

A'borong as an Indigenous Adaptive Governance Mechanism: Restorative Ecological Justice and Dispute Resolution in the Kajang Community, South Sulawesi, Indonesia

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Abstract. Widespread ecological conflicts arising from deforestation and land tenure disputes in Indonesia highlight the limitations of state-centric, litigation-based resolution mechanisms, particularly within indigenous communities. This study investigates A'borong, the indigenous dispute resolution system of the Kajang people in South Sulawesi, as an effective model of adaptive governance that delivers restorative ecological justice. Through a qualitative empirical approach—including semi-structured interviews with customary leaders (Ammatoa and Galla), participant observation, and documentary analysis—this research (1) identifies key constraints of litigation-based mediation, (2) elucidates the institutional roles and procedural sequence of A'borong, and (3) analyzes its implications for socio-ecological resilience. Our findings reveal that A'borong, grounded in the Pasang ri Kajang normative system and mediated by Galla, successfully resolves conflicts through participatory deliberation, ritual sanctioning, and community enforcement, leading to high compliance and tangible ecological restoration. We propose a conceptual model for integrating A'borong's principles into hybrid governance frameworks, arguing that such recognition can bridge legal pluralism and enhance environmental governance. This study contributes to the literature on indigenous adaptive governance and restorative justice, offering actionable policy pathways for Indonesia and similar

Keywords: Adaptive Governance; A'borong; Customary Law; Indigenous Dispute Resolution; Restorative Ecological Justice; Socio-ecological Resilience.

1 Introduction

Rapid land-use change and deforestation have placed mounting pressures on customary territories across Indonesia, generating recurrent ecological conflicts that simultaneously threaten biodiversity and the rights, livelihoods, and cultural integrity of Indigenous peoples[31]. Studies of landscape change and commodity expansion have documented how accelerated conversion and tenure contestation escalate local disputes over forest commons, producing social and ecological consequences that conventional state instruments struggle to redress[44],[47]. Conventional litigation- and court-based mechanisms frequently prove inadequate for resolving such disputes: judicial routes are often slow, costly, and procedurally misaligned with customary forms of evidence and collective decision-making, and in some cases litigation

outcomes have reinforced tenure insecurity rather than delivered durable redress[12],[38] as exemplified by the unresolved land conflict between the Kajang community and PT Lonsum[6],[20]. These limitations have prompted growing policy and scholarly interest in non-litigation pathways—particularly locally embedded dispute-resolution processes—that can offer timelier, more legitimate, and ecologically attentive resolutions[38],[39].

In many Indigenous contexts, community institutions embody plural normative orders and practical rules that structure social life and regulate natural-resource use; customary institutions therefore perform governance functions—monitoring, sanctioning, and adaptive regulation—that state bureaucracies often find difficult to replicate in remote or culturally distinct settings[14],[42]. Nonetheless, formal recognition and operational integration of customary governance remain uneven in Indonesia: recent policy reviews document persistent implementation gaps—cartographic mismatches, homologation backlogs, and weak enforcement capacity—that sustain tenure ambiguity and periodic conflict[29],[30],[38].

Against this background, the Kajang Indigenous community (South Sulawesi) provides a salient case. Kajang's A'borong is an adat dispute-resolution forum led by Ammatoa (the highest customary authority) and operationalized by Galla mediators; it combines deliberation, ritual sanctioning, and community enforcement to resolve disputes and frequently prescribes ecological remedies such as reforestation and restricted use of sacred forest patches[11],[27],[49]. While ethnographic and descriptive accounts document A'borong's cultural and normative contours, there is limited systematic analysis of how A'borong functions as an institutional mechanism for *restorative ecological justice*—that is, as a process that repairs social-ecological harm—and as a locally evolved form of *adaptive governance* that can enhance socio-ecological resilience[19],[24]. Previous ethnographic studies have documented A'borong's cultural foundations[11],[49], including its ecological wisdom rooted in Pasang ri Kajang[31].

