Symbiosis Civicus

Symbiosis Civicus, Month Year, Vol. (No.):Page
DOI: https://doi.org/10.32663/.....

AUDITING LATENT RISK IN TRANSFORMATIONAL CLIMATE INTERVENTIONS IN INDIGENOUS TERRITORIES

Melki Rumania[1*], M Rawa El Amady[2], Husni Mubarak[3]

[1] Universitas Lancang Kuning
E-mail: melkirumania@gmail.com
[2] Universitas Lancang Kuning
E-mail: rawapasca@unilak.ac.id
[3] Universitas Lancang Kuning
E-mail: husni@unilak.ac.id

ARTICLE HISTORY

Received : 2026-02-09
Revised : 2026-03-15
Accepted : 2026-04-30

Keywords:
Transformational interventions
Traditional Ecological Knowledge
Justice Audit
Indigenous territories
Latent risks

ABSTRACT

Sustainability transformation is increasingly used to justify major changes in forest, land, and climate governance. Yet critical scholarship suggests that interventions labelled transformational can generate latent risks when they intersect with Indigenous territories and traditional ecological knowledge (TEK), particularly through how recognition, standards, and participation are designed and enforced. This article presents an integrative and critical literature review covered 2012 to 2025 to synthesize recurring risk patterns and to develop a justice-oriented audit tool. The synthesis identifies five risks that repeatedly surface across cases: (1) depoliticisation of transformation, (2) shifting adaptation burdens onto communities, (3) narrowing or loss of territorial access through recognition arrangements, (4) administrative burdens and exclusion driven by standardisation (legibility traps), and (5) extraction and erosion of TEK through procedural participation, including gendered inequities. Building on these findings, the article proposes a transformation audit framework that treats TEK as governance, complemented by high-risk indicators and a rapid checklist to assess power relations and policy consequences beyond technical outputs.

1. INTRODUCTION

This integrative literature review is developed as part of a Master's thesis examining the adaptation of Traditional Ecological Knowledge (TEK) in forest governance among the Lubuk Bigau Indigenous community. In this article, the synthesis is used as an analytic framework to examine how climate and sustainability interventions can reshape governance pressures that, in turn, affect Indigenous living spaces and TEK as a system of rules, practices, and intergenerational responsibilities.

Across sustainability debates, "transformation" is increasingly invoked to justify major shifts in forest, land, and development governance in response to climate and ecological crises. In practice, transformation is operationalised through programmes and instruments such as conservation and restoration projects, legality and compliance schemes, spatial planning, and climate initiatives that claim to deliver systemic change. However, critical scholarship emphasises that transformation is never neutral: it involves choices, trade-offs, and contestation, even when presented as a technical necessity without alternatives (Blythe et al., 2018). This matters for climate justice because interventions labelled "transformative" can redistribute power, risks, and benefits, and shape whose futures are made possible (Newell et al., 2021).

Indigenous contexts are especially sensitive to these dynamics. TEK can support forest stewardship, sustainable resource use, and climate adaptation grounded in lived experience (Berkes, 2012). Yet TEK is often treated as local input or a data source rather than recognised as legitimate governance: a living system that regulates access, responsibilities, and care over time (Brondízio et al., 2021). When interventions rely on uniform legal frameworks and standardised procedures, Indigenous communities may face protracted and uneven administrative processes to secure recognition and access. These processes can narrow livelihoods, weaken local authority, and intensify conflict, even when the intervention is framed as beneficial (Myers et al., 2017; van der Muur, 2018).

A central analytic problem concerns how risk is framed. Many interventions treat risk as an implementation issue: weak facilitation, limited capacity, or poor monitoring. The literature shows, however, that

Symbiosis Civicus, Month Year, Vol. (No.):Page
DOI: https://doi.org/10.32663/.....

some harms are latent. They can emerge even when stated goals appear positive, because risk is produced by the design logic of governance instruments, particularly where recognition and access are filtered through paperwork, standardised indicators, mapping, and verification. In such settings, administrative "legibility" can become a gatekeeper, sidelining Indigenous evidence, customary rules, and lived histories through uniform documentation requirements and compliance costs (Iriyani et al., 2024; Ridhwan et al., 2020). Participation can also become symbolic: formally recorded yet weak in decision-making, creating conditions where knowledge is extracted without adequate protection or reciprocity, including neglect of internal inequalities such as women's roles, burdens, and authority (Chapola et al., 2025; Datta & Kibria, 2025; Gómez-Baggethun et al., 2013).

