., 2025). A mixed-

methods study of three Muhammadiyah boarding schools found significant differences in implementation and tied success to leadership, formal curricula, teacher training and community partnerships (Ferdinan et al., 2026).

Table 4

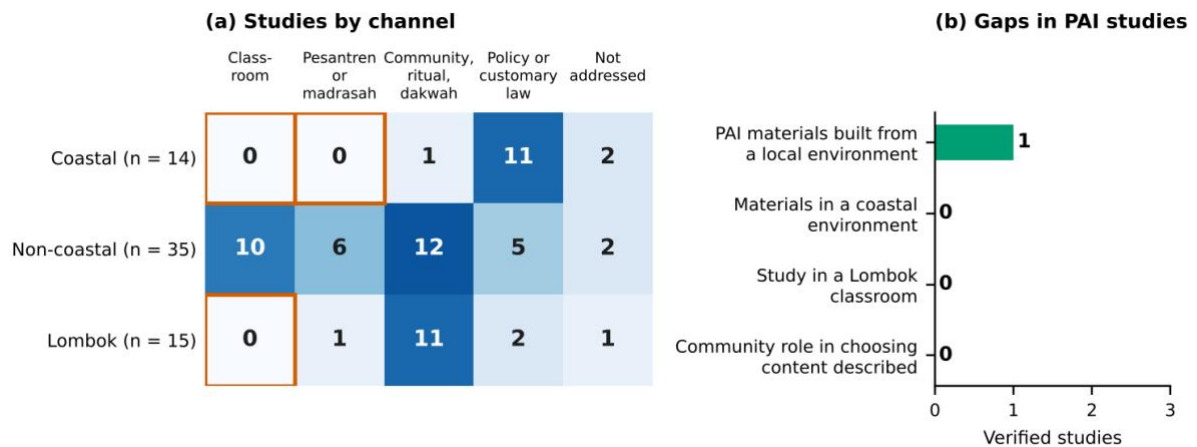
How PAI studies carry ecological content

Study	Setting or design	Content or approach	Reported result or limit
Wakhidah & Erman (2022)	Content analysis of the Indonesian PAI curriculum	Stewardship, cleanliness, natural-resource management	Environmental themes appear in most grades
Hamdan (2026)	Systematic review of 34 publications	Qur'anic concepts in Islamic ecological education	Four concepts identified across studies
Rohman et al. (2024)	Teacher interviews	Environmental themes in the curriculum	Strong on the affective side, weak on the cognitive side; teachers insert themes
Bahtiar et al. (2025)	Madrasah under the Adiwiyata programme	Eco-Sufi values	Gains in ecological concern, discipline and empathy; weak teacher preparation and limited materials
Zahro et al. (2026)	Elementary school case	Ecological awareness	Developing awareness; inconsistent habits outside school; uneven family engagement
Ulfiani & Ningsih (2026)	Madrasah curriculum	Khalifah-linked moral material, routines, teacher modelling	Integration described within the love-based curriculum

Study	Setting or design	Content or approach	Reported result or limit
Muzakki et al. (2025); Amrullah et al. (2025)	School studies	Values with fiqh al-bi'ah; tree planting and waste management	Awareness reported by self-report in single sites
Ferdinan et al. (2026)	Mixed-methods study of three Muhammadiyah boarding schools	Eco Islamic education	Significant differences between schools; leadership, formal curricula, teacher training and community partnership tied to success
Subaidi et al. (2023)	Eco-pesantren	Kyai leadership; village partnerships	Partnership with surrounding villages is a dependency
Aulia et al. (2024)	Eco-pesantren	Role models, infrastructure, governance, culture	Four recurring approaches
Albar et al. (2024)	Pesantren curricula	Organic farming, waste reduction, reforestation	Curriculum content described
Widodo (2026)	Conceptual	Four-pillar framework	Proposed, not tested
Erawati & Rahmayanti (2021)	Design-based study, Palangka Raya	PAI materials from forests, waterways and farmland	Judged innovative and practical; the only verified study that builds PAI materials from a local environment

Note. Rows summarise what each cited study reports. None of the studies is coastal or based in a Lombok classroom.

Figure 6

Studies by educational or institutional channel, and gaps in PAI studies

Note. Orange outlines mark empty cells. The Lombok row overlaps the coastal and non-coastal rows. Panel (b) counts the verified corpus only.

Three absences stand out. No verified study places the materials in a coastal environment. No verified study is based in a Lombok classroom, although the Lombok literature on community and dakwah is rich. And none of the verified classroom studies describes how the local community took part in choosing content, although the institutional studies suggest that partnership matters. These are statements about this corpus, and the search limits in Section 6.1 apply.

