International Journal of Integrated Science and Technology (IJIST)
Vol.4, No.11 November 2026: 991-1004

Local Materials, Cultural Inculturation, and Community Economy in Sustainable Church Development: The Lumintu Prana Framework

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A R T I C L E I N F O

Keywords: Sustainable Church Development, Local Materials, Cultural Inculturation, Community Economy, Remote Islands, Lumintu Prana

Received : 25, September
Revised : 15, October
Accepted: 18, November

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A B S T R A C T

Church development in remote islands faces costly logistics, limited technical services, and fragile ecological and cultural settings. This study examines local materials, cultural inculturation, community participation and economic mechanisms, and spiritual-tourism readiness in two Indonesian church projects: Gereja Santa Maria Bunda Allah in Amdasa and Gereja Santo Stefanus in Batang Babasal. A qualitative multiple-case study drew on field observations, semi-structured interviews with more than 14 informants, project records, and archives from 2013–2026. The analysis combined thematic coding, within-case reconstruction, cross-case pattern matching, and abductive synthesis, supported by triangulation, member checking, and researcher reflexivity. Local materials supported logistical adaptation, knowledge activation, and community-based maintenance, but locality alone did not establish sustainability; technical suitability, legal sourcing, regeneration, carrying capacity, and maintainability remained decisive. Cultural integration gained legitimacy through community–church negotiation and preservation of liturgical function. Participation created mechanisms of skills transfer and local value retention, although economic impacts were not quantified. Amdasa showed early visitation signals, whereas Batang Babasal remained at a projected tourism stage. Cross-case synthesis produced the Lumintu Prana framework, linking architecture–culture, architecture–nature, and architecture–community under safeguards of liturgical integrity, technical safety, ecological responsibility, and distributive fairness. Spiritual tourism is treated as a conditional outcome rather than an automatic consequence of contextual architecture.

DOI: https://doi.org/10.59890/ijist.v4i11.80

ISSN: 3026-4685
https://journalijist.my.id/index.php/ijist

INTRODUCTION

The transition toward sustainable development has expanded the meaning of the built environment beyond energy efficiency and material performance. Buildings also organize social relations, distribute economic value, preserve or displace cultural meaning, and shape the long-term capacity of communities to care for shared assets. This broader interpretation is particularly important in remote island regions, where construction is inseparable from transport constraints, limited markets, fragile ecosystems, and locally embedded knowledge. The construction sector can contribute to several Sustainable Development Goals, especially those concerning decent work, sustainable communities, responsible production, and climate action, but these contributions depend on how projects are planned and governed rather than on the physical product alone (Fei et al., 2021; United Nations Environment Programme, 2020; World Green Building Council, 2022).

Remote Indonesian islands expose this problem in an acute form. Conventional materials and specialized labor commonly travel through long and uncertain supply chains, increasing costs and dependence on external actors. National development assessments have repeatedly identified logistics and connectivity as structural constraints for peripheral regions (Bappenas, 2021; World Bank, 2018). At the same time, these regions possess locally adapted materials, customary institutions, collective labor traditions, and vernacular construction knowledge. Such resources can reduce dependence and strengthen local capability, yet they cannot be assumed to be sustainable merely because they are local. Unsuitable material properties, illegal extraction, depletion, unsafe detailing, or inequitable benefit distribution may reproduce a different form of unsustainability.

Churches are especially revealing sites for examining these tensions. In many island communities, a church is simultaneously a liturgical setting, a social meeting place, a cultural marker, and a shared construction effort. Its development therefore requires negotiation among architectural performance, Catholic liturgical requirements, local identity, community aspirations, environmental limits, and available finance. Sacred architecture also raises a question that is often underdeveloped in sustainability research: whether cultural expression is integrated through a meaningful process of inculturation or merely attached as visual decoration (Barrie, 2010; Mangunwijaya, 1992; Pontifical Council for Culture, 1999).

Existing scholarship offers important but fragmented insights. Vernacular studies explain how building forms emerge from long interaction among climate, material availability, and social norms (Oliver, 2006; Rapoport, 1969; Waterson, 1990). Participatory development research emphasizes autonomy, collective knowledge, and community control (Escobar, 2018; Ostrom, 1990; Turner, 1976). Religious-tourism literature shows that sacred sites can generate local benefits, but also warns that visitor economies can disrupt sacredness and community life when governance is weak (Shackley, 2001; Timothy & Olsen, 2006). These bodies of knowledge are rarely integrated into a single analytical account of how a church project in a remote island setting moves from material selection and

design negotiation to construction, local economic circulation, and possible post-completion visitation.