To keep the analysis politically explicit, this article adopts an Indigenous climate justice orientation anchored in a direct evaluative question: whose future is being prioritised, and who bears the consequences across generations? Indigenous climate justice scholarship argues that climate responses cannot be separated from historical experiences of dispossession or from Indigenous Peoples' rights to determine the future of their living spaces (Whyte, 2017). Futures are therefore not neutral promises but political narratives that can obscure trade-offs or render them visible (Nakashima et al., 2018; Veland et al., 2018).

Based on this framing, the article synthesises recurring latent risks in interventions labelled transformational in sustainability and climate governance when they intersect with Indigenous territories and TEK. The contribution is twofold. First, it identifies five recurring latent risk patterns: (1) depoliticisation of transformation, (2) shifting adaptation burdens onto communities, (3) dispossession through recognition politics, (4) administrative legibility traps driven by standardisation, and (5) TEK extraction and erosion through symbolic participation, including gendered inequities. Second, it proposes a Just Transformation Audit Framework that treats TEK as governance, providing high-risk indicators and a rapid checklist to assess decision power, distribution of burdens and benefits, protection of sensitive knowledge and data sovereignty, and changes in access to Indigenous living spaces beyond technical outputs.

2. LITERATURE REVIEW

Debates on sustainability transformation have expanded rapidly across scholarship and policy, often signalling the need for large-scale change in governance systems responding to climate and ecological crises. Yet transformation is frequently presented as self-evidently desirable, which can depoliticise the distributional and procedural questions that determine who benefits, who loses, and whose priorities are treated as legitimate (Blythe et al., 2018; Newell et al., 2021). This literature supports a shift from evaluating transformation primarily through outputs to evaluating it through power, trade-offs, and justice consequences.

Within forest governance, TEK is commonly recognised for supporting stewardship, sustainable resource use, and adaptation grounded in long-term lived experience (Berkes, 2012). Yet the literature also warns against reducing TEK to "local input" or a dataset. TEK functions as governance: it regulates access, defines responsibilities, and sustains intergenerational care through norms and practice. When interventions acknowledge TEK only as information while leaving decision authority unchanged, inclusion can slide into extraction rather than recognition (Brondízio et al., 2021).

Questions of recognition and tenure sit at the centre of this governance mismatch. Many interventions rely on formal recognition processes to determine eligibility, access, and benefits. Evidence from conservation, land formalisation, and climate programmes shows these processes can be slow, uneven, and conditional, creating new dependencies on administrative systems and external intermediaries. In such conditions, recognition can paradoxically narrow livelihoods and local authority, producing what has been described as dispossession through recognition politics (Myers et al., 2017; van der Muur, 2018).

The risk becomes sharper where governance instruments prioritise standardisation. Mapping, verification, compliance indicators, and documentation requirements are designed to make territories and practices "legible" to the state and projects. However, standardisation privileges particular forms of evidence and competence, while pushing customary proof, oral histories, and lived practice to the margins. Studies on policy implementation in Indonesia and comparable contexts describe how administrative legibility operates as a gatekeeper, shifting time, labour, and costs onto communities and creating harms that arise from instrument design, not merely weak facilitation (Iriyani et al., 2024; Ridhwan et al., 2020).

Participation is often offered as the safeguard against these harms, but the literature is sceptical about participation when it is only procedural. Documented consultation does not necessarily translate into decision power, veto authority, or control over programme rules. Symbolic participation can coexist with knowledge

appropriation, particularly where protocols for protecting sensitive TEK are weak and where communities lack enforceable rights over how information is stored, shared, and used. These problems are compounded when interventions ignore internal inequalities, including women's differentiated roles, burdens, and authority in resource governance, leading to TEK being selectively represented while gendered impacts are externalised (Chapola et al., 2025; Datta & Kibria, 2025; Gómez-Baggethun et al., 2013).

An Indigenous climate justice lens ties these strands together by treating climate responses as inseparable from histories of dispossession and struggles over self-determination in living spaces. Whyte (2017) argues that climate governance must be evaluated in terms of whether it sustains Indigenous capacity to determine the future across generations, not only whether it delivers technical outputs. Related work on climate futures reinforces that "futures" are political narratives: they can obscure trade-offs by promising collective benefit, or they can expose trade-offs by clarifying who carries the costs and who gains control (Nakashima et al., 2018; Veland et al., 2018). For this article, the implication is methodological: evaluating transformational interventions requires an explicit audit of decision power, distribution of burdens and benefits, tenure access, and community data sovereignty.