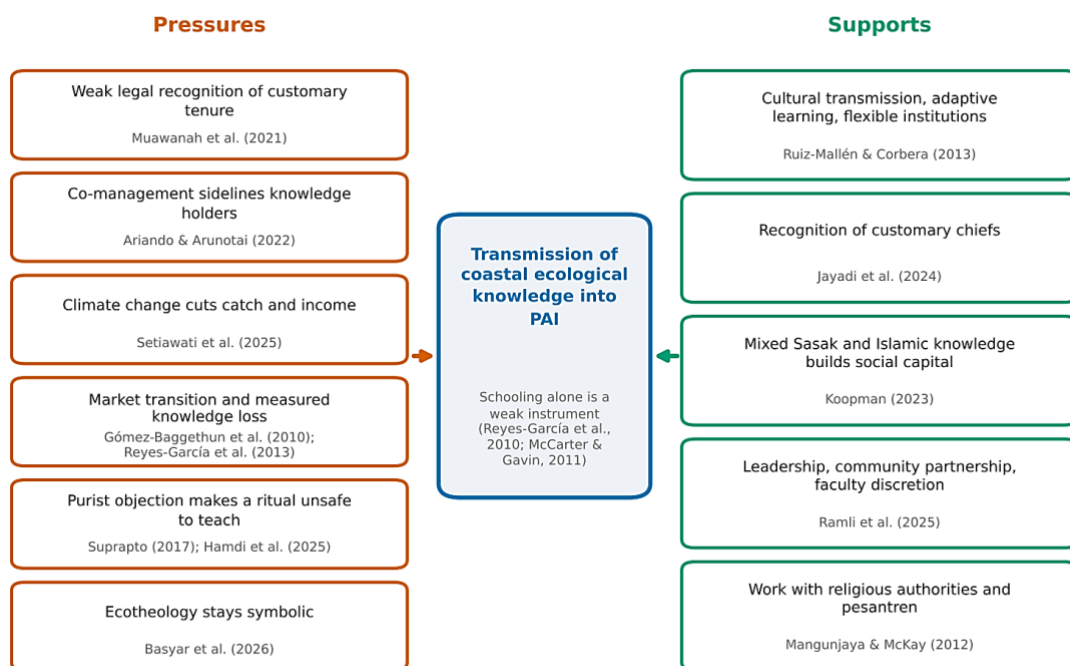
The institutional models add a community dimension. Eco-pesantren depend on kyai leadership and on partnerships with surrounding villages (Subaidi et al., 2023), and four approaches recur: role models, infrastructure, governance systems and culture (Aulia et al., 2024). Curricula for pesantren include organic farming, waste reduction and reforestation (Albar et al., 2024), and a four-pillar framework has been proposed though not tested (Widodo, 2026). The one study that develops PAI materials from a local environment, in Palangka Raya, used forests, waterways and farmland (Erawati & Rahmayanti, 2021). No verified study develops PAI materials from a coastal environment, and none reports a Lombok classroom. Outcome evidence is mostly self-reported awareness in single-site qualitative studies, with no long-term follow-up.

Transmission Depends on Partnership And Is Weakened By Structural Pressure

Figure 7 sets pressures against supports. The pressures are structural before they are educational. Customary marine tenure in Indonesia was eroded by colonial and post-colonial policy and is not explicitly recognised in national law (Muawanah et al., 2021). Co-management programmes can sideline knowledge holders (Ariando & Arunotai, 2022). Climate change cuts catch and income (Setiawati et al., 2025). Market transition changes who holds knowledge (Gómez-Baggethun et al., 2010), and measured loss has been documented in a contemporary indigenous society (Reyes-García et al., 2013). Two pressures bear on PAI directly. Purist objection can make a ritual an unsafe teaching topic (Suprpto, 2017; Hamdi et al., 2025). And ecotheology can stay symbolic (Basyar et al., 2026).

Figure 7

Pressures on and supports for transmission of coastal ecological knowledge into PAI



Source: author's synthesis of the studies named in the boxes.

The supports are mostly relational. Community-based conservation succeeds when cultural transmission, adaptive learning and flexible institutions are present (Ruiz-Mallén & Corbera, 2013). Customary chiefs gained influence in Bayan after a 2012 constitutional ruling on indigenous forests (Jayadi et al., 2024). Nahdlatul Wathan

strengthened social capital through a mix of Sasak and Islamic knowledge (Koopman, 2023). Curriculum innovation in Aceh relied on leadership, community partnership and faculty discretion (Ramli et al., 2025). Grassroots Islamic education that works with religious authorities and pesantren is the route proposed for conservation in Indonesia (Mangunjaya & McKay, 2012). Schooling alone is a weak instrument. It was negatively associated with local environmental knowledge in Bolivia, though weakly (Reyes-García et al., 2010), and moving knowledge to schools can devalue it (McCarter & Gavin, 2011).

Summary By Research Question

For RQ1, the documented forms of ecological wisdom are institutions that pair rules with ritual and moral message, from the Panglima Laot to the Wetu Telu chiefs, and their ecological functions include gear control, spatial and seasonal closure, conflict mediation and adaptation (Table 2). The East Lombok coastal evidence is thin and shows an institution under strain. For RQ2, the relation to Islam is mixed: two cases of alignment, four of negotiation and three of contestation, with 40 studies silent. For RQ3, PAI studies carry general environmental content in classrooms and pesantren, and none of them is coastal or Lombok-based. For RQ4, transmission is supported by partnership with community and religious authority and weakened by structural pressure and by the risk of decontextualisation. Together these answers point to a missing step, a way of turning verified local practice into PAI teaching material, which Section 5 takes up.

Discussion

What Sits Between the Three Literatures

The empty intersection in Section 4.1 is not an accident of searching. Fisheries governance studies ask whether rules are obeyed and whether reefs recover, and they publish in marine and coastal management journals. Islamic education studies ask whether students become more aware and whether schools change routines, and they publish in education and Islamic studies journals. Sasak studies ask what rituals mean, and they publish in humanities and Islamic culture journals. Each field answers its own question well. What none of them asks is how a village rule about a reef becomes something a madrasah teacher can teach on Monday morning. That is a question about teaching material, and it is the junction at which the three fields would have to meet.

The junction has a practical and a conceptual side. Practically, teachers say they lack materials (Bahtiar et al., 2025), and the content they use is general (Rohman et al., 2024; Wakhidah & Erman, 2022). Conceptually, the bibliometric finding that theology and empirical practice are thinly integrated (Husamah et al., 2025) and the finding that ecosufism stays symbolic (Basyar et al., 2026) point to the same missing piece, which is a practice that students and parents can see. Local ecological wisdom can be that piece, but only where it is documented, verified and understood in its own terms. The Palangka Raya materials show that PAI can be built from a local environment (Erawati & Rahmayanti, 2021). The ethnopedagogy and coastal ethnomathematics studies show that the move is credible elsewhere in Indonesian schooling (Dodi et al., 2026; Sakti et al., 2024). No one seems to have done it for the sea in a Muslim fishing community.

The transfer of evidence from other coasts needs care. The Panglima Laot is an Aceh-wide structure with qanun recognition and a long record of enforcement, and the Lombok awig-awig is a village-level system revived after 1998 (Satria & Adhuri, 2010; Wilson & Linkie, 2012). The sasi studies cover seasonal closures governed by ceremony and written rules (Harkes & Novaczek, 2002). These differences matter for teaching. A unit on the Panglima Laot can show that customary gear rules work, but it cannot tell East Lombok students what their own village decided. The commons literature helps by naming what to look for when documenting a local system, such as clear boundaries, local rule-making and monitoring (Cox et al., 2010), and co-management work adds the role of bridging organisations and social learning (Berkes, 2009; Cinner & Aswani, 2007). A madrasah or a pesantren could act as one of those bridging organisations.