This study positions A'borong at the nexus of three critical theoretical domains: Environmental Restorative Justice, which seeks to repair socio-ecological harm beyond mere punishment or compensation[19]; Adaptive Governance, which emphasizes polycentric, learning-oriented institutions for managing complex social-ecological systems[25]; and Legal Pluralism, which acknowledges the coexistence and interaction of state and customary legal orders [53]. While prior research has descriptively documented A'borong's cultural aspects, a significant gap remains in systematically analyzing its operational mechanisms—specifically, the distinct roles of Ammatoa versus the Galla, the function of ritual sanctions as enforcement tools, and its overall architecture as an indigenous adaptive governance system. This research fills that gap by providing an empirical and theoretical examination of how A'borong functions not just as a dispute resolution forum, but as a robust institution for sustaining ecological resilience and restorative justice.

Therefore positions A'borong at the intersection of three literatures—restorative ecological justice (justice as socio-ecological repair), social-ecological resilience and adaptive governance (institutional diversity, polycentricity, and learning), and legal pluralism (coexisting customary and statutory orders)—and addresses three linked research aims: (1) to identify the structural and procedural constraints of

litigation-based mediation in ecological disputes affecting Kajang; (2) to describe the institutional roles, procedural sequence, and enforcement mechanisms of A'borong and Galla mediators; and (3) to assess the implications of A'borong for adaptive governance and resilience in Indigenous landscapes, and to propose pragmatic policy pathways for negotiated hybrid governance (for example, liaison roles, participatory mapping, and homologation protocols that preserve customary procedural integrity) (Agrawal, 2022; Adaptive Governance Review, 2023; Rahman & Triadi, 2024). These aims respond directly to gaps in the literature about how customary ADR mechanisms produce ecological outcomes and about feasible pathways to integrate customary solutions into multi-level governance arrangements (Bakhtiari, 2025; Myaskur & Wahyudiono, 2024).

2 Research Methods

2.1 Research design and rationale

This study employs a qualitative, empirical legal-anthropological approach designed to produce a contextually rich and theory-informed account of A'borong as a socio-ecological dispute-resolution institution. Qualitative methods are well suited to this objective because they enable careful attention to local norms, ritual practice, and the meanings that actors attach to mediation outcomes[21],[43]. The empirical legal-anthropological framing allows the study to treat law as lived practice—examining how customary rules (*adat*), ritual enforcement, and community narratives operate alongside statutory instruments [53].

2.2 Study site

Fieldwork took place in the Kajang customary territory, Kecamatan Kajang, Bulukumba Regency, South Sulawesi, Indonesia. The area includes sacred forest patches (Borong Karama' and Borong Battasayya) and customary agricultural landscapes where local norms (*Pasang ri Kajang*) actively regulate resource use and social relations. The site was selected purposively because of its well-documented customary institutions (Ammatoa, Galla) and ongoing land-use conflicts related to HGU and external actors, which make it analytically suitable for investigating customary ADR as adaptive governance[14].

2.3 Sampling and participants

A purposive sampling strategy targeted key informants with direct knowledge or operational roles in A'borong processes. Purposive and snowball sampling are common and appropriate for in-depth qualitative investigations of customary institutions where specific expert informants (elders, ritual officers) hold privileged knowledge[43]. Interviewees comprised Ammatoa (the customary leader), six Galla with differentiated roles (e.g., Galla Puto, Galla Pantama), affected community members (men and women), representatives from local government agencies, and academic observers. In total, 18 informants participated. Selection prioritized heterogeneity in age, gender, and social role to capture a range of perspectives and to guard against elite capture of narratives[43].

2.4 Data collection

Data were collected during a field period from 25 January to 25 February 2025 using multiple qualitative instruments to allow triangulation[22]. Specific procedures included:

- Semi-structured interviews (18 informants): interviews followed a flexible guide focused on procedural steps of A'borong, perceptions of effectiveness, historical trajectories of disputes, and observed ecological outcomes. Semi-structured interviewing supports deep, comparable data while permitting emergent themes[21].
- Participant observation: with prior permission from customary leaders, the researcher observed two A'borong sessions to record deliberative sequencing, evidence practices, and ritual enforcement. Participant observation provides access to embodied practices and non-verbal cues often absent in interviews[51].
- Documentary analysis: local regulations (e.g., Perda No. 9/2015), community records summarizing Pasang ri Kajang oral corpus, and statutory documents regarding land tenure and HGU disputes were systematically reviewed to contextualize empirical claims and to triangulate interview data[16].