For consistency, key terms are used as follows: Indigenous territories or living spaces (places where communities live, govern, and sustain lifeways across land and waters); tenure security and access (stability of recognised rules and governance over living space); dispossession through recognition (narrowing or loss of access legalised through conditional recognition or governance instruments); administrative legibility trap (recognition and access determined primarily by standardised documents and procedures); symbolic participation (documented engagement without meaningful decision authority); community data sovereignty (community control over what data can be shared, by whom, and for what purpose); and policy trade-offs (consequences arising when one policy goal is pursued at the expense of others).

3. METHOD

This review and framework development were conducted at Lancang Kuning University, Pekanbaru, Riau, Indonesia between October 2025 and January 2026. The work was designed to support analysis relevant to Indigenous community context, including Lubuk Bigau, by producing a practical audit tool that can be used when negotiating or assessing climate and sustainability interventions.

3.1 Review design and community-oriented purpose

This study applies an integrative and critical literature review to identify and synthesise latent risks that can arise in interventions labelled "transformational" in sustainability and climate governance when they intersect with Indigenous territories and TEK. The review is explanatory rather than enumerative: it focuses on (i) mechanisms (how risks are produced through governance design and instruments) and (ii) consequences (who gains/loses and what changes over time).

To meet partner needs, the synthesis is translated into an audit-oriented framework intended to help communities, intermediaries, and implementers detect high-risk design features early, not only evaluate technical outputs after implementation.

3.2 Search strategy and sources

Literature was identified primarily through Google Scholar, complemented by targeted searches of relevant publishers and organizations to capture peer-reviewed articles, books, and credible policy reports. Targeted sources included, for example, Cambridge University Press, Routledge, World Resources Institute, and Rights and Resources Initiative. To reduce the chance of missing influential work, the search was strengthened through citation chaining (backward searching via reference lists and forward searching via citing articles).

The review covers publications from 2012 to 2025, capturing foundational TEK literature as well as more recent debates on sustainability transformation and climate justice.

3.3 Inclusion and exclusion criteria

Publications were included if they:

1. Discussed transformation in sustainability or climate governance or addressed forest/land governance instruments that claim systemic change (e.g., conservation/restoration programs, legality/compliance schemes, spatial planning, climate initiatives).
2. Explicitly intersected with Indigenous peoples/local communities and/or TEK.
3. Addressed power mechanisms and policy trade-offs relevant to latent risks, such as conditional

Symbiosis Civicus, Month Year, Vol. (No.):Page
DOI: https://doi.org/10.32663/.....

recognition, restricted access to territories, standardization and administrative compliance burdens, mapping or verification requirements, symbolic participation, benefit-sharing arrangements, or shifts in adaptation burdens.

Publications that were purely technical or descriptive, without discussion of governance mechanisms, distributional consequences, or decision-making power, were excluded.

3.4 Screening process (stage 1)

The search produced 87 records. Titles and abstracts were screened against the inclusion criteria. After removing items that were outside scope (e.g., lacking Indigenous/TEK relevance or lacking governance mechanisms), 62 publications were retained for full analysis.

3.5 Full-text extraction and synthesis (stage 2)

Full text were analyzed using a structured extraction sheet designed to keep interpretation traceable and audit ready. For each source, the following fields were recorded:

1. Included in synthesis
2. Exclude reason (if excluded)
3. Risk tag(s): (1) Depoliticisation; (2) Burden shifting; (3) Recognition/Dispossession; (4) Legibility trap; (5) TEK extraction/tokenism
4. Instrument / intervention discussed
5. Mechanism (how risk is produced)
6. Consequences (who loses/gains; what changes over time)
7. Evidence (page/section + short paraphrase)
8. How the source is used (Intro/Theme/Audit

Coding was iterative: themes were refined as new mechanisms and consequences were identified, while the extraction sheet ensured that each claim remained linked to specific evidence in the text.

3.6 Outputs and traceability

The synthesis is presented as (1) Table 1, summarizing the five latent risk themes, early indicators, and anchor references; and (2) Table 2, a rapid audit checklist to assess whether claimed transformational interventions strengthen or undermine Indigenous territories and TEK governance. A separate search log and literature matrix were maintained to document screening decisions and provide an audit trail.

4. RESULT AND DISCUSSION

This section synthesizes five recurring latent risk patterns found across the reviewed literature. Each theme is presented with (a) how the risk is produced through specific governance instruments and design logics, (b) distributional and temporal consequences (who gains/loses and what changes over time), and (c) early indicators that are later operationalized in the audit checklist.

4.1 Depoliticisation of transformation

In sustainability and climate governance, transformation is often promoted as a necessary large-scale response to crisis. However, transformation discourse can be politically risky when it is presented as neutral, technical, and inevitable, as if there were no alternative pathways. Blythe et al. (2018) argue that transformational claims always embed policy choices and contested interests, yet these choices are frequently disguised as technical optimization.