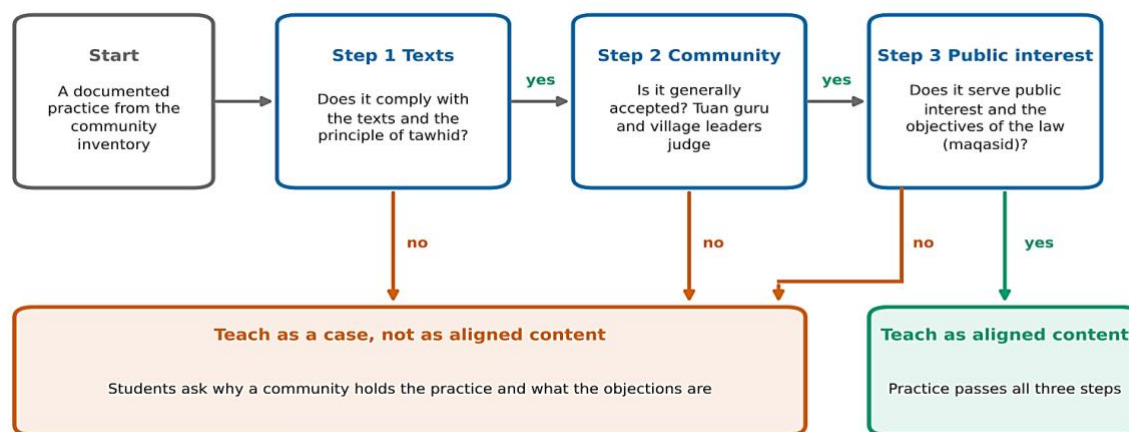
A Normative Filter Before Content

Section 4.3 is the reason a filter is needed. If Islam always aligned with local practice, teachers could simply collect practices and teach them. The corpus shows otherwise. Harmony is stated in two studies, negotiation in four and contestation in three, and 40 studies say nothing. A teacher in Mamben Daya or a neighbouring village knows that a ritual can divide a mosque (Hamdi et al., 2025). A framework that ignores this would hand the teacher a problem and no tools.

Islamic legal theory supplies tools. The phased test for custom, with its steps of textual compliance, general applicability, consistency and public interest (Putra et al., 2026), can be turned into a classroom and curriculum-committee procedure. Figure 8 shows one way. A practice is first checked against the texts and the principle of tawhid. A practice that fails is not removed from view. It can still be taught as a case in which students ask why a community holds it and what the objections are, which is how contested material is usually handled in religious education. A practice that passes is then checked for general acceptance in the community, which is where the tuan guru's role matters, since Lombok's Islamic education has long been shaped by tuan guru and their institutions (Pardi et al., 2024). The last step asks about public interest, and here the objectives of the law supply the vocabulary: protection of the environment as part of maqasid (Khuluq & Asmuni, 2024), with criteria such as participation and accountability (Halilah et al., 2026). A practice that passes all steps can be taught as aligned content.

Two features of the filter deserve emphasis. It does not treat local practice as derivative of text. Ardiansyah et al. (2026) show that ecotheological policy rests partly on reinterpretation, so a locally verified practice counts as a complementary source and not as a decorated illustration of a verse. And it does not treat a practice as sound because it is old. The Raja Ampat case is a reminder that religious institutions differ in whether they back customary rules (McLeod et al., 2009), and the filter is a way of testing rather than assuming.

Figure 8

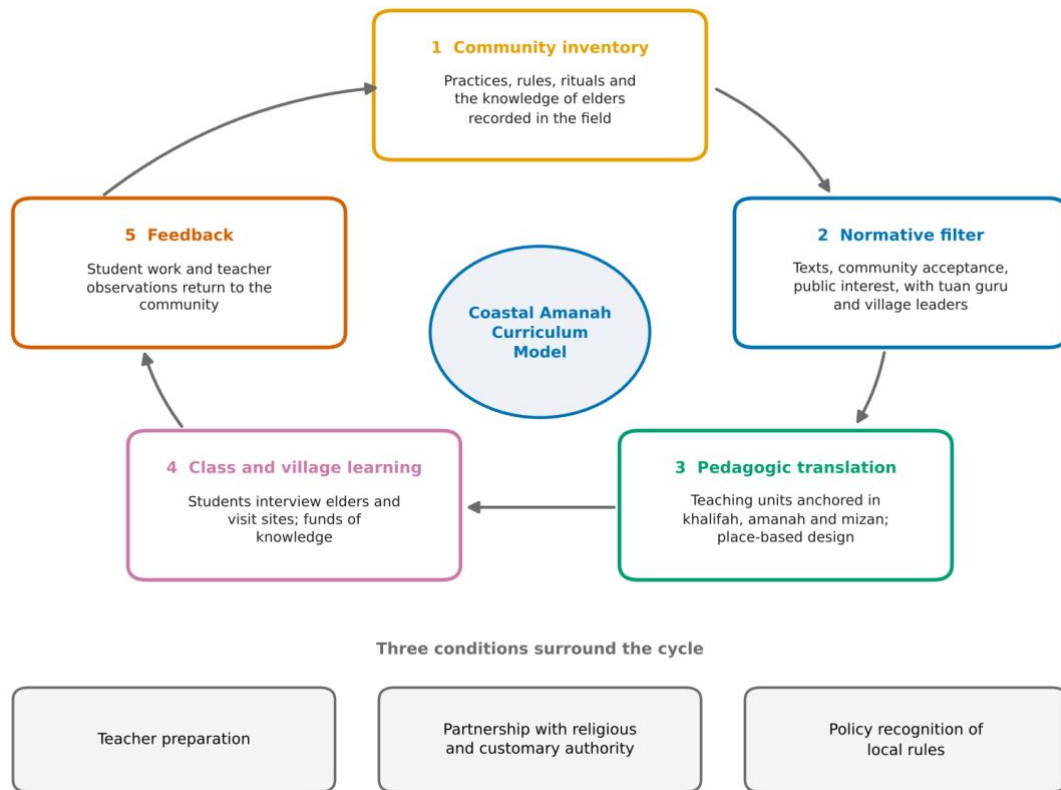
Normative filter for deciding how a local practice enters PAI

Note. Steps follow the phased test for custom in Putra et al. (2026). Routing a failed practice to a case discussion is the author's proposal.