This study addresses that gap through a comparative analysis of two church-development processes: Gereja Santa Maria Bunda Allah in Amdasa, Tanimbar Islands Regency, Maluku, and Gereja Santo Stefanus in Batang Babasal, Banggai Islands Regency, Central Sulawesi. Both cases face island logistics and rely on community participation, but they differ in project maturity, material strategy, design negotiation, and tourism evidence. Amdasa had been completed and used by the time of the primary data collection, while Batang Babasal remained in a completion stage. This asymmetry allows the analysis to distinguish observed outcomes from developing mechanisms and projected possibilities.

The study asks five related questions: how local materials were selected, obtained, processed, and maintained; how cultural identity was negotiated with liturgical and functional requirements; how participation shaped skills and local value retention; what evidence and conditions existed for spiritual tourism; and how the cross-case patterns could be synthesized into a transferable analytical framework. Its contribution is threefold. Empirically, it documents two under-researched island cases. Methodologically, it separates observed, developing, and projected evidence. Conceptually, it develops the *Lumintu Prana* framework as an abductive, mid-range explanation of the reciprocal relationships linking architecture, culture, nature, and community.

THEORETICAL FRAMEWORK

Relational Sustainability in Remote-Island Construction

The World Commission on Environment and Development (1987) established intergenerational responsibility as a central principle of sustainable development. In construction, however, sustainability is often operationalized through technical indicators alone. Environmental assessment is indispensable, yet a narrow technical reading can overlook whether a project strengthens local capacity, preserves cultural legitimacy, or creates future maintenance dependence. In remote contexts, those institutional and relational conditions can determine whether an apparently efficient building remains functional over time.

Vernacular architecture provides a useful starting point because it records cumulative adaptation to climate, available resources, and local ways of life (Oliver, 2006; Rapoport, 1969). Recent life-cycle research also indicates that vernacular methods may reduce embodied impacts compared with conventional systems, although skill shortages, maintenance demands, and limited scalability remain important constraints (Francis et al., 2025). The analytical implication is not that traditional construction is inherently superior, but that material and technique must be assessed through both environmental performance and the social system that supports their use.

For this reason, the present study treats local material as a geographical category and sustainable material as an evaluative category. A local material contributes to sustainability only when its origin is lawful, its extraction does not exceed regenerative capacity, its properties are appropriate for the intended function, its detailing is safe, and the community can maintain or replace it. This distinction is particularly relevant for forest resources, coastal stone, and beach sand, where proximity can coexist with ecological or technical risk.

Cultural Inculturation and Liturgical Integrity

Sacred architecture mediates between material space and transcendent meaning. Barrie (2010) argues that sacredness is experienced through thresholds, sequence, light, material, and spatial order rather than through symbol alone. Within Catholic practice, inculturation refers to a reciprocal encounter between faith and living culture, not simply the addition of ethnic motifs to a universal building type (Pontifical Council for Culture, 1999). Indonesian architectural thought similarly stresses that a church gains meaning when it grows from the cultural and material world of its users while retaining liturgical clarity (Komisi Liturgi Keuskupan Agung Jakarta, 2006; Mangunwijaya, 1992).

Accordingly, this study distinguishes visual contextualization from deeper inculturation. An element is treated as inculturated when its cultural meaning is recognized by the community, discussed with cultural and church actors, consistent with liturgical function, and accepted as part of worship experience. An element that merely borrows a local form without such negotiation is classified as contextual reference. This distinction prevents cultural identity from being reduced to ornament.

Participation, Local Value, and Conditional Tourism

Participation is understood here as a continuum from information and consultation to shared decision-making, co-production, and long-term stewardship. Turner (1976) showed that users' control over building processes can be as important as the physical product. Ostrom (1990) demonstrated that shared resources can be governed sustainably when locally legitimate rules, monitoring, and collective responsibility are present. Escobar (2018) further situates design as a process through which communities negotiate autonomy and plural ways of living. These perspectives shift the economic question from whether a project creates activity to how value, knowledge, and decision-making power are retained locally.