Depoliticisation becomes visible when success is defined mainly through measurable outputs (e.g., hectares, activity counts, reporting compliance) while histories of dispossession, unequal access, and local power relations are treated as background. In such framings, TEK is at risk of being used to legitimize interventions without recognizing TEK as governance enacted through rules, obligations, and intergenerational responsibilities (Berkes, 2012; Brondízio et al., 2021). The result is that justice questions become blurred, especially around who decides and whose priorities the intervention ultimately serves.

From a climate justice perspective, depoliticisation also hides the question of whose future is being built. Transformative climate justice scholarship emphasizes that climate responses are inseparable from power, recognition, and the right of communities to determine their futures (Newell et al., 2021). Indigenous climate justice further stresses that climate interventions should not be separated from historical experiences of disruption and dispossession, and from the right to sustain intergenerational relationships to land and governance (Whyte, 2017). When a single “rational future” is imposed through transformation narratives, policy trade-offs are obscured and community sacrifices can be normalized (Veland et al., 2018).

Early indicators. A strong signal of depoliticisation is when program documents emphasize technical targets while avoiding explicit commitments to rights, decision power, historical injustice, and accountability.

4.2 Shifting adaptation burdens

The second latent risk is burden shifting, where the costs, labor, and risks of adaptation are carried disproportionately by communities while key benefits accrue elsewhere. The literature on transformation and climate justice shows that interventions that appear positive on paper can increase burdens through compliance demands, restricted access, and additional work without adequate support (Blythe et al., 2018; Newell et al., 2021).

In practice, burden shifting often occurs through three pathways. First, compliance costs rise as communities are expected to attend meetings, trainings, verification processes, reporting, and mapping, while time and financial support are not proportional. Second, access restrictions can narrow subsistence spaces (e.g., fishing, non-timber forest products, small gardens) under the justification of protection, pushing communities toward more fragile livelihoods. Third, uncertain benefits are produced when incentives are promised but distribution mechanisms are unclear or short-term, leaving the long-term costs in place.

Burden shifting also weakens TEK not because knowledge is "forgotten," but because the social-ecological conditions that enable daily practice and intergenerational learning are disrupted (Berkes, 2012; Reyes-García et al., 2014). Over time, this creates fatigue and erodes the institutional capacity needed for sustained stewardship.

Early indicators. Rising unpaid obligations, unclear benefit-sharing, and restrictions imposed before tenure security is strengthened.

4.3 Dispossession through recognition politics

In intervention framed as transformational, dispossession refers to the narrowing or loss of access and control over territories that can become legalized through policies and instruments that make customary rights fragile within state or market frameworks. This risk can emerge latently when environmental "solutions" shift control from communities to external actors.

The literature highlights several recurring mechanisms. First, conditional recognition that depends on administrative procedures and formal criteria can produce recognition that is unstable and easily overridden by competing interests. Second, there is often a gap between rights on paper and access in practice, such as permitting regimes, protected area boundaries, and spatial planning logics may keep communities structurally weak even when historical stewardship is acknowledged (Andiko, 2017). Third, zoning that is not designed with local lifeways can cut off practice spaces, weakening TEK because the conditions for practice shrink (Berkes, 2012). Fourth, formal dominance can criminalize customary activities, by increasing insecurity and pushing livelihood strategies toward more vulnerable options.

Indonesian forest governance literature provides concrete illustrations of how recognition can include and exclude. Policy processes around customary forests can create obstacles that produce uneven outcomes across communities and land configurations (Myers et al., 2017). Recognition outcomes can also depend on bargaining position and informal linkages with authorities, turning "indigenous status" into a privilege rather than a right (van der Muur, 2018).

Early indicators. Recognition tied to narrow categories and paperwork; zoning or restrictions implemented before rights and authority are secured; daily customary practice treated as a violation.

4.4 Admistrative legibility traps from standardization

The fourth risk concerns administrative legibility traps, where recognition and access depend more on standardized documents and procedures than on lived governance and historical stewardship. The problem is not documentation per se, but when documentation becomes the main gatekeeper that determines legitimacy.

In customary forest recognition, inclusion and exclusion can be produced by formal requirements and designation processes that are not equally feasible for communities (Myers et al., 2017). At the same time, rights realization often continues through informal negotiation and unresolved conflict that formal recognition alone does not settle (van der Muur, 2018). This makes it crucial to analyze who controls legalization and how power operates within administrative processes.