2.5 Ethical Considerations

This research adhered to the highest ethical standards for work with Indigenous communities. Free, Prior, and Informed Consent (FPIC) was obtained from all participants, and the study protocol was approved by the customary leadership (Ammatoa) prior to commencement. We followed established ethical guidelines for indigenous research[4], prioritizing community protocols, reciprocity, and the protection of sacred knowledge.

Research complied with contemporary ethical standards for work with Indigenous communities. Prior informed consent was obtained from all participants, and community protocols were respected—especially in relation to attendance at adat rituals and handling of sacred knowledge. Where requested, informants were anonymized and pseudonyms used in transcripts and reporting to protect privacy and cultural sensitivities. The study also followed recommended ethical guidelines for indigenous research, emphasizing reciprocity, benefit-sharing, and the possibility of community review of findings[4],[50].

2.6 Data Management and Analysis

Data analysis followed a rigorous thematic analysis protocol[17]. Interview transcripts and field notes underwent iterative coding: initial open coding identified emergent themes, axial coding connected these themes to theoretical constructs (e.g.,

'ritual sanctioning' was linked to 'restorative justice'), and selective coding integrated everything into a coherent analytical narrative. To ensure validity, triangulation was consistently applied by cross-verifying insights from interviews, observational notes, and documentary sources.

Interviews and field notes were transcribed verbatim and organized for systematic coding. Analysis followed a thematic analysis protocol: initial open coding identified descriptive categories (procedural steps, enforcement mechanisms, ecological outcomes), axial coding linked categories to theoretical constructs (restorative justice, resilience, legal pluralism), and selective coding refined a conceptual model of A'borong's governance functions[17],[35]. Coding was conducted iteratively and reflexively; where feasible, manual coding was complemented by qualitative software to assist retrieval and cross-case comparison (e.g., NVivo). Triangulation across interviews, observation, and documents was used to strengthen internal validity and to identify disconfirming evidence[16],[43]. The COREQ checklist guided reporting transparency for interview methods and researcher positionality[54].

3 Findings And Results

Results Constraints of litigation-based mediation in Kajang contexts Interview data and documentary review highlight four main constraints that undermine the effectiveness of litigation-based mediation for ecological disputes: 1. Legal-documentation gaps and tenure ambiguity: Overlapping land claims, inconsistent mapping, and cases where HGU (Hak Guna Usaha) boundaries encroach upon customary lands undermine confidence in statutory adjudication. Participants reported protracted bureaucratic procedures with little corrective action, eroding trust in state mechanisms. 2. Procedural costs and accessibility: High financial and temporal costs of litigation discourage community members from pursuing court-based remedies. Geographic remoteness exacerbates access barriers to legal representation and timely hearings. 3. Socio-cultural mismatch: State-centric processes privilege codified evidence (e.g., certificates) and formal legal rhetoric, while Kajang dispute norms rely on oral histories, ritual testimony, and communal witnesses. This mismatch produces feelings of illegitimacy and alienation. 4. Institutional coordination failure: Fragmented responsibilities among land, forestry, and environmental agencies impede coherent remedial action and create enforcement gaps. These constraints produce frequent stalemates, recurring grievances, and, at times, extra-legal reactions that threaten both social cohesion and ecological integrity. These constraints align with broader Indonesian studies on mediation challenges, including documentation issues[7] and institutional coordination failures[40],[45],[46].

Structure and sequence of A'borong processes A'borong embodies a structured, multi-stage deliberative process that mediates claims, restores relations, and mobilizes communal enforcement. Based on interview narratives and observed proceedings, the sequence includes:

- Problem submission (pelaporan/usulan): Cases originate from community complaints, Ammatoa directives, or Galla reports.
- Convening and pre-deliberation

among Galla: Internal clarification of facts and selection of appropriate mediation forums.