The Coastal Amanah Curriculum Model

Figure 9 presents the Coastal Amanah Curriculum Model (CACM) as five linked stages. In the first, a community inventory records practices, rules, rituals and the knowledge of elders, using the field methods of the protocol in Section 6. The second stage applies the normative filter with tuan guru, ulama and village leaders sitting alongside teachers. The third translates verified practices into teaching units, anchored in Qur'anic and ethical concepts such as khalifah, amanah and mizan (Basri et al., 2024; Ulya et al., 2024), and informed by place-based and culturally sustaining pedagogy (Gruenewald, 2003; Paris, 2012). The fourth is learning in class and in the village, with students interviewing elders and visiting sites, in the funds of knowledge manner (Moll et al., 1992). The fifth is feedback: students' work and teachers' observations return to the community and to the next round of inventory. Three conditions surround the cycle: teacher preparation, a working partnership with religious and customary authority, and policy recognition of local rules.

Figure 9

The Coastal Amanah Curriculum Model (CACM)

Source: author's model; untested.

The model fits current policy without depending on it. Ecotheology has entered the love-based curriculum for madrasah (Ulfiani & Ningsih, 2026), which gives teachers a hook, but the hook is generic. CACM supplies the local content that the curriculum cannot write from Jakarta. Table 5 sketches five teaching units. They are design proposals, not tested materials, and the East Lombok content in each must be documented in the field before use.

Table 5

Five teaching-unit prototypes for coastal East Lombok

Unit	Islamic anchor	Local content to document in the field	Learning activity and assessment

Unit	Islamic anchor	Local content to document in the field	Learning activity and assessment
1. Amanah at the shoreline	Khalifah and amanah (Basri et al., 2024; Ulya et al., 2024)	How fishing households describe responsibility for the sea	Shoreline visit and reflective journal
2. Rules that bind a village	'Urf and public interest (Putra et al., 2026)	The village awig-awig, or the story of its lapse; Panglima Laot gear rules used only as a contrast (Campbell et al., 2012; Wilson & Linkie, 2012)	Students map the rules of their village; portfolio
3. Ritual and the beach	The normative filter (Figure 8)	Bau nyale and beach cleaning (Mutia et al., 2024); the festival question (Suprpto, 2017)	Case discussion; students judge the practice against the filter and write a reasoned view
4. When the catch falls	Test, responsibility and the ethics of fatalism (Basyar et al., 2026)	Household responses to falling catch (Setiawati et al., 2025)	Interview with a fisher; structured debate; reflective essay
5. Knowledge from elders	Funds of knowledge (Moll et al., 1992)	Elders' knowledge of the sea and village rules	Interview and site visit; portfolio and observation of village clean-up participation

Note. Design proposals, not tested materials. The East Lombok content in each unit must be documented in the field before use.

The units reflect three choices. They use comparators from other coasts, such as the Panglima Laot gear rules (Campbell et al., 2012; Wilson & Linkie, 2012), only as teaching contrasts, not as East Lombok evidence. They include a contested topic, the

festival question (Suprpto, 2017), because avoiding it would teach students that disagreement is unspeakable. And one unit addresses the ethics of fatalism: a household reads falling catch as a test, and the question is how much responsibility belongs to people (Basyar et al., 2026; Setiawati et al., 2025).

Assessment follows the same logic. If a unit asks students to map the rules of their own village, interview an elder about a practice and judge it against the filter, then the assessment is a portfolio and a reflective journal, not a multiple-choice item. Observation of behaviour, such as participation in a village clean-up, can complement it. The teacher's role changes accordingly. The teacher becomes a curriculum maker who negotiates local content, a role that curriculum studies in Aceh associate with faculty discretion (Ramli et al., 2025), and who learns from the community before teaching, as the funds of knowledge approach expects (Moll et al., 1992). That asks a lot of teachers who already report weak preparation (Bahtiar et al., 2025), which is why teacher support appears as a condition of the model and not as an afterthought.

Conditions, Risks and Propositions

The findings in Section 4.5 turn into six propositions (Table 6). Each is stated so that fieldwork could refute it. They share a theme. The classroom is a necessary part of transmission and not a sufficient one. A village rule system that fails for structural reasons, such as lack of legal recognition or loss of fishing grounds, will not be rescued by a better lesson (Ayunda et al., 2016; Muawanah et al., 2021). Conversely, schools that work with community authorities appear to do better than schools that do not (Ferdinan et al., 2026; Ramli et al., 2025; Subaidi et al., 2023).

Table 6

Propositions for testing

No	Proposition	Basis	What would refute it
P1	Teaching a practice together with its rule, ritual and moral message gives students a better grasp of why the rule is kept than teaching the rule alone	Section 4.2	No difference in students' explanations of why the rule is kept

No	Proposition	Basis	What would refute it
P2	Where tuan guru and village leaders take part in the filter, objections to local content are fewer than where teachers decide alone	Sections 4.3 and 5.2	Equal or greater objection with participation
P3	Units built from the students' own village raise knowledge of local rules more than generic units on stewardship	Section 4.4	Equal knowledge after generic units
P4	Schools that work with community and religious authority show stronger transmission than schools that do not, other things equal	Section 4.5	No difference by partnership
P5	Classroom effects appear in behavioural and community indicators, not only in self-reported awareness	Section 5.4	Gains confined to self-report
P6	Where customary rules lack legal or village-level recognition, or fishing grounds are lost, classroom units do not raise compliance	Sections 4.5 and 5.4	Compliance rises with units alone

Note. Each proposition is derived from the findings and framed so that fieldwork could refute it.