The literature shows how standardization can appear technical while producing political effects. Iriyani et al. (2024) report how regulatory requirements can increase procedural complexity for customary forest recognition and can narrow the role of community-led mapping when identification is shifted to government teams, rendering community maps "insufficient" if they do not match official mechanisms. This aligns with evidence that mapping outcomes are shaped by power relations that define what counts as valid evidence (Kurniawan & Rye, 2025).

Ridhwan et al. (2020) show that spatial documentation can strengthen local-level acceptance, yet national recognition may still depend on politically demanding and time-consuming legal steps. As a result, communities may invest substantial time and resources into producing legible evidence while control over the recognition gate remains external.

The impacts extend beyond paperwork. When documents become the main gate, community time and

Symbiosis Civicus, Month Year, Vol. (No.):Page
DOI: https://doi.org/10.32663/.....

energy can be absorbed by administrative work, shrinking space for day-to-day stewardship and intergenerational learning. TEK risks being treated as supporting information to satisfy program requirements, rather than as governance recognized on its own terms (Berkes, 2012).

Early indicators. Document completeness becomes the main criterion; compliance costs are high and unfunded; official processes invalidate community mapping; recognition requires politically difficult steps that communities cannot control.

4.5 TEK extraction and erosion through symbolic participation

The fifth risk concerns situations where TEK is used as program input but not recognized as governance and not protected. TEK can be reduced to a list of information (sites, seasons, species) that supports proposals or monitoring, while key decisions remain external. When TEK is detached from its governance context, what erodes is not only knowledge content but the community's capacity to govern living spaces over time (Berkes, 2012; Brondízio et al., 2021; Gómez-Baggethun et al., 2013).

TEK extraction often begins with symbolic participation: consultations are recorded, yet communities have weak influence over rules, boundaries, sanctions, and benefit-sharing. Knowledge can be shared without clear agreements on sensitive information, reciprocity, or control over downstream use. Over time, this increases mistrust and can make knowledge sharing riskier.

TEK erosion is also reinforced by material pressures. When practice spaces shrink (Risk 3) and administrative burdens increase (Risk 4), time for practice and intergenerational learning declines, weakening TEK through disrupted transmission rather than disinterest (Reyes-García et al., 2014). Feminist and decolonial scholarship further emphasizes that communities are not homogenous. Women and vulnerable groups may carry heavy burdens while having limited voice; if interventions ignore these dynamics, extraction and symbolic participation can be reproduced internally (Chapola et al., 2025; Datta & Kibria, 2025).

Early indicators. TEK appears as information lists without decision power; one-off consultations without follow-up; no agreements on sensitive knowledge and benefit-sharing; narrow representation that excludes women, youth, and vulnerable groups; no support for intergenerational transmission.

4.6 Indigenous Climate Futures (ICF) as a futures bridge

In claimed transformational interventions, "the future" often appears as promise: sustainable forests, green economies, climate resilience. Yet futures are political narratives that define what matters, who is considered rational, and which lifeways are worth sustaining. An Indigenous climate justice orientation emphasizes that justice cannot be reduced to technical targets; it must include the right to determine one's future and sustain intergenerational relationships to place and governance (Nakashima et al., 2018; Whyte, 2017).

A single official future narrative can hide trade-offs such as compliance costs, restricted access, or TEK marginalization. In contrast, futures grounded in community experience can expose latent risks and open more just options (Veland et al., 2018). For this reason, assessments of "success" should examine not only outcomes but also process: who decides, who bears burdens, whose knowledge counts, and whose territories change.

4.7 Just Transformation Audit Framework

This article defines claimed transformational interventions as sustainability or climate programs targeting systemic change in governance and resource use, including standardization, legality or compliance schemes, conservation and restoration, emission reduction mechanisms, and spatial planning. This section consolidates the five risks into an audit framework to assess whether such interventions strengthen Indigenous territories or quietly shift burdens and power.

The audit framework is not presented as a neutral technocratic procedure. It is a political reading tool designed to surface trade-offs, power relations, and intergenerational consequences (Berkes, 2012; Blythe et al., 2018; Whyte, 2017). The framework is operationalized through two outputs: (1) Table 1, which summarizes the five risk themes, early indicators, and anchor references; and (2) Table 2, a rapid checklist that translates the risks into auditable questions about tenure security, decision power, compliance costs, data sovereignty, benefit-sharing, and internal equity.

Symbiosis Civicus

Symbiosis Civicus, Month Year, Vol. (No.):Page
DOI: https://doi.org/10.32663/.....