Spiritual tourism is treated as a possible post-use pathway, not as an automatic benefit. Sacred-site management requires protection of worship, visitor rules, infrastructure, community consent, and equitable benefit distribution (Shackley, 2001; Timothy & Olsen, 2006). Community-based ecotourism adds the requirements of local control and environmental carrying capacity (Damanik & Weber, 2006; Wearing & Neil, 2009). A visually distinctive church may attract attention, but attention is only an early signal; it is not evidence of a sustainable destination.

Interdependence and Abductive Model Building

The study uses interdependence as a sensitizing principle. Bateson (1972) and Capra (1996) describe social and ecological systems as networks in which changes in one component alter the wider field of relations. Naess (1989) similarly rejects a purely instrumental view of nature. In the present research, these ideas do not operate as a predetermined model to be confirmed. They guide attention toward reciprocal relationships, while the final framework is developed abductively through iterative movement between theory and cross-case evidence.

METHODS

Research Design and Case Selection

The research employed a qualitative multiple-case study with embedded units of analysis. Multiple-case design was selected because it enables analytical comparison across contexts while preserving the internal chronology and specificity of each case (Yin, 2014). The embedded units were material–ecology, culture–liturgy, participation–economy, spiritual-tourism readiness, and contextual conditions. The purpose was analytical generalization rather than statistical representation.

Amdasa and Batang Babasal were selected purposively. Both are remote island settlements in eastern Indonesia and both involved community-based church development with direct access to project documentation. They also provided a useful contrast. Amdasa offered evidence from a completed church and early post-use period, whereas Batang Babasal offered evidence from an active construction process in which design choices and projected outcomes were still being negotiated.

Table 1. Case design, temporal coverage, and status of evidence

Case	Project and context	Primary data period	Analytical status
Amdasa, Tanimbar Islands Regency	Gereja Santa Maria Bunda Allah; completed and in use; local timber, coastal materials, and long community construction process.	December 2024–March 2026; project records from 2013–2026.	Observed construction mechanisms and early post-use indications.
Batang Babasal, Banggai Islands Regency	Gereja Santo Stefanus; construction/completion stage; mixed material strategy and negotiated modern expression.	January 2025–March 2026; project records from 2023–2026.	Developing mechanisms and projected outcomes.

Data Collection

Primary data were generated through field observation, semi-structured interviews with more than 14 informants, and document review. Informants were selected purposively according to their direct knowledge of church leadership, customary practice, construction, local economic activity, community

use, or project administration. The categories included church leaders and committee members, customary and community figures, builders and craftspeople, local economic actors, and Catholic and non-Catholic residents. Snowball identification was used only to reach additional actors whose roles became evident during fieldwork.

Observations covered site conditions, material origin and handling, construction sequence, spatial and liturgical organization, community work practices, and the presence or absence of visitor facilities. Documentary sources included design drawings, photographs, meeting records, procurement information where available, local records, and digital traces of post-completion attention. Project documents from 2013–2026 were treated as archival evidence and were separated analytically from the primary data collection periods.

Analysis, Trustworthiness, and Researcher Position

Analysis proceeded in six stages. First, observations, interviews, documents, and project archives were organized into separate case databases. Second, meaningful segments were coded around material sourcing, technical suitability, cultural meaning, liturgical requirements, participation, local value retention, tourism readiness, and contextual constraints. Third, codes were grouped into mechanisms, outcomes, risks, and negative or disconfirming evidence. Fourth, within-case narratives were reconstructed to identify actors, decisions, and sequences. Fifth, cross-case pattern matching examined similarities, differences, and boundary conditions. Finally, the empirical patterns were brought back into dialogue with the literature through abductive synthesis (Creswell, 2014; Miles & Huberman, 1994).

Credibility was supported by source and method triangulation, clarification with key informants, comparison of claims with visual and documentary records, and explicit attention to contradictory evidence. An audit trail was maintained through chronologies, code matrices, and evidence-status matrices. Findings were classified as observed, developing, or projected to prevent potential outcomes from being reported as achieved results.

The lead researcher was also involved as architect in both projects. This position provided detailed access to design decisions and long-term process knowledge, but it also created risks of self-confirmation and retrospective bias. Reflexive notes therefore separated description, interpretation, and professional judgment. Design intentions were not accepted as evidence of outcome unless supported by observations, documents, or accounts from other actors. No technical claim was treated as verified where laboratory testing, structural analysis, or quantified economic data were unavailable.