Two risks need naming. The first is decontextualisation. Moving a practice into a textbook can detach it from the institutions that give it force, and stakeholders in Vanuatu said so plainly (McCarter & Gavin, 2011). The model answers this by keeping the village in the learning cycle. The second is displacement. The Bolivian evidence suggests schooling can sit alongside erosion of local knowledge, even if weakly (Reyes-García et al., 2010), and that erosion is a documented process (Reyes-García et al., 2013). A PAI unit that tests students on a rule they cannot see applied in their own village would add to the problem. Hence the weight in the model on elders, sites and observation.

A third issue is measurement. The classroom studies measure awareness by self-report in single sites, and none follows students over time (Amrullah et al., 2025; Zahro et al., 2026). Proposition P5 asks for behavioural and community-level indicators. These could include participation in village clean-ups, knowledge of local rules and fishers' compliance, which Wardah et al. (2024) measured for the Panglima Laot with a survey that could be adapted.

Conclusion

Coastal East Lombok has a pressing ecological problem, a school system that reaches its children and a body of Sasak ecological practice. The literature that exists does not connect the three. In a corpus of 49 coded studies, 14 concern coasts and none of those addresses a classroom or a pesantren. Documented institutions pair rules with ritual and moral message, but the East Lombok awig-awig has not withstood pressure. Islam aligns with local practice in some cases, is negotiated in others and is contested in three, so teachers need a way of deciding which practices to teach and how. PAI carries environmental content, but it is general, and the evidence on outcomes rests on single-site studies of awareness.

The study offers the Coastal Amanah Curriculum Model, a five-stage cycle that starts with the community, passes practices through a normative filter based on custom and the objectives of the law, and returns teaching to the village. It also offers six propositions and a protocol for fieldwork. The model is a proposal. Its main claim is modest: where a village rule has been documented, checked with religious and customary authorities and taught in a way that keeps the village in the lesson, PAI can say something specific about the sea that its students can see on their own beaches. Whether that claim holds is an empirical question for the field.

References

- Acim, S. A., & Suharti, S. (2023). The concept of fiqh al-bī'ah in the Qur'an: A study of the Quranic verses on environment in the ulamas' views of Lombok. *Ulumuna*, 27(1), 115–140. <https://doi.org/10.20414/ujis.v27i1.694>
- Albar, M. K., Hamami, T., Sukiman, S., & Badrus Z, A. R. (2024). Ecological pesantren as an innovation in Islamic religious education curriculum: Is it feasible?

- Amrullah, A. M. K., Murfi, A., Fauzi, A., & Basri, B. (2025). Integrating Islamic education with environmental programs: Strategies for sustainable character development at SMAN 2 and 7 Malang Indonesia. *The Qualitative Report*, 30(3), 3276–3287. <https://doi.org/10.46743/2160-3715/2025.6020>
- Ananta, A. S., & Cabral, R. B. (2026). Achieving sustainable fisheries and livelihoods from Sasi Laut in a blue economy in Indonesia. *Marine Policy*, 187, Article 107032. <https://doi.org/10.1016/j.marpol.2026.107032>
- Ardiansyah, A. F., Rahman, Y., Zubair, Tambunan, M. A., & Cholis, N. (2026). Reconstructing ecological ethics from Fakhr al-Dīn al-Rāzī: The possibilities and limits of its contextualization in Indonesian ecotheological policy. *AL QUUDS: Jurnal Studi Alquran dan Hadis*, 10(2), 385–414. <https://doi.org/10.29240/alquds.v10i2.15999>
- Ariando, W., & Arunotai, N. (2022). The Bajau as a left-behind group in the context of coastal and marine co-management system in Indonesia. *Journal of Marine and Island Cultures*, 11(1), 260–278. <https://doi.org/10.21463/jmic.2022.11.1.18>
- Aulia, R. N., Abbas, H., Nurhattati, N., Jasin, F. M., & Mushlihin, M. (2024). Eco-pesantren modeling for environmentally friendly behavior: New lessons from Indonesia. *International Journal of Evaluation and Research in Education*, 13(1), 223–229. <https://doi.org/10.11591/ijere.v13i1.25930>
- Ayunda, N., Hidayat, A., & Anna, Z. (2016). Efektivitas kelembagaan awig-awig dalam mengelola sumber daya perikanan pantai di Kabupaten Lombok Timur [The effectiveness of the awig-awig institution in managing coastal fishery resources in East Lombok Regency]. *Journal of Agriculture, Resource and Environmental Economics*, 1(1), 12–27. <https://doi.org/10.29244/jaree.v1i1.11283>
- Bagir, Z. A. (2025). Beyond instrumentalization: Lived religion, politics, and justice in Indonesian Muslim environmentalisms. *Studia Islamika*, 32(3), 439–466. <https://doi.org/10.36712/sdi.v32i3.46652>
- Bahtiar, A., Rizal, S., Roisyah, H., & Angkananon, C. (2025). Integrating Eco-Sufi values into environmental education through the Adiwiyata Madrasah program.

- Basri, S., Adnan, Y., Widiastuty, L., Syamsul, M. A., & Indar, I. (2024). Islamic environmental ethics: A cultural framework for sustainable resource management and global ecological stewardship. *Diversity: Disease Preventive of Research Integrity*, 5(2), 86–93. <https://doi.org/10.24252/diversity.v5i2.52342>
- Basyar, K., Azzuhri, M., Sufa, A. F., & Syarifah, A. (2026). Ecosufism as a critical lens on the disconnection between Islamic spirituality and ecological responsibility. *Al-Jadwa: Jurnal Studi Islam*, 5(2), 197–217. <https://doi.org/10.38073/aljadwa.4529>
- Berkes, F. (2009). Evolution of co-management: Role of knowledge generation, bridging organizations and social learning. *Journal of Environmental Management*, 90(5), 1692–1702. <https://doi.org/10.1016/j.jenvman.2008.12.001>
- Berkes, F. (2004). Rethinking community-based conservation. *Conservation Biology*, 18(3), 621–630. <https://doi.org/10.1111/j.1523-1739.2004.00077.x>
- Berkes, F. (2012). *Sacred ecology* (3rd ed.). Routledge.
- Berkes, F., Colding, J., & Folke, C. (2000). Rediscovery of traditional ecological knowledge as adaptive management. *Ecological Applications*, 10(5), 1251–1262. [https://doi.org/10.1890/1051-0761\(2000\)010\[1251:ROTEKA\]2.0.CO;2](https://doi.org/10.1890/1051-0761(2000)010[1251:ROTEKA]2.0.CO;2)
- Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, 18(3), 328–352. <https://doi.org/10.1080/14780887.2020.1769238>
- Campbell, S. J., Cinner, J. E., Ardiwijaya, R. L., Pardede, S., Kartawijaya, T., Mukmunin, A., Herdiana, Y., Hoey, A. S., Pratchett, M. S., & Baird, A. H. (2012). Avoiding conflicts and protecting coral reefs: Customary management benefits marine habitats and fish biomass. *Oryx*, 46(4), 486–494. <https://doi.org/10.1017/S0030605312000348>
- Cinner, J. E., & Aswani, S. (2007). Integrating customary management into marine conservation. *Biological Conservation*, 140(3–4), 201–216. <https://doi.org/10.1016/j.biocon.2007.08.008>