Table 1 Synthesis of latent risks patterns in claimed transformational interventions

No	Risk pattern	Typical instruments / interventions	Mechanism	Consequences	Early indicators	
1	Depoliticisation	Transformation roadmaps; technical targets; best practice packages	Political questions (rights, authority, history) are translated into technical procedures and output metrics; choices and trade-offs are treated as inevitable	Communities carry the costs of "neutral" decisions; accountability is blurred; sacrifice becomes normalized over time	Success framed only as outputs; little/no discussion of rights, authority, accountability, or historical injustice.	Blythe et al. (2018); Newell et al. (2021); Veland et al. (2018); Whyte (2017)
2	Burden shifting	Community-based conservation without long-term support; unpaid monitoring; repeated meetings/reporting.	Costs of compliance and adaptation work are transferred to communities while decision authority and benefits remain external.	Time, labor, and opportunity costs increase; livelihoods become more fragile; stewardship fatigue and institutional erosion over time.	Rising unpaid obligations; unclear benefit-sharing; restrictions applied before tenure security is strengthened.	Berkes (2012); Blythe et al. (2018); Newell et al. (2021
3	Dispossession / Recognition	Conditional recognition; zoning; permits; partnership models tied to compliance	Recognition becomes conditional on categories, procedures, or gatekeepers that can narrow customary authority; rights on paper do not translate to access in practice	Access narrows; customary practices risk criminalization; uneven outcomes across groups; long-term insecurity and conflict.	Recognition tied to narrow criteria; zoning or restrictions precede rights security; customary activities treated as violations.	Andiko (2017); Myers et al. (2017); van der Muur (2018); Whyte (2017)
4	Administrative legibility trap	Standardized documentation; mapping; verification; legality systems; registries	Legitimacy is filtered through standardized evidence; what is not legible to bureaucracy becomes invisible; gatekeeping shifts control to external institutions.	Communities invest heavily in paperwork and mapping while control of legalization stays external; exclusion through procedural failure; TEK practice time shrinks.	Document completeness becomes the main criterion; community maps invalidated; high compliance costs; politically difficult legal steps required.	Iriyani et al. (2024); Kurniawan & Rye (2025); Myers et al. (2017); Ridhwan et al. (2020)
5	TEK extraction / tokenism	Participation workshops; TEK documentation; co-production without safeguards	TEK is treated as extractable information rather than governed knowledge; participation is recorded but does not provide decision power; weak protection of sensitive knowledge.	Knowledge is used without reciprocity; mistrust increases; TEK erodes as practice and transmission conditions deteriorate; gendered exclusions persist.	One-off consultations; TEK reduced to lists; no data/knowledge agreements; narrow representation; no support for intergenerational transmissions.	Brondízio et al. (2021); Chapola et al. (2025); Datta & Kibria (2025); Gómez-Baggethun et al. (2013); Reyes-García et al. (2014).

Symbiosis Civicus

Symbiosis Civicus, Month Year, Vol. (No.):Page
DOI: https://doi.org/10.32663/.....

Table 2 Audit checklist for Just Transformation based on TEK as governance

Audit domain	Auditable question (decision test)	Risks flagged	What evidence to request (minimum)
Futures and intergenerational justice (ICF lens)	1. Whose future is prioritized, and who bears the consequences across generations?	1 ,2, 3	Theory of change; beneficiary mapping; documented trade-offs and safeguards.
	2. Are multiple future narratives recognized (including women, youth, and vulnerable groups), or is one official narrative imposed?	1, 5	Consultation records by group; evidence of alternatives and how they changed decision
Rights, access, and authority	3. Is tenure security and local authority strengthened before restrictions, zoning, or enforcement are applied?	3, 2	Legal/administrative status; timeline of restrictions vs recognition; written safeguards
	4. Do formal rules risk criminalizing customary subsistence practices? If yes, what protection and remedy mechanisms exist?	3	Enforcement protocols; grievance/appeal procedures; documented cases or risk assessment
Standards and administrative burden	5. Is recognition/access primarily determined by standardized documents, or are customary evidence and lived governance accepted as legitimate?	4, 3	Eligibility criteria; accepted evidence list; examples of accepted customary evidence
	6. What are the real compliance costs (time, labor, money, reporting), and who pays them?	2, 4	Budget lines for community participation; time-use estimates; compensation rule
	7. Who controls maps and data, and are community data sovereignty principles implemented?	4, 5	Data governance agreement; access rules; consent terms; storage and reuse policy
Participation and decision power	8. Does participation include decision power over rules, boundaries, sanctions, and benefit-sharing, or only consultation?	5, 1	Decision records; governance structure; meeting minutes showing consent/voting mechanisms
	9. Are there agreements on sensitive knowledge, permitted uses, and reciprocity/benefit-sharing?	5	FPIC/consent documents; benefit-sharing agreement; restricted knowledge protocols
Burden-benefit distriibution	10. Are benefits proportional to burdens for Indigenous communities, and who gains most in practice?	2, 1	Benefit distribution plan; monitoring of benefit flows; third-party incentives or revenues
	11. Is long-term support secured for stewardship, monitoring, and local institutions beyond project cycles?	2	Multi-year funding plan; institutional strengthening plan; exit strategy