RESULTS

Evidence Asymmetry Across the Two Cases

The comparison revealed an important asymmetry. Amdasa could be examined through its long construction history, completed physical form, community use, and early external attention. Batang Babasal could be examined through active negotiation, material decisions, labor organization, and projected use, but not through mature operational outcomes. This distinction affected every theme. Statements about Amdasa could sometimes be based on direct post-

completion observation, while statements about Batang Babasal often remained process evidence or plausible scenarios.

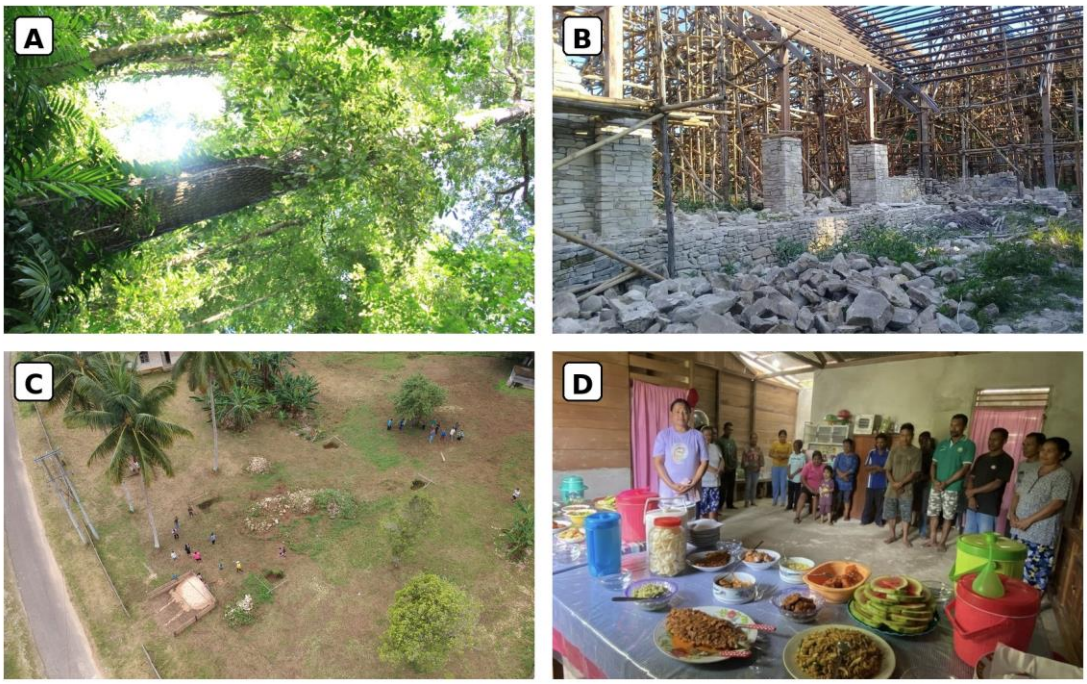

Figure 1. Field evidence from the two cases: (A) torem tree in the Amdasa landscape; (B) timber-laced masonry practice in Amdasa; (C) the prepared church site in Batang Babasal; and (D) community dialogue during the Batang Babasal design process. Source: Research documentation.

Local Materials: Adaptation With Technical and Ecological Conditions

Amdasa relied on torem wood (*Manilkara kanosiensis*), coastal stone, and beach sand as major components of the material narrative. Torem had technical, cultural, and ritual significance. Its selection and transport were embedded in local knowledge and customary procedures, while community members participated in material collection and preparation. The use of a timber frame embedded within massive stonework resembled timber-laced masonry and represented an adaptive response to limited access to conventional reinforced systems. The practice also enabled local workers to participate in tasks that were compatible with available skills and tools.

The same evidence, however, exposed the limits of celebratory localism. The study did not include mechanical grading of torem, structural modeling, connection testing, chloride or sulfate testing of beach sand, mortar-strength tests, or geotechnical evaluation of the retained foundation. The naturally weathered sand practice was therefore documented as local technical knowledge rather than certified performance. Likewise, reusing the existing foundation supported material continuity and reduced demolition, but historical survival alone could not establish structural adequacy. Torem use also required legal sourcing, inventory, harvesting limits, and regeneration because cultural value may motivate conservation while market value may increase extraction pressure (Basri et al., 1999; Lam & Meeuse, 2010).