- Cox, M., Arnold, G., & Villamayor Tomás, S. (2010). A review of design principles for community-based natural resource management. *Ecology and Society*, 15(4), Article 38. <https://doi.org/10.5751/ES-03704-150438>
- Dodi, Zibar, Z., Saputra, R., Santoso, H., & Munandar, R. K. (2026). Exploration of ethnomathematics in the coastal areas of West Kalimantan. *Ethnomathematics Journal*, 7(1), 1–10. <https://doi.org/10.21831/ej.v7i1.89451>
- Erawati, D., & Rahmayanti, R. (2021). Development of local wisdom-based Islamic education learning material for secondary school students: A design-based research. *Jurnal Iqra': Kajian Ilmu Pendidikan*, 6(2), 148–165. <https://doi.org/10.25217/ji.v6i2.1601>
- Ferdinan, Abdillah, Rahman, A., & Bahtiar, A. R. (2026). Eco Islamic education and its contribution to sustainable development goals in Muhammadiyah boarding schools of South Sulawesi. *Discover Sustainability*, 7(1), Article 310. <https://doi.org/10.1007/s43621-026-02647-6>
- Folke, C., Hahn, T., Olsson, P., & Norberg, J. (2005). Adaptive governance of social-ecological systems. *Annual Review of Environment and Resources*, 30, 441–473. <https://doi.org/10.1146/annurev.energy.30.050504.144511>
- Geertz, C. (1973). *The interpretation of cultures: Selected essays*. Basic Books.
- Gómez-Baggethun, E., Mingoría, S., Reyes-García, V., Calvet, L., & Montes, C. (2010). Traditional ecological knowledge trends in the transition to a market economy: Empirical study in the Doñana natural areas. *Conservation Biology*, 24(3), 721–729. <https://doi.org/10.1111/j.1523-1739.2009.01401.x>
- Gruenewald, D. A. (2003). The best of both worlds: A critical pedagogy of place. *Educational Researcher*, 32(4), 3–12. <https://doi.org/10.3102/0013189X032004003>
- Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Sage.
- Halilah, H., Mubarak, M. Z., Hasanah, T., & Syamsuni, S. (2026). Reconstructing Islamic ecological jurisprudence in Indonesia: A maqāṣid al-sharī'ah framework for climate resilience and environmental justice. *ASEAN Journal of Islamic Studies and Civilization*, 3(1), 71–93. <https://doi.org/10.62976/ajisc.v3i1.2029>

- Hamdan, H. (2026). Islamic education with an ecological perspective: Quranic foundations, environmental ethics, and pathways toward sustainable development. *Jurnal Pendidikan Islam*, 16(1), 91–106. <https://doi.org/10.38073/jpi.4545>
- Hamdi, S., Awalia, H., Parama, I. D. M. S., Sukarman, & Palahuddin. (2025). Eskalasi konflik Wahabi dengan masyarakat lokal di Mamben Daya, Lombok Timur [Escalation of the Wahhabi conflict with the local community in Mamben Daya, East Lombok]. *Kawistara*, 15(1), 82–102. <https://doi.org/10.22146/kawistara.89333>
- Harkes, I., & Novaczek, I. (2002). Presence, performance, and institutional resilience of sasi, a traditional management institution in Central Maluku, Indonesia. *Ocean & Coastal Management*, 45(4–5), 237–260. [https://doi.org/10.1016/S0964-5691\(02\)00057-1](https://doi.org/10.1016/S0964-5691(02)00057-1)
- Husamah, Rahardjanto, A., Permana, T. I., & Lestari, N. (2025). Islam and sustainability issues, how far has the relationship progressed? A bibliometric analysis. *Social Sciences & Humanities Open*, 12, Article 101703. <https://doi.org/10.1016/j.ssaho.2025.101703>
- Irrubai, M. L. (2018). Dakwah and awik awik as local wisdom for forest preservation in a Muslim community in West Lombok. *Ulumuna*, 22(2), 301–318. <https://doi.org/10.20414/ujis.v22i2.283>
- Jayadi, E. M., Khairi, A. K., & Sutasoma, M. (2024). The Wetu Telu community's customary chief influence on the management of indigenous forests in Bayan, North Lombok, West Nusa Tenggara. *Jurnal Sylva Lestari*, 12(3), 913–928. <https://doi.org/10.23960/jsl.v12i3.985>
- Khuluq, M. K., & Asmuni, A. (2024). Hifz al-bi'ah as part of maqashid al-shari'ah and its relevance in the context of global climate change. *Indonesian Journal of Interdisciplinary Islamic Studies*, 7(2). <https://doi.org/10.20885/ijiis.vol7.iss2.art3>
- Koopman, J. (2023). Subawe, traditional knowledge, and faith-based organisations promoting social capital and disaster preparedness: A Lombok, Indonesia case