Internal equity (gender and vulnerable groups)	12. Do women, youth, and vulnerable groups have meaningful influence and fair access to benefits and remedies?	5, 2	Disaggregated participation data; representation rules; grievance accessibility evidence

High-risk warning signs (quick read). Risk is likely high when: (i) documents are the main gate while customary evidence is dismissed; (ii) compliance costs are high and unfunded; (iii) restrictions precede tenure security; (iv) participation is recorded but has no decision power; (v) TEK is documented without governance safeguards and reciprocity; (vi) a single future narrative closes debate and hides trade-offs.

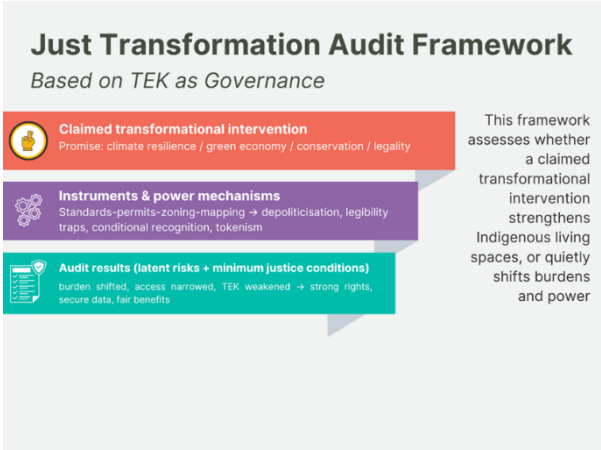


Figure 1 Just transformation Audit framework

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

This review synthesizes latent risks that can emerge in sustainability and climate interventions labelled "transformational" when they intersect with Indigenous territories and TEK. Across the literature, harms often remain invisible in official success narratives because they are produced through governance mechanisms, standardization regimes, and participation designs rather than through explicit program intent.

Five recurring latent risk patterns were identified: (1) depoliticisation of transformation, (2) shifting adaptation burdens onto communities, (3) dispossession through recognition politics, (4) administrative legibility traps driven by standardized evidence requirements, and (5) TEK extraction and erosion through symbolic participation, including gendered inequities. Using an Indigenous climate justice orientation, the review highlights that evaluating "transformation" requires asking whose futures are prioritized and who bears consequences across generations.

The main contribution of this article is a Just Transformation Audit Framework that treats TEK as governance. The framework translates the five risks into high-risk indicators and a rapid checklist to assess decision power, distribution of burdens and benefits, recognition of customary evidence, protection of sensitive knowledge and community data sovereignty, and changes in access to Indigenous territories, beyond technical outputs.

Some limitations are identified on this paper. It relies on published literature that may underreport conflict, coercion, or program failure. As an integrative review, it also reflects the availability and framing of existing studies. Future research should therefore test the audit questions through context-sensitive, site-level evaluation that traces mechanisms and distributional impacts over time.

5.2 Recommendations

Based on the synthesis and the audit framework, the following recommendations are directed to program designers, policy actors, researchers, and practitioners:

1. Secure tenure and recognize local governance first. Strengthen rights, access, and locally legitimate authority before applying restrictions, zoning, enforcement, or technical instruments.
2. Make compliance costs visible and share them fairly. Quantify time, labor, and administrative

burdens (meetings, reporting, verification, mapping) and budget long-term support so adaptation work is not quietly transferred to communities.

3. Limit standardization through community data sovereignty. Any mapping, registration, or documentation should be governed by clear community control over access, use, reuse, and protection of sensitive knowledge.
4. Design participation for decision power, not documentation. Participation should be auditable in terms of authority over rules, boundaries, sanctions, and benefit-sharing, supported by transparent grievance and dispute-resolution mechanisms.
5. Address internal equity and representation gaps. Ensure women, youth, and vulnerable groups have meaningful influence in decisions, fair access to benefits, and accessible remedies, rather than assuming a single community voice.

Applying the checklist early in program design helps surface trade-offs honestly and assess whether "transformational" claims align with just outcomes for Indigenous territories and TEK governance across generations.