Batang Babasal used a differentiated material strategy. Gofasa was selected for major timber functions, while ulin, linggua, meranti, and conventional materials were assigned according to availability, workability, exposure, time, and cost. This strategy was less symbolically centered on one endemic resource than the Amdasa approach. It illustrated that contextual design may involve a calibrated mixture rather than a pure return to vernacular construction. The material choices nevertheless required the same safeguards: source legality, technical grading, appropriate detailing, and long-term maintenance planning.

Across the cases, the central result was clear: proximity reduced some logistical dependence and activated local knowledge, but it did not by itself demonstrate lower life-cycle impact, lower cost, or higher safety. The contribution of local material was strongest when linked to a governance and maintenance system, not when treated as an isolated design attribute.

Cultural Identity: From Visual Reference to Negotiated Inculturation

In Amdasa, cultural identity entered the project through the meaning of torem, *Tais Pet* textile patterns, protective carving traditions, construction rituals, and collective memory. Some elements were translated into architectural details, while others remained part of the social process that gave the building legitimacy. The strongest evidence of inculturation was not the visibility of a motif but the sequence through which local meaning, church use, and community acceptance were discussed. The church became culturally recognizable because material, symbol, and participation converged.

Batang Babasal produced a different cultural negotiation. Early design ideas emphasized local natural expression, but many residents associated a new church with dignity, accessibility, and a contemporary public image. Banggai references, including roof proportions and formal cues related to local palace and vernacular traditions, were therefore interpreted rather than copied. Community preference for modernity was not treated as cultural loss. It was understood as an active expression of identity under present conditions. This negotiation reduced the risk that an architect's external image of authenticity would override users' aspirations.

Both cases confirmed that cultural legitimacy depends on process. Inculturation required engagement with church leaders, customary actors, and users, as well as compliance with liturgical circulation, altar visibility, capacity, and accessibility. Elements that lacked such a process were more accurately described as contextual visual references. The distinction matters because visual resemblance can be achieved quickly, while liturgical and cultural legitimacy develop through dialogue and use.

Participation and Community Economy: Mechanisms Rather Than Measured Impact

Participation in Amdasa developed over a long period through community groups, rotating work, material collection, and collaboration between skilled workers and local labor. The process created opportunities for skill transfer and strengthened the community's capacity to maintain elements that it had helped build. Because labor, materials, and some services were

supplied locally, part of the project value remained within the settlement. These were observable mechanisms of local value retention.

Batang Babasal relied on the church-station organization and a construction committee to coordinate labor, procurement, and communication. Local workers contributed according to skill and availability, while some purchases and specialist inputs necessarily came from outside the village. The case also showed emerging economic initiatives around material preparation and sale. Such initiatives were not classified as sustainable enterprises without evidence of legality, stable demand, ecological limits, and fair benefit distribution.

Neither case had a complete financial database that allowed calculation of local expenditure shares, household-income change, or a counterfactual construction cost. Consequently, the study does not claim a quantified economic impact. It identifies mechanisms—local employment, local procurement, skill acquisition, reduced dependence, and potential maintenance capacity—that can generate benefit if supported by transparent records and equitable rules. This distinction protects the analysis from equating visible activity with durable economic improvement.

Spiritual Tourism: Early Signals and Projected Possibilities

Amdasa displayed early signals of external interest after the church entered use. Digital circulation, visits, and discussion of visitor-related services indicated that the architecture and its construction story had attraction value. Yet there was no systematic visitor count, expenditure survey, repeat-visit data, formal management body, or carrying-capacity assessment. The evidence therefore supported an emerging opportunity, not a conclusion that sustainable spiritual tourism had been established.

Batang Babasal remained at a projection stage. The church's potential relationship with regional attractions such as *Paisu Pok* suggested a possible route-based experience, but the project had not produced evidence of post-operational demand. Any future development would require community consent, access and amenity assessment, institutional responsibility, protection of worship schedules, waste management, and rules preventing outside actors from capturing disproportionate benefits.

The comparison demonstrates why tourism should remain outside the core causal claims of the framework. Contextual architecture may provide an attraction, but tourism becomes sustainable only through an additional governance system. Without that system, increased attention may burden sacred space and local resources rather than strengthen them.