- study. *International Journal of Disaster Risk Reduction*, 94, Article 103837. <https://doi.org/10.1016/j.ijdr.2023.103837>
- Levitt, H. M., Bamberg, M., Creswell, J. W., Frost, D. M., Josselson, R., & Suárez-Orozco, C. (2018). Journal article reporting standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology: The APA Publications and Communications Board task force report. *American Psychologist*, 73(1), 26–46. <https://doi.org/10.1037/amp0000151>
- Lincoln, Y. S. (1995). Emerging criteria for quality in qualitative and interpretive research. *Qualitative Inquiry*, 1(3), 275–289. <https://doi.org/10.1177/107780049500100301>
- Mangunjaya, F. M., & McKay, J. E. (2012). Reviving an Islamic approach for environmental conservation in Indonesia. *Worldviews*, 16(3), 286–305. <https://doi.org/10.1163/15685357-01603006>
- McCarter, J., & Gavin, M. C. (2011). Perceptions of the value of traditional ecological knowledge to formal school curricula: Opportunities and challenges from Malekula Island, Vanuatu. *Journal of Ethnobiology and Ethnomedicine*, 7, Article 38. <https://doi.org/10.1186/1746-4269-7-38>
- McLeod, E., Szuster, B., & Salm, R. (2009). Sasi and marine conservation in Raja Ampat, Indonesia. *Coastal Management*, 37, 656–676. <https://doi.org/10.1080/08920750903244143>
- Moll, L. C., Amanti, C., Neff, D., & Gonzalez, N. (1992). Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms. *Theory Into Practice*, 31(2), 132–141. <https://doi.org/10.1080/00405849209543534>
- Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, 1(2), 13–22. <https://doi.org/10.1177/160940690200100202>
- Muawanah, U., De Alessi, M., Pomeroy, R., Kurniasari, N., Shafitri, N., & Yulianty, C. (2021). Going into hak: Pathways for revitalizing marine tenure rights in Indonesia. *Ocean & Coastal Management*, 215, Article 105944. <https://doi.org/10.1016/j.ocecoaman.2021.105944>

- Mutia, T., Astina, I. K., Melitasari, R., & Prasad, R. R. (2024). Bau Nyale tradition: Local wisdom in addressing the impact of climate change in Lombok Sea. *International Journal of Environmental Impacts*, 7(4), 731–741. <https://doi.org/10.18280/ije.070414>
- Muzakki, H., Arif, M., & Mamah, M. (2025). Integration of Islamic education values and fiqh al-bi'ah in cultivating environmentally responsible character. *Cendekia: Jurnal Kependidikan dan Kemasyarakatan*, 23(1). <https://doi.org/10.21154/cendekia.v23i1.10272>
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1). <https://doi.org/10.1177/1609406917733847>
- Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science*, 325(5939), 419–422. <https://doi.org/10.1126/science.1172133>
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press.
- Pardi, M. H. H., Said, M., & Sulaiman, A. (2024). The making of Islamic education in Lombok-Indonesia: Genealogy, transformations, and ideology. *SYAMIL: Journal of Islamic Education*, 12(2), 417–441. <https://doi.org/10.21093/sy.v12i2.9872>
- Paris, D. (2012). Culturally sustaining pedagogy: A needed change in stance, terminology, and practice. *Educational Researcher*, 41(3), 93–97. <https://doi.org/10.3102/0013189X12441244>
- Pillow, W. (2003). Confession, catharsis, or cure? Rethinking the uses of reflexivity as methodological power in qualitative research. *International Journal of Qualitative Studies in Education*, 16(2), 175–196. <https://doi.org/10.1080/0951839032000060635>
- Putra, D. R., Julia, A., Pratiwi, C. A., Putri, D. A., & Febrianingrum, D. (2026). Harmonization of Islamic law and local culture in Indonesia: An analysis of the legal maxim al adatu muhakkamah. *Indonesian Journal of Research in Islamic Studies*, 3(2), 85–95. <https://doi.org/10.64420/ijris.v3i2.564>

- Rahmawati, P., Muchammadun, M., A'yun, A. Q., & Firdaus, M. Z. (2024). Socio-religious aspects of the Sasak community in reading a Puspakarma manuscript: Islamic community development perspective. *Ulumuna*, 28(2), 710–737. <https://doi.org/10.20414/ujis.v28i2.737>
- Ramli, R., Razali, R., Gadeng, A. N., Diana, N., & Hariadi, J. (2025). Integrating local knowledge into higher education: A qualitative study of curriculum innovation in Aceh, Indonesia. *Education Sciences*, 15(9), Article 1214. <https://doi.org/10.3390/educsci15091214>
- Raudloh, S., Fahrurrozi, F., Shubhi, M., Bahri, S., & Husnan, L. E. (2024). The Sasak pepaosan tradition as a medium of communication with God. *Ulumuna*, 28(1), 136–160. <https://doi.org/10.20414/ujis.v28i1.658>
- Reyes-García, V., Guèze, M., Luz, A. C., Paneque-Gálvez, J., Macía, M. J., Orta-Martínez, M., Pino, J., & Rubio-Campillo, X. (2013). Evidence of traditional knowledge loss among a contemporary indigenous society. *Evolution and Human Behavior*, 34(4), 249–257. <https://doi.org/10.1016/j.evolhumbehav.2013.03.002>
- Reyes-García, V., Kightley, E., Ruiz-Mallén, I., Fuentes-Peláez, N., Demps, K., Huanca, T., & Martínez-Rodríguez, M. R. (2010). Schooling and local environmental knowledge: Do they complement or substitute each other? *International Journal of Educational Development*, 30(3), 305–313. <https://doi.org/10.1016/j.ijedudev.2009.11.007>
- Rohman, A., Kurniawan, E., Syifauddin, M., Muhtamiroh, S., & Muthohar, A. (2024). Religious education for the environment: Integrating eco-theology in the curriculum of Islamic religious and character education to enhance environmental education in Indonesia. *Nadwa: Jurnal Pendidikan Islam*, 18(2), 201–226. <https://doi.org/10.21580/nw.2024.18.2.21094>
- Rosyidah, F., Susantini, E., Yuliani, Y., & Nisa', K. (2025). Local wisdom and STEM in science education to support SDG-4: A systematic review. *Jurnal Pendidikan IPA Indonesia*, 14(4), 654–666. <https://doi.org/10.15294/jpii.v14i4.34450>