6. ACKNOWLEDGEMENTS

The author thanks to the Lubuk Bigau community for their inspiration and for providing a holistic context for this work, and Universitas Lancang Kuning for academic support and access to literature. Special thanks go to Dr M. Rawa El Amady, MA (Supervisor I) and Dr Husni Mubarak, ST, M.Sc, CST (Supervisor II) for their guidance, constructive critique, and substantive input that strengthened the analysis and the audit framework. The author also thanks all those who provided moral and intellectual support throughout the writing process.

REFERENCES

Andiko. (2017). Studi Perbandingan: Proses Pengakuan Hak dan Penetapan Hutan Hak Serta Kawasan Hutan untuk Masyarakat dan Perusahaan. Rights and Resources Initiative

Berkes, F. (2012). Sacred Ecology (3rd ed.). Routledge. https://doi.org/10.4324/9780203123843.

Blythe, J., Silver, J., Evans, L., Armitage, D., Bennett, N. J., Moore, M., Morrison, T. H., & Brown, K. (2018). The Dark Side of Transformation: Latent Risks in Contemporary Sustainability Discourse. Antipode, 50(5), 1206–1223. https://doi.org/10.1111/anti.12405.

Brondízio, E. S., et al. (2021). Locally Based, Regionally Manifested, and Globally Relevant: Indigenous and Local Knowledge, Values, and Practices for Nature. Annual Review of Environment and Resources, 46(1), 481–509. https://doi.org/10.1146/annurev-environ-012220-012127.

Chapola, J., et al. (2025). Indigenous women-led climate crisis solutions from decolonial feminist perspectives in Western Canada. Environmental Science & Policy, 174, 104272. https://doi.org/10.1016/j.envsci.2025.104272.

Datta, R., & Kibria, A. (2025). Indigenous women-led climate crisis solutions: A decolonial perspective from the Garo Indigenous community in Bangladesh. Political Geography, 117, 103258. https://doi.org/10.1016/j.polgeo.2024.103258.

Gómez-Baggethun, E., Corbera, E., & Reyes-García, V. (2013). Traditional Ecological Knowledge and Global Environmental Change: Research findings and policy implications. Ecology and society: a journal of integrative science for resilience and sustainability, 18(4), 72. https://doi.org/10.5751/ES-06288-180472.

Iriyani, S., et al. (2024). Indigenous Custodianship and Timber Legality Assurance System: Challenges and Opportunities for Customary Forest Management in Indonesia. Jurnal Sylva Lestari, 12(3), 929–947. https://doi.org/10.23960/jsl.v12i3.948.

Kurniawan, N. I., & Rye, S. A. (2025). The relational state and local struggles in the mapping of land in Central Kalimantan, Indonesia. The Journal of Peasant Studies, 52(2), 343–365. https://doi.org/10.1080/03066150.2024.2366329.

Myers, R., Intarini, D., Sirait, M. T., & Maryudi, A. (2017). Claiming the forest: Inclusions and exclusions under Indonesia's 'new' forest policies on customary forests. Land Use Policy, 66, 205–213. https://doi.org/10.1016/j.landusepol.2017.04.039.

Nakashima, D., Krupnik, I., & Rubis, J. T. (Eds.). (2018). Indigenous Knowledge for Climate Change Assessment and Adaptation (1st ed.). Cambridge University Press. https://doi.org/10.1017/9781316481066

Newell, P., Srivastava, S., Naess, L. O., Torres Contreras, G. A., & Price, R. (2021). Toward transformative climate justice: An emerging research agenda. WIREs Climate Change, 12(6), e733. https://doi.org/10.1002/wcc.733

Reyes-García, V., et al. (2014). Cultural Change and Traditional Ecological Knowledge: An Empirical Analysis from the Tsimane' in the Bolivian Amazon. Human Organization, 73(2), 162–173. https://doi.org/10.17730/humo.73.2.31nl363qgr30n017

Ridhwan, D., et al. (2020). Improving the Lives of Indigenous Communities through Mapping: A Case Study from Indonesia. World Resources Institute. https://doi.org/10.46830/wripn.20.00031.

Van Der Muur, W. (2018). Forest conflicts and the informal nature of realizing indigenous land rights in Indonesia. Citizenship Studies, 22(2), 160–174. https://doi.org/10.1080/13621025.2018.1445495.

Veland, S., et al. (2018). Narrative matters for sustainability: The transformative role of storytelling in realizing 1.5°C futures. Current Opinion in Environmental Sustainability, 31, 41–47. https://doi.org/10.1016/j.cosust.2017.12.005.

Whyte, K. (2017). Indigenous Climate Change Studies: Indigenizing Futures, Decolonizing the Anthropocene. English Language Notes, 55(1–2), 153–162. https://doi.org/10.1215/00138282-55.1-2.153.