Table 2. Cross-case synthesis of findings and evidentiary limits

Dimension	Amdasa	Batang Babasal	Evidence status / limit
Material–ecology	Torem, coastal stone, weathered beach sand, reused foundation, and timber-laced masonry practice.	Function-based combination of gofasa, ulin, linggua, meranti, and conventional materials.	Processes observed; technical performance, legality, and life-cycle impacts not comprehensively tested.
Culture–liturgy	Torem, Tais Pet references, protective carvings, ritual memory, and community dialogue.	Banggai references negotiated with modern aspirations, access, schedule, and liturgical needs.	Social legitimacy indicated; spiritual experience and long-term cohesion not measured.
Participation–economy	Long-term communal work, material collection, skill transfer, and local maintenance potential.	Church-station organization, local labor, partial local procurement, and emerging initiatives.	Mechanisms observed/developing; monetary impact not quantified.
Spiritual tourism	Early attention and visits, without formal visitor data or governance.	Potential integration with regional attractions; church not yet fully operational.	Amdasa devloping; Batang Babasal projected.

The Lumintu Prana Framework

Abductive synthesis produced the *Lumintu Prana* framework. The term is an analytical label created by the researchers; it is not presented as a customary concept originating in Tanimbar or Banggai. The framework explains three reciprocal relationships. Architecture and culture can support cultural continuity when local meaning and liturgical integrity are negotiated together. Architecture and nature can support ecological stewardship when material use is legal, technically appropriate, regenerative, and within carrying capacity. Architecture and community can strengthen local capability and value retention when participation includes decision-making, skills, procurement, maintenance, and fair benefit distribution.

The framework deliberately rejects automatic causality. A culturally recognizable form does not automatically preserve culture; a local material does not automatically conserve nature; and community labor does not automatically produce economic justice. Each relationship depends on safeguards. Technical safety, liturgical integrity, material due diligence, ecological limits, transparent

governance, and distributive fairness operate across the model. Spiritual tourism appears as a conditional outcome after—not within—the three core relationships.

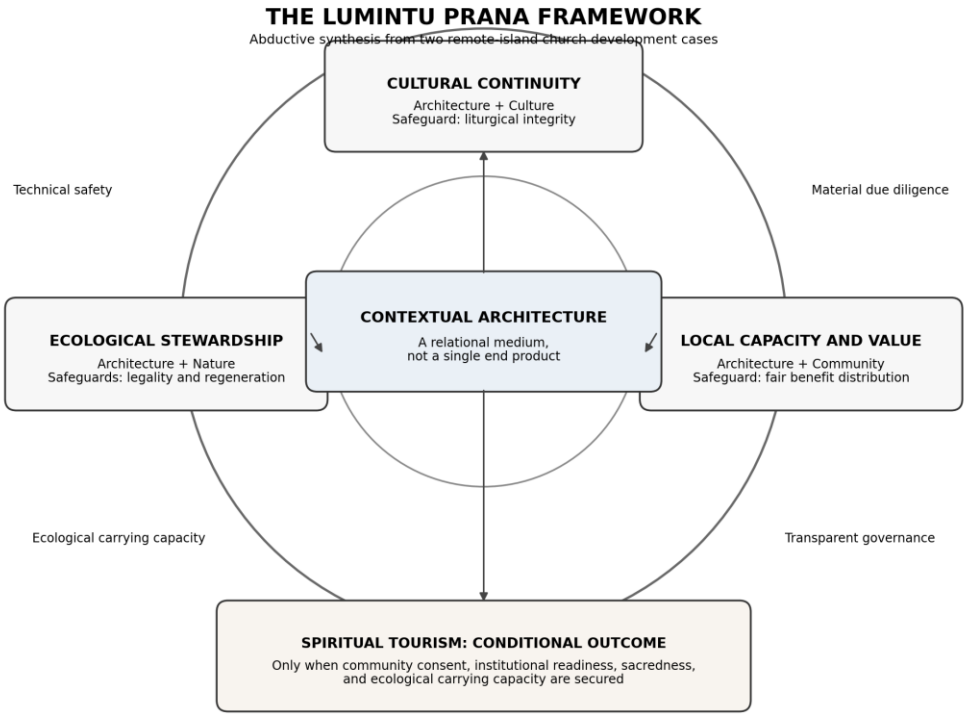

Figure 2. The Lumintu Prana framework: three reciprocal architecture relationships, cross-cutting safeguards, and spiritual tourism as a conditional outcome. Source: Authors' analysis.