- Public opening (by Galla Puto) and hearing: Presentation of testimonies, oral histories, and ritual signs. - Evidence assessment and musyawarah (deliberation): Horizontal deliberation emphasizing reciprocity, reparative acts, and ecological restoration.

-Decision (Le'ba') and implementation plan: Agreements specify reparative measures, land-use prescriptions, restoration tasks, and timelines.

- Enforcement and ritual sanctioning (e.g., Pattunra, Attunu Passau): Sacred and social sanctions discourage non-compliance and reinforce moral accountability. This multi-stage process has been consistently documented in Kajang customary practice[47],[5] and reflects the community's legal heritage. Roles of Galla and rituals as enforcement mechanisms Galla serve multiple roles: procedural conveners, translators between Ammatoa and community members, evidentiary stewards for oral histories, and custodians of ritual enforcement. Galla Puto—acting as spokesperson—frames the proceedings, while Galla Pantama and Galla Kajang translate decisions into land and agricultural management directives. Rituals function as social-psychological sanctions; their symbolic potency underwrites compliance where formal sanctions may be absent or delayed. Outcomes: compliance, restoration, and ecological stewardship Informants consistently report higher rates of immediate compliance and longer-term restoration when disputes are resolved through A'borong versus prolonged litigation. Outcomes include negotiated reforestation tasks, restrictions on resource extraction in sacred forest patches, and renewed communal monitoring. A'borong-generated agreements tend to incorporate ecological prescriptions that align with Pasang ri Kajang norms, reinforcing customary stewardship practices. The effectiveness of these ritual sanctions has been observed in various adat cases, where spiritual accountability ensures higher compliance rates than formal legal mechanisms[36].

The constraints of litigation and the comparative strengths of the A'borong system are summarized in Table 1, which provides a concise overview of the key findings from our empirical data.

Table 1. Comparison: Litigation-based Mediation vs A'borong ADR.

Dimension	Litigation-based Mediation	A'borong (Customary ADR)
Legitimacy	Formal legal legitimacy; court-enforceable decisions	Cultural/moral legitimacy; community-enforced decisions

Accessibility	High cost, procedural complexity, remote access barriers	Low cost, culturally accessible, community convened
Enforcement	State enforcement (police/courts) but often slow	Ritual/social sanctions and community monitoring
Ecological focus	Often anthropocentric compensation; limited restoration mandates	Explicit ecological prescriptions and restoration tasks
Evidence	Documentary, cadastral maps, certificates	Oral histories, communal witnesses, ritual signs
Adaptiveness	Rigid legal procedures; slow adaptation	Iterative, context-sensitive, rapid response

A'BORONG-BASED ADAPTIVE GOVERNANCE MODEL

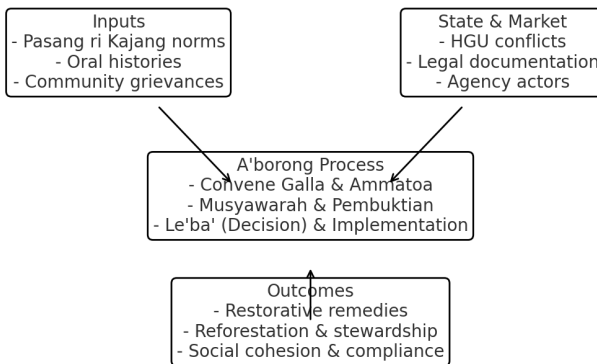


Fig. 1. Conceptual model of A'borong-based adaptive governance.

4 Discussion

Our findings demonstrate that A'borong is more than a local custom; it is a sophisticated governance system. The discussion that follows interprets these empirical results through the theoretical lenses of restorative justice, adaptive governance, and legal pluralism introduced earlier, positioning the Kajang system within global scholarly and policy debates.