- Ruiz-Mallén, I., & Corbera, E. (2013). Community-based conservation and traditional ecological knowledge: Implications for social-ecological resilience. *Ecology and Society*, 18(4), Article 12. <https://doi.org/10.5751/ES-05867-180412>
- Sakti, S. A., Endraswara, S., & Rohman, A. (2024). Revitalizing local wisdom within character education through ethnopedagogy approach: A case study on a preschool in Yogyakarta. *Heliyon*, 10(10), Article e31370. <https://doi.org/10.1016/j.heliyon.2024.e31370>
- Saniotis, A. (2012). Muslims and ecology: Fostering Islamic environmental ethics. *Contemporary Islam*, 6(2), 155–171. <https://doi.org/10.1007/s11562-011-0173-8>
- Sasongko, I., Gai, A. M., Wijayaningtyas, M., Susanti, D., Sukowiyono, G., & Putra, D. (2025). Sasak cultural resilience: A case for Lombok (Indonesia) earthquake in 2018. *Heritage*, 8(5), Article 155. <https://doi.org/10.3390/heritage8050155>
- Satria, A., & Adhuri, D. S. (2010). Pre-existing fisheries management systems in Indonesia, focusing on Lombok and Maluku. In K. Ruddle & A. Satria (Eds.), *Managing coastal and inland waters: Pre-existing aquatic management systems in Southeast Asia* (pp. 31–55). Springer. https://doi.org/10.1007/978-90-481-9555-8_2
- Satria, A., Matsuda, Y., & Sano, M. (2006). Questioning community based coral reef management systems: Case study of awig-awig in Gili Indah, Indonesia. *Environment, Development and Sustainability*, 8(1), 99–118. <https://doi.org/10.1007/s10668-005-0909-9>
- Setiawati, M., Sahidu, A., & Hadi, A. P. (2025). Economic adaptation of fishermen to climate change impacts in Labuhan Haji District, East Lombok Regency, Indonesia. *International Journal of Management and Commerce Innovations*, 13(1), 129–135. <https://doi.org/10.5281/zenodo.15736618>
- Shukor, A. S. A. A., Aldizar, A., Alhazami, L., & Mareta, S. (2024). Oceanic economic resilience policy: An Islamic perspective for coastal sustainability. *Jurnal Lemhannas RI*, 12(3), 403–416. <https://doi.org/10.55960/jlri.v12i3.986>
- Smith, B., & McGannon, K. R. (2018). Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International*

Review of Sport and Exercise Psychology, 11(1), 101–121.
<https://doi.org/10.1080/1750984X.2017.1317357>

Subaidi, Tantowi, A., Cholid, N., Junaedi, M., Waluyo, & Nursikin, M. (2023). Eco-pesantren: Islamic education in forest conservation landscapes. *Fudan Journal of the Humanities and Social Sciences*, 16(4), 541–567.
<https://doi.org/10.1007/s40647-023-00386-w>

Sumiadi, R. (2025). Harmony of Islam and local wisdom: An ethnographic study of Wetu telu tradition in Lombok. *KARSA: Journal of Social and Islamic Culture*, 33(2), 665–689. <https://doi.org/10.19105/karsa.v33i2.21458>

Suprpto, S. (2017). Sasak Muslims and interreligious harmony: Ethnographic study of the Perang Topat festival in Lombok, Indonesia. *Journal of Indonesian Islam*, 11(1), 77–98. <https://doi.org/10.15642/JIIS.2017.11.1.77-98>

Tengö, M., Brondizio, E. S., Elmqvist, T., Malmer, P., & Spierenburg, M. (2014). Connecting diverse knowledge systems for enhanced ecosystem governance: The multiple evidence base approach. *Ambio*, 43(5), 579–591.
<https://doi.org/10.1007/s13280-014-0501-3>

Tracy, S. J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative Inquiry*, 16(10), 837–851.
<https://doi.org/10.1177/1077800410383121>

Ulfiani, N., & Ningsih, E. I. (2026). Integrasi ekoteologi dan kurikulum cinta dalam pendidikan agama Islam madrasah untuk penguatan etika lingkungan siswa [Integrating ecotheology and the love-based curriculum in madrasah Islamic religious education to strengthen students' environmental ethics]. *Idarah Tarbawiyah: Journal of Management in Islamic Education*, 7(2), 335–344.
<https://doi.org/10.32832/itjmie.v7i2.23004>

Ulya, M., Sukiyat, S., Yasir, M., & Nurliana, N. (2024). The Qur'anic perspective on marine resource conservation: A human responsibility. *Jurnal Ushuluddin*, 32(2), 234–248. <https://doi.org/10.24014/jush.v32i2.33042>

Wakhidah, N., & Erman, E. (2022). Examining environmental education content on Indonesian Islamic religious curriculum and its implementation in life. *Cogent*

- Wardah, E., Agussabti, Indra, I., & Rinaldi, Y. (2024). Fishermen's perspective on the performance of Panglima Laot in managing coastal areas in Aceh, Indonesia. *International Journal of Environmental Impacts*, 7(4), 791–802. <https://doi.org/10.18280/ije.070419>
- Widodo, C. D. (2026). Eco-pesantren in Indonesia: A faith-based sustainability education model integrating Islamic environmental ethics and institutional practices. *Studia Ecologiae et Bioethicae*, 24(3), 41–55. <https://doi.org/10.21697/seb.5894>
- Wilson, C., & Linkie, M. (2012). The Panglima Laot of Aceh: A case study in large-scale community-based marine management after the 2004 Indian Ocean tsunami. *Oryx*, 46(4), 495–500. <https://doi.org/10.1017/S0030605312000191>
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage.
- Zabidi, F. N. M., Abd Rahman, N., & Halim, L. (2021). Integration of Islamic values for environmental conservation: An analysis of school textbooks. *Religions*, 12(7), Article 509. <https://doi.org/10.3390/rel12070509>
- Zahro, F. A., Mukni'ah, M., Nawangsari, D., & Rizal, S. (2026). Eco-theological pedagogy for sustainable character formation in Islamic elementary education. *Al-Adzka: Jurnal Ilmiah Pendidikan Guru Madrasah Ibtidaiyah*, 16(1), 118–131. <https://doi.org/10.18592/aladzkapgmi.v16i1.20626>