Table 3. Analytical relationships and safeguards in the Lumintu Prana framework

Core relationship	Intended contribution	Required safeguards	Failure risk
Architecture + culture	Cultural continuity and social legitimacy.	Liturgical integrity, recognized local meaning, co-design, and user acceptance.	Decorative tokenism, cultural imposition, or functional conflict.
Architecture + nature	Ecological stewardship and maintainable material systems.	Legal sourcing, technical validation, regeneration, carrying capacity, and repair knowledge.	Unsafe construction, depletion, or environmentally harmful extraction.

Core relationship	Intended contribution	Required safeguards	Failure risk
Architecture + community	Local capacity, skills, stewardship, and value retention.	Meaningful participation, transparent procurement, fair compensation, and benefit distribution.	Unpaid labor dependence, elite capture, or externalized value.
Conditional tourism	Additional livelihood and interpretive value without loss of sacredness.	Community consent, management institution, visitor rules, amenities, monitoring, and carrying capacity.	Commercialization, worship disruption, waste, and unequal benefit capture.

DISCUSSION

Moving Beyond the Local–Sustainable Shortcut

The findings refine a common assumption in sustainable architecture: that local or vernacular material is inherently environmentally preferable. A material's geographical proximity may lower transport demand and support local knowledge, but sustainability also depends on extraction, durability, safety, replacement cycles, and governance. This conclusion is consistent with life-cycle research showing that vernacular systems can offer substantial embodied-impact advantages while still facing limitations in skills, adaptability, and maintenance (Francis et al., 2025). The cases add an institutional dimension: environmental performance cannot be separated from the community rules and technical checks that govern material use.

This is particularly significant in remote islands. Conventional certification and specialist testing may be difficult to access, yet absence of testing does not justify lower safety expectations. A practical implication is a layered due-diligence process that combines local expertise with targeted laboratory or engineering verification. The purpose is not to replace customary knowledge, but to support it where structural, chemical, or ecological uncertainty is material.

Inculturation as Negotiation, Not Stylistic Replication

The two cases also challenge a static view of cultural authenticity. Amdasa's identity was strongly connected to material, ritual, and inherited symbols. Batang Babasal's identity included an aspiration for a contemporary and dignified church. Treating only the first as authentic would freeze culture in an external image of tradition. The stronger interpretation is that identity is produced through negotiation among memory, faith, present aspiration, and practical need.

This supports a process-based understanding of inculturation. Architectural elements acquire cultural and sacred legitimacy through recognized meaning and shared deliberation, not merely through resemblance to a traditional form. Such a view is compatible with Mangunwijaya's (1992)

emphasis on architecture grounded in the life of its users and with church guidance that permits local expression while protecting liturgical order (Komisi Liturgi Keuskupan Agung Jakarta, 2006). It also explains why accessibility and modern aspirations can be part of cultural continuity rather than threats to it.

Participation as an Economic and Maintenance Infrastructure

Participation generated more than labor supply. It created channels through which tacit knowledge, construction skills, project responsibility, and future maintenance capacity circulated. This finding aligns with Turner (1976) and Ostrom (1990), who place control and institutional arrangements at the center of durable community assets. The cases show, however, that participation should not be romanticized. Voluntary work may coexist with unequal burdens, and local procurement may still benefit a narrow group. Documentation of labor, payment, sourcing, and benefit distribution is therefore part of sustainable practice.

For sustainable-finance analysis, the most feasible next step is not to claim a full life-cycle cost advantage without data. It is to establish a project-level local value-retention account: the share of total expenditure directed to local labor, materials, services, and maintenance capability. This can later be combined with life-cycle cost and environmental assessment. Such an approach connects financial accountability with the social value of locally retained expenditure.

Spiritual Tourism as a Governance Test

The tourism findings are intentionally conservative. Social-media attention and spontaneous visits are demand signals, but they do not establish viability or sustainability. Sacred-site research emphasizes that visitor experience and service provision must be balanced with religious function (Shackley, 2001). Community-based tourism additionally requires local authority over scale and benefit distribution (Wearing & Neil, 2009). In this sense, tourism is a governance test for the three core *Lumintu Prana* relationships. If cultural meaning, ecological limits, and community control are weak, tourism can undermine the very qualities that generated interest.

The framework therefore places tourism after community readiness rather than at the center of design. This sequencing is important for remote settlements where amenities, waste systems, emergency access, and institutional capacity may be limited. It also prevents a church from being instrumentalized primarily as a destination instead of a place of worship.