A'borong's remedies should be read through the lens of *environmental restorative justice*: the forum does not merely redistribute legal entitlements but actively restores relationships between people and ecosystems by combining negotiated reparations (collective labour and reforestation), ritual reparation, and communal surveillance. Unlike adversarial adjudication that prioritizes rights enforcement and monetary compensation, A'borong treats environmental harm as relational and material—it seeks to mend the social–ecological fabric that has been damaged by a contested land-use decision. Recent work extending restorative justice into environmental governance argues that justice processes must repair both ecological functions and social relations to be effective[15],[19]. This framing clarifies why customary sanctions (e.g., Pattunra, Attunu Passau) and community obligations are functionally efficacious: their symbolic and reputational potency generates social incentives for compliance where state mechanisms are slow or perceived as illegitimate[26],[27],[32]. This restorative approach is deeply embedded in Kajang's legal philosophy, which views environmental harm as a violation of cosmological balance[31],[32]. Reading A'borong in this way thus contributes to a broader theoretical shift that situates justice within socio-ecological repair—an orientation particularly relevant for indigenous landscapes where cosmology, customary law, and resource management are tightly coupled[14].

Viewed from an adaptive governance perspective, A'borong exhibits hallmarks associated with resilient social-ecological systems: polycentric decision-making (local authority of Ammatoa/Galla coexisting with statutory actors), iterative learning through repeated mediated settlements and ritual follow-up, and the embedding of ecological knowledge (Pasang ri Kajang) into operational rules. Adaptive governance scholarship stresses that institutional diversity and embedded local knowledge are central to long-term resilience because they enable context-sensitive experimentation, rapid corrective action, and social learning[24],[25],[42]. A'borong's procedural flexibility—its capacity to incorporate oral histories, ritual evidence, and community monitoring—allows corrective measures (e.g., immediate restoration tasks) to be enacted faster than formal adjudication. Consequently, A'borong can be conceptualized as a locally evolved adaptive institution that reduces uncertainty and accelerates remedial action in customary territories. Policy designs that seek complementarity rather than displacement—i.e., negotiated interfaces between customary forums and state agencies—can leverage this adaptive capacity to increase redundancy and robustness in governance systems[1],[2].

Integrating A'borong into national dispute-resolution frameworks requires navigating Indonesia's complex legal pluralism. Recent policy shifts—such as formal recognition efforts for customary forests and regional bylaws—open important windows for recognition, yet empirical studies document persistent implementation

gaps: cartographic mismatches, homologation backlogs, and weak enforcement capacity that perpetuate tenure ambiguity[29],[30]. To avoid tokenistic recognition that undermines customary legitimacy, policy pathways should combine three pragmatic measures. First, establish procedural liaison roles—designated customary liaisons within land, forestry, and environmental agencies—to ensure continuous two-way communication and reduce misinterpretation of adat outcomes. Second, deploy rapid documentation teams that reconcile oral territorial claims with cadastral records and participatory mapping so that customary agreements can be evidenced in forms acceptable for bureaucratic processes. Third, develop homologation protocols or legal instruments that allow customary decisions to be recognized for enforcement when requested by communities, while preserving the procedural integrity of customary adjudication. These measures have been proposed and piloted in Indonesian customary-resource governance literature and offer a pathway to operationalize hybrid legal arrangements without eroding customary autonomy[38],[39],[44],[45],[46]. Such hybrid approaches are already emerging in local contexts, as seen in Bulukumba's Regional Regulation No. 9/2015 that formally recognizes Kajang customary law[49].

Comparative international experience strengthens the proposition that institutionalized indigenous dispute mechanisms can deliver both improved governance legitimacy and conservation outcomes. In Aotearoa/New Zealand, co-governance arrangements between Crown agencies and Māori iwi demonstrate how negotiated institutional roles—backed by statute—can give customary norms practical effect in ecosystem management[23]. Similarly, Canada's Indigenous Guardians and co-management programs show that dedicated indigenous stewardship programs, when coupled with programmatic funding and legal recognition, improve monitoring, enforcement, and compliance while reducing adversarial litigation[28]. These cases are not isomorphic templates for Kajang, but they illustrate design options: negotiated co-management agreements, statutory recognition of customary roles, and resourcing of indigenous guardianship increase institutional capacity and legitimacy. Translating these lessons requires contextually sensitive instruments that maintain customary procedural autonomy (i.e., do not subsume adat processes under rigid statutory procedures) while creating enforceable pathways for inter-institutional collaboration and technical support[18],[23].

To move from plausible claims to evidence-based policy, subsequent research should adopt longitudinal, mixed-methods designs combining ecological, social, and governance metrics. Recommended indicators include: (a) ecological — forest cover change, regeneration rates, and species occurrence within disputed parcels; (b) social — compliance rates, recurrence frequency of disputes, and validated measures of social cohesion or trust; and (c) governance — time-to-resolution, incidence of homologation of customary agreements, and frequency of cross-institutional coordination events. A comparative multi-site program (Kajang plus other adat jurisdictions) would help identify which institutional features—ritual sanctioning, continuous community monitoring, liaison protocols—predict positive ecological and social outcomes. Recent reviews underscore that integrated metrics are required to evaluate conservation efficacy of customary governance and to inform scalable policy designs[1],[12]. Such an evidence program would enable policymakers to prioritize

investments (e.g., documentation teams, customary liaison officers, guardians funding) with demonstrated returns for both rights and conservation.

5 Conclusion And Recommendations

This study demonstrates that A'borong, mediated by Galla under the moral authority of Ammatoa, functions as a sophisticated, indigenous adaptive governance institution. It effectively delivers restorative ecological justice by repairing social-ecological relationships through deliberation, culturally potent sanctions, and community-led ecological restoration. In contrast, litigation-based mediation consistently fails in this context due to legal-documentary gaps, socio-cultural incompatibility, and institutional fragmentation.

The primary theoretical contribution of this research lies in its empirical demonstration of how restorative justice and adaptive governance principles are institutionalized within a customary legal system. By detailing the distinct roles within the A'borong structure (e.g., Ammatoa as moral authority vs. Galla as procedural facilitators and mediators) and the function of rituals as enforcement mechanisms, this study provides a replicable model for understanding indigenous governance elsewhere.

This study is not without limitations. Its geographic focus on a single indigenous community and the relatively short fieldwork period mean that the long-term ecological outcomes of A'borong decisions warrant further longitudinal investigation.

For policymakers, our findings suggest three actionable pathways. These policy recommendations build on existing initiatives in Indonesia, including comparative studies of A'borong with national mediation standards[37] and documented successes in adat-based conflict resolution[48]:

1. **Create Customary Liaison Roles:** Embed designated representatives within state land and forestry agencies to facilitate communication between state and customary systems.
2. **Support Participatory Documentation:** Deploy technical teams to help map and document customary territorial claims and A'borong outcomes in ways that are legible to the state, without undermining adat integrity.
3. **Develop Homologation Protocols:** Establish clear legal procedures for state courts to recognize and enforce mutually agreed-upon A'borong decisions, upon community request.

Future research should adopt a longitudinal, mixed-methods approach to quantitatively measure A'borong's impact on forest cover, biodiversity, and social cohesion over time. Ultimately, integrating systems like A'borong into national frameworks is not merely an act of cultural recognition; it is a pragmatic strategy for building more resilient, equitable, and effective environmental governance.

Authors' Contributions

Andi Tenri Famauri: Research conceptualization, theoretical framework development, overall supervision, and drafting of the main manuscript.

Kadarudin: Field data collection, interviews with respondents.

Birkah Latif: Normative legal analysis, collection of national legal documents, and preparation of the literature review section.

Rastiawaty: Quantitative analysis using SPSS, interpretation of statistical data, and contribution to the discussion of findings.

Andi Syahwiah A. Sapiddin: Research methodology design, validation of research instruments, and review of manuscript drafts.

Muh. Hasrul: Development of the conceptual framework for regional cooperation and final proofreading of the manuscript.

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