Conceptual Contribution and Transferability

Lumintu Prana is best understood as a mid-range analytical framework. It is more specific than a general triple-bottom-line model because it describes relational mechanisms and safeguards within a church-development process. At the same time, it is not a universal theory. The two cases differ in cultural setting, project maturity, material system, and evidence depth. Transfer to another location requires contextual diagnosis and participatory validation rather than direct replication.

The framework contributes to SDG-oriented construction discourse by showing how SDGs 8, 11, 12, and 13 may be addressed through project decisions concerning work, community resilience, material governance, and

environmental responsibility. It does not claim that the cases achieved SDG targets, because project-level indicators were not measured. The value lies in translating broad goals into a sequence of locally accountable decisions.

Table 4. Operational sequence for applying the framework in future projects

Stage	Main actions	Minimum evidence
1. Context and resource mapping	Map access, climate, hazards, live lihoods, institutions, sacred practices, material sources, and project maturity.	Baseline map, stakeholder list, and preliminary risk register.
2. Cultural–liturgical co-design	Identify meanings, aspirations, liturgical functions, accessibility needs, and acceptable forms of representation.	Meeting records, design alternatives, and documented community/church feedback.
3. Material due diligence	Verify legality, technical properties, exposure conditions, regeneration, extraction impacts, and repair capability.	Source records, targeted tests, engineering review, and resource-management commitments.
4. Participatory construction and local value accounting	Define roles, compensation, safety, procurement, skill transfer, and maintenance responsibilities.	Worker/procurement records, local expenditure account, training log, and safety documentation.
5. Post-use governance and conditional tourism	Monitor building performance, worship needs, maintenance, visitors, carrying capacity, and benefit distribution.	Maintenance plan, visitor protocol, monitoring data, and community governance arrangement.

CONCLUSIONS AND RECOMMENDATIONS

This study shows that sustainable church development in remote islands is not a matter of selecting a traditional appearance or replacing imported products with nearby materials. It is a relational process that connects material governance, cultural and liturgical legitimacy, community capability, and long-term stewardship. Amdasa demonstrated how local material, ritual meaning, and collective construction can form a coherent project narrative, but it also exposed unresolved technical and ecological verification needs. Batang Babasal demonstrated that contextual design may require a negotiated combination of local references, modern aspirations, mixed materials, accessibility, and construction constraints.

Three conclusions are central. First, local materials contribute to sustainability only when legality, technical suitability, regeneration, carrying capacity, and maintenance are addressed. Second, cultural inculturation is strongest when produced through co-design and liturgical validation rather than visual borrowing. Third, participation can create skills and local value-retention mechanisms, but economic impact must be supported by financial and household data before it is quantified. Spiritual tourism should remain conditional on community consent, sacredness protection, institutional readiness, and environmental capacity.

The *Lumintu Prana* framework integrates these conclusions through three reciprocal relationships: architecture–culture, architecture–nature, and architecture–community. Its practical value lies in the safeguards and sequence attached to those relationships. For future projects, church institutions and designers should document material sources, obtain targeted technical verification, preserve design-decision records, establish transparent labor and procurement systems, and prepare maintenance responsibilities before completion. Tourism planning, where desired by the community, should begin only after worship, access, waste, governance, and carrying-capacity requirements are secured.

For local governments and development partners, the cases suggest a role in providing mobile or regional testing services, legal and regenerative resource-management support, training for community builders, and small-project financial documentation tools. Such support would enable remote communities to retain the strengths of local knowledge without accepting avoidable safety, ecological, or accountability risks.

FURTHER STUDY

The study is limited by its qualitative design, the small number of cases, the researcher's architectural involvement, and the unequal maturity of the projects. No laboratory material testing, structural modeling, full life-cycle assessment, visitor survey, or household economic-impact analysis was undertaken. Future research should combine participatory qualitative inquiry with timber grading, mortar and salt-content testing, structural and foundation assessment, ecological inventories, life-cycle cost and carbon analysis, and longitudinal monitoring after occupation. The framework should also be examined in other island regions and in non-church community facilities to test which relationships are transferable and which are specific to Catholic liturgical and institutional settings.

ACKNOWLEDGMENT

The authors acknowledge the communities, church leaders, customary figures, builders, and project committees of Amdasa and Batang Babasal for their knowledge, participation, and access to project documentation. Appreciation is also extended to the Postgraduate Program and Faculty of Engineering, Udayana University, for academic support